506469994 01/26/2021

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT6516770

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	PATENT ASSIGNMENT, SECURITY INTEREST, AND LIEN AGREEMENT

CONVEYING PARTY DATA

Name	Execution Date
HEWLETT PACKARD ENTERPRISE DEVELOPMENT LP	01/15/2021
HEWLETT PACKARD ENTERPRISE COMPANY	01/15/2021

RECEIVING PARTY DATA

Name:	OT PATENT ESCROW, LLC
Street Address:	200 WEST MADISON - 37TH FLOOR
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60606

PROPERTY NUMBERS Total: 1328

Property Type	Number
Patent Number:	6880153
Patent Number:	7103639
Patent Number:	6832181
Patent Number:	6668294
Patent Number:	7043586
Patent Number:	6684381
Patent Number:	6757849
Patent Number:	7003559
Patent Number:	6684218
Patent Number:	6661748
Patent Number:	6663003
Patent Number:	7440360
Patent Number:	6539527
Patent Number:	6907603
Patent Number:	6738783
Patent Number:	7251780
Patent Number:	6853835
Patent Number:	6842754
Patent Number:	6889244

Property Type	Number
Patent Number:	6910271
Patent Number:	7131199
Patent Number:	7246101
Patent Number:	6935419
Patent Number:	6832303
Patent Number:	6665166
Patent Number:	6832927
Patent Number:	6848114
Patent Number:	6961716
Patent Number:	6952689
Patent Number:	7002801
Patent Number:	7120022
Patent Number:	6826675
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Patent Number:	6832300
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Patent Number:	6882536
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Patent Number:	7225118
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Patent Number:	6910122
Patent Number:	6961768
Patent Number:	6766435
Patent Number:	6442552
Patent Number:	6657868
Patent Number:	6895489
Patent Number:	7474229
Patent Number:	6889169
Patent Number:	7075788
Patent Number:	7543291
Patent Number:	7299331
Patent Number:	7149945

Property Type	Number
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Patent Number:	7350132
Patent Number:	8112700
Patent Number:	7521264
Patent Number:	6879013
Patent Number:	7184933
Patent Number:	6980063
Patent Number:	7076597
Patent Number:	6704817
Patent Number:	6920512
Patent Number:	6665763
Patent Number:	7079615
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Patent Number:	6978345
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Patent Number:	6830394
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Patent Number:	6657867
Patent Number:	6669423
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Patent Number:	6757330
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Patent Number:	6609208
Patent Number:	7142647
Patent Number:	7483521
Patent Number:	7543113
Patent Number:	7310681
Patent Number:	7065697
Patent Number:	7051265
Patent Number:	7484237
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Patent Number:	7870256
Patent Number:	7392172
Patent Number:	8374175
Patent Number:	7376799
Patent Number:	7262964
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Patent Number:	9098276

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Patent Number:	8756682
Patent Number:	9191989
Patent Number:	9584519
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Patent Number:	6763348

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Patent Number:	6943683
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Patent Number:	9846598
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Patent Number:	7607135
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Patent Number:	7975043
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Patent Number:	6928536

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Patent Number:	7594233
Patent Number:	7216226
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Patent Number:	6931632
Patent Number:	6934943
Patent Number:	7111282
Patent Number:	6836871
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Patent Number:	6644481
Patent Number:	6718277
Patent Number:	6912616
Patent Number:	6677778
Patent Number:	7451073
Patent Number:	6868682
Patent Number:	7249345
Patent Number:	7577964
Patent Number:	7398307
Patent Number:	7502803
Patent Number:	6876224
Patent Number:	7512066
Patent Number:	7310773
Patent Number:	7577951
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Patent Number:	7853825
Patent Number:	7519822
Patent Number:	7416128
Patent Number:	7792055
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Patent Number:	7594221
Patent Number:	7876694
Patent Number:	7661095
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Patent Number:	7607014
Patent Number:	7298272
Patent Number:	7548421
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Patent Number:	8620859
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Patent Number:	8762507
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Patent Number:	6999453
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Patent Number:	7283543
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Patent Number:	7307998
Patent Number:	8422649
Patent Number:	8397302
Patent Number:	7877799
Patent Number:	8166173
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Patent Number:	7096409
Patent Number:	7086052
Patent Number:	8407092
Patent Number:	9213842
Patent Number:	9514290
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Property Type	Number
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Patent Number:	7185109
Patent Number:	7035928
Patent Number:	7044362
Patent Number:	7051166
Patent Number:	6938259
Patent Number:	7877607
Patent Number:	7191322
Patent Number:	7228527
Patent Number:	6950962
Patent Number:	7051195
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Patent Number:	6876207
Patent Number:	7340630
Patent Number:	7581008
Patent Number:	7886055
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Patent Number:	7509657
Patent Number:	7120717
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Property Type	Number
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Patent Number:	7472398
Patent Number:	7027950
Patent Number:	7310751
Patent Number:	7231543
Patent Number:	7571163
Patent Number:	7536684
Patent Number:	7650275
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Patent Number:	7149831
Patent Number:	7839765
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Property Type	Number
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Patent Number:	8208616

Property Type	Number
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Property Type	Number
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Patent Number:	7076671
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Property Type	Number
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Patent Number:	7133173
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Property Type	Number
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Patent Number:	9411657
Patent Number:	8810780
Patent Number:	9408050
Patent Number:	9195727

CORRESPONDENCE DATA

Fax Number: (203)542-7220

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 2035427219
Email: jlutzker@oceantomo.com
Correspondent Name: JOEL E LUTZKER
Address Line 1: 500 WEST PUTNAM AVE. #500
Address Line 4: GREENWICH, CONNECTICUT 06830

NAME OF SUBMITTER:	JOEL E. LUTZKER
SIGNATURE:	/Joel E. Lutzker/
DATE SIGNED:	01/26/2021
	This document serves as an Oath/Declaration (37 CFR 1.63).

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Patent Assignment, Security Interest, and Lien Agreement

This Patent Assignment, Security Interest, and Lien Agreement ("Agreement"), dated as of January 15, 2021 ("***Effective Date***"), is made by and among Hewlett Packard Enterprise Development LP, a Texas limited partnership having its principal place of business at 11445 Compaq Drive West, Houston, Texas 77070-1443 ("***HPED***"), and Hewlett Packard Enterprise Company, a Delaware corporation having its principal place of business at 6280 America Center Drive, San Jose, California 95002, U.S.A. ("***HPECO***") (HPED and HPECO are collectively referred to herein as "***Assignor***"); and OT Patent Escrow, LLC, aDelaware limited liability company having its principal place of business at 200 West Madison, 37th Floor, Chicago, IL 60606 ("***Assignee***").

WHEREAS, Assignor and Assignee, as well as Valtrus Innovations Limited, a company incorporated in Ireland under company number 669289 and having its principal place of business at The Glasshouses GH2, 92 Georges Street Lower, Dun Laoghaire, Dublin, Ireland A96 VR66 ("***Purchaser***") are parties to a Patent Escrow Agreement dated as of January 15, 2021, pursuant to which the Patents identified in the attached Exhibit A-2 (collectively, "***Assigned Patents***") are to be assigned to Assignee to hold in escrow for later assignment to Purchaser subject to the terms and conditions of the Patent Escrow Agreement;

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Assignment to Assignee. Assignor hereby grants and assigns to Assignee all of Assignor's right, title and interest in and to the Assigned Patents, to have and to hold the same, for Assignee's own use and enjoyment and for the use and enjoyment of its successors and assigns, and the right to sue for damages for infringement of such Assigned Patents accruing at any time prior to, on, and/or after the date hereof, for the full term or terms of all such Assigned Patents, subject to all rights granted under the Assigned Patents to any and all parties (including Assignor) prior to or concurrent with January 15, 2021.

2. Security Interest and Lien. Assignee hereby grants Assignor a security interest and lien in and to all of Assignee's right, title and interest in and to the Assigned Patents (the "Security Interest"). The Security Interest is granted by Assignee's to secure Assignee's performance of, and compliance with, its obligations under the Patent Escrow Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the Effective Date as set forth below:

Hewlett Packard Enterprise Company

By: _____
Brett Alten (Jan 20, 2021 19:11 PST)

Name: Brett Alten

Title: SVP, DGC, Chief IP Counsel

Date: Jan 20, 2021

Hewlett Packard Enterprise Development LP

By: Enterprise DC Holdings LLC, its General Partner

By: _____
Brett Alten (Jan 20, 2021 19:11 PST)

Name: Brett Alten

Title: Chief Intellectual Property Counsel

Date: Jan 20, 2021

OT Patent Escrow, LLC

By: _____
Joel Lutzker (Jan 21, 2021 08:06 EST)

Name: Joel Lutzker

Title: General Counsel

Date: 01/21/2021

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Exhibit A-2 – Escrow Patents

List of Escrow Patents:

Tranche 2:

Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81966449	F10001152	US	US6880153	Granted		21-Nov-2000	N/A	N/A	METHOD AND APPARATUS FOR VARYING THE LEVEL OF CORRECTNESS CHECKS EXECUTED WHEN PEFORMING CORRECTNESS CHECKS OPPORTUNISTICALLY USING SPARE INSTRUCTION SLOTS
81968165	F10001626	US	US7103639	Granted		5-Dec-2000	N/A	N/A	METHOD AND APPARATUS FOR PROCESSING UNIT SYNCHRONIZATION FOR SCALABLE PARALLEL PROCESSING

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81968168	F10001626	JP	JP3947381	Granted		19-Oct-2001	20-Apr-2021	934.20	METHOD FOR PROCESSING UNIT SYNCHRONIZATION FOR SCALABLE PARALLEL PROCESSING
81972728	F10003154	US	US6832181	Granted		3-Nov-2000	N/A	N/A	METHOD TO DISTINGUISH BETWEEN PHYSICAL HARDWARE AND SIMULATED HARDWARE
81973646	F10003436	US	US6668294	Granted		17-Mar-2001	N/A	N/A	DATA CORRUPTION AVOIDANCE ON A BACKPLANE BUS ADAPTED TO RECEIVE BUS CONTROLLER CARDS OF DIFFERENT TYPES

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81973649	F10003436	US	US7043586	Granted		19-Nov-2003	N/A	N/A	DATA CORRUPTION AVOIDANCE ON A BACKPLANE BUS ADAPTED TO RECEIVE BUS CONTROLLER CARDS OF DIFFERENT TYPES
81976343	F10004126	US	US6684381	Granted		29-Sep-2000	N/A	N/A	HARDWARE DESCRIPTION LANGUAGE-EMBEDDED REGULAR EXPRESSION SUPPORT FOR MODULE ITERATION AND INTERCONNECTIO N
81976415	F10004177	US	US6757849	Granted		3-Aug-2001	N/A	N/A	SYSTEM AND METHOD FOR DEVELOPING CUSTOMIZED INTEGRATION TESTS AND NETWORK PERIPHERAL DEVICE EVALUATIONS
81977366	F10004526	US	US7003559	Granted		23-Oct-2000	N/A	N/A	SYSTEM AND METHOD FOR DETERMINING PROBABLE NETWORK PATHS BETWEEN NODES IN A NETWORK TOPOLOGY
81977369	F10004526	GB	GB2370720	Granted		17-Oct-2001	17-Oct-2020	882.85	SYSTEM AND METHOD FOR DETERMINING PROBABLE NETWORK PATHS BETWEEN NODES IN A NETWORK TOPOLOGY
81977879	F10004727	US	US6684218	Granted		21-Nov-2000	N/A	N/A	STANDARD SPECIFIC URL

Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81978845	F10004960	US	US6661748	Granted		5-Mar-2001	N/A	N/A	POSITION CONTROL FOR PLUNGE MECHANISM
81978959	F10004966	US	US6663003	Granted		22-Feb-2001	N/A	N/A	APPARATUS AND METHOD FOR RETRIEVING DATA RELATED TO A DATA CARTRIDGE IN A MEDIA STORAGE SYSTEM
81978968	F10004966	US	US7440360	Granted		13-Aug-2003	N/A	N/A	APPARATUS AND METHOD FOR RETRIEVING DATA RELATED TO A DATA CARTRIDGE IN A MEDIA STORAGE SYSTEM
81980636	F10005848	US	US6539527	Granted		19-Mar-2001	N/A	N/A	SYSTEM AND METHOD OF DETERMINING THE NOISE SENSITIVITY OF AN INTEGRATED CIRCUIT
81983471	F10006882	US	US6907603	Granted		29-Sep-2003	N/A	N/A	SOFTWARE UPDATE MANAGEMENT SYSTEM WITH UPDATE CHRONOLOGY GENERATOR
81984224	F10007224	US	US6738783	Granted		9-Feb-2001	N/A	N/A	DYNAMICALLY CONFIGURABLE GENERIC CONTAINER
81984374	F10007278	US	US7251780	Granted		1-Jun-2005	N/A	N/A	DYNAMIC WEB CONTENT UNFOLDING IN WIRELESS INFORMATION GATEWAYS

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81986504	F10007956	US	US6853835	Granted		13-Aug-2001	N/A	N/A	ASYMMETRIC WIRELESS COMMUNICATION SYSTEM USING TWO DIFFERENT RADIO TECHNOLOGIES
81986516	F10007956	DE	DE60202618.0	Granted		13-Aug-2002	13-Aug-2020	2,108.66	ASYMMETRIC WIRELESS CELLULAR COMMUNICATION SYSTEM USING A CARRIER WAVE DOWNLINK AND AN ULTRAWIDEBAND UPLINK
81986522	F10007956	GB	GB1417783	Granted		13-Aug-2002	13-Aug-2020	826.86	ASYMMETRIC WIRELESS CELLULAR COMMUNICATION SYSTEM USING A CARRIER WAVE DOWNLINK AND AN ULTRAWIDEBAND UPLINK
81987053	F10008127	US	US6842754	Granted		17-Apr-2001	N/A	N/A	LEASE ENFORCEMENT IN A DISTRIBUTED FILE SYSTEM
81987509	F10008316	US	US6889244	Granted		31-Oct-2000	N/A	N/A	METHOD AND APPARATUS FOR PASSING MESSAGES USING A FAULT TOLERANT STORAGE SYSTEM
82079381	F100110249	US	US6910271	Granted		29-Oct-2002	N/A	N/A	MECHANICAL HIGHLY COMPLIANT THERMAL INTERFACE PAD
82079387	F100110249	US	US7131199	Granted		1-Feb-2005	N/A	N/A	MECHANICAL HIGHLY COMPLIANT THERMAL INTERFACE PAD

Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82081496	F100111334	US	US7246101	Granted		16-May-2002	N/A	N/A	KNOWLEDGE-BASED SYSTEM AND METHOD FOR RECONSTRUCTIN G CLIENT WEB PAGE ACCESSES FROM CAPTURED NETWORK PACKETS
82081724	F100111445	US	US6935419	Granted		20-Feb-2002	N/A	N/A	HEAT SINK APPARATUS WITH AIR DUCT
81991499	F10011625	US	US6832303	Granted		3-Jan-2002	N/A	N/A	METHOD AND SYSTEM FOR MANAGING AN ALLOCATION OF A PORTION OF A MEMORY
81992498	F10012052	US	US6665166	Granted		15-Mar-2001	N/A	N/A	SYSTEMS WITH ENHANCED ELECTROSTATIC DISCHARGE PROTECTION
81993035	F10012236	US	US6832927	Granted		3-Oct-2001	N/A	N/A	LOW PROFILE PCI HOT PLUG ACTUATOR ASSEMBLY
81993038	F10012236	GB	GB2385205	Granted		24-Sep-2002	24-Sep-2021	896.07	LOW PROFILE PCI HOT PLUG ACTUATOR ASSEMBLY
81995060	F10013088	US	US6848114	Granted		23-Aug-2001	N/A	N/A	BULK ACCESS SYSTEM FOR A DATA STORAGE SYSTEM
81995123	F10013110	US	US6961716	Granted		31-Jul-2001	N/A	N/A	NETWORK USAGE ANALYSIS SYSTEM AND METHOD FOR DETERMINING EXCESS USAGE
81998876	F10014427	US	US6952689	Granted		21-Feb-2003	N/A	N/A	AUTOMATING EXPERT KNOWLEDGE WITH ANALYZER HARNESS

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
81998279	F10014777	US	US7002801	Granted		16-Oct-2003	N/A	N/A	METHOD OF COOLING SEMICONDUCTOR DIE USING MICROCHANNEL THERMOSYPHON
82186076	F10014777	US	US7120022	Granted		24-Mar-2004	N/A	N/A	LOOP THERMOSYPHON WITH WICKING STRUCTURE AND SEMICONDUCTOR DIE AS EVAPORATOR
81998489	F10015052	US	US6826675	Granted		9-Oct-2001	N/A	N/A	STACK UTILIZATION MANAGEMENT SYSTEM AND METHOD FOR A SINGLE-STACK ARRANGEMENT
81998492	F10015052	US	US6904513	Granted		2-Jul-2004	N/A	N/A	STACK UTILIZATION MANAGEMENT SYSTEM AND METHOD FOR A SINGLE-STACK ARRANGEMENT
82000850	F10016665	US	US6941489	Granted		27-Feb-2002	N/A	N/A	CHECKPOINTING OF REGISTER FILE
82000862	F10016668	US	US6832300	Granted		20-Mar-2002	N/A	N/A	METHODS AND APPARATUS FOR CONTROL OF ASYNCHRONOUS CACHE
82183202	F10018060	US	US6867976	Granted		21-Oct-2003	N/A	N/A	PIN RETENTION FOR THERMAL TRANSFER INTERFACES, AND ASSOCIATED METHODS
82006229	F10019555	US	US6882536	Granted		25-Apr-2002	N/A	N/A	WRAP- AROUND COOLING ARRANGEMENT FOR PRINTED CIRCUIT BOARD

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82006235	F10019555	GB	GB2387974	Granted		22-Apr-2003	22-Apr-2021	837.70	WRAP-AROUND COOLING ARRANGEMENT FOR PRINTED CIRCUIT BOARD
82006994	F10019865	US	US6874070	Granted		22-Feb-2002	N/A	N/A	SYSTEM AND METHOD FOR MEMORY INTERLEAVING USING CELL MAP WITH ENTRY GROUPING FOR HIGHER-WAY INTERLEAVING
82006997	F10019865	JP	JP4348093	Granted		21-Feb-2003	24-Jul-2021	753.97	METHOD OF ACCESSING MEMORY IN INTERLEAVED MANNER USING MAP TABLE
82084961	F100201063	US	US6816809	Granted		23-Jul-2002	N/A	N/A	HARDWARE BASED UTILIZATION METERING
82084970	F100201063	GB	GB2393292	Granted		17-Jul-2003	17-Jul-2021	781.44	HARDWARE BASED UTILIZATION METERING
82084973	F100201063	US	US8463578	Granted		16-Jul-2004	11-Dec-2020	3,606.00	HARDWARE BASED UTILIZATION METERING
82086311	F100201656	US	US7225118	Granted		31-Oct-2002	N/A	N/A	GLOBAL DATA PLACEMENT
82086503	F100201702	US	US6952358	Granted		5-May-2003	N/A	N/A	MOLECULAR WIRE CONTENT ADDRESSABLE MEMORY
82086653	F100201725	US	US6977927	Granted		18-Sep-2000	N/A	N/A	METHOD AND SYSTEM OF ALLOCATING STORAGE RESOURCES IN A STORAGE AREA NETWORK

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82087187	F100201874	US	US6873190	Granted		18-Mar-2003	N/A	N/A	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82087190	F100201874	JP	JP4059859	Granted		11-Mar-2004	28-Dec-2020	1,050.55	DEVICE FOR DETECTING PRESENCE OF INDUCTIVE LOAD DRIVEN BY PULSE-WIDTH MODULATED SIGNAL
82644401	F100201874	FR	FR1460440	Granted		9-Oct-2003	9-Oct-2021	946.25	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82644403	F100201874	DE	DE60335237.5	Granted		9-Oct-2003	9-Oct-2021	2,272.89	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82644405	F100201874	GB	GB1460440	Granted		9-Oct-2003	9-Oct-2021	837.70	APPARATUS FOR SENSING THE PRESENCE OF AN INDUCTIVE LOAD DRIVEN BY A PULSE WIDTH MODULATED SIGNAL
82092221	F100204926	US	US6862179	Granted		26-Nov-2002	N/A	N/A	PARTITION FOR VARYING THE SUPPLY OF COOLING FLUID

Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82030946	F10971169	US	US6910122	Granted		18-Feb-2000	N/A	N/A	METHOD AND APPARATUS FOR PRESERVING PIPELINE DATA DURING A PIPELINE STALL AND FOR RECOVERING FROM THE PIPELINE STALL
82035506	F10972013	US	US6961768	Granted		13-Jul-2001	N/A	N/A	STATUS POLLING FAILOVER OF DEVICES IN A DISTRIBUTED NETWORK MANAGEMENT HIERARCHY
82050626	F10990826	US	US6766435	Granted		31-May-2000	N/A	N/A	ADDRESS TRANSLATION REGISTERS IN A PROCESSOR
82058069	F10992475	US	US6442552	Granted		30-Jun-2000	N/A	N/A	METHOD AND APPARATUS FOR IMPLEMENTING THREE TIER CLIENT ASYNCHRONOUS TRANSPARENCY
82578805	F12151	US	US6657868	Granted		21-Nov-2001	N/A	N/A	ELECTRONIC DEVICE MOUNT ASSEMBLY
82093034	F200205338	US	US6895489	Granted		7-Aug-2002	N/A	N/A	SYSTEM AND METHOD FOR OPERATING IN ENDIAN INDEPENDENT MODE
82098413	F200207885	US	US7474229	Granted		13-Sep-2006	6-Jul-2020	7,406.00	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098422	F200207885	JP	JP5011490	Granted		28-Aug-2007	15-Jun-2021	753.97	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE

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Patent ID Tranche 2	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
82098428	F200207885	GB	GB2455452	Granted		28-Aug-2007	28-Aug-2020	438.03	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098431	F200207885	DE	DE112007002130	Granted		28-Aug-2007	28-Aug-2020	1,093.17	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098434	F200207885	GB	GB2469953	Granted		28-Aug-2007	28-Aug-2020	438.03	COMPUTER SYSTEM INDICATOR PANEL WITH EXPOSED INDICATOR EDGE
82098761	F200207985	US	US6889169	Granted		31-Jan-2003	N/A	N/A	COLLECTION OF SESSION-RELATED INFORMATION USING AN EXTENDABLE SAMPLING PERIOD
82098764	F200207985	GB	GB2397913	Granted		12-Jan-2004	12-Jan-2021	753.48	COLLECTION OF SESSION-RELATED INFORMATION USING AN EXTENDABLE SAMPLING PERIOD
82101809	F200209078	US	US7075788	Granted		11-Jun-2003	N/A	N/A	COMPUTER COOLING SYSTEM AND METHOD
82102184	F200209214	US	US7543291	Granted		1-Aug-2003	N/A	N/A	PROCESSOR PURGING SYSTEM AND METHOD
82103258	F200209471	US	US7299331	Granted		21-Jan-2003	N/A	N/A	METHOD AND APPARATUS FOR ADDING MAIN MEMORY IN COMPUTER SYSTEMS OPERATING WITH MIRRORED MAIN MEMORY

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82105175	F200300007	US	US7149945	Granted		9-May-2003	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING ERROR CORRECTION CODE TESTING FUNCTIONALITY
82105178	F200300007	TW	TWI308760	Granted		25-Nov-2003	10-Apr-2021	686.40	SYSTEMS AND METHODS FOR PROVIDING ERROR CORRECTION CODE TESTING FUNCTIONALITY
82105817	F200300253	US	US7191380	Granted		10-Sep-2003	N/A	N/A	DEFECT-TOLERANT AND FAULT-TOLERANT CIRCUIT INTERCONNECTIONS
82195838	F200300253	US	US7350132	Granted		26-Apr-2005	N/A	N/A	NANOSCALE INTERCONNECTION INTERFACE
82195847	F200300253	JP	JP4685159	Granted		26-Apr-2006	18-Feb-2021	979.26	NANOSCALE INTERCONNECTION INTERFACE
82195850	F200300253	CN	CN200680022900.X	Granted		26-Apr-2006	26-Apr-2021	1,367.42	NANOSCALE INTERCONNECTION INTERFACE
82195853	F200300253	KR	KR1012242950000	Granted		26-Apr-2006	14-Jan-2021	463.28	NANOSCALE INTERCONNECTION INTERFACE
82195856	F200300253	IN	IN261309	Granted		26-Apr-2006	26-Apr-2021	644.00	NANOSCALE INTERCONNECTION INTERFACE
82195859	F200300253	US	US8112700	Granted		23-Jan-2008	7-Aug-2023	7,706.00	NANOSCALE INTERCONNECTION INTERFACE
90458834	F200300253	FR	FR1875352	Granted			26-Apr-2021	675.76	NANOSCALE INTERCONNECTION INTERFACE
90458836	F200300253	DE	DE602006053277.6	Granted			26-Apr-2021	1,590.25	NANOSCALE INTERCONNECTION INTERFACE

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90458838	F200300253	GB	GB1875352	Granted			26-Apr-2021	618.83	NANOSCALE INTERCONNECTION INTERFACE
82106237	F200300477	US	US7521264	Granted		5-Jan-2007	N/A	N/A	SPIN INJECTION CONTROL USING ELECTRIC CURRENT
82106732	F200300477	US	US6879013	Granted		30-Jul-2003	N/A	N/A	AMPLIFIERS USING SPIN INJECTION AND MAGNETIC CONTROL OF ELECTRON SPINS
82106567	F200300610	US	US7184933	Granted		28-Feb-2003	N/A	N/A	PERFORMANCE ESTIMATION TOOL FOR DATA STORAGE SYSTEMS
82117211	F200301682	US	US6980063	Granted		3-Aug-2004	N/A	N/A	TRANSMISSION LINE PARASITIC ELEMENT DISCONTINUITY CANCELLATION
82117688	F200301789	US	US7076597	Granted		14-Oct-2003	N/A	N/A	BROADCAST INVALIDATE SCHEME
82117877	F200301842	US	US6704817	Granted		31-Aug-2000	N/A	N/A	COMPUTER ARCHITECTURE AND SYSTEM FOR EFFICIENT MANAGEMENT OF BI-DIRECTIONAL BUS
82117880	F200301842	US	US6920512	Expired		17-Feb-2004	N/A	N/A	COMPUTER ARCHITECTURE AND SYSTEM FOR EFFICIENT MANAGEMENT OF BI-DIRECTIONAL BUS
82117904	F200301844	US	US6665763	Granted		31-Jul-2000	N/A	N/A	HOT-PLUG STORAGE DRIVE

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82117937	F200301852	US	US7079615	Granted		20-Nov-2001	N/A	N/A	EXPANDED COMPARATOR FOR CONTROL OF DIGITAL DELAY LINES IN A DELAY LOCKED LOOP OR PHASE LOCKED LOOP
82118069	F200301890	US	US6976184	Granted		27-Aug-2003	N/A	N/A	CLOCK FORWARD INITIALIZATION AND RESET SIGNALING TECHNIQUE
82118276	F200301945	US	US6895585	Granted		30-Mar-2001	N/A	N/A	METHOD OF MIXED WORKLOAD HIGH PERFORMANCE SCHEDULING
82119680	F200302135	US	US6978345	Granted		15-May-2001	N/A	N/A	SELF-MIRRORING HIGH PERFORMANCE DISK DRIVE
82119857	F200302179	US	US6823409	Granted		28-Sep-2001	N/A	N/A	COHERENCY CONTROL MODULE FOR MAINTAINING CACHE COHERENCY IN A MULTI-PROCESSOR-BUS SYSTEM
82119893	F200302186	US	US6884101	Granted		17-Oct-2001	N/A	N/A	INTERPOSER ONE-STEP LOAD AND SELF-LOCK SOCKET
82120106	F200302240	US	US6830394	Granted		4-Jun-2001	N/A	N/A	KEYBOARD HAVING A TRACK BALL MECHANISM AND A SCROLL MECHANISM
82120226	F200302273	US	US6667879	Granted		13-Dec-2001	N/A	N/A	SYSTEM FOR LATCHING AND EJECTING A MODULAR COMPONENT FROM AN ELECTRONIC DEVICE

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82120262	F200302284	US	US6650537	Granted		31-Oct-2001	N/A	N/A	LOW PROFILE DC DISTRIBUTION MODULE FOR A POWER SUPPLY UNIT
82120493	F200302342	US	US6657867	Granted		14-Dec-2001	N/A	N/A	HINGED DOOR FOR ACCESS TO ADD-IN CARDS
82120496	F200302343	US	US6669423	Granted		14-Dec-2001	N/A	N/A	TOOLLESS THUMB SCREW WITH ADJUSTABLE HEIGHT KNOB
82120499	F200302343	US	US6856514	Granted		27-Oct-2003	N/A	N/A	TOOLLESS THUMB SCREW WITH ADJUSTABLE HEIGHT KNOB
82121699	F200302536	US	US6898060	Granted		27-May-2003	N/A	N/A	GATED DIODE OVERVOLTAGE PROTECTION
82121840	F200302579	US	US7502895	Granted		13-Sep-2005	N/A	N/A	TECHNIQUES FOR REDUCING CASTOUTS IN A SNOOP FILTER
82133207	F200304304	US	US7076629	Granted		26-Dec-2001	N/A	N/A	METHOD FOR PROVIDING CONCURRENT NON-BLOCKING HEAP MEMORY MANAGEMENT FOR FIXED SIZED BLOCKS
82137005	F200305040	US	US6757330	Granted		1-Jun-2000	N/A	N/A	EFFICIENT IMPLEMENTATIO N OF HALF-PIXEL MOTION PREDICTION
82165532	F200308161	US	US7043516	Granted		13-Mar-1998	N/A	N/A	REDUCTION OF ADD-PIPE LOGIC BY OPERAND OFFSET SHIFT
82166030	F200308257	US	US6701387	Granted		31-Aug-2000	N/A	N/A	ADAPTIVE DATA FETCH PREDICTION ALGORITHM

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82166285	F200308323	US	US6609208	Granted		7-Jul-2000	N/A	N/A	ENERGY-BASED SAMPLING FOR PERFORMANCE MONITORING
82168928	F200309021	US	US7142647	Granted		3-Sep-2003	N/A	N/A	DATABASE FOR USE IN TELEPHONE COMMUNICATIONS
82168931	F200309021	US	US7483521	Granted		23-Oct-2006	N/A	N/A	DATABASE FOR USE IN TELEPHONE COMMUNICATIONS
82168994	F200309074	US	US7543113	Granted		2-Jul-2004	2-Dec-2020	7,406.00	CACHE MEMORY SYSTEM AND METHOD CAPABLE OF ADAPTIVELY ACCOMMODATING VARIOUS MEMORY LINE SIZES
82173998	F200311045	US	US7310681	Granted		23-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR MODELING THE MEMORY STATE OF A STREAMING MEDIA SERVER
82177961	F200312685	US	US7065697	Granted		29-Jul-2003	N/A	N/A	SYSTEMS AND METHODS OF PARTITIONING DATA TO FACILITATE ERROR CORRECTION
82177967	F200312685	US	US7051265	Granted		29-Jul-2003	N/A	N/A	SYSTEMS AND METHODS OF ROUTING DATA TO FACILITATE ERROR CORRECTION
82180217	F200313648	US	US7484237	Granted		13-May-2004	N/A	N/A	METHOD AND APPARATUS FOR ROLE-BASED SECURITY POLICY MANAGEMENT

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82184297	F200315344	US	US7269753	Granted		27-Aug-2004	N/A	N/A	MAPPING POWER SYSTEM COMPONENTS
82184303	F200315344	JP	JP4897685	Granted		18-Aug-2005	6-Jan-2021	1,006.29	MAPPING POWER SYSTEM COMPONETS
82184306	F200315344	CN	CN200580036905.3	Granted		18-Aug-2005	18-Aug-2020	1,304.37	MAPPING POWER SYSTEM COMPONETS
82206791	F200315640	US	US7330942	Granted		29-Dec-2004	N/A	N/A	METHOD FOR EFFICIENT VIRTUALIZATION OF PHYSICAL MEMORY IN A VIRTUAL-MACHINE MONITOR
82188452	F200400591	US	US7774457	Granted		25-Mar-2005	10-Feb-2022	7,406.00	RESOURCE EVALUATION FOR A BATCH JOB AND AN INTERACTIVE SESSION CONCURRENTLY EXECUTED IN A GRID COMPUTING ENVIRONMENT
82202708	F200400591	US	US7870256	Granted		12-Oct-2005	11-Jul-2022	7,706.00	REMOTE DESKTOP PERFORMANCE MODEL FOR ASSIGNING RESOURCES
82190660	F200401769	US	US7392172	Granted		28-Apr-2005	N/A	N/A	PROVIDING VIRTUAL DEVICE ACCESS VIA FIRMWARE
82190666	F200401769	TW	TWI421766	Granted		30-Mar-2006	31-Dec-2021	359.56	PROVIDING VIRTUAL DEVICE ACCESS VIA FIRMWARE
82191407	F200402006	US	US8374175	Granted		27-Apr-2005	12-Aug-2024	7,706.00	SYSTEM AND METHOD FOR REMOTE DIRECT MEMORY ACCESS OVER A NETWORK SWITCH FABRIC

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82191737	F200402148	US	US7376799	Granted		21-Jul-2005	N/A	N/A	SYSTEM FOR REDUCING THE LATENCY OF EXCLUSIVE READ REQUESTS IN A SYMMETRIC MULTI-PROCESSING SYSTEM
82192109	F200402377	US	US7262964	Granted		27-Apr-2005	N/A	N/A	AIRFLOW CONTROL BAFFLE
82194716	F200403261	US	US7650386	Granted		29-Jul-2004	19-Jul-2021	7,406.00	COMMUNICATION AMONG PARTITIONED DEVICES
82196147	F200403794	US	US7262495	Granted		7-Oct-2004	N/A	N/A	3D INTERCONNECT WITH PROTRUDING CONTACTS
82197314	F200404382	US	US7480836	Granted		25-Apr-2005	20-Jul-2020	7,406.00	MONITORING ERROR-HANDLER VECTOR IN ARCHITECTED MEMORY
82200530	F200405992	US	US7734622	Granted		25-Mar-2005	8-Dec-2021	7,706.00	MEDIA-DRIVEN BROWSING
82200926	F200406195	US	US7995339	Granted		1-Nov-2004	9-Feb-2023	7,706.00	CONTROL OF VENT TILLES CORRELATED WITH A RACK
82203158	F200406195	US	US7251547	Granted		8-Oct-2004	N/A	N/A	CORRELATION OF VENT TILE SETTINGS AND RACK TEMPERATURES
82202732	F200407050	US	US7533303	Granted		15-Apr-2005	12-Nov-2020	7,406.00	METHOD AND SYSTEM FOR PERFORMING SYSTEM-LEVEL CORRECTION OF MEMORY ERRORS
82204136	F200407697	US	US7433935	Granted		29-Apr-2005	N/A	N/A	SELF-ADAPTING PLUG-IN SERVICE

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82207985	F200501020	US	US7877803	Granted		27-Jun-2005	25-Jul-2022	7,406.00	AUTOMATED IMMUNE RESPONSE FOR A COMPUTER
82209869	F200502033	US	US7624234	Granted		31-Aug-2006	24-May-2021	7,706.00	DIRECTORY CACHES, AND METHODS FOR OPERATION THEREOF
82209872	F200502033	GB	GB2441435	Granted		29-Aug-2007	29-Aug-2021	531.28	DIRECTORY CACHES, AND METHODS FOR OPERATION THEREOF
82210976	F200502524	US	US7651871	Granted		30-Nov-2005	26-Jul-2021	7,706.00	DEVICE FOR FORMING MAGNETIC WELL FOR NANOPARTICLES
82211804	F200502942	US	US8205146	Granted		21-Jul-2005	19-Dec-2023	7,706.00	PERSISTENT ERROR DETECTION IN DIGITAL MEMORY
82218587	F200506782	US	US8370416	Granted		26-Apr-2006	5-Aug-2024	7,706.00	COMPATIBILITY ENFORCEMENT IN CLUSTERED COMPUTING SYSTEMS
82218590	F200506782	GB	GB2437649	Granted		26-Apr-2007	26-Apr-2021	531.28	COMPATIBILITY ENFORCEMENT IN CLUSTERED COMPUTING SYSTEMS
82218593	F200506782	JP	JP4726852	Granted		25-Apr-2007	22-Apr-2021	708.91	COMPATIBILITY ENFORCEMENT IN CLUSTERED COMPUTING SYSTEMS
82218863	F200506953	CN	CN200710137000.6	Granted		26-Jul-2007	26-Jul-2020	985.42	MEMORY-MAPPED BUFFERS FOR NETWORK INTERFACE CONTROLLERS

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82218860	F200506953	US	US9137179	Granted		26-Jul-2006	15-Mar-2023	3,766.00	MEMORY-MAPPED BUFFERS FOR NETWORK INTERFACE CONTROLLERS
82219073	F200507081	US	US7592679	Granted		19-Oct-2006	22-Mar-2021	7,706.00	SENSOR AND METHOD FOR MAKING THE SAME
82227227	F200507081	US	US7582975	Granted		27-Apr-2007	1-Mar-2021	7,706.00	NANOWIRE DEVICE AND METHOD OF MAKING THE SAME
82219634	F200507364	US	US7930486	Granted		30-Apr-2007	19-Oct-2022	7,406.00	CACHE CHUNKED LIST CONCRETE DATA TYPE
82219664	F200507395	US	US7376805	Granted		21-Apr-2006	N/A	N/A	DISTRIBUTED STORAGE ARRAY
82219667	F200507395	US	US7487311	Granted		14-Mar-2008	3-Aug-2020	7,406.00	SYSTEM AND METHOD FOR ASYNCHRONOUS BACKUP OF VIRTUAL DISKS IN A DISTRIBUTED STORAGE ARRAY
82220339	F200600100	US	US8390086	Granted		19-Jul-2010	5-Sep-2024	7,706.00	A SOLAR CELL EMPLOYING A NANOWIRE
82225544	F200602330	US	US8045562	Granted		31-Oct-2006	25-Apr-2023	7,706.00	ESTIMATING LINK INTERFERENCE AND BANDWIDTH
82227581	F200603189	US	US8799547	Granted		7-Jul-2008	5-Feb-2022	3,766.00	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
82227584	F200603189	CN	CN200880016822.1	Granted		7-Jul-2008	7-Jul-2021	1,032.98	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR

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90037712	F200603189	FR	FR2176773	Granted		7-Jul-2008	7-Jul-2021	521.20	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
90037714	F200603189	DE	DE602008039979.6	Granted		7-Jul-2008	7-Jul-2021	1,178.09	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
90037716	F200603189	GB	GB2176773	Granted		7-Jul-2008	7-Jul-2021	443.74	DATA PACKET PROCESSING METHOD FOR A MULTI CORE PROCESSOR
82241552	F200703647	CN	CN200880128265.2	Granted		25-Mar-2008	25-Mar-2021	1,032.98	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
82241564	F200703647	KR	KR10-1324844	Granted		25-Mar-2008	28-Oct-2021	732.64	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
82241567	F200703647	US	US8386654	Granted		25-Mar-2008	26-Aug-2024	7,706.00	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
83240742	F200703647	DE	DE602008024431.8	Granted		25-Mar-2008	25-Mar-2021	1,178.09	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS

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83240744	F200703647	GB	GB2257880	Granted		25-Mar-2008	25-Mar-2021	443.74	SYSTEM AND METHOD FOR TRANSFORMING PCIE SR-IOV FUNCTIONS TO APPEAR AS LEGACY FUNCTIONS
82242728	F200704017	GB	GB2458157	Granted		7-Mar-2008	7-Mar-2021	443.74	VIRTUAL MACHINE LIVENESS CHECK
82242731	F200704017	US	US8627313	Granted		9-Mar-2009	7-Jul-2021	3,766.00	VIRTUAL MACHINE LIVENESS CHECK
82243406	F200704228	GB	GB2459433	Granted		7-Mar-2008	7-Mar-2021	443.74	DISTRIBUTED NETWORK CONNECTION POLICY MANAGEMENT
82243409	F200704228	US	US9178850	Granted		9-Mar-2009	3-May-2023	3,766.00	DISTRIBUTED NETWORK CONNECTION POLICY MANAGEMENT
90046408	F200704228	US	US10165009	Granted		11-Sep-2015	25-Jun-2022	2,006.00	DISTRIBUTED NETWORK CONNECTION POLICY MANAGEMENT
82249295	F200802685	US	US9031876	Granted		19-Jun-2009	12-Nov-2022	3,606.00	MANAGING KEYS FOR ENCRYPTED SHARED DOCUMENTS
82631729	F200802734	CN	CN200980139998.0	Granted		4-Aug-2009	4-Aug-2021	1,032.98	END-TO-END NETWORK ACCESS ANALYSIS
82631733	F200802734	US	US9253038	Granted		4-Aug-2009	2-Aug-2023	3,766.00	END-TO-END NETWORK ACCESS ANALYSIS
82249913	F200803253	US	US8417954	Granted		11-Feb-2009	9-Oct-2024	7,706.00	INSTALLATION IMAGE INCLUDING DIGITAL SIGNATURE

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82852246	F200803703	US	US9094317	Granted		18-Jun-2009	28-Jan-2023	3,766.00	PROCESSOR TOPOLOGY SWITCHES
82885912	F200803703	CN	CN200980159933.2	Granted		18-Jun-2009	18-Jun-2021	1,032.98	PROCESSOR TOPOLOGY SWITCHES
82844854	F200900015	US	US9098276	Granted		21-Sep-2011	4-Feb-2023	3,766.00	REDUNDANT POWER SUPPLY SYSTEMS AND METHODS
82252169	F200900607	US	US7302399	Granted		10-Nov-1999	N/A	N/A	METHOD AND SYSTEM FOR PROCESSING TRAVEL RESERVATION DATA
82253540	F200900812	US	US7100197	Granted		10-Dec-2001	N/A	N/A	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253546	F200900812	JP	JP4864289	Granted		6-Dec-2002	18-Nov-2020	2,068.54	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253558	F200900812	MX	MX250877	Granted		6-Dec-2002	N/A	N/A	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253561	F200900812	NZ	NZ533457	Granted		6-Dec-2002	6-Dec-2020	723.01	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82901625	F200900812	DE	DE60241169.6	Granted		6-Dec-2002	6-Dec-2020	2,257.04	NETWORK USER AUTHENTICATIO N SYSTEM AND METHOD
82253696	F200900854	US	US6850866	Granted		12-Sep-2002	N/A	N/A	MANAGING PERFORMANCE METRICS DESCRIBING A RELATIONSHIP BETWEEN A PROVIDER AND A CLIENT

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82255841	F200901260	US	US7680590	Granted		2-Dec-2003	16-Sep-2021	7,706.00	BOUNDARY DETECTION ALGORITHM FOR EMBEDDED DEVICES
82256702	F200901260	US	US6983202	Granted		12-Apr-2004	N/A	N/A	IMPLEMENTING GEO-FENCING ON MOBILE DEVICES
82256420	F200901682	US	US8756682	Granted		20-Dec-2004	17-Dec-2021	3,766.00	METHOD AND SYSTEM FOR NETWORK INTRUSION PREVENTION
82257263	F200901908	US	US9191989	Granted		19-Dec-2006	17-May-2023	3,766.00	APPARATUS, AND ASSOCIATED METHOD, FOR CONTROLLING CONNECTIVITY OF A COMPUTER DEVICE WITH A COMPUTER NETWORK
90095936	F200901908	US	US9584519	Granted		27-Oct-2015	28-Aug-2024	3,766.00	APPARATUS, AND ASSOCIATED METHOD, FOR CONTROLLING CONNECTIVITY OF A COMPUTER DEVICE WITH A COMPUTER NETWORK
82257851	F200902190	US	US6839706	Granted		6-Aug-2001	N/A	N/A	BLOCK DATA STORAGE WITHIN A COMPUTER NETWORK
82895030	F200903397	CN	CN200980160899.0	Granted		11-Aug-2009	11-Aug-2020	666.46	ENCLOSURE AIRFLOW CONTROLLER
90064660	F200903397	FR	FR2465030	Granted		11-Aug-2009	11-Aug-2020	364.41	ENCLOSURE AIRFLOW CONTROLLER
90064662	F200903397	DE	DE602009034106.5	Granted		11-Aug-2009	11-Aug-2020	746.71	ENCLOSURE AIRFLOW CONTROLLER
90064664	F200903397	GB	GB2465030	Granted		11-Aug-2009	11-Aug-2020	322.82	ENCLOSURE AIRFLOW CONTROLLER

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82895034	F200903397	US	US9354678	Granted		11-Aug-2009	30-Nov-2023	3,766.00	ENCLOSURE AIRFLOW CONTROLLER
82938265	F200903900	CN	CN201080064762.8	Granted		26-Feb-2010	26-Feb-2021	698.53	RESTORING STABILITY TO AN UNSTABLE BUS
82938271	F200903900	US	US8799545	Granted		26-Feb-2010	5-Feb-2022	3,766.00	RESTORING STABILITY TO AN UNSTABLE BUS
82261814	F200904727	US	US8943328	Granted		29-Jan-2010	27-Jul-2022	3,606.00	KEY ROTATION FOR ENCRYPTED STORAGE MEDIA
82262789	F200904727	US	US8489893	Granted		9-Apr-2010	16-Jan-2021	3,606.00	ENCRYPTION KEY ROTATION MESSAGES WRITTEN AND OBSERVED BY STORAGE CONTROLLERS VIA STORAGE MEDIA
82261817	F200904730	US	US9032218	Granted		29-Jan-2010	12-Nov-2022	3,606.00	KEY ROTATION FOR ENCRYPTED STORAGE MEDIA USING A MIRRORED VOLUME REVIVE OPERATION
83137890	F201000198	GB	GB2503965	Granted		12-Jul-2010	12-Jul-2021	327.01	FLEXIBLE DATA CENTER AND METHODS FOR DEPLOYMENT
83137892	F201000198	US	US9310855	Granted		12-Jul-2010	12-Oct-2023	3,766.00	FLEXIBLE DATA CENTER AND METHODS FOR DEPLOYMENT
82263854	F201000919	US	US9184382	Granted		28-Oct-2010	10-May-2023	3,766.00	MEMRISTIVE DEVICES WITH LAYERED JUNCTIONS AND METHODS FOR FABRICATING THE SAME
83168702	F201001144	KR	KR10-1448412	Granted		30-Aug-2010	30-Sep-2020	500.23	MULTILAYER MEMORY ARRAY

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83168704	F201001144	US	US9293200	Granted		30-Aug-2010	22-Sep-2023	3,766.00	MULTILAYER MEMORY ARRAY
83168698	F201001144	CN	CN201080068814.9	Granted		30-Aug-2010	30-Aug-2020	666.46	MULTILAYER MEMORY ARRAY
83681482	F201001773	US	US9223821	Granted		21-Mar-2011	29-Jun-2023	3,766.00	DATA BACKUP PRIORITIZATION
90185183	F201001773	FR	FR2689329	Granted		21-Mar-2011	21-Mar-2021	340.88	DATA BACKUP PRIORITIZATION
90185185	F201001773	DE	DE602011021284.2	Granted		21-Mar-2011	21-Mar-2021	611.36	DATA BACKUP PRIORITIZATION
90185187	F201001773	GB	GB2689329	Granted		21-Mar-2011	21-Mar-2021	283.23	DATA BACKUP PRIORITIZATION
82267325	F201002266	GB	GB2054390	Granted		23-Feb-1996	N/A	N/A	ENCLOSURE FOR ELECTRONIC CIRCUITRY
82267331	F201002266	FR	FR964814	Granted		22-Aug-1996	N/A	N/A	ENCLOSURE FOR ELECTRONIC CIRCUITRY
82270946	F201002423	US	US7299301	Granted		8-Sep-2003	N/A	N/A	METHOD AND ARCHITECTURE FOR LOGICAL AGGREGATION OF MULTIPLE SERVERS
82269671	F201002872	US	US7453815	Granted		15-Dec-2003	N/A	N/A	METHOD AND SYSTEM FOR MONITORING AND MANAGEMENT OF THE PERFORMANCE OF REAL-TIME NETWORKS
82269695	F201002879	US	US7386119	Granted		13-May-2004	N/A	N/A	FILTERED TRANSMIT CANCELLATION IN A FULL-DUPLEX MODEM DATA ACCESS ARRANGEMENT (DAA)

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82270031	F201002986	US	US6771288	Granted		8-Mar-2001	N/A	N/A	METHODS AND APPARATUS FOR UPDATING INFORMATION IN A DISPLAY CONTAINING FIXED AND VARIABLE INFORMATION
82270109	F201003023	US	US6633277	Granted		30-May-2000	N/A	N/A	COMPACT 3-STATE DATA ENTRY DEVICE
82270580	F201003193	US	US6934740	Granted		19-Sep-2000	N/A	N/A	METHOD AND APPARATUS FOR SHARING COMMON DATA OBJECTS AMONG MULTIPLE APPLICATIONS IN A CLIENT DEVICE
82271003	F201003329	US	US6874047	Granted		9-Jun-2000	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING AN SMBUS/I2C INTERFACE ON A NETWORK INTERFACE CARD
82271342	F201003398	US	US6614350	Granted		8-Nov-2000	N/A	N/A	METHOD AND SYSTEM FOR EFFECTING A SECURITY SYSTEM UPON MULTIPLE PORTABLE INFORMATION DEVICES
82271756	F201003538	US	US6701140	Granted		14-Sep-2000	N/A	N/A	DIGITAL RECEIVE PHASE LOCK LOOP WITH CUMULATIVE PHASE ERROR CORRECTION AND DYNAMICALLY PROGRAMMABLE CORRECTION RATE
82272137	F201003672	US	US6882622	Granted		2-Aug-2000	N/A	N/A	FLOW CONTROL SYSTEM FOR NETWORK DEVICES

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82272302	F201003754	US	US7480939	Granted		6-Jul-2001	N/A	N/A	ENHANCEMENT TO AUTHENTICATIO N PROTOCOL THAT USES A KEY LEASE
82272299	F201003754	US	US6920559	Expired		28-Apr-2000	N/A	N/A	USING A KEY LEASE IN A SECONDARY AUTHENTICATIO N PROTOCOL AFTER A PRIMARY AUTHENTICATIO N PROTOCOL HAS BEEN PERFORMED
82272392	F201003777	US	US6662332	Granted		1-Nov-2000	N/A	N/A	INTERLEAVER FOR BURST ERROR CORRECTION
82272455	F201003805	US	US6766377	Granted		24-Aug-2000	N/A	N/A	MEDIA GATEWAY PROXY
82272458	F201003805	US	US7634577	Granted		19-Apr-2004	15-Jun-2021	7,706.00	MEDIA GATEWAY PROXY
82272611	F201003858	US	US6741586	Granted		31-May-2000	N/A	N/A	SYSTEM AND METHOD FOR SHARING COMPUTER SCREENS OVER A TELEPHONY NETWORK
82272650	F201003874	US	US6965577	Granted		24-Oct-2000	N/A	N/A	IDENTIFYING AN EDGE SWITCH AND PORT TO WHICH A NETWORK USER IS ATTACHED
82272728	F201003925	US	US6966003	Granted		12-Jan-2001	N/A	N/A	SYSTEM AND METHOD FOR SWITCHING SECURITY ASSOCIATIONS

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82272782	F201003944	US	US7039049	Granted		22-Dec-2000	N/A	N/A	METHOD AND APPARATUS FOR PPPOE BRIDGING IN A ROUTING CMTS
82272836	F201003967	US	US6763348	Granted		8-Dec-2000	N/A	N/A	METHOD AND APPARATUS FOR SEARCHING DATABASES EMPLOYING A TRIE SEARCH STRUCTURE
82272899	F201004011	US	US6577500	Granted		28-Feb-2001	N/A	N/A	WIRELESS PC CARD
82272926	F201004020	US	US6938079	Granted		19-Sep-2000	N/A	N/A	SYSTEM AND METHOD FOR AUTOMATICALLY CONFIGURING A CLIENT DEVICE
82273091	F201004100	US	US6842797	Granted		10-Oct-2000	N/A	N/A	USB ADAPTER FOR BURST MODE COMMUNICATIONS
82273283	F201004220	US	US6771745	Granted		22-May-2001	N/A	N/A	METHOD AND APPARATUS FOR TELEPHONE DIALLING USING A NETWORK DEVICE
82273484	F201004324	US	US7577857	Granted		29-Aug-2001	18-Feb-2021	7,706.00	HIGH SPEED NETWORK INTERFACE WITH AUTOMATIC POWER MANAGEMENT WITH AUTO-NEGOTIATION
82273487	F201004324	US	US8046614	Granted		20-Jul-2009	N/A	N/A	AN INTEGRATED CIRCUIT HAVING A NETWORKING INTERFACE MODULE SUPPORTING A PLURALITY OF PROTOCOLS

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82861414	F201004324	US	US8291246	Granted		20-Oct-2011	16-Apr-2024	7,400.00	HIGH SPEED NETWORK INTERFACE WITH AUTOMATIC POWER MANAGEMENT WITH AUTO-NEGOTIATION
82273562	F201004343	US	US6745333	Granted		31-Jan-2002	N/A	N/A	METHOD FOR DETECTING UNAUTHORIZED NETWORK ACCESS BY HAVING A NIC MONITOR FOR PACKETS PURPORTING TO BE FROM ITSELF
82273571	F201004345	US	US7194004	Granted		28-Jan-2002	N/A	N/A	METHOD FOR MANAGING NETWORK ACCESS
82273634	F201004373	US	US6996110	Granted		31-Aug-2001	N/A	N/A	DISTRIBUTED MPLS ARCHITECTURE
82273676	F201004392	US	US7085364	Granted		20-Aug-2001	N/A	N/A	ADVANCED CONFERENCE DROP
82273709	F201004409	US	US7350076	Granted		6-Dec-2001	N/A	N/A	SCHEME FOR DEVICE AND USER AUTHENTICATION WITH KEY DISTRIBUTION IN A WIRELESS NETWORK
82273712	F201004409	CN	CN02812705.6	Granted		16-May-2002	16-May-2021	1,367.42	AUTHENTICATION METHOD
90826600	F201004409	DE	DE602500656	Granted		16-May-2002	16-May-2021	2,504.74	AUTHENTICATION METHOD
90826603	F201004409	GB	GB1391077	Granted		16-May-2002	16-May-2021	896.07	AUTHENTICATION METHOD
82273889	F201004461	US	US6674652	Granted		29-Jan-2002	N/A	N/A	INTEGRATED SHIELD WRAP

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82273958	F201004494	US	US7624434	Granted		1-Mar-2002	24-May-2021	7,706.00	SYSTEM FOR PROVIDING FIREWALL CAPABILITIES TO A COMMUNICATION DEVICE
82274012	F201004514	US	US7298834	Granted		22-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR LARGE CAPACITY CONFERENCE CALLS
82274108	F201004540	US	US7603486	Granted		26-Nov-2002	13-Apr-2021	7,706.00	NETWORK MANAGEMENT SYSTEM PROVIDING LOGIC SIGNALS OVER COMMUNICATION LINES FOR DETECTING PERIPHERAL DEVICES
82274132	F201004549	US	US7130625	Granted		1-Jul-2002	N/A	N/A	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274135	F201004549	CN	CN03815527.3	Granted		30-Jun-2003	30-Jun-2021	1,367.42	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274138	F201004549	DE	DE60332838.5	Granted		30-Jun-2003	30-Jun-2021	2,272.89	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274144	F201004549	FR	FR1527626	Granted		30-Jun-2003	30-Jun-2021	946.25	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY

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82274147	F201004549	GB	GB1527626	Granted		30-Jun-2003	30-Jun-2021	837.70	SYSTEM AND METHOD FOR A UNIVERSAL WIRELESS ACCESS GATEWAY
82274240	F201004570	DE	DE60317155.9	Granted		4-Jan-2003	4-Jan-2021	2,272.89	NETWORK UNITS FOR USE IN AND ORGANISATION OF CASCADE SYSTEMS
82274255	F201004570	US	US7522589	Granted		7-Jan-2003	N/A	N/A	NETWORK UNITS FOR USE IN AND ORGANISATION OF CASCADE SYSTEMS
82576655	F201004570	FR	FR1760968	Granted		4-Jan-2003	4-Jan-2021	946.25	NETWORK UNIT FOR USE IN A CASCADE SYSTEM
82576658	F201004570	DE	DE603347487	Granted		4-Jan-2003	4-Jan-2021	2,272.89	NETWORK UNIT FOR USE IN A CASCADE SYSTEM
82274504	F201004631	US	US7596614	Granted		29-Jul-2005	29-Mar-2021	7,706.00	NETWORK INCLUDING SNOOPING
82274507	F201004631	US	US7975048	Granted		18-Aug-2009	5-Jan-2023	7,706.00	NETWORK INCLUDING SNOOPING
82743829	F201004631	US	US8055768	Granted		27-May-2011	8-May-2023	7,706.00	NETWORK INCLUDING SNOOPING
82274573	F201004645	US	US7802094	Granted		22-Feb-2005	21-Mar-2022	7,706.00	REDUCTION OF FALSE POSITIVE DETECTION OF SIGNATURE MATCHES IN INTRUSION DETECTION SYSTEMS
82274591	F201004649	US	US7957390	Granted		18-May-2005	7-Dec-2022	7,706.00	DETECTION OF SIGNATURES IN DISORDERED MESSAGE SEGMENTS

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83693683	F201005236	US	US9292392	Granted		30-Jun-2011	22-Sep-2023	3,766.00	MEMORY MODULE THAT INCLUDES A MEMORY MODULE COPY ENGINE FOR COPYING DATA FROM AN ACTIVE MEMORY DIE TO A SPARE MEMORY DIE
82064201	F30010410	US	US7634656	Granted		12-Sep-2002	15-Jun-2021	7,706.00	METHOD AND APPARATUS FOR IDENTIFYING A VOICE CALLER
82064207	F30010410	DE	DE60207500.9	Granted		10-Sep-2002	10-Sep-2021	2,504.74	METHOD AND APPARATUS FOR IDENTIFYING A VOICE CALLER
82064213	F30010410	GB	GB1294157	Granted		10-Sep-2002	10-Sep-2021	896.07	METHOD AND APPARATUS FOR IDENTIFYING A VOICE CALLER
82070699	F50006065	US	US6951023	Granted		29-Oct-2001	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
83004398	F50006065	FR	FR1202176	Expired		31-Oct-2000	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
83004404	F50006065	DE	DE60047121.7	Expired		31-Oct-2000	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
83004410	F50006065	GB	GB1202176	Expired		31-Oct-2000	N/A	N/A	MESSAGE-BASED SOFTWARE SYSTEM
82071116	F50012953	US	US6943683	Granted		21-Jan-2003	N/A	N/A	LOCATION DEVICE
83014991	F700209927	US	US8929236	Granted		30-Jul-2012	6-Jul-2022	3,766.00	NETWORK FLOW ANALYSIS
83098424	F700211111	US	US8929225	Granted		7-Dec-2012	6-Jul-2022	3,766.00	CUSTOMER EDGE DEVICE PROBLEM IDENTIFICATION

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90068832	F700213273	CN	CN201380076263.4	Granted		3-Apr-2013	3-Apr-2021	364.09	METHOD AND PRODUCT FOR MODIFYING A FLOW OF OPERATIONS TO BE EXECUTED IN PLURALITY OF EXECUTION ENVIRONMENTS
90068840	F700213273	US	US9846598	Granted		3-Apr-2013	19-Jun-2021	2,006.00	MODIFYING A FLOW OF OPERATIONS TO BE EXECUTED IN A PLURALITY OF EXECUTION ENVIRONMENTS
82578801	F9949	US	US6833634	Granted		4-Jan-2001	N/A	N/A	DISK ENCLOSURE WITH MULTIPLE POWER DOMAINS
82579241	FP007	US	US7650638	Granted		2-Dec-2002	19-Jul-2021	7,706.00	NETWORK SECURITY MONITORING SYSTEM EMPLOYING BI-DIRECTIONAL COMMUNICATION
90404678	FSGI00359	US	US9547882	Granted		10-Nov-2014	17-Jul-2024	3,766.00	SHARED MEMORY EIGENSOLVER
90404680	FSGI00359	US	US9262799	Granted		7-Nov-2014	16-Aug-2023	3,766.00	SHARED MEMORY EIGENSOLVER
90444833	FSGI00359	US	US9798594	Granted		17-Jan-2017	24-Apr-2021	2,006.00	SHARED MEMORY EIGENSOLVER

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81966803	F10001220	US	US7000151	Granted		18-Jul-2002	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING RUN-TIME TYPE CHECKING
81967499	F10001459	US	US6950961	Granted		13-Feb-2001	N/A	N/A	HIGHLY AVAILABLE, MONOTONIC INCREASING SEQUENCE NUMBER GENERATION
81967625	F10001491	US	US6687872	Granted		14-Mar-2001	N/A	N/A	METHODS AND SYSTEMS OF USING RESULT BUFFERS IN PARITY OPERATIONS
81967634	F10001491	US	US7111227	Granted		4-Dec-2003	N/A	N/A	METHODS AND SYSTEMS OF USING RESULT BUFFERS IN PARITY OPERATIONS
82051124	F10002032	US	US6813705	Granted		5-Jan-2001	N/A	N/A	MEMORY DISAMBIGUATION SCHEME FOR PARTIALLY REDUNDANT LOAD REMOVAL
81970013	F10002170	US	US7263719	Granted		29-Nov-2000	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING NETWORK SECURITY POLICIES ON A COMMON NETWORK INFRASTRUCTURE
81970046	F10002170	US	US7376965	Granted		14-May-2001	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING A BUBBLE POLICY TO ACHIEVE HOST AND NETWORK SECURITY

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81970055	F10002170	US	US7400591	Granted		1-Jun-2005	N/A	N/A	METHOD OF CREATING AN ADDRESS AND A DISCONTIGUOUS MASK FOR A NETWORK SECURITY POLICY AREA
81971792	F10002673	US	US7376953	Granted		29-Oct-2001	N/A	N/A	APPARATUS AND METHOD FOR ROUTING A TRANSACTION TO A SERVER
81971828	F10002691	US	US6704687	Granted		31-Jan-2001	N/A	N/A	HISTORICAL RESULTS BASED METHOD FOR AUTOMATICALLY IMPROVING COMPUTER SYSTEM PERFORMANCE
81971849	F10002695	US	US7607135	Granted		15-Jun-2001	20-Apr-2021	7,406.00	APPARATUS AND METHOD FOR ENHANCING PERFORMANCE OF A COMPUTER SYSTEM
81974126	F10003509	US	US6851074	Granted		30-Apr-2001	N/A	N/A	SYSTEM AND METHOD FOR RECOVERING FROM MEMORY FAILURES IN COMPUTER SYSTEMS
81976325	F10004121	US	US6889335	Granted		7-Apr-2001	N/A	N/A	MEMORY CONTROLLER RECEIVER CIRCUITRY WITH TRI-STATE NOISE IMMUNITY

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81977141	F10004392	US	US6944807	Granted		25-Mar-2002	N/A	N/A	METHOD AND APPARATUS FOR ACHIEVING HIGHER PRODUCT YIELDS BY USING FRACTIONAL PORTIONS OF IMBEDDED MEMORY ARRAYS
81977306	F10004466	US	US7076647	Granted		7-Jun-2001	N/A	N/A	DYNAMIC KERNEL TUNABLES
81977471	F10004560	US	US7216184	Granted		1-May-2001	N/A	N/A	SYSTEM AND METHOD FOR IDENTIFICATION OF DEVICES ASSOCIATED WITH INPUT/OUTPUT PATHS
81978071	F10004801	US	US8621480	Granted		16-Dec-2004	30-Jun-2021	3,606.00	LOAD BALANCER WITH STARVATION AVOIDANCE
81978998	F10004983	US	US7058860	Granted		29-Jun-2001	N/A	N/A	SYSTEM AND METHOD OF AUTOMATIC PARAMETER COLLECTION AND PROBLEM SOLUTION GENERATION FOR COMPUTER STORAGE DEVICES
81980063	F10005461	US	US6918110	Granted		11-Apr-2001	N/A	N/A	DYNAMIC INSTRUMENTATION OF AN EXECUTABLE PROGAM BY MEANS OF CAUSING A BREAKPOINT AT THE ENTRY POINT OF A FUNCTION AND PROVIDING INSTRUMENTATION CODE

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81980882	F10006054	US	US6915520	Granted		6-Apr-2001	N/A	N/A	JAVA C++ PROXY OBJECTS
81982520	F10006527	US	US7236939	Granted		31-Mar-2001	N/A	N/A	A PEER-TO-PEER INTER-ENTERPRISE COLLABORATIVE PROCESS MANAGEMENT METHOD AND SYSTEM
81982832	F10006625	US	US7307962	Granted		2-Mar-2001	N/A	N/A	SYSTEM FOR INFERENCE OF NETWORK INFRASTRUCTURE DEVICES
81982979	F10006728	US	US7120832	Granted		27-Sep-2001	N/A	N/A	STORAGE DEVICE PERFORMANCE MONITOR
81983012	F10006755	US	US6976270	Granted		8-May-2001	N/A	N/A	PROCESS AND COMPONENT FOR INQUIRING ABOUT SECURITY RELATIONSHIPS
81983804	F10007099	US	US6868481	Granted		31-Oct-2000	N/A	N/A	CACHE COHERENCE PROTOCOL FOR A MULTIPLE BUS MULTIPROCESSOR SYSTEM
81983807	F10007099	JP	JP4008224	Granted		15-Oct-2001	7-Sep-2021	1,159.50	CACHE COHERENCE PROTOCOL FOR A MULTIPLE BUS MULTIPROCESSOR SYSTEM
81983810	F10007099	US	US7373457	Granted		1-Feb-2005	N/A	N/A	CACHE COHERENCE PROTOCOL FOR A MULTIPLE BUS MULTIPROCESSOR SYSTEM
81984836	F10007479	US	US6823300	Granted		10-Nov-2000	N/A	N/A	MEMORY EFFICIENT OCCURRENCE MODEL DESIGN FOR VLSI CAD

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81986702	F10008027	US	US6525936	Granted		30-Apr-2001	N/A	N/A	AIR JET COOLING ARRANGEMENT FOR ELECTRONIC SYSTEMS
81998216	F10008027	US	US6904968	Granted		14-Sep-2001	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81998219	F10008027	US	US6876549	Granted		31-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81998222	F10008027	US	US7086459	Granted		31-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81998225	F10008027	US	US7013968	Granted		31-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR INDIVIDUALLY COOLING COMPONENTS OF ELECTRONIC SYSTEMS
81988421	F10010310	US	US6963832	Granted		9-Oct-2001	N/A	N/A	MEANING TOKEN DICTIONARY FOR AUTOMATIC SPEECH RECOGNITION
81989063	F10010654	US	US6928580	Granted		9-Jul-2001	N/A	N/A	DISTRIBUTED DATA CENTER SYSTEM PROTOCOL FOR CONTINUITY OF SERVICE IN THE EVENT OF DISASTER FAILURES

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81989453	F10010857	US	US6931571	Granted		20-Nov-2001	N/A	N/A	METHOD AND APPARATUS FOR HANDLING TRANSIENT MEMORY ERRORS
82079021	F100110160	US	US7765299	Granted		16-Sep-2002	27-Jan-2022	7,406.00	DYNAMIC ADAPTIVE SERVER PROVISIONING FOR BLADE ARCHITECTURES
82079405	F100110262	US	US7236967	Granted		3-Jun-2002	N/A	N/A	METHODS AND SYSTEMS FOR MAINTANING TRANSACTION SEMANTICS IN A COMPUTER SYSTEM
82079738	F100110378	US	US7975043	Granted		25-Feb-2003	5-Jan-2023	7,706.00	METHOD AND APPARATUS FOR MONITORING A NETWORK
82082363	F100111655	US	US7051238	Granted		30-Jul-2002	N/A	N/A	METHOD AND SYSTEM FOR USING MACHINE-ARCHITECTURE SUPPORT TO DISTINGUISH FUNCTION AND ROUTINE RETURN VALUES
81990812	F10011331	US	US6990612	Granted		18-Jul-2002	N/A	N/A	SYSTEM AND METHOD FOR PREVENTING SOFTWARE ERRORS
81991082	F10011514	US	US6928536	Granted		29-Nov-2001	N/A	N/A	DYNAMIC EXECUTION LAYER INTERFACE FOR REPLACING INSTRUCTIONS REQUIRING UNAVAILABLE HARDWARE FUNCTIONALITY WITH PATCH CODE AND CACHING

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81991304	F10011596	US	US7478394	Granted		4-Jun-2001	13-Jul-2020	7,406.00	CONTEXT-CORRUPTING CONTEXT SWITCHING
81992945	F10012198	US	US7577998	Granted		16-Nov-2001	18-Feb-2021	7,406.00	METHOD OF DETECTING CRITICAL FILE CHANGES
81993740	F10012499	US	US7594233	Granted		28-Jun-2002	22-Mar-2021	7,406.00	PROCESSING THREAD LAUNCHING USING VOLUNTEER INFORMATION
81993752	F10012506	US	US7216226	Granted		1-Apr-2002	N/A	N/A	UNIQUE AND SECURE IDENTIFICATION OF A NETWORKED COMPUTING NODE
81994424	F10012767	US	US6851110	Granted		7-Jun-2001	N/A	N/A	OPTIMIZING AN EXECUTABLE COMPUTER PROGRAM HAVING ADDRESS-BRIDGING CODE SEGMENTS
81994538	F10012818	US	US6931632	Granted		8-Nov-2001	N/A	N/A	INSTRUMENTATION OF CODE HAVING PREDICATED BRANCH-CALL AND SHADOW INSTRUCTIONS
81994541	F10012819	US	US6934943	Granted		18-Oct-2001	N/A	N/A	OPTIMIZATION OF CONTROL TRANSFERS TO DYNAMICALLY LOADED MODULES

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81994997	F10013048	US	US7111282	Granted		12-Jun-2001	N/A	N/A	INSTRUMENTING A SOFTWARE PROGRAM AND COLLECTING DATA FROM THE INSTRUMENTED SOFTWARE PROGRAM BY TYPE
81996842	F10014072	US	US6836871	Granted		29-Oct-2002	N/A	N/A	PROCESS AND SYSTEM FOR DEVELOPING DYNAMIC CIRCUIT GUILDELINES
81996848	F10014074	US	US6862694	Granted		5-Oct-2001	N/A	N/A	SYSTEM AND METHOD FOR SETTING AND EXECUTING BREAKPOINTS
81997529	F10014420	US	US7249088	Granted		11-Jul-2001	N/A	N/A	JOINT ESTIMATION OF BIDDERS' RISK ATTITUDES AND PRIVATE INFORMATION
81997724	F10014531	US	US7243368	Granted		29-Mar-2002	N/A	N/A	ACCESS CONTROL SYSTEM AND METHOD FOR A NETWORKED COMPUTER SYSTEM
81998627	F10015123	US	US7200665	Granted		17-Oct-2001	N/A	N/A	ALLOWING REQUESTS OF A SESSION TO BE SERVICED BY DIFFERENT SERVERS IN A MULTI-SERVER DATA SERVICE SYSTEM
81998681	F10015152	US	US7134050	Granted		15-Aug-2003	N/A	N/A	METHOD AND SYSTEM FOR CONTAINING SOFTWARE FAULTS

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81998687	F10015153	US	US7058786	Granted		17-Jan-2002	N/A	N/A	OPERATING SYSTEM DATA COMMUNICATIO N METHOD AND SYSTEM
82000466	F10016439	US	US6944732	Granted		8-May-2002	N/A	N/A	MEHTHOD AND APPARATUS FOR SUPPORTING SNAPSHOTS WITH DIRECT I/O IN A STORAGE AREA NETWORK
82000691	F10016624	US	US6931489	Granted		12-Aug-2002	N/A	N/A	APPARATUS AND METHODS FOR SHARING CACHE AMONG PROCESSORS
82000931	F10016687	US	US7047437	Granted		12-Dec-2001	N/A	N/A	METHOD AND SYSTEM FOR DETECTING DROPPED MICRO-PACKETS
82001030	F10016717	US	US7058702	Granted		4-Jan-2002	N/A	N/A	EFFICIENT VALIDATION OF NETWORK CONFIGURATION CHANGE COMMANDS
82002167	F10017428	US	US7203317	Granted		31-Oct-2001	N/A	N/A	SYSTEM FOR ENABLING LAZY-REVOCATION THROUGH RECURSIVE KEY GENERATION
82002176	F10017432	US	US6848841	Granted		9-Sep-2002	N/A	N/A	OPTICAL COMPONENT CONNECTOR
82002206	F10017447	US	US6967350	Granted		2-Apr-2002	N/A	N/A	MEMORY STRUCTURES
82003364	F10017977	US	US6644481	Granted		11-Feb-2002	N/A	N/A	APPARATUS AND METHOD FOR RACKMOUNTING A CHASSIS

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82004360	F10018557	US	US6718277	Granted		17-Apr-2002	N/A	N/A	ATMOSPHERIC CONTROL WITHIN A BUILDING
82007003	F10019871	US	US6912616	Granted		12-Nov-2002	N/A	N/A	MAPPING ADDRESSES TO MEMORY BANKS BASED ON AT LEAST ONE MATHEMATICAL RELATIONSHIP
82007006	F10019871	JP	JP4771654	Granted		10-Nov-2003	1-Jul-2021	753.97	MAPPING ADDRESSES TO MEMORY BANKS BASED ON AT LEAST ONE MATHEMATICAL RELATIONSHIP
82007021	F10019879	US	US6677778	Granted		23-May-2002	N/A	N/A	DEVICE AND METHOD TO CAUSE A FALSE DATA VALUE TO BE CORRECTLY SEEN AS THE PROPER DATA VALUE
82007393	F10019988	US	US7451073	Granted		25-Jun-2002	N/A	N/A	SYSTEM AND METHOD FOR INCREASING PERFORMANCE IN MULTI-CPU SIMULATION
82082729	F100200080	US	US6868682	Granted		16-Jan-2003	N/A	N/A	AGENT BASED CONTROL METHOD AND SYSTEM FOR ENERGY MANAGEMENT
82083506	F100200402	US	US7249345	Granted		28-Feb-2002	N/A	N/A	METHOD AND SYSTEM FOR AUTOMATICALLY GENERATING SOURCE CODE BASED ON A MARK-UP LANGUAGE MESSAGE DEFINITION

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82083737	F100200475	US	US7577964	Granted		28-Feb-2003	18-Feb-2021	7,706.00	SYSTEM AND METHODS FOR DEFINING A BINDING FOR WEB-SERVICES
82083740	F100200476	US	US7398307	Granted		30-Apr-2003	N/A	N/A	METHOD AND SYSTEM FOR MANAGING A NETWORK
82083773	F100200518	US	US7502803	Granted		28-May-2003	10-Sep-2020	7,406.00	SYSTEM AND METHOD FOR GENERATING ACPI MACHINE LANGUAGE TABLES
82084055	F100200646	US	US6876224	Granted		5-Nov-2002	N/A	N/A	METHOD AND APPARATUS FOR HIGH SPEED BUS HAVING ADJUSTABLE, SYMMETRICAL, EDGE-RATE CONTROLLED, WAVEFORMS
82084058	F100200646	DE	DE10338002.7	Granted		19-Aug-2003	19-Aug-2020	1,905.57	METHOD AND APPARATUS FOR HIGH SPEED BUS HAVING ADJUSTABLE, SYMMETRICAL, EDGE-RATE CONTROLLED, WAVEFORMS
82085771	F100201443	US	US7512066	Granted		30-Mar-2004	N/A	N/A	CONGESTION CONTROL SYSTEM
82088120	F100202262	US	US7310773	Granted		13-Jan-2003	N/A	N/A	REMOVAL OF EXTRANEOUS TEXT FROM ELECTRONIC DOCUMENTS
82089050	F100202807	US	US7577951	Granted		30-May-2002	18-Feb-2021	7,406.00	IMPROVED PERFORMANCE OF COMPUTER PROGRAMS WHILE THEY ARE RUNNING

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82040786	F10980964	US	US7596694	Granted		8-Mar-2004	29-Mar-2021	7,706.00	SYSTEM AND METHOD FOR SAFELY EXECUTING DOWNLOADED CODE ON A COMPUTER SYSTEM
82051859	F10991148	US	US8190554	Granted		1-Jul-2004	29-Nov-2023	7,706.00	OLAP-BASED CUSTOMER BEHAVIOR PROFILING METHOD AND SYSTEM
82093373	F200205659	US	US7512240	Granted		29-Oct-2003	N/A	N/A	MANAGEMENT OF SECURITY KEY DISTRIBUTION
82094570	F200206263	US	US7024583	Granted		31-Oct-2002	N/A	N/A	METHOD AND APPARATUS FOR DETECTING FILE SYSTEM CORRUPTION
82094615	F200206282	US	US6711021	Granted		15-Jan-2003	N/A	N/A	SYSTEMS AND METHODS THAT USE AT LEAST ONE COMPONENT TO REMOVE THE HEAT GENERATED BY AT LEAST ONE OTHER COMPONENT
82094618	F200206282	US	US6862185	Granted		10-Nov-2003	N/A	N/A	SYSTEMS AND METHODS THAT USE AT LEAST ONE COMPONENT TO REMOVE THE HEAT GENERATED BY AT LEAST ONE OTHER COMPONENT
82095152	F200206534	US	US7039736	Granted		15-Jan-2003	N/A	N/A	SYSTEMS AND METHODS FOR ACCESSING BUS-MASTERED SYSTEM RESOURCES

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82095581	F200206729	US	US6819272	Granted		6-Nov-2002	N/A	N/A	SYSTEM, METHOD AND COMPUTER READABLE MEDIUM FOR COMPRESSING A DATA SEQUENCE FOR PARTIAL DECOMPRESSIN G
82096235	F200207033	US	US6889167	Granted		27-Feb-2003	N/A	N/A	DIAGNOSTIC EXERCISER AND METHODS THEREFOR
82096241	F200207033	GB	GB2398897	Granted		6-Feb-2004	6-Feb-2021	764.74	IMPROVED DIAGNOSTIC EXERCISER AND METHODS THEREFOR
82097468	F200207492	US	US7307862	Granted		4-Sep-2003	N/A	N/A	CIRCUIT AND SYSTEM FOR ACCESSING MEMORY MODULES
82098101	F200207492	GB	GB2405715	Granted		27-Aug-2004	27-Aug-2020	682.85	CIRCUIT AND SYSTEM FOR ADDRESSING MEMORY MODULES
82098509	F200207905	US	US7948916	Granted		31-Jan-2003	24-Nov-2022	7,706.00	METHOD AND APPARATUS FOR DISCOVERING TOPOLOGY INFORMATION IN A NETWORK
82100471	F200208701	US	US6946877	Granted		12-Dec-2003	N/A	N/A	CIRCUIT AND ASSOCIATED METHODOLOGY
82100537	F200208728	US	US6954706	Granted		20-Aug-2003	N/A	N/A	METHOD FOR MEASURING INTEGRATED CIRCUIT PROCESSOR POWER DEMAND AND ASSOCIATED SYSTEM

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82101893	F200209117	US	US7088130	Granted		3-Oct-2005	N/A	N/A	PARTIAL TERMINATION VOLTAGE CURRENT SHUNTING
82102025	F200209163	US	US6857897	Granted		29-Apr-2003	N/A	N/A	REMOTE CABLE ASSIST
82103942	F200209743	US	US6940288	Granted		4-Jun-2003	N/A	N/A	APPARATUS AND METHOD FOR MONITORING AND PREDICTING FAILURES IN SYSTEM INTERCONNECT
82103948	F200209745	US	US6895353	Granted		4-Jun-2003	N/A	N/A	APPARATUS AND METHOD FOR MONITORING HIGH IMPEDANCE FAILURES IN CHIP INTERCONNECTS
82105226	F200300027	US	US7447205	Granted		9-May-2003	N/A	N/A	SYSTEMS AND METHODS TO INSERT BROADCAST TRANSACTIONS INTO A FAST DATA STREAM OF TRANSACTIONS
82106294	F200300506	US	US7577670	Granted		8-Mar-2004	18-Feb-2021	7,706.00	METHOD AND APPARATUS FOR INFERRING ADDRESS AND SUBNET RELATIONSHIPS
82106300	F200300512	US	US6837626	Granted		12-Nov-2003	N/A	N/A	ELECTRO-OPTICAL CONNECTOR
82106519	F200300601	US	US8560629	Granted		25-Apr-2003	15-Apr-2021	3,766.00	METHOD OF DELIVERING CONTENT IN A NETWORK

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82110878	F200301299	US	US7468982	Granted		7-Nov-2002	N/A	N/A	METHOD AND APPARATUS FOR CLUSTER INTERCONNECTION USING MULTI-PORT NODES AND MULTIPLE ROUTING FABRICS
82117541	F200301749	US	US6901467	Granted		23-Feb-2001	N/A	N/A	ENHANCING A PCI-X SPLIT COMPLETION TRANSACTION BY ALIGNING CACHELINES WITH AN ALLOWABLE DISCONNECT BOUNDARY'S ENDING ADDRESS
82118192	F200301923	US	US6920052	Granted		26-Sep-2003	N/A	N/A	DYNAMIC ISOLATING MOUNT FOR PROCESSOR PACKAGES
82118201	F200301926	US	US7120248	Granted		26-Mar-2001	N/A	N/A	MULTIPLE PRIME NUMBER GENERATION USING A PARALLEL PRIME NUMBER SEARCH ALGORITHM
82118339	F200301933	US	US6977908	Granted		31-Aug-2001	N/A	N/A	METHOD AND APPARATUS FOR DISCOVERING COMPUTER SYSTEMS IN A DISTRIBUTED MULTI-SYSTEM CLUSTER
82119854	F200302178	US	US6829665	Granted		28-Sep-2001	N/A	N/A	NEXT SNOOP PREDICTOR IN A HOST CONTROLLER

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82119896	F200302187	US	US6886048	Granted		15-Nov-2001	N/A	N/A	TECHNIQUES FOR PROCESSING OUT-OF -ORDER REQUESTS IN A PROCESSOR-BASED SYSTEM
82120022	F200302218	US	US7856420	Granted		7-Dec-2001	21-Jun-2022	7,406.00	ZERO LATENCY ENTERPRISE ENRICHED PUBLISH/SUBSCRIBE
82167797	F200308580	US	US7350109	Granted		14-Nov-2003	N/A	N/A	SYSTEM AND METHOD FOR TESTING A MEMORY USING DMA
82168469	F200308860	US	US7083089	Granted		20-Jan-2004	N/A	N/A	OFF-LINE PIN VERIFICATION USING IDENTITY-BASED SIGNATURES
82171451	F200310021	US	US7650040	Granted		21-Jul-2005	19-Jul-2021	7,406.00	METHOD, APPARATUS AND SYSTEM FOR DATA BLOCK REARRANGEMENT FOR LZ DATA COMPRESSION
82174313	F200310800	US	US6873530	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174316	F200310800	US	US6862186	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174319	F200310800	US	US6922340	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174322	F200310800	US	US6900987	Granted		13-Jul-2004	N/A	N/A	STACK UP ASSEMBLY
82174325	F200310800	US	US6947286	Granted		6-Jan-2005	N/A	N/A	STACK UP ASSEMBLY

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82174070	F200311080	US	US7870188	Granted		30-Jul-2004	11-Jul-2022	7,706.00	SYSTEMS AND METHODS FOR EXPOSING WEB SERVICES
82176482	F200312027	US	US9213609	Granted		16-Dec-2003	15-Jun-2023	3,766.00	PERSISTENT MEMORY DEVICE FOR BACKUP PROCESS CHECKPOINT STATES
82178195	F200312794	US	US7502333	Granted		23-Mar-2004	N/A	N/A	PRE-CONFIGURED TOPOLOGY WITH CONNECTION MANAGEMENT
82178510	F200312917	US	US7228460	Granted		23-Jan-2004	N/A	N/A	MULTI-STATE STATUS REPORTING FOR HIGH-AVAILABILITY CLUSTER NODES
82180418	F200313751	US	US7240165	Granted		15-Jan-2004	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING PARALLEL DATA REQUESTS
82181174	F200314068	US	US7027309	Granted		20-Feb-2004	N/A	N/A	ENGAGING/DISENGAGING MECHANISM
82183112	F200314843	US	US7372820	Granted		29-Oct-2004	N/A	N/A	SYSTEM AND METHOD FOR STRIPING DELAY-SENSITIVE DATA OVER MULTIPLE BURSTY CHANNELS
82185950	F200316139	US	US7853825	Granted		26-Jul-2006	14-Jun-2022	7,406.00	METHODS AND APPARATUS FOR RECOVERING FROM FATAL ERRORS IN A SYSTEM

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82186757	F200316515	US	US7519822	Granted		10-Mar-2004	N/A	N/A	METHOD AND APPARATUS FOR PROCESSING DESCRIPTIVE STATEMENTS
82187813	F200400331	US	US7416128	Granted		22-Mar-2005	N/A	N/A	METHODS AND SYSTEMS FOR DETERMINING THE POSITION OF A HAND-HELD OBJECT FROM THE ACCELERATION OF THE HAND-HELD OBJECT
82188128	F200400468	US	US7792055	Granted		19-Mar-2007	7-Mar-2022	7,706.00	METHOD AND SYSTEM FOR DETERMINING THE TOPOLOGY OF A NETWORK
82188152	F200400478	US	US7607120	Granted		20-Apr-2004	20-Apr-2021	7,706.00	METHOD AND APPARATUS FOR CREATING DATA TRANSFORMATION ROUTINES FOR BINARY DATA
82188158	F200400479	US	US7594221	Granted		20-Apr-2004	22-Mar-2021	7,706.00	METHOD AND APPARATUS FOR TRANSLATING BINARY CODE
82189361	F200401050	US	US7876694	Granted		2-Jul-2004	25-Jul-2022	7,706.00	IDENTIFYING VPN FAULTS BASED ON VIRTUAL ROUTING ADDRESS AND EDGE INTERFACE RELATIONSHIP INFORMATION
82190645	F200401757	US	US7661095	Granted		14-Apr-2005	9-Aug-2021	7,406.00	SYSTEM AND METHOD TO BUILD A CALLGRAPH FOR FUNCTIONS WITH MULTIPLE ENTRY POINTS

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82190894	F200401857	US	US7499286	Granted		31-Aug-2006	3-Sep-2020	7,406.00	MOUNTING ADAPTER FOR ELECTRONIC MODULES
82192031	F200402033	US	US7607014	Granted		30-Jun-2005	20-Apr-2021	7,706.00	AUTHENTICATING MAINTENANCE ACCESS TO AN ELECTRONICS UNIT VIA WIRELESS COMMUNICATION
82192013	F200402351	US	US7298272	Granted		29-Apr-2005	N/A	N/A	REMOTE DETECTION EMPLOYING RFID
82192016	F200402351	GB	GB2425690	Granted		11-Apr-2006	11-Apr-2021	618.83	REMOTE DETECTION EMPLOYING RFID
82194659	F200403238	US	US7548421	Granted		25-Oct-2005	16-Dec-2020	7,406.00	IMPINGEMENT COOLING OF COMPONENTS IN AN ELECTRONIC SYSTEM
82194662	F200403238	GB	GB2431777	Granted		25-Sep-2006	25-Sep-2020	524.44	IMPINGEMENT COOLING OF COMPONENTS IN AN ELECTRONIC SYSTEM
82194665	F200403238	JP	JP4809184	Granted		25-Oct-2006	26-Aug-2020	857.79	IMPINGEMENT COOLING OF COMPONENTS IN ELECTRONIC SYSTEM
82195124	F200403386	US	US8713278	Granted		25-Apr-2005	29-Oct-2021	3,606.00	SYSTEM AND METHOD FOR STRANDED FILE OPENS DURING DISK COMPRESSION UTILITY REQUESTS

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82196951	F200404192	US	US7590885	Granted		26-Apr-2005	15-Mar-2021	7,406.00	METHOD AND SYSTEM OF COPYING MEMORY FROM A SOURCE PROCESSOR TO A TARGET PROCESSOR BY DUPLICATING MEMORY WRITES
82196960	F200404193	US	US7933966	Granted		26-Apr-2005	26-Oct-2022	7,406.00	METHOD AND SYSTEM OF COPYING A MEMORY AREA BETWEEN PROCESSOR ELEMENTS FOR LOCK-STEP EXECUTION
82197773	F200404626	US	US7941569	Granted		24-Feb-2005	10-Nov-2022	7,406.00	INPUT/OUTPUT TRACING IN A PROTOCOL OFFLOAD SYSTEM
82197851	F200404670	US	US7478265	Granted		14-Oct-2004	N/A	N/A	ERROR RECOVERY FOR INPUT/OUTPUT OPERATIONS
82198019	F200404742	US	US7840725	Granted		28-Sep-2004	23-May-2022	7,406.00	CAPTURE OF DATA IN A COMPUTER NETWORK
82198130	F200404811	US	US8713550	Granted		11-Mar-2005	29-Oct-2021	3,606.00	METHODS, DEVICES AND SOFTWARE APPLICATIONS FOR FACILITATING A DEVELOPMENT OF A COMPUTER PROGRAM
82199216	F200405267	US	US7936694	Granted		30-Mar-2007	3-Nov-2022	7,706.00	SNIFFING-BASED NETWORK MONITORING
82200005	F200405671	US	US7380723	Granted		1-Nov-2005	N/A	N/A	MONITORING OBJECT MOVEMENT

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82200353	F200405859	US	US7962789	Granted		28-Jun-2006	14-Dec-2022	7,406.00	METHOD AND APPARATUS FOR AUTOMATED TESTING OF A UTILITY COMPUTING SYSTEM
82200476	F200405943	US	US7818623	Granted		18-Oct-2006	19-Apr-2022	7,406.00	KERNEL DEBUGGING IN A CLUSTER COMPUTING SYSTEM
82201253	F200406358	US	US8836717	Granted		27-Oct-2005	16-Mar-2022	3,606.00	SYSTEM, METHOD AND UTILITY TO FORMAT IMAGES RETREIVED FROM A DEVICE
82204670	F200407921	US	US7724985	Granted		27-Oct-2005	25-Nov-2021	7,406.00	DEVICE STORING VECTOR IMAGE WITH EMBEDDED IMAGE STYLE IDENTIFIER, AND METHODS AND UTILITIES FOR FORMATTING A DEVICE IMAGE WITH IMAGE STYLE ATTRIBUTES
82205024	F200408082	US	US7640332	Granted		20-Dec-2007	29-Jun-2021	7,406.00	SYSTEM AND METHOD FOR HOT DEPLOYMENT/REDEPLOYMENT IN GRID COMPUTING ENVIRONMENT
82205459	F200408376	US	US8561050	Granted		18-Oct-2006	15-Apr-2021	3,606.00	METHOD AND SYSTEM FOR UPDATING AN APPLICATION
82207715	F200500894	US	US7693045	Granted		22-Dec-2005	6-Oct-2021	7,406.00	VERIFYING NETWORK CONNECTIVITY

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82208570	F200501261	US	US8145627	Granted		10-Jun-2005	27-Sep-2023	7,706.00	USE OF CONNECTIVITY ANALYSIS TO ASSIST RULE-BASED OPTIMIZERS
82208873	F200501448	US	US7904686	Granted		13-May-2008	8-Sep-2022	7,406.00	DATA SECURITY FOR USE WITH A FILE SYSTEM
82218614	F200506797	US	US9071506	Granted		29-Jun-2007	30-Dec-2022	3,766.00	ACCESSING WEB SERVICES USING NETWORK MANAGEMENT INFORMATION
82219511	F200507304	US	US7711657	Granted		26-Jun-2006	4-Nov-2021	7,706.00	RESOURCE-RESERVATION PRICING STRUCTURES BASED ON EXPECTED ABILITY TO DELIVER
82223162	F200601205	US	US7145881	Granted		4-Oct-2000	N/A	N/A	METHOD OF DETERMINING THE ROUTE OF PACKETS THROUGH A NETWORK OF COMMUNICATING OBJECTS
82227437	F200603085	US	US8526325	Granted		31-Jan-2007	3-Mar-2021	3,766.00	DETECTING AND IDENTIFYING CONNECTIVITY IN A NETWORK
82227602	F200603199	US	US8553573	Granted		4-Apr-2008	8-Apr-2021	3,766.00	APPARATUS AND METHODS FOR ADAPTIVE THROTTLING OF TRAFFIC ACROSS MULTIPLE NETWORK NODES
82227608	F200603199	CN	CN200880019398.6	Granted		4-Apr-2008	4-Apr-2021	1,032.98	APPARATUS AND METHODS FOR ADAPTIVE THROTTLING OF TRAFFIC ACROSS MULTIPLE NETWORK NODES

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82230062	F200700051	US	US7594047	Granted		9-Jul-2007	22-Mar-2021	7,706.00	BUFFER CIRCUIT
82231238	F200700480	US	US8543711	Granted		30-Apr-2007	24-Mar-2021	3,766.00	SYSTEM AND METHOD FOR EVALUATING A PATTERN OF RESOURCE DEMANDS OF A WORKLOAD
82241726	F200703705	US	US8620859	Granted		10-Jun-2008	30-Jun-2021	3,766.00	DATA PROCESSING SYSTEM AND METHOD OF EVALUATING EFFECTIVENESS OF USAGE OF A FILE SYSTEM (AS AMENDED)
82244171	F200704470	US	US8676931	Granted		6-Oct-2006	18-Sep-2021	3,766.00	METHODS FOR MANAGING MANUAL CHANGES TO NETWORK INFRASTRUCTURES THROUGH AUTOMATED SYSTEMS
82244195	F200704474	US	US8762507	Granted		22-Dec-2006	24-Dec-2021	3,766.00	METHOD AND SYSTEM FOR MANAGING AN INFORMATION TECHNOLOGY SYSTEM
82250867	F200900112	US	US8296253	Granted		15-Jun-2009	23-Apr-2024	7,706.00	MANAGING ONLINE CONTENT BASED ON ITS PREDICTED POPULARITY
82585290	F200900907	CN	CN200980140622.1	Granted		12-Oct-2009	12-Oct-2021	1,032.98	SYSTEMS AND PROCESSES FOR SECURING SENSITIVE INFORMATION
82254551	F200901230	US	US7472421	Granted		30-Sep-2002	30-Jun-2020	7,406.00	COMPUTER MODEL OF SECURITY RISKS

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82256600	F200901720	US	US8806061	Granted		14-Sep-2004	12-Feb-2022	3,766.00	SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR AUTOMATED CATEGORIZATIO N OF DATA PROCESSING SERVICES AND COMPONENTS
82257182	F200901875	US	US7992002	Granted		7-Jul-2006	2-Feb-2023	7,706.00	DATA DEPOSITORY AND ASSOCIATED METHODOLOGY PROVIDING SECURE ACCESS PURSUANT TO COMPLIANCE STANDARD CONFORMITY
82257338	F200901933	US	US9043589	Granted		14-Nov-2007	26-Nov-2022	3,766.00	SYSTEM AND METHOD FOR SAFEGUARDING AND PROCESSING CONFIDENTIAL INFORMATION
82262333	F200905061	US	US9037843	Granted		10-Mar-2010	19-Nov-2022	3,766.00	MANAGING A TARGET COMPUTING DEVICE (AMENDED)
82262453	F201000006	US	US8532495	Granted		23-Jul-2010	10-Mar-2021	3,766.00	METHOD FOR ENERGY EFFICIENT PULSING OPERATION OF TRANSCEIVERS OF A NETWORKED DEVICE
82262639	F201000102	US	US8391717	Granted		24-May-2010	5-Sep-2024	7,706.00	FLOW-CONTROL METHODS AND SYSTEMS FOR MULTIBUS SYSTEMS

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82272218	F201003701	US	US6760372	Granted		10-Aug-2000	N/A	N/A	ADAPTIVE SIGNAL PROCESSOR USING AN EYE-DIAGRAM METRIC
82272668	F201003882	US	US6999453	Granted		9-Jul-2001	N/A	N/A	DISTRIBUTED SWITCH FABRIC ARBITRATION
82273010	F201004068	US	US7277517	Granted		15-Nov-2002	N/A	N/A	METHOD FOR ACHIEVING SYMBOL ALIGNMENT TO A PRE-EXISTING ADSL DATA EXCHANGE
82273151	F201004138	US	US7701941	Granted		28-Mar-2001	20-Oct-2021	7,706.00	NETWORK SWITCH WITH MUTUALLY COUPLED LOOK-UP ENGINE AND NETWORK PROCESSOR
82273154	F201004138	US	US8194672	Granted		2-Mar-2010	N/A	N/A	NETWORK SWITCH WITH MUTUALLY COUPLED LOOK-UP ENGINE AND NETWORK PROCESSOR
82273340	F201004234	US	US6766020	Granted		23-Feb-2001	N/A	N/A	SYSTEM AND METHOD FOR COMFORT NOISE GENERATION
82273772	F201004422	US	US7460533	Granted		15-Nov-2001	N/A	N/A	SYSTEM AND METHOD FOR MULTI-CASTING ANNOUNCEMENTS
82274021	F201004517	US	US6662119	Granted		2-Aug-2002	N/A	N/A	METHOD AND APPARATUS FOR MONITORING CONNECTOR DEGRADATION

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82274030	F201004520	US	US7522614	Granted		28-Feb-2003	N/A	N/A	MULTI-SERVICE ACCESS PLATFORM FOR TELECOMMUNICATIONS AND DATA NETWORKS
82274048	F201004523	US	US6833712	Granted		27-Sep-2002	N/A	N/A	DIFFERENTIATING BETWEEN BOARD-INSERTION POWER-ON AND CHASSIS POWER-ON
82274066	F201004527	US	US7283543	Granted		27-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR OPERATING ECHO CANCELLERS WITH NETWORKS HAVING INSUFFICIENT LEVELS OF ECHO RETURN LOSS
82274114	F201004542	US	US7463620	Granted		10-Sep-2002	N/A	N/A	ARCHITECTURE AND METHOD FOR CONTROLLING FEATURES AND SERVICES IN PACKET-BASED NETWORKS
82274168	F201004553	US	US7307998	Granted		27-Aug-2002	N/A	N/A	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING DYNAMICALLY OPTIMIZED RECEIVE BUFFER QUEUES
82651947	F201004683	US	US8422649	Granted		23-Feb-2011	16-Oct-2024	7,406.00	DIGITAL TELEPHONE DATA AND CONTROL SIGNAL TRANSMISSION SYSTEM

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82276151	F201005199	US	US8397302	Granted		29-Oct-2010	12-Sep-2024	7,706.00	SYSTEM AND METHOD FOR ANALYZING A PROCESS
82062713	F30004521	US	US7877799	Granted		1-Aug-2001	25-Jul-2022	7,706.00	PERFORMANCE OF A SERVICE ON A COMPUTING PLATFORM
82062719	F30004521	JP	JP4818542	Granted		9-Aug-2001	N/A	N/A	PERFORMANCE OF A SERVICE ON A COMPUTING PLATFORM
82062773	F30004640	US	US8166173	Granted		16-Oct-2001	24-Oct-2023	7,706.00	INVITING ASSISTANT ENTITY INTO A NETWORK COMMUNICATIO N SESSION
82062770	F30004640	GB	GB2368225	Expired		17-Oct-2000	N/A	N/A	INVITING ASSISTANT ENTITY INTO A NETWORK COMMUNICATIO N SESSION
82065599	F30014518	US	US6845431	Granted		28-Dec-2001	N/A	N/A	SYSTEM AND METHOD FOR INTERMEDIATIN G COMMUNICATIO N WITH A MOVEABLE MEDIA LIBRARY UTILIZING A PLURALITY OF PARTITIONS
82065602	F30014518	JP	JP4667707	Granted		24-Dec-2002	21-Jan-2021	784.98	METHOD FOR INTERMEDIATIN G COMMUNICATIO N WITH MOVABLE MEDIA LIBRARY UTILIZING A PLURALITY OF PARTITIONS

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82065905	F30016994	US	US7096409	Granted		30-Jul-2003	N/A	N/A	REED-SOLOMON DECODER AND DECODING METHOD FOR ERRORS AND ERASURES DECODING
82066025	F30017568	US	US7086052	Granted		3-Jan-2003	N/A	N/A	SOFTWARE INSTALLATION AND OPERATION WITH RANDOM SELECTION
82069286	F30990075	US	US8407092	Granted		30-Oct-2001	26-Sep-2024	7,706.00	METERING IN A DATA PROCESSING SYSTEM
83810416	F700206840	US	US9213842	Granted		17-Aug-2011	15-Jun-2023	3,766.00	TRACING DATA BLOCK OPERATIONS
83969756	F700208369	US	US9514290	Granted		30-Mar-2012	6-Jun-2024	3,766.00	AUTHORIZATION CACHE

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81966890	F10001274	US	US6665671	Granted		4-Apr-2001	N/A	N/A	SYSTEM AND METHOD FOR OPTIMIZATION OF SHARED DATA
81977510	F10004565	US	US6851024	Granted		17-Aug-2000	N/A	N/A	EXCLUSIVE CACHING IN COMPUTER SYSTEMS
81978710	F10004941	US	US7447761	Granted		5-Oct-2000	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978719	F10004941	DE	DE60131348.8	Granted		5-Apr-2001	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978722	F10004941	FR	FR1195942	Granted		5-Apr-2001	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978725	F10004941	GB	GB1195942	Granted		5-Apr-2001	N/A	N/A	DEVICE DETECTION SYSTEM AND METHOD
81978758	F10004950	US	US6741907	Granted		23-Mar-2001	N/A	N/A	INVENTORY CONTROL APPARATUS AND METHOD FOR A DATA STORAGE SYSTEM
81982898	F10006663	US	US7185109	Granted		20-Apr-2001	N/A	N/A	RECURSIVE DISCOVERY OF CDP TYPE OF NODES IN A NETWORK OF VARIOUS NODE TYPES
81988655	F10010480	US	US7035928	Granted		25-Apr-2001	N/A	N/A	ALLOCATING COMPUTER RESOURCES FOR EFFICIENT USE BY A PROGRAM

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81990341	F10011167	US	US7044362	Granted		10-Oct-2001	N/A	N/A	ELECTRONIC TICKETING SYSTEM AND METHOD
81994154	F10012695	US	US7051166	Granted		21-Apr-2003	N/A	N/A	DIRECTORY-BASED CACHE COHERENCY SCHEME FOR REDUCING MEMORY BANDWIDTH LOSS
82001048	F10016749	US	US6938259	Granted		2-Oct-2001	N/A	N/A	API TO ENFORCE INTERNATIONALIZATION
82001261	F10016875	US	US7877607	Granted		30-Aug-2002	25-Jul-2022	7,406.00	TAMPER-EVIDENT DATA MANAGEMENT
82001303	F10016885	DE	DE10306598.9	Granted		17-Feb-2003	17-Feb-2021	2,272.89	METHOD AND SYSTEM FOR ASSESSING AVAILABILITY OF COMPLEX ELECTRONIC SYSTEMS INCLUDING COMPUTER SYSTEMS
82001777	F10017266	US	US7191322	Granted		12-Oct-2001	N/A	N/A	METHOD AND APPARATUS FOR TUNING MULTIPLE INSTANCES OF KERNEL MODULES
82002368	F10017495	US	US7228527	Granted		15-Jul-2003	N/A	N/A	METHOD AND SYSTEM FOR STRUCTURING A PROCEDURE
82002491	F10017566	US	US6950962	Granted		12-Oct-2001	N/A	N/A	METHOD AND APPARATUS FOR KERNEL MODULE TESTING

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82003943	F10018224	US	US7051195	Granted		26-Oct-2001	N/A	N/A	METHOD OF OPTIMIZATION OF CPU AND CHIPSET PERFORMANCE BY SUPPORT OF OPTIONAL READS BY CPU AND CHIPSET
82003994	F10018269	US	US7133933	Granted		28-Aug-2002	N/A	N/A	CONTENT SYNCHRONIZATION FRAMEWORKS USING DYNAMIC ATTRIBUTES AND FILE BUNDLES FOR CONNECTED DEVICES
82004738	F10018772	US	US7028302	Granted		24-Apr-2002	N/A	N/A	SYSTEM AND METHOD FOR AUTOMATICALLY TUNING A MULTIPROCESSOR COMPUTER SYSTEM
82007378	F10019983	US	US6993750	Granted		13-Dec-2001	N/A	N/A	DYNAMIC REGISTRATION OF DYNAMICALLY GENERATED CODE AND CORRESPONDING UNWIND INFORMATION
82007381	F10019983	US	US6996810	Granted		13-Dec-2001	N/A	N/A	LAZY AND PRECISE UPDATE OF UNWIND INFORMATION FOR DYNAMICALLY GENERATED CODE
82085975	F100201501	US	US6820021	Granted		1-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR GENERATING A SHMOO PLOT BY VARYING THE RESOLUTION THEREOF

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82085981	F100201506	US	US6847909	Granted		1-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR GENERATING A SHMOO PLOT BY TRACKING THE EDGE OF THE PASSING REGION
82085999	F100201509	US	US6820027	Granted		1-Nov-2002	N/A	N/A	SYSTEM AND METHOD FOR GENERATING A SHMOO PLOT BY AVOIDING TESTING IN FAILING REGIONS
82088162	F100202293	US	US7058838	Granted		17-Dec-2002	N/A	N/A	SYSTEM AND METHOD FOR SYNCHRONIZING A PLURALITY OF PROCESSORS IN A MULTIPROCESSOR COMPUTER PLATFORM EMPLOYING A GLOBAL CLOCK COUNTER
82089131	F100202851	US	US6944552	Granted		25-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR DETECTING POWER DEFICIENCIES IN A COMPUTER COMPONENT
82089614	F100203069	US	US6993639	Granted		1-Apr-2003	N/A	N/A	PROCESSING INSTRUCTION ADDRESSED BY RECEIVED REMOTE INSTRUCTION AND GENERATING REMOTE INSTRUCTION TO RESPECTIVE OUTPUT PORT FOR ANOTHER CELL

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82090145	F100203410	US	US7222121	Granted		21-Nov-2002	N/A	N/A	PLATFORM AND METHOD FOR MONITORING AND ANALYZING DATA
82091864	F100204840	US	US7055114	Granted		8-Oct-2003	N/A	N/A	SYSTEMS AND PROCESSES FOR ASYMMETRICALLY SHRINKING A VLSI LAYOUT
82092542	F100205126	US	US7254541	Granted		30-Oct-2002	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING USERS WITH INFORMATION IN AUDIBLE FORM
82092545	F100205127	US	US7136804	Granted		30-Oct-2002	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING USERS WITH INFORMATION IN AUDIBLE FORM
82093352	F200205639	US	US7360219	Granted		13-Dec-2002	N/A	N/A	SYSTEMS AND METHODS FOR FACILITATING FAIR AND EFFICIENT SCHEDULING OF PROCESSES AMONG MULTIPLE RESOURCES IN A COMPUTER SYSTEM
82093355	F200205639	JP	JP4387174	Granted		11-Dec-2003	9-Oct-2021	1,069.38	METHOD FOR DISTRIBUTING PROCESS ASSOCIATED WITH TWO OR MORE PRIORITY GROUPS AMONG TWO OR MORE RESOURCES

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82095062	F200206508	US	US6883150	Granted		14-Mar-2003	N/A	N/A	AUTOMATIC MANUFACTURING TEST CASE GENERATION METHOD AND SYSTEM
82095548	F200206688	US	US7356574	Granted		25-Feb-2003	N/A	N/A	APPARATUS AND METHOD FOR PROVIDING DYNAMIC AND AUTOMATED ASSIGNMENT OF DATA LOGICAL UNIT NUMBERS
82095560	F200206691	US	US6934711	Granted		1-Oct-2002	N/A	N/A	METHOD AND ARRANGEMENT FOR COMMUNICATING WITH SCSI DEVICES
82095911	F200206894	US	US8452945	Granted		17-Sep-2002	28-Nov-2020	3,606.00	INDIRECT INDEXING INSTRUCTIONS
82097501	F200207515	US	US6930886	Granted		30-Apr-2003	N/A	N/A	ELECTRONIC COMPONENT SECUREMENT SYSTEM
82097576	F200207606	US	US7076488	Granted		29-Jan-2003	N/A	N/A	XML-LDAP ADAPTERS AND METHODS THEREFOR
82097579	F200207608	US	US7818646	Granted		12-Nov-2003	19-Apr-2022	7,706.00	EXPECTATION BASED EVENT VERIFICATION
82097606	F200207619	US	US8862770	Granted		6-Nov-2003	14-Apr-2022	3,766.00	PROCESSOR ARCHITECTURE VERIFICATION
82098401	F200207878	US	US7103756	Granted		30-Sep-2002	N/A	N/A	DATA PROCESSOR WITH INDIVIDUALLY WRITABLE REGISTER SUBWORD LOCATIONS

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82099337	F200208211	US	US7509589	Granted		30-Sep-2003	24-Sep-2020	7,406.00	STORAGE DOMAIN GUI
82099406	F200208248	US	US7562229	Granted		23-Jan-2003	14-Jan-2021	7,406.00	CODEWORD-BASED AUDITING OF COMPUTER SYSTEMS AND METHODS THEREFOR
82099835	F200208458	US	US6861876	Granted		25-Mar-2003	N/A	N/A	PULSE EVALUATE LOGIC-LATCH
82099847	F200208463	US	US7574341	Granted		12-Nov-2003	11-Feb-2021	7,706.00	SPECULATIVE EXPECTATION BASED EVENT VERIFICATION
82101605	F200208674	GB	GB2399434	Granted		10-Mar-2004	10-Mar-2021	764.74	AN INTEGRATED CIRCUIT
82100681	F200208770	US	US6832168	Granted		4-Apr-2003	N/A	N/A	METHOD AND SYSTEM FOR VERIFYING NETWORK DEVICE POWER CABLING CONFIGURATION
82101617	F200209008	US	US6876207	Granted		1-Aug-2003	N/A	N/A	SYSTEM AND METHOD FOR TESTING DEVICES
82102124	F200209185	US	US7340630	Granted		8-Aug-2003	N/A	N/A	MULTIPROCESSOR SYSTEM WITH INTERACTIVE SYNCHRONIZATION OF LOCAL CLOCKS
82102127	F200209185	GB	GB2404761	Granted		5-Aug-2004	5-Aug-2021	764.74	MULTIPROCESSOR SYSTEM WITH INTERACTIVE SYNCHRONIZATION OF LOCAL CLOCKS
82102208	F200209233	US	US7581008	Granted		12-Nov-2003	25-Feb-2021	7,706.00	SYSTEM AND METHOD FOR ALLOCATING SERVER RESOURCES

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82205489	F200209233	US	US7886055	Granted		28-Apr-2005	8-Aug-2022	7,706.00	ALLOCATING RESOURCES IN A SYSTEM HAVING MULTIPLE TIERS
82212719	F200209233	US	US7594016	Granted		16-Jun-2005	22-Mar-2021	7,706.00	CALCULATING NUMBERS OF SERVERS FOR TIERS OF A MULTI-TIERED SYSTEM
82212722	F200209233	US	US9021094	Granted		28-Apr-2005	28-Oct-2022	3,766.00	ALLOCATION OF RESOURCES FOR TIERS OF MULTI-TIERED SYSTEM BASED ON SELECTING ITEMS FROM RESPECTIVE SETS
82103705	F200209646	US	US7523503	Granted		21-Jan-2003	N/A	N/A	METHOD FOR PROTECTING SECURITY OF NETWORK INTRUSION DETECTION SENSORS
82104731	F200210100	US	US7103785	Granted		30-May-2003	N/A	N/A	METHOD AND APPARATUS FOR POWER MANAGEMENT EVENT WAKE UP
82105928	F200300276	US	US7506085	Granted		20-Oct-2006	N/A	N/A	SYSTEM AND METHOD FOR SENDING DATA ACROSS A BUS CABLE HAVING IN-BAND AND SIDE-BAND SIGNAL CONDUCTORS
82106279	F200300497	US	US7849320	Granted		25-Nov-2003	7-Jun-2022	7,406.00	METHOD AND SYSTEM FOR ESTABLISHING A CONSISTENT PASSWORD POLICY

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82117301	F200301703	US	US6817009	Granted		30-Nov-2000	N/A	N/A	METHOD AND APPARATUS FOR VERIFYING DATA LOCAL TO A SINGLE THREAD
82117799	F200301824	US	US6859876	Granted		29-Dec-2000	N/A	N/A	SYSTEM AND METHOD FOR DETECTING AND USING A REPLACEMENT BOOT BLOCK DURING INITIALIZATION BY AN ORIGINAL BOOT BLOCK
82117943	F200301854	US	US6668335	Granted		31-Aug-2000	N/A	N/A	SYSTEM FOR RECOVERING DATA IN A MULITPROCESSOR SYSTEM COMPRISING A CONDUCTION PATH FOR EACH BIT BETWEEN PROCESSORS WHERE THE PATHS ARE GROUPLED INTO SEPARATE BUNDLES ANDROUTED ALONG DIFFERENT PATHS
82118243	F200301937	US	US6931626	Granted		17-Jan-2001	N/A	N/A	METHOD AND APPARATUS FOR VERSIONING STATICALLY BOUND FILES
82118408	F200301971	US	US6901512	Granted		12-Dec-2000	N/A	N/A	CENTRALIZED CRYPTOGRAPHIC KEY ADMINISTRATION SCHEME FOR ENABLING SECURE CONTEXT-FREE APPLICATION OPERATION

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82118465	F200301985	US	US6892259	Granted		29-Sep-2001	N/A	N/A	METHOD AND APPARATUS FOR ALLOCATING COMPUTER BUS DEVICE RESOURCES TO A PRIORITY REQUESTER AND RETRYING REQUESTS FROM NON-PRIORITY REQUESTERS
82119836	F200302174	US	US7055139	Granted		28-Mar-2002	N/A	N/A	MULTIPROCESS DEBUGGING USING MULTIPLE CONVENTIONAL DEBUGGERS
82120241	F200302277	US	US6963869	Granted		7-Jan-2002	N/A	N/A	SYSTEM AND METHOD FOR SEARCH, INDEX, PARSING DOCUMENT DATABASE INCLUDING SUBJECT DOCUMENT HAVING NESTED FIELDS ASSOCIATED START AND END META WORDS WHERE EACH META WORD IDENTIFY LOCATION AND NESTING LEVEL
82120643	F200302377	US	US7099879	Granted		26-Apr-2002	N/A	N/A	REAL-TIME MONITORING OF SERVICE PERFORMANCE THROUGH THE USE OF RELATIONAL DATABASE CALCULATION CLUSTERS

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82588205	F200302529	US	US8144716	Granted		17-Dec-2010	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING TELECOMMUNICATION SUBSCRIBER SERVICES WITHOUT PROVISIONING OR MAINTENANCE
82121753	F200302551	US	US7472283	Granted		30-May-2002	N/A	N/A	METHOD AND APPARATUS FOR SECURED DIGITAL VIDEO AND ACCESS TRACKING
82121762	F200302554	US	US7168001	Granted		6-Feb-2004	N/A	N/A	TRANSACTION PROCESSING APPARATUS AND METHOD
82121792	F200302564	US	US7143275	Granted		1-Aug-2002	N/A	N/A	SYSTEM FIRMWARE BACK-UP USING A BIOS-ACCESSIBLE PRE-BOOT PARTITION
82122008	F200302620	US	US7051175	Granted		17-Jan-2003	N/A	N/A	TECHNIQUES FOR IMPROVED TRANSACTION PROCESSING
82132268	F200304082	US	US6898740	Granted		25-Jan-2001	N/A	N/A	COMPUTER SYSTEM HAVING CONFIGURABLE CORE LOGIC CHIPSET FOR CONNECTION TO A FAULT-TOLERANT ACCELERATED GRAPHICS PORT BUS AND PERIPHERAL COMPONENT INTERCONNECT BUS

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82133216	F200304307	US	US6862646	Granted		28-Dec-2001	N/A	N/A	METHOD AND APPARATUS FOR ELIMINATING THE SOFTWARE GENERATED READY-SIGNAL TO HARDWARE DEVICES THAT ARE NOT PART OF THE MEMORY COHERENCY DOMAIN
82133327	F200304328	US	US6857040	Granted		5-Dec-2001	N/A	N/A	BI-DIRECTIONAL BUS BRIDGE IN WHICH MULTIPLE DEVICES CAN ASSERT BUS CONCURRENTLY
82168619	F200308902	US	US7181575	Granted		29-Sep-2004	N/A	N/A	INSTRUCTION CACHE USING SINGLE-PORTED MEMORIES
82168961	F200309043	US	US7165187	Granted		6-Jun-2003	N/A	N/A	BATCH BASED DISTRIBUTED DATA REDUNDANCY
82169747	F200309399	US	US7509657	Granted		28-Oct-2003	24-Sep-2020	7,406.00	APPLICATION PROGRAMMING INTERFACE FOR A VIRTUAL SWITCH
82169834	F200309444	US	US7120717	Granted		13-Feb-2004	N/A	N/A	METHOD AND APPARATUS FOR CONTROLLING INTERRUPT STORMS
82170167	F200309576	US	US7237084	Granted		27-Oct-2003	N/A	N/A	METHOD AND PROGRAM PRODUCT FOR AVOIDING CACHE CONGESTION BY OFFSETTING ADDRESSES WHILE ALLOCATING MEMORY

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82170170	F200309576	CN	CN200410087955.1	Granted		27-Oct-2004	27-Oct-2021	1,310.50	METHOD FOR AVOIDING CACHE CONGESTION BY OFFSETTING ADDRESSES WHILE ALLOCATING MEMORY
82170326	F200309643	US	US8442058	Granted		30-Apr-2003	14-Nov-2020	3,606.00	LOCATING STATIONS BETWEEN PROTOCOLS
82170329	F200309643	US	US7599379	Granted		30-Apr-2003	6-Apr-2021	7,706.00	REGISTERING STATIONS BETWEEN PROTOCOLS
82170812	F200309832	US	US7936738	Granted		6-Jul-2004	3-Nov-2022	7,706.00	FAULT TOLERANT SYSTEMS
82173188	F200310748	US	US7472398	Granted		17-Nov-2003	N/A	N/A	METHOD AND SYSTEM FOR HOSTING AN APPLICATION WITH A FACADE SERVER
82173518	F200310852	US	US7027950	Granted		19-Nov-2003	N/A	N/A	REGRESSION CLUSTERING AND CLASSIFICATION
82173665	F200310901	US	US7310751	Granted		20-Feb-2004	N/A	N/A	TIMEOUT EVENT TRIGGER GENERATION
82178666	F200312986	US	US7231543	Granted		14-Jan-2004	N/A	N/A	SYSTEMS AND METHODS FOR FAULT-TOLERANT PROCESSING WITH PROCESSOR REGROUPING BASED ON CONNECTIVITY CONDITIONS
82179887	F200313560	US	US7571163	Granted		13-Jul-2004	4-Feb-2021	7,706.00	METHOD FOR SORTING A DATA STRUCTURE

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82181510	F200314221	US	US7536684	Granted		29-Dec-2003	19-Nov-2020	7,406.00	SOFTWARE DOCUMENTATION GENERATION USING DIFFERENTIAL UPGRADE DOCUMENTATION
82182356	F200314535	US	US7650275	Granted		20-Jan-2005	19-Jul-2021	7,406.00	EXTERNAL EMULATION HARDWARE
82182986	F200314774	US	US7346802	Granted		30-Jan-2004	N/A	N/A	ROUTING COMMUNICATIONS TO A STORAGE AREA NETWORK
82183328	F200314943	US	US7149831	Granted		27-Sep-2004	N/A	N/A	BATCH PROCESSING OF INTERRUPTS
82185188	F200315753	US	US7839765	Granted		5-Oct-2004	23-May-2022	7,406.00	ADVERTISING PORT STATE CHANGES IN A NETWORK
82185371	F200315833	US	US7290176	Granted		31-Jul-2004	N/A	N/A	METHOD AND SYSTEM FOR GENERATING STACKED REGISTER DUMPS FROM BACKING-STORE MEMORY
82186622	F200316432	US	US7644146	Granted		2-Jun-2004	5-Jul-2021	7,406.00	SYSTEM AND METHOD FOR DISCOVERING COMMUNITIES IN NETWORKS
82186979	F200316677	US	US7562356	Granted		22-Sep-2004	14-Jan-2021	7,706.00	AUTOMATICALLY RESOLVING PATCH DEPENDENCIES FOR A PATCH BUNDLE
82188284	F200400507	US	US7631251	Granted		16-Feb-2005	8-Jun-2021	7,406.00	METHOD AND APPARATUS FOR CALCULATING CHECKSUMS

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82188425	F200400580	US	US7484221	Granted		20-Oct-2004	27-Jul-2020	7,406.00	METHOD AND APPARATUS FOR LOGGING THE EXECUTION HISTORY OF AN OPERATING SYSTEM KERNEL
82189055	F200400868	US	US7530057	Granted		21-Oct-2004	5-Nov-2020	7,406.00	PROGRAM CODE COVERAGE
82189262	F200401011	IN	IN262409	Granted		4-Jul-2005	4-Jul-2020	644.00	METHOD FOR LATENT ERROR DETECTION
82189256	F200401011	US	US7308605	Granted		20-Jul-2004	N/A	N/A	LATENT ERROR DETECTION
82191929	F200402293	US	US7516297	Granted		10-Nov-2005	N/A	N/A	MEMORY MANAGEMENT
82194287	F200403066	US	US7353375	Granted		7-Oct-2004	N/A	N/A	METHOD AND APPARATUS FOR MANAGING PROCESSOR AVAILABILITY USING A MICROCODE PATCH
82195928	F200403684	US	US7350007	Granted		5-Apr-2005	N/A	N/A	TIME-INTERVAL-BASED SYSTEM AND METHOD TO DETERMINE IF A DEVICE ERROR RATE EQUALS OR EXCEEDS A THRESHOLD ERROR RATE
82196375	F200403900	US	US7493620	Granted		18-Jun-2004	17-Aug-2020	7,406.00	TRANSFER OF WAITING INTERRUPTS
82197896	F200404691	US	US7925841	Granted		10-Sep-2004	12-Oct-2022	7,406.00	MANAGING SHARED MEMORY USAGE WITHIN A MEMORY RESOURCE GROUP INFRASTRUCTURE

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82199510	F200404975	US	US7307902	Granted		30-Aug-2005	N/A	N/A	MEMORY CORRECTION SYSTEM AND METHOD
82199516	F200404975	US	US7599235	Granted		2-Nov-2007	6-Apr-2021	7,706.00	MEMORY CORRECTION SYSTEM AND METHOD
82199375	F200405357	US	US7797505	Granted		25-Apr-2005	14-Mar-2022	7,406.00	PROGRAM STACK HANDLING
82200386	F200405879	US	US7530064	Granted		21-Sep-2004	5-Nov-2020	7,406.00	METHOD AND APPARATUS FOR AUTOMATED REGISTRY CLEAN-UP
82204667	F200406984	US	US7631269	Granted		27-Oct-2005	8-Jun-2021	7,406.00	UTILITY, METHOD AND DEVICE PROVIDING VECTOR IMAGES THAT MAY BE UPDATED TO REFLECT THE PHYSICAL STATES OF CONFIGURABLE COMPONENTS OF A DEVICE
82202693	F200407024	US	US7460470	Granted		18-Mar-2005	N/A	N/A	SYSTEMS AND METHODS OF PRIORITY FAILOVER DETERMINATION
82203044	F200407193	US	US7730350	Granted		3-Feb-2006	1-Dec-2021	7,406.00	METHOD AND SYSTEM OF DETERMINING THE EXECUTION POINT OF PROGRAMS EXECUTED IN LOCK STEP
82203605	F200407428	US	US7822857	Granted		7-Sep-2005	26-Apr-2022	7,406.00	METHODS AND SYSTEMS FOR SHARING REMOTE ACCESS

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82204757	F200407954	US	US7710428	Granted		27-Oct-2005	4-Nov-2021	7,406.00	METHOD AND APPARATUS FOR FILTERING THE DISPLAY OF VECTORS IN A VECTOR IMAGE
82206968	F200500574	US	US7590509	Granted		23-Jun-2005	15-Mar-2021	7,406.00	SYSTEM AND METHOD FOR TESTING A PROCESSOR
82208510	F200501223	US	US7512600	Granted		10-Jun-2005	30-Sep-2020	7,406.00	USE OF MULTI-JOIN OPERATOR AND RULES AS FRAMEWORK FOR JOIN TREE PROCESSING IN DATABASE SYSTEMS
82209035	F200501515	US	US7694123	Granted		28-Mar-2006	6-Oct-2021	7,406.00	STORING FILES FOR OPERATING SYSTEM RESTORATION
82210865	F200502475	US	US7966608	Granted		26-Jul-2006	21-Dec-2022	7,406.00	METHOD AND APPARATUS FOR PROVIDING A COMPILER INTERFACE
82213955	F200504167	US	US7549085	Granted		28-Apr-2006	N/A	N/A	METHOD AND APPARATUS TO INSERT SPECIAL INSTRUCTION
82214363	F200504463	US	US7770056	Granted		17-Oct-2007	3-Feb-2022	7,406.00	SYSTEM AND METHOD FOR DYNAMIC PAGE CLASSIFICATION FOR MEMORY DUMPING
82215125	F200504900	US	US7969969	Granted		5-Jul-2007	28-Dec-2022	7,706.00	SIGNALLING GATEWAY
82215128	F200504900	FR	FR1892907	Granted		31-Jul-2006	31-Jul-2021	675.76	SIGNALLING GATEWAY
82215134	F200504900	GB	GB1892907	Granted		31-Jul-2006	31-Jul-2021	577.38	SIGNALLING GATEWAY

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82215530	F200505157	US	US8190742	Granted		25-Apr-2006	29-Nov-2023	7,706.00	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
83002048	F200505157	US	US8447864	Granted		8-May-2012	21-Nov-2020	3,606.00	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
83721498	F200505157	DE	DE602007033669.4	Granted		25-Apr-2007	25-Apr-2021	1,371.29	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
83721500	F200505157	GB	GB2011042	Granted		25-Apr-2007	25-Apr-2021	531.28	DISTRIBUTED DIFFERENTIAL STORE WITH NON-DISTRIBUTED OBJECTS AND COMPRESSION-ENHANCING DATA-OBJECT ROUTING
82215656	F200505212	US	US7734960	Granted		20-Jul-2007	8-Dec-2021	7,406.00	METHOD OF MANAGING NODES IN COMPUTER CLUSTER
82216964	F200505869	US	US8402172	Granted		10-Dec-2007	19-Sep-2024	7,706.00	PROCESSING AN INPUT/OUTPUT REQUEST ON A MULTIPROCESSOR SYSTEM

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82217411	F200506051	US	US9043465	Granted		10-Jul-2007	26-Nov-2022	3,766.00	METHOD OF PROVIDING SERVICES IN A NETWORK, NETWORK ELEMENT AND COMPUTER PROGRAM PRODUCT
82217687	F200506245	US	US8306911	Granted		31-Jan-2007	6-May-2024	7,706.00	PAYMENT OPTION ANALYZER BASED ON MEASURED UTILIZATION
82218665	F200506834	US	US8639904	Granted		22-Oct-2009	28-Jul-2021	3,606.00	METHOD AND SYSTEM FOR MANAGING HEAP ACROSS PROCESS REPLICATION
82219268	F200507174	US	US7516358	Granted		20-Dec-2005	N/A	N/A	TUNING CORE VOLTAGES OF PROCESSORS
82220312	F200600070	US	US8327389	Granted		10-Jul-2007	4-Jun-2024	7,706.00	INTERFACE MODULE
82220930	F200600397	US	US7606842	Granted		27-Sep-2006	20-Apr-2021	7,406.00	METHOD OF MERGING A CLONE FILE SYSTEM WITH AN ORIGINAL FILE SYSTEM
82224077	F200601602	US	US7610429	Granted		30-Jan-2007	27-Apr-2021	7,706.00	METHOD AND SYSTEM FOR DETERMINING DEVICE CRITICALITY IN A COMPUTER CONFIGURATION
82226375	F200602648	US	US7937565	Granted		21-Feb-2008	3-Nov-2022	7,406.00	METHOD AND SYSTEM FOR DATA SPECULATION ON MULTICORE SYSTEMS

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82227347	F200603027	US	US7929418	Granted		20-Mar-2008	19-Oct-2022	7,406.00	DATA PACKET COMMUNICATION PROTOCOL OFFLOAD METHOD AND SYSTEM
82227539	F200603142	US	US8156496	Granted		29-Jan-2008	10-Oct-2023	7,706.00	DATA PROCESSING SYSTEM AND METHOD
82227545	F200603144	US	US8566467	Granted		17-Jul-2008	22-Apr-2021	3,606.00	DATA PROCESSING SYSTEM AND METHOD
82229765	F200603986	US	US8504018	Granted		29-Jan-2008	6-Feb-2021	3,766.00	SERVICE ROUTING FOR COMMUNICATION SYSTEMS
82230662	F200700296	US	US9405921	Granted		31-Jul-2007	2-Feb-2024	3,766.00	COMPUTER-IMPLEMENTED METHOD FOR ROLE DISCOVERY IN ACCESS CONTROL SYSTEMS
82247039	F200700296	US	US9405922	Granted		5-Jan-2009	2-Feb-2024	3,766.00	COMPUTER-IMPLEMENTED METHOD FOR ROLE DISCOVERY AND SIMPLIFICATION IN ACCESS CONTROL SYSTEMS
82232756	F200701002	US	US7730218	Granted		31-Jul-2007	1-Dec-2021	7,706.00	METHOD AND SYSTEM FOR CONFIGURATION AND MANAGEMENT OF CLIENT ACCESS TO NETWORK-ATTACHED-STORAGE
82233953	F200701315	US	US8359467	Granted		7-Jul-2007	22-Jul-2024	7,706.00	ACCESS CONTROL SYSTEM AND METHOD

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82235369	F200701680	US	US8782655	Granted		1-Jul-2008	15-Jan-2022	3,606.00	CONTROLLING COMPUTING RESOURCE CONSUMPTION
82236776	F200702071	US	US8046529	Granted		25-Sep-2008	25-Apr-2023	7,706.00	UPDATING CONTROL INFORMATION IN NON-VOLATILE MEMORY TO CONTROL SELECTION OF CONTENT
82236902	F200702110	US	US8712035	Granted		31-Jan-2008	29-Oct-2021	3,606.00	ONLINE DATA CONVERSION TECHNIQUE USING A SLIDING WINDOW
82237886	F200702398	US	US8719830	Granted		21-Aug-2008	6-Nov-2021	3,606.00	SYSTEM AND METHOD FOR ALLOWING EXECUTING APPLICATION IN COMPARTMENT THAT ALLOW ACCESS TO RESOURCES
82237922	F200702406	US	US7111197	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR JOURNAL RECOVERY FOR MULTINODE ENVIRONMENTS
82237925	F200702406	US	US7467330	Granted		4-Aug-2006	N/A	N/A	SYSTEM AND METHOD FOR JOURNAL RECOVERY FOR MULTINODE ENVIRONMENTS
82237988	F200702406	US	US7240057	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR IMPLEMENTING JOURNALING IN A MULTI-NODE ENVIRONMENT

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82237991	F200702406	CA	CA2460833	Granted		20-Sep-2002	20-Sep-2020	355.98	SYSTEM AND METHOD FOR IMPLEMENTINGJ OURNALING IN A MULTI-NODE ENVIRONMENT
82237994	F200702406	CN	CN02823231.3	Granted		20-Sep-2002	20-Sep-2020	1,304.37	SYSTEM AND METHOD FOR IMPLEMENTING JOURNALING IN A MULTI-NODE ENVIRONMENT
82238009	F200702406	US	US7437386	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
82238015	F200702406	CN	CN02823098.1	Granted		20-Sep-2002	20-Sep-2020	1,304.37	SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
82238021	F200702406	JP	JP4249622	Granted		20-Sep-2002	23-Jan-2021	1,404.63	A SYSTEM AND METHOD FOR EFFICIENT LOCK RECOVERY
82238033	F200702406	US	US7266722	Granted		20-Sep-2002	N/A	N/A	SYSTEM AND METHOD FOR EFFICIENT LOCK RECOVERY
83057023	F200702406	FR	FR1428149	Granted		20-Sep-2002	20-Sep-2020	878.13	A SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
83057026	F200702406	DE	DE60244008.4	Granted		20-Sep-2002	20-Sep-2020	2,108.66	A SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE

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83057029	F200702406	GB	GB1428149	Granted		20-Sep-2002	20-Sep-2020	826.86	A SYSTEM AND METHOD FOR A MULTI-NODE ENVIRONMENT WITH SHARED STORAGE
82237979	F200702406	US	US7496646	Granted		20-Sep-2002	24-Aug-2020	7,406.00	SYSTEM AND METHOD FOR MANAGEMENT OF A STORAGE AREA NETWORK
82238303	F200702507	US	US8712597	Granted		11-Jun-2008	29-Oct-2021	3,606.00	METHOD OF OPTIMIZING AIR MOVER PERFORMANCE CHARACTERISTICS TO MINIMIZE TEMPERATURE VARIATIONS IN A COMPUTING SYSTEM ENCLOSURE
82238624	F200702591	US	US8495662	Granted		23-Sep-2008	23-Jan-2021	3,606.00	SYSTEM AND METHOD FOR IMPROVING RUN-TIME PERFORMANCE OF APPLICATIONS WITH MULTITHREADED AND SINGLE THREADED ROUTINES
82244252	F200704490	US	US7539769	Granted		30-Apr-2001	26-Nov-2020	7,406.00	AUTOMATED DEPLOYMENT AND MANAGEMENT OF NETWORK DEVICES
82244267	F200704493	US	US7496645	Granted		18-Oct-2001	N/A	N/A	DEPLOYMENT OF BUSINESS LOGIC SOFTWARE AND DATA CONTENT ONTO NETWORK SERVERS

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82246889	F200800989	US	US8875142	Granted		23-Oct-2009	28-Apr-2022	3,606.00	JOB SCHEDULING ON A MULTIPROCESSING SYSTEM BASED ON RELIABILITY AND PERFORMANCE RANKINGS OF PROCESSORS AND WEIGHTED EFFECT OF DETECTED ERRORS (AS AMENDED)
82247372	F200801308	US	US8826138	Granted		28-Jan-2009	2-Mar-2022	3,606.00	VIRTUAL CONNECT DOMAIN GROUPS
82247375	F200801309	US	US8208616	Granted		29-Jan-2009	26-Dec-2023	7,706.00	CONFERENCE-CALL SYSTEM AND CONFERENCE-SPECIFIC ACCESS CODES
82247738	F200801487	US	US8489753	Granted		7-Sep-2009	16-Jan-2021	3,766.00	APPARATUS AND COMPUTER-IMPLEMENTED METHOD FOR CONTROLLING MIGRATION OF A VIRTUAL MACHINE
82248062	F200801728	US	US8615641	Granted		24-Jun-2009	24-Jun-2021	3,606.00	SYSTEM AND METHOD FOR DIFFERENTIAL BACKUP
82249157	F200802553	US	US9032240	Granted		23-Apr-2009	12-Nov-2022	3,606.00	METHOD AND SYSTEM FOR PROVIDING HIGH AVAILABILITY SCTP APPLICATIONS
82249511	F200802897	US	US8650396	Granted		1-Dec-2009	11-Aug-2021	3,606.00	PERMISSION-BASED DYNAMICALLY TUNABLE OPERATING SYSTEM KERNEL

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82249712	F200803029	US	US8484621	Granted		24-Jun-2009	9-Jan-2021	3,606.00	METHOD AND SYSTEM FOR DATA CENTRIC HEAP PROFILING
82250969	F200900211	US	US8769546	Granted		7-Jan-2010	1-Jan-2022	3,606.00	BUSY-WAIT TIME FOR THREADS
82251287	F200900397	US	US7769050	Granted		25-Apr-2008	3-Feb-2022	7,706.00	SYSTEM AND METHOD FOR INTERFERENCE MITIGATION FOR WIRELESS COMMUNICATIO N
82254797	F200901268	US	US7219236	Granted		26-Feb-2003	N/A	N/A	ADMINISTERING A SECURITY SYSTEM
82853154	F200902893	US	US9032517	Granted		31-Oct-2009	12-Nov-2022	3,766.00	MALICIOUS CODE DETECTION
82931336	F200902893	CN	CN200980162264.4	Granted		31-Oct-2009	31-Oct-2021	990.04	MALICIOUS CODE DETECTION
82259072	F200902994	US	US8694819	Granted		24-Aug-2009	8-Oct-2021	3,606.00	SYSTEM AND METHOD FOR GRADUALLY ADJUSTING A VIRTUAL INTERVAL TIMER COUNTER VALUE TO COMPENSATE THE DIVERGENCE OF A PHYSICAL INTERVAL TIMER COUNTER VALUE AND THE VIRTUAL INTERVAL TIMER COUNTER VALUE
82852274	F200904049	US	US8838765	Granted		14-Dec-2009	16-Mar-2022	3,766.00	MODIFYING COMPUTER MANAGEMENT REQUEST

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82261616	F200904613	US	US7430570	Granted		28-Apr-2004	N/A	N/A	SHADOW DIRECTORY STRUCTURE IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261604	F200904613	US	US7890529	Granted		16-Feb-2007	15-Aug-2022	7,706.00	DELEGATIONS AND CACHING IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261619	F200904613	US	US8316066	Granted		20-Aug-2007	20-May-2024	7,400.00	SHADOW DIRECTORY STRUCTURE IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261622	F200904613	US	US8131782	Granted		29-Sep-2008	6-Sep-2023	7,706.00	SHADOW DIRECTORY STRUCTURE IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261628	F200904613	US	US7546319	Granted		28-Apr-2004	9-Dec-2020	7,406.00	FILE SYSTEM CONSISTENCY CHECKING IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261631	F200904613	US	US8103639	Granted		5-May-2009	24-Jul-2023	7,706.00	FILE SYSTEM CONSISTENCY CHECKING IN A DISTRIBUTED SEGMENTED FILE SYSTEM
82261808	F200904724	US	US8997084	Granted		20-Apr-2011	30-Sep-2022	3,606.00	METHOD AND APPARATUS FOR DETERMINING COMPATIBLE VERSIONS OF DEPENDENT ENTITIES IN A COMPUTER SYSTEM

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83200410	F201000810	US	US9166893	Granted		23-Sep-2010	20-Apr-2023	3,766.00	METHODS, APPARATUS AND SYSTEMS FOR MONITORING LOCATIONS OF DATA WITHIN A NETWORK SERVICE
83422495	F201000959	US	US9148430	Granted		17-Aug-2011	29-Mar-2023	3,766.00	METHOD OF MANAGING USAGE RIGHTS IN A SHARE GROUP OF SERVERS
82272038	F201002554	US	US6996621	Granted		6-Dec-2000	N/A	N/A	METHOD FOR SUPPORTING SECONDARY ADDRESS DELIVERY ON REMOTE ACCESS SERVERS
82271006	F201003330	US	US6681244	Granted		9-Jun-2000	N/A	N/A	SYSTEM AND METHOD FOR OPERATING A NETWORK ADAPTER WHEN AN ASSOCIATED NETWORK COMPUTING SYSTEM IS IN A LOW-POWER STATE
82271648	F201003502	US	US7107326	Granted		27-Nov-2000	N/A	N/A	METHOD AND SYSTEM FOR INTEGRATING IP ADDRESS RESERVATIONS WITH POLICY PROVISIONING
82271834	F201003567	US	US7222255	Granted		28-Feb-2001	N/A	N/A	SYSTEM AND METHOD FOR NETWORK PERFORMANCE TESTING

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82272068	F201003648	US	US6597151	Granted		2-Oct-2000	N/A	N/A	PORTABLE AUXILIARY BATTERY PACK FOR EXTENDED USE AND RECHARGING OF PERSONAL DIGITAL ASSISTANTS
82274162	F201004551	US	US7724740	Granted		27-Aug-2002	25-Nov-2021	7,706.00	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING CLASS OF SERVICE QUEUES
82274165	F201004551	US	US8358655	Granted		9-Apr-2010	N/A	N/A	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING CLASS OF SERVICE QUEUES
83137192	F201004551	US	US9348789	Granted		14-Dec-2012	24-Nov-2023	3,766.00	COMPUTER SYSTEM AND NETWORK INTERFACE SUPPORTING CLASS OF SERVICE QUEUES
82274399	F201004602	US	US7657926	Granted		19-Mar-2004	2-Aug-2021	7,706.00	ENABLING NETWORK COMMUNICATIO N FROM ROLE BASED AUTHENTICATIO N
82274402	F201004602	US	US8176543	Granted		17-Dec-2009	8-Nov-2023	7,706.00	ENABLING NETWORK COMMUNICATIO N FROM ROLE BASED AUTHENTICATIO N

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82274444	F201004615	US	US8943241	Granted		9-Sep-2004	27-Jul-2022	3,766.00	COMMUNICATION DEVICE INGRESS INFORMATION MANAGEMENT SYSTEM AND METHOD
84088366	F201004615	US	US9229683	Granted		15-Dec-2014	5-Jul-2023	3,766.00	COMMUNICATION DEVICE INGRESS INFORMATION MANAGEMENT SYSTEM AND METHOD
82756375	F201004987	US	US9355145	Granted		22-Sep-2011	30-Nov-2023	3,766.00	USER DEFINED FUNCTION CLASSIFICATION IN ANALYTICAL DATA PROCESSING SYSTEMS
82756415	F201004987	US	US8856151	Granted		30-Sep-2011	7-Apr-2022	3,766.00	OUTPUT FIELD MAPPING OF USER DEFINED FUNCTIONS IN DATABASES
82756427	F201004987	US	US9229984	Granted		13-Oct-2011	5-Jul-2023	3,766.00	PARAMETER EXPRESSIONS FOR MODELING USER DEFINED FUNCTION EXECUTION IN ANALYTICAL DATA PROCESSING SYSTEMS
82850182	F201004987	US	US8538954	Granted		25-Jan-2011	17-Mar-2021	3,766.00	AGGREGATE FUNCTION PARTITIONS FOR DISTRIBUTED PROCESSING
82671992	F201005823	US	US8515916	Granted		28-Sep-2011	20-Feb-2021	3,766.00	DATA ARCHIVING METHODS AND DATA ARCHIVING APPARATUS

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82062791	F30004647	US	US6996605	Granted		16-Oct-2001	N/A	N/A	OVERVIEW SUBSYSTEM FOR INFORMATION PAGE SERVER
82062788	F30004647	GB	GB2368246	Expired		17-Oct-2000	N/A	N/A	OVERVIEW SUBSYSTEM FOR INFORMATION PAGE SERVER
82062872	F30004693	US	US7113911	Granted		21-Nov-2001	N/A	N/A	VOICE COMMUNICATIO N CONCERNING A LOCAL ENTITY
82065566	F30014515	US	US7000085	Granted		28-Dec-2001	N/A	N/A	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO DATA STORAGE MEDIA BASED ON MEDIUM IDENTIFIERS
82065569	F30014515	JP	JP4579492	Granted		24-Dec-2002	3-Sep-2021	1,024.32	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO DATA STORAGE MEDIA BASED ON MEDIUM IDENTIFIERS
82065575	F30014515	US	US7472245	Granted		30-Dec-2005	N/A	N/A	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO DATA STORAGE MEDIA BASED ON MEDIUM IDENTIFIERS
82070522	F50002136	US	US7150023	Granted		27-Jul-2001	N/A	N/A	DYNAMIC RESOURCE CONTROL IN A PROCESSING SYSTEM
82281425	F700203771	US	US7840850	Granted		11-Apr-2005	23-May-2022	7,406.00	DATA PROCESSING SYSTEM FOR LOGGING MEMORY ACCESS DATA

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82863311	F700205556	US	US8923837	Granted		13-Oct-2011	30-Jun-2022	3,766.00	PROVISIONING A TELEPHONY NETWORK IN RESPONSE TO AN ELECTRONIC DEVICE ATTACHING TO THE NETWORK
82670355	F700205632	US	US9069470	Granted		1-Apr-2011	30-Dec-2022	3,606.00	ZONE GROUP REASSIGNMENT USING STORAGE DEVICE SIGNATURES
83998863	F700207271	KR	KR10-1660611	Granted		30-Jan-2012	21-Sep-2021	383.94	WORD SHIFT STATIC RANDOM ACCESS MEMORY (WS-SRAM)
83998868	F700207271	US	US9589623	Granted		30-Jan-2012	7-Sep-2024	3,766.00	WORD SHIFT STATIC RANDOM ACCESS MEMORY (WS-SRAM)
83998911	F700207271	KR	KR10-1564524	Granted		30-Jan-2012	23-Oct-2021	631.63	DYNAMIC/STATIC RANDOM ACCESS MEMORY (D/SRAM)
83998916	F700207271	US	US9466352	Granted		30-Jan-2012	11-Apr-2024	3,766.00	DYNAMIC/STATIC RANDOM ACCESS MEMORY (D/SRAM)
84077872	F700207271	CN	CN201280072828.7	Granted		10-Jul-2012	10-Jul-2021	698.53	LIST SORT STATIC RANDOM ACCESS MEMORY
84077882	F700207271	US	US9384824	Granted		10-Jul-2012	5-Jan-2024	3,766.00	LIST SORT STATIC RANDOM ACCESS MEMORY
83096196	F700210418	US	US8789139	Granted		11-Jan-2013	22-Jan-2022	3,766.00	AUTOMATED TEST TO TELL COMPUTERS AND HUMANS APART

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83213710	F700213039	US	US9235639	Granted		10-May-2013	12-Jul-2023	3,766.00	FILTER REGULAR EXPRESSION
84299324	FCTXM0006	US	US9344369	Granted		12-Mar-2013	17-Nov-2023	3,766.00	SYSTEM AND METHODS FOR DISTRIBUTED QUALITY OF SERVICE ENFORCEMENT

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81986348	F10007858	US	US7240324	Granted		28-Feb-2001	N/A	N/A	EVENT-BASED SCHEDULING METHOD AND SYSTEM FOR WORKFLOW ACTIVITIES
81989396	F10010812	US	US7831731	Granted		12-Jun-2001	9-May-2022	7,706.00	METHOD AND SYSTEM FOR A MODULAR TRANSMISSION CONTROL PROTOCOL (TCP) RARE-HANDOFF DESIGN IN A STREAMS BASED TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL (TCP/IP) IMPLEMENTATION
82079603	F100110346	US	US6910057	Granted		17-Oct-2001	N/A	N/A	TRUTH TABLE CANDIDATE REDUCTION FOR CELLULAR AUTOMATA BASED RANDOM NUMBER GENERATORS
81992846	F10012172	US	US7099866	Granted		16-Nov-2001	N/A	N/A	METHOD OF GENERATING AND PRESENTING KERNEL DATA
81998501	F10015055	US	US7466668	Granted		24-Aug-2001	N/A	N/A	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES
82723764	F10015055	FR	FR1303100	Granted		13-Aug-2002	13-Aug-2021	1,036.41	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES

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82723766	F10015055	DE	DE60240383.9	Granted		13-Aug-2002	13-Aug-2021	2,504.74	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES
82723768	F10015055	GB	GB1303100	Granted		13-Aug-2002	13-Aug-2021	896.07	REDUCED PIN-COUNT SYSTEM INTERFACE FOR GIGABIT ETHERNET PHYSICAL LAYER DEVICES
82000952	F10016691	US	US7028167	Granted		4-Mar-2002	N/A	N/A	CORE PARALLEL EXECUTION WITH DIFFERENT OPTIMIZATION CHARACTERISTICS TO DECREASE DYNAMIC EXECUTION PATH
82000964	F10016693	US	US6871264	Granted		6-Mar-2002	N/A	N/A	SYSTEM AND METHOD FOR DYNAMIC PROCESSOR CORE AND CACHE PARTITIONING ON LARGE-SCALE MULTITHREADED, MULTIPROCESSOR INTEGRATED CIRCUITS
82003742	F10018138	US	US7523455	Granted		3-May-2002	21-Oct-2020	7,406.00	METHOD AND SYSTEM FOR APPLICATION MANAGED CONTEXT SWITCHING
82003964	F10018228	US	US6781858	Granted		29-Aug-2003	N/A	N/A	CUBIC MEMORY ARRAY
82087979	F100202161	US	US6889295	Granted		5-Mar-2002	N/A	N/A	RE-ORDERING REQUESTS FOR SHARED RESOURCES

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82089101	F100202822	US	US8463940	Granted		31-Jan-2003	11-Dec-2020	3,606.00	METHOD OF INDICATING A PATH IN A COMPUTER NETWORK
82090349	F100203592	US	US7325170	Granted		19-Mar-2004	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING INFORMATION FOR REMOTE DEVICE SUPPORT
82058708	F10992668	US	US7069434	Granted		13-Jun-2000	N/A	N/A	SECURE DATA TRANSFER METHOD AND SYSTEM
82098827	F200208006	US	US7003591	Granted		20-Aug-2003	N/A	N/A	CONFIGURABLE MAPPING OF DEVICES TO BUS FUNCTIONS
82100006	F200208555	US	US7081684	Granted		6-Oct-2003	N/A	N/A	CONVERTING HEAT GENERATED BY A COMPONENT TO ELECTRICAL ENERGY
82100675	F200208766	US	US7533285	Granted		22-Apr-2004	12-Nov-2020	7,406.00	SYNCHRONIZING LINK DELAY MEASUREMENT OVER SERIAL LINKS
82106108	F200300376	US	US7890999	Granted		7-Aug-2003	15-Aug-2022	7,406.00	RPC PORT MAPPER INTEGRITY CHECKER TO IMPROVE SECURITY OF A PROVISIONABLE NETWORK
82110842	F200301290	US	US6765922	Granted		27-Sep-2000	N/A	N/A	SPECULATIVE TRANSMIT FOR SYSTEM AREA NETWORK LATENCY REDUCTION

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82110845	F200301290	US	US6882656	Expired		13-Apr-2004	N/A	N/A	SPECULATIVE TRANSMIT FOR SYSTEM AREA NETWORK LATENCY REDUCTION
82118663	F200302043	US	US7240186	Granted		16-Jul-2001	N/A	N/A	SYSTEM AND METHOD TO AVOID RESOURCE CONTENTION IN THE PRESENCE OF EXCEPTIONS
82119764	F200302153	US	US7167987	Granted		29-Aug-2001	N/A	N/A	USE OF BIOMETRICS TO PROVIDE PHYSICAL AND LOGIC ACCESS TO COMPUTER DEVICES
82120697	F200302391	US	US7111084	Granted		28-Dec-2001	N/A	N/A	DATA STORAGE NETWORK WITH HOST TRANSPARENT FAILOVER CONTROLLED BY HOST BUS ADAPTER
82121852	F200302581	US	US7739485	Granted		11-Oct-2002	15-Dec-2021	7,706.00	CACHED FIELD REPLACEABLE UNIT EEPROM DATA
82121996	F200302618	US	US7092258	Granted		15-Sep-2003	N/A	N/A	CABLE MANAGEMENT SYSTEM AND METHOD OF INSTALLATION AND OPERATION THEREOF
82133435	F200304361	US	US6886109	Granted		18-May-2001	N/A	N/A	METHOD AND APPARATUS FOR EXPEDITING SYSTEM INITIALIZATION
82169255	F200309194	US	US7580814	Granted		23-Mar-2004	25-Feb-2021	7,706.00	SEQUENCE SIMULATOR

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82169261	F200309196	US	US7570591	Granted		3-Aug-2004	4-Feb-2021	7,706.00	METHOD AND APPARATUS FOR NEGOTIATING LINK SPEED AND CONFIGURATION
82171562	F200310064	US	US7519996	Granted		25-Aug-2003	N/A	N/A	SECURITY INTRUSION MITIGATION SYSTEM AND METHOD
82171565	F200310064	GB	GB2405563	Granted		13-Aug-2004	13-Aug-2021	764.74	A SECURITY INTRUSION MITIGATION SYSTEM AND METHOD
82173791	F200310966	US	US7954086	Granted		19-May-2003	30-Nov-2022	7,406.00	SELF-DESCRIBING KERNEL MODULES
82175876	F200311794	US	US8000322	Granted		14-Mar-2005	16-Feb-2023	7,706.00	CROSSBAR SWITCH DEBUGGING
82175879	F200311794	CN	CN200510088233.2	Granted		29-Jul-2005	29-Jul-2021	1,367.42	CROSSBAR SWITCH DEBUGGING
82176536	F200312054	US	US7447971	Granted		14-May-2004	N/A	N/A	DATA RECOVERY SYSTEMS AND METHODS
82176917	F200312197	US	US7765550	Granted		26-May-2005	27-Jan-2022	7,406.00	SYSTEM FOR CONTROLLING CONTEXT SWITCH OF DEFERRED REQUESTS USING COUNTER AND FLAG SETTING OF THREAD ACCESSING SHARED RESOURCE OR ENTERING CODE REGION
82176923	F200312200	US	US7577945	Granted		26-May-2005	18-Feb-2021	7,406.00	MEMORY MAPPED LAZY SIGNAL BLOCKING

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82178690	F200313003	US	US7996825	Granted		31-Oct-2003	9-Feb-2023	7,706.00	CROSS-FILE INLINING BY USING SUMMARIES AND GOLBAL WORKLIST
82178723	F200313024	US	US7814467	Granted		15-Jan-2004	12-Apr-2022	7,406.00	PROGRAM OPTIMIZATION USING OBJECT FILE SUMMARY INFORMATION
82180442	F200313758	US	US7739536	Granted		25-Feb-2005	15-Dec-2021	7,706.00	INTELLIGENT FREQUENCY AND VOLTAGE MARGINING
82180508	F200313774	US	US7454514	Granted		12-Jan-2004	N/A	N/A	PROCESSING DATA WITH UNCERTAIN ARRIVAL TIME
82180757	F200313907	US	US7487255	Granted		14-Aug-2003	3-Aug-2020	7,406.00	ROUTING CACHE MANAGEMENT WITH ROUTE FRAGMENTATIO N
82180943	F200313973	US	US7600023	Granted		5-Nov-2004	6-Apr-2021	7,706.00	SYSTEMS AND METHODS OF BALANCING CROSSBAR BANDWIDTH
82181105	F200314048	US	US7672929	Granted		22-Dec-2004	2-Sep-2021	7,706.00	DATABASE MODIFICATION HISTORY
82181606	F200314251	US	US7809991	Granted		11-Jan-2005	5-Apr-2022	7,706.00	SYSTEM AND METHOD TO QUALIFY DATA CAPTURE
82181612	F200314251	US	US7228472	Granted		11-Jan-2005	N/A	N/A	SYSTEM AND METHOD TO CONTROL DATA CAPTURE
82182284	F200314251	US	US7752016	Granted		11-Jan-2005	6-Jan-2022	7,706.00	SYSTEM AND METHOD FOR DATA ANALYSIS

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82182992	F200314776	US	US7474793	Granted		2-Sep-2004	6-Jul-2020	7,406.00	METHODS FOR COMPRESSION USING A DENOISER
82182998	F200314778	US	US7624009	Granted		2-Sep-2004	24-May-2021	7,406.00	METHOD AND SYSTEM FOR PRODUCING VARIABLE LENGTH CONTEXT MODELS
82184231	F200315313	US	US7624319	Granted		23-Dec-2004	24-May-2021	7,706.00	PERFORMANCE MONITORING SYSTEM
82186253	F200316232	US	US7876689	Granted		29-Jun-2005	25-Jul-2022	7,406.00	METHOD AND APPARATUS FOR LOAD BALANCING NETWORK INTERFACE ADAPTERS BASED ON NETWORK INFORMATION
82186562	F200316383	US	US7552238	Granted		30-Sep-2004	23-Dec-2020	7,406.00	METHOD AND APPARATUS FOR MAINTAINING NETWORK DEVICE CONFIGURATIONS
82187447	F200400179	US	US7143389	Granted		28-Jul-2004	N/A	N/A	SYSTEMS AND METHODS FOR GENERATING NODE LEVEL BYPASS CAPACITOR MODELS
82187564	F200400224	US	US7743383	Granted		1-Nov-2004	22-Dec-2021	7,406.00	ADAPTIVE COOPERATIVE SCHEDULING
82189400	F200401067	US	US7752623	Granted		16-Sep-2004	6-Jan-2022	7,406.00	SYSTEM AND METHOD FOR ALLOCATING RESOURCES BY EXAMINING A SYSTEM CHARACTERISTIC

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82189718	F200401204	US	US7339490	Granted		29-Jun-2004	N/A	N/A	MODULAR SENSOR ASSEMBLY
82189787	F200401266	US	US7643434	Granted		30-Sep-2004	5-Jul-2021	7,706.00	METHOD AND SYSTEM FOR MANAGING NETWORK NODES WHICH COMMUNICATE VIA CONNECTIVITY SERVICES OF A SERVICE PROVIDER
82190012	F200401406	US	US7057509	Granted		29-Jun-2004	N/A	N/A	MONITORING AN OBJECT WITH IDENTIFICATION DATA AND TRACKING DATA
82190207	F200401511	US	US8443171	Granted		30-Jul-2004	14-Nov-2020	3,606.00	RUN-TIME UPDATING OF PREDICTION HINT INSTRUCTIONS
82190210	F200401511	CN	CN200510088159 4	Granted		29-Jul-2005	29-Jul-2021	1,367.42	RUN-TIME UPDATING OF PREDICTION HINT INSTRUCTIONS
82190213	F200401511	GB	GB2416885	Granted		12-Jul-2005	12-Jul-2021	691.79	RUN-TIME UPDATING OF PREDICTION HINT INSTRUCTIONS
82191920	F200402290	US	US8977651	Granted		14-Apr-2004	10-Sep-2022	3,606.00	METHOD AND APPARATUS FOR MULTI-PROCESS ACCESS TO A LINKED-LIST
82193288	F200402795	US	US7660937	Granted		28-Jun-2006	9-Aug-2021	7,706.00	EMULATING A USB HOST CONTROLLER
82196321	F200403866	US	US7383471	Granted		28-Dec-2004	N/A	N/A	DIAGNOSTIC MEMORY DUMPING

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82197110	F200404278	US	US7500056	Granted		21-Jul-2004	3-Sep-2020	7,406.00	SYSTEM AND METHOD TO FACILITATE RESET IN A COMPUTER SYSTEM
82197320	F200404388	US	US8930400	Granted		22-Nov-2004	6-Jul-2022	3,766.00	A SYSTEM AND METHOD FOR DISCOVERING KNOWLEDGE COMMUNITIES
82197740	F200404591	US	US7743380	Granted		21-Jan-2005	22-Dec-2021	7,406.00	MONITORING CLUSTERED SOFTWARE APPLICATIONS
82198079	F200404777	US	US7539931	Granted		8-Apr-2005	26-Nov-2020	7,406.00	STORAGE ELEMENT FOR MITIGATING SOFT ERRORS IN LOGIC
82199306	F200405310	US	US7877740	Granted		13-Jun-2005	25-Jul-2022	7,406.00	HANDLING CAUGHT EXCEPTIONS
82199318	F200405319	US	US7634773	Granted		24-Nov-2004	15-Jun-2021	7,406.00	METHOD AND APPARATUS FOR THREAD SCHEDULING ON MULTIPLE PROCESSORS
82201661	F200406544	US	US8799466	Granted		31-Jan-2005	5-Feb-2022	3,606.00	METHOD AND APPARATUS FOR AUTOMATIC VERIFICATION OF A NETWORK ACCESS CONTROL CONSTRUCT FOR A NETWORK SWITCH
82203017	F200407176	US	US7853934	Granted		23-Jun-2005	14-Jun-2022	7,406.00	HOT-SWAPPING A DYNAMIC CODE GENERATOR

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82203827	F200407611	US	US7123172	Granted		29-Jul-2005	N/A	N/A	METHOD AND SYSTEM FOR DETERMINING AN OPTIMAL OR NEAR OPTIMAL SET OF CONTEXTS BY CONSTRUCTING A MULTI-DIRECTIONAL CONTEXT TREE
82203830	F200407611	US	US8085888	Granted		13-Oct-2006	27-Jun-2023	7,706.00	METHOD AND SYSTEM FOR DETERMINING AN OPTIMAL OR NEAR OPTIMAL SET OF CONTEXTS BY CONSTRUCTING A MULTI-DIRECTIONAL CONTEXT TREE
82204691	F200407938	US	US8997102	Granted		3-Jun-2005	30-Sep-2022	3,606.00	PRIORITIZATION OF PROCESSES FOR DEACTIVATING PROCESSES TO REDUCE MEMORY PRESSURE CONDITION
82204928	F200408027	US	US7941804	Granted		31-Oct-2005	10-Nov-2022	7,406.00	ALLOCATING RESOURCES AMONG TIERED PARTITIONS OF DIFFERENT TYPES
82206494	F200500286	US	US7673305	Granted		23-Oct-2006	2-Sep-2021	7,406.00	SYSTEM AND METHOD OF EXPEDITING CERTAIN JOBS IN A COMPUTER PROCESSING SYSTEM
82206599	F200500344	US	US7373565	Granted		23-Aug-2005	N/A	N/A	START/STOP CIRCUIT FOR PERFORMANCE COUNTER

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82206602	F200500344	GB	GB2429552	Granted		2-Aug-2006	2-Aug-2021	618.83	START/STOP CIRCUIT FOR PERFORMANCE COUNTER
82206632	F200500349	US	US7711914	Granted		28-Jun-2005	4-Nov-2021	7,406.00	DEBUGGING USING VIRTUAL WATCHPOINTS
82206881	F200500508	US	US7323920	Granted		13-Jun-2005	N/A	N/A	SOFT-ERROR RATE IMPROVEMENT IN A LATCH USING LOW-PASS FILTERING
82207067	F200500606	US	US8990547	Granted		23-Aug-2005	24-Sep-2022	3,606.00	SYSTEMS AND METHODS FOR RE-ORDERING INSTRUCTIONS
82207133	F200500634	US	US8346740	Granted		22-Jul-2005	1-Jul-2020	3,606.00	FILE CACHE MANAGEMENT SYSTEM
82208279	F200501135	US	US7738681	Granted		1-Nov-2005	15-Dec-2021	7,706.00	FINGERPRINT AND PHYSICAL ATTRIBUTE DETECTION
82208402	F200501180	US	US8739288	Granted		31-Jul-2007	27-Nov-2021	3,606.00	AUTOMATIC DETECTION OF VULNERABILITY EXPLOITS
82208507	F200501222	US	US7765528	Granted		21-Sep-2005	27-Jan-2022	7,406.00	IDENTIFYING SOURCES OF MEMORY RETENTION
82208855	F200501422	US	US7903556	Granted		3-Nov-2005	8-Sep-2022	7,706.00	METHOD OF CONTROLLING DATA TRANSFERS BETWEEN NODES IN A COMPUTER SYSTEM
82209365	F200501734	US	US7816975	Granted		20-Sep-2005	19-Apr-2022	7,706.00	CIRCUIT AND METHOD FOR BIAS VOLTAGE GENERATION

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82209767	F200501965	US	US8650296	Granted		31-Oct-2006	11-Aug-2021	3,606.00	WORKLOAD REALLOCATION INVOLVING INTER-SERVER TRANSFERS OF SOFTWARE LICENSE RIGHTS AND INTRA-SERVER TRANSFER OF HARDWARE RESOURCES
82209998	F200502087	US	US8949404	Granted		24-May-2005	3-Aug-2022	3,766.00	ACQUIRING GRAPHICAL OPERATING SYSTEM POST-FAILURE SCREEN
82210232	F200502177	US	US7636643	Granted		29-Jun-2006	22-Jun-2021	7,406.00	GAUGE HAVING A DYNAMICALLY UPDATED INDICIA OF A VALUE'S NORMAL RANGE, AND METHODS AND MEANS TO FACILITATE THE DISPLAY AND UPDATE OF SAME
82210268	F200502188	US	US7594223	Granted		27-Jun-2005	22-Mar-2021	7,406.00	STRAIGHT-LINE POST-INCREMENT OPTIMIZATION FOR MEMORY ACCESS INSTRUCTIONS
82210868	F200502476	US	US8595612	Granted		26-Oct-2006	26-May-2021	3,606.00	DISPLAY OF WEB PAGE WITH AVAILABLE DATA
82211354	F200502764	US	US8391432	Granted		8-Aug-2005	5-Sep-2024	7,706.00	DATA SERIALIZER
82212575	F200503321	US	US8924590	Granted		14-Feb-2006	30-Jun-2022	3,606.00	SYSTEM AND METHOD FOR COMMUNICATIN G IN A NETWORKED SYSTEM

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82212875	F200503479	US	US8688890	Granted		5-Dec-2006	1-Oct-2021	3,766.00	BIT ORDERING FOR COMMUNICATING AN ADDRESS ON A SERIAL FABRIC
82213166	F200503643	US	US7610468	Granted		26-Oct-2006	27-Apr-2021	7,706.00	MODIFIED BUDDY SYSTEM MEMORY ALLOCATION
82213211	F200503688	US	US8738346	Granted		26-Oct-2006	27-Nov-2021	3,606.00	METHOD AND APPARATUS FOR CONTROLLING MULTIPLE SIMULATIONS
82214159	F200504348	US	US7672923	Granted		31-Oct-2006	2-Sep-2021	7,406.00	GRID NETWORK MANAGEMENT VIA AUTOMATIC TREND ANALYSIS OF A SERVICE LEVEL AGREEMENT.
82214258	F200504419	US	US8521652	Granted		19-May-2006	27-Feb-2021	3,606.00	DISCOVERING LICENSES IN SOFTWARE FILES
82215572	F200505182	US	US7970143	Granted		5-Aug-2005	28-Dec-2022	7,706.00	SYSTEM, METHOD AND APPARATUS TO OBTAIN A KEY FOR ENCRYPTION/DECRYPTION/DATA RECOVERY FROM AN ENTERPRISE CRYPTOGRAPHY KEY MANAGEMENT SYSTEM

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82815953	F200505182	DE	DE602005030748.6	Granted		5-Aug-2005	5-Aug-2021	1,822.09	SYSTEM, METHOD AND APPARATUS TO OBTAIN A KEY FOR ENCRYPTION/DECRYPTION/DATA RECOVERY FROM AN ENTERPRISE CRYPTOGRAPHY KEY MANAGEMENT SYSTEM
82815955	F200505182	GB	GB1913509	Granted		5-Aug-2005	5-Aug-2021	691.79	SYSTEM, METHOD AND APPARATUS TO OBTAIN A KEY FOR ENCRYPTION/DECRYPTION/DATA RECOVERY FROM AN ENTERPRISE CRYPTOGRAPHY KEY MANAGEMENT SYSTEM
82215986	F200505367	US	US7895409	Granted		30-Jul-2007	22-Aug-2022	7,406.00	APPLICATION INSPECTION TOOL FOR DETERMINING A SECURITY PARTITION
82216013	F200505381	US	US7657776	Granted		20-Sep-2006	2-Aug-2021	7,406.00	CONTAINING MACHINE CHECK EVENTS IN A VIRTUAL PARTITION
82216367	F200505552	US	US9038051	Granted		31-Oct-2006	19-Nov-2022	3,606.00	SELECTING PATCH SOLUTIONS BASED ON AVAILABILITY OF INFORMATION REGARDING PATCHES PREVIOUSLY INSTALLED ON USER SYSTEM

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82216469	F200505597	US	US7698545	Granted		24-Apr-2006	13-Oct-2021	7,406.00	COMPUTER CONFIGURATION CHRONOLOGY GENERATOR
82216655	F200505721	US	US7872965	Granted		22-Aug-2005	18-Jul-2022	7,406.00	NETWORK RESOURCE TEAMING PROVIDING RESOURCE REDUNDANCY AND TRANSMIT/RECEIVE LOAD-BALANCING THROUGH A PLURALITY OF REDUNDANT PORT TRUNKS
82217171	F200505962	US	US7971193	Granted		14-Jul-2006	28-Dec-2022	7,406.00	METHODS FOR PERFORMINING CROSS MODULE CONTEXT-SENSITIVE SECURITY ANALYSIS
82217174	F200505968	US	US7644204	Granted		31-Oct-2006	5-Jul-2021	7,406.00	SCSI I/O COORDINATOR
82217573	F200506169	US	US8516218	Granted		30-Oct-2006	20-Feb-2021	3,606.00	PATTERN-BASED MAPPING FOR STORAGE SPACE MANAGEMENT
82217705	F200506280	US	US8522042	Granted		31-Oct-2006	27-Feb-2021	3,766.00	METHOD AND APPARATUS FOR ENFORCEMENT OF SOFTWARE LICENSE PROTECTION
82217870	F200506400	US	US7721133	Granted		27-Apr-2006	18-Nov-2021	7,706.00	SYSTEMS AND METHODS OF SYNCHRONIZING REFERENCE FREQUENCIES
82218650	F200506827	US	US7953996	Granted		18-Dec-2006	30-Nov-2022	7,406.00	ACPI TO FIRMWARE INTERFACE

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82218854	F200506945	US	US9298668	Granted		6-Jul-2010	29-Sep-2023	3,766.00	BIT ERROR RATE REDUCTION BUFFER, METHOD AND APPARATUS
82218926	F200506982	US	US8402463	Granted		30-Oct-2006	19-Sep-2024	7,706.00	HARDWARE THREADS PROCESSOR CORE UTILIZATION
82219271	F200507176	US	US7861042	Granted		23-Oct-2006	28-Jun-2022	7,406.00	PROCESSOR ACQUISITION OF OWNERSHIP OF ACCESS COORDINATOR FOR SHARED RESOURCE
82219313	F200507184	US	US7855957	Granted		30-Aug-2006	21-Jun-2022	7,406.00	METHOD AND SYSTEM OF TRANSMIT LOAD BALANCING ACROSS MULTIPLE PHYSICAL PORTS
82219409	F200507258	US	US7502888	Granted		7-Feb-2006	N/A	N/A	SYMMETRIC MULTIPROCESSOR SYSTEM
82219514	F200507306	US	US8739162	Granted		27-Apr-2007	27-Nov-2021	3,606.00	ACCURATE MEASUREMENT OF MULTITHREADED PROCESSOR CORE UTILIZATION AND LOGICAL PROCESSOR UTILIZATION
82219718	F200507426	US	US7743244	Granted		31-Oct-2006	22-Dec-2021	7,406.00	COMPUTER SYSTEM MODEL GENERATION WITH TRACKING OF ACTUAL COMPUTER SYSTEM CONFIGURATION

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82241207	F200507596	US	US8650579	Granted		29-Oct-2007	11-Aug-2021	3,606.00	CONTAINMENT FOR COMPUTER-SOFTWARE UPDATE INSTALLATION PROCESSES
82220024	F200507702	US	US10198709	Granted		27-Mar-2006	5-Aug-2022	2,006.00	MANAGING ASSETS USING AT LEAST ONE POLICY AND ASSET LOCATIONS
82220027	F200507704	US	US8510450	Granted		22-Apr-2006	13-Feb-2021	3,606.00	RECONCILIATIO N OF WEB SERVER SESSION STATES WITH CLIENT BROWSER STATES
82220048	F200507714	US	US7710862	Granted		30-Aug-2006	4-Nov-2021	7,406.00	METHOD AND SYSTEM OF ASSIGNING MEDIA ACCESS CONTROL (MAC) ADDRESSES ACROSS TEAMED COMMUNICATIO N PORTS
82220135	F200507803	US	US7788477	Granted		31-Jan-2007	28-Feb-2022	7,406.00	METHODS, APPARATUS AND ARTICLES OF MANUFACTURE TO CONTROL OPERATING SYSTEM IMAGES FOR DISKLESS SERVERS
82220549	F200600217	US	US8799591	Granted		30-Jan-2007	5-Feb-2022	3,606.00	READ-WRITE SPINLOCK WITH NO MUTUAL EXCLUSION AMONG READERS
82220579	F200600243	US	US7774652	Granted		19-Sep-2006	10-Feb-2022	7,706.00	CIRCUITRY AND METHOD TO DETECT CONDITIONS OF DATA

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82220864	F200600374	US	US6871300	Granted		4-May-2001	N/A	N/A	EMBEDDED SERVER CHASSIS HARDWARE MASTER SYSTEM AND METHOD
82220945	F200600412	US	US7515428	Granted		31-Oct-2006	N/A	N/A	DESIGN FOR AUTOMATIC POSITIONING OF POWER SUPPLY MODULE HANDLE
82222385	F200600835	US	US7941812	Granted		30-Jan-2007	10-Nov-2022	7,406.00	INPUT/OUTPUT VIRTUALIZATIO N THROUGH OFFLOAD TECHNIQUES
82223009	F200601155	US	US7729368	Granted		19-Jan-2007	1-Dec-2021	7,406.00	NETWORK BUFFER CACHING
82224527	F200601902	US	US8739143	Granted		31-Jan-2007	27-Nov-2021	3,606.00	PROFILING METRICS FOR COMPUTER PROGRAMS
82224551	F200601915	US	US8504943	Granted		24-Oct-2006	6-Feb-2021	3,606.00	DISPLAYING GROUP ICONS REPRESENTING RESPECTIVE GROUPS OF NODES
82224686	F200601982	US	US7895581	Granted		26-Jan-2007	22-Aug-2022	7,406.00	PROFILING COLLECTOR FOR COMPUTER SYSTEM
82225349	F200602280	US	US8782779	Granted		26-Sep-2007	15-Jan-2022	3,766.00	SYSTEM AND METHOD FOR ACHIEVING PROTECTED REGION WITHIN COMPUTER SYSTEM
82226180	F200602579	US	US7730365	Granted		30-Apr-2007	1-Dec-2021	7,406.00	WORKLOAD MANAGEMENT FOR MAINTAINING REDUNDANCY OF NON-DATA COMPUTER COMPONENTS

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82228010	F200603372	US	US8966474	Granted		30-Apr-2007	24-Aug-2022	3,606.00	MANAGING VIRTUAL MACHINES USING SHARED IMAGE
82229636	F200603919	US	US8768978	Granted		30-Jul-2007	1-Jan-2022	3,606.00	SINGLE-OPERATION ON-LINE SCHEMA EVOLUTION
82231193	F200700459	US	US7765242	Granted		10-May-2007	27-Jan-2022	7,406.00	METHODS AND APPARATUS FOR STRUCTURE LAYOUT OPTIMIZATION FOR MULTI-THREADED PROGRAMS
82231262	F200700495	US	US8584138	Granted		30-Jul-2007	12-May-2021	3,606.00	DIRECT SWITCHING OF SOFTWARE THREADS BY SELECTIVELY BYPASSING RUN QUEUE BASED ON SELECTION CRITERIA
82232414	F200700918	US	US8352957	Granted		31-Jan-2008	8-Jul-2020	3,606.00	APPARATUS AND METHOD FOR PASSING METADATA IN STREAMS MODULES
82233344	F200701141	US	US9081627	Granted		31-Jul-2007	14-Jan-2023	3,766.00	WORKLOAD MANAGEMENT WITH RESOURCE TRANSFER SEQUENCE PLANNED AS A FUNCTION OF RANKING OF RESOURCE ALLOCATIONS
82233425	F200701161	US	US7671634	Granted		30-Jul-2007	2-Sep-2021	7,706.00	REDUNDANT CLOCK SWITCH CIRCUIT

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82233830	F200701258	US	US7827266	Granted		31-Jul-2007	2-May-2022	7,406.00	SYSTEM AND METHOD OF CONTROLLING MULTIPLE COMPUTER PLATFORMS
82235330	F200701661	US	US8505019	Granted		31-Oct-2008	6-Feb-2021	3,606.00	SYSTEM AND METHOD FOR INSTANT CAPACITY/WORKLOAD MANAGEMENT INTEGRATION
82235378	F200701686	US	US7783823	Granted		31-Jul-2007	24-Feb-2022	7,706.00	HARDWARE DEVICE DATA BUFFER
82235381	F200701686	GB	GB2451549	Granted		7-Jul-2008	7-Jul-2021	443.74	HARDWARD DEVICE DATA BUFFER
82237277	F200702190	US	US8621470	Granted		24-Jan-2008	30-Jun-2021	3,606.00	WAKEUP-ATTRIBUTE-BASED ALLOCATION OF THREADS TO PROCESSORS
82237688	F200702350	US	US7551039	Granted		19-Oct-2007	23-Dec-2020	7,406.00	PHASE ADJUSTMENT IN PHASE-LOCKED LOOPS USING MULTIPLE OSCILLATOR SIGNALS
82238465	F200702551	US	US7929919	Granted		25-Sep-2008	19-Oct-2022	7,706.00	SYSTEMS AND METHODS FOR A PLL-ADJUSTED REFERENCE CLOCK
82238810	F200702649	US	US9389921	Granted		15-Dec-2008	12-Jan-2024	3,766.00	SYSTEM AND METHOD FOR FLEXIBLE DEVICE DRIVER RESOURCE ALLOCATION
82240934	F200703378	US	US7518418	Granted		25-Sep-2007	N/A	N/A	RATIO GRANULARITY CLOCK DIVIDER CIRCUIT AND METHOD

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82240937	F200703378	TW	TWI435538	Granted		25-Aug-2008	20-Apr-2021	359.56	RATIO GRANULARITY CLOCK DIVIDER CIRCUIT AND METHOD
82240940	F200703379	US	US7521972	Granted		25-Sep-2007	N/A	N/A	FIFTY PERCENT DUTY CYCLE CLOCK DIVIDER CIRCUIT AND METHOD
82240943	F200703379	CN	CN200810149759.0	Granted		25-Sep-2008	25-Sep-2021	1,032.98	FIFTY PERCENT DUTY CYCLE CLOCK DIVIDER CIRCUIT AND METHOD
82240946	F200703380	US	US7567097	Granted		29-Sep-2007	28-Jan-2021	7,406.00	PRE-DRIVER CIRCUIT AND APPARATUS USING SAME
82562920	F200801253	US	US9015454	Granted		2-May-2008	21-Oct-2022	3,766.00	BINDING DATA TO COMPUTERS USING CRYPTOGRAPHIC CO-PROCESSOR AND MACHINE-SPECIFIC AND PLATFORM-SPECIFIC KEYS
82247759	F200801497	US	US8392928	Granted		28-Oct-2008	5-Sep-2020	3,606.00	AUTOMATED WORKLOAD PLACEMENT RECOMMENDATIONS FOR A DATA CENTER
82247768	F200801502	US	US9367197	Granted		28-Jan-2009	14-Dec-2023	3,766.00	DISPLAYING COMPUTER RESOURCE HIERARCHY
82247912	F200801603	US	US8527988	Granted		31-Jul-2009	3-Mar-2021	3,606.00	PROXIMITY MAPPING OF VIRTUAL-MACHINE THREADS TO PROCESSORS

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82931281	F200801779	CN	CN200980160839.9	Granted		9-Aug-2009	9-Aug-2020	666.46	ILLUMINABLE INDICATOR OF ELECTRONIC DEVICE BEING ENABLED BASED AT LEAST ON USER PRESENCE
82852934	F200801779	US	US8692683	Granted		9-Aug-2009	8-Oct-2021	3,766.00	ILLUMINABLE INDICATOR OF ELECTRONIC DEVICE BEING ENABLED BASED AT LEAST ON USER PRESENCE
82248920	F200802382	US	US8392736	Granted		31-Jul-2009	5-Sep-2020	3,606.00	MANAGING MEMORY POWER USAGE
82250024	F200803342	US	US8694974	Granted		29-Apr-2009	8-Oct-2021	3,606.00	LOAD-CHECKING ATOMIC SECTION
82250579	F200803737	US	US8607245	Granted		15-May-2009	10-Jun-2021	3,606.00	DYNAMIC PROCESSOR-SET MANAGEMENT
82251356	F200900425	US	US7797530	Granted		9-Apr-2001	14-Mar-2022	7,706.00	AUTHENTICATION AND ENCRYPTION METHOD AND APPARATUS FOR A WIRELESS LOCAL ACCESS NETWORK
82258727	F200902756	US	US8713139	Granted		29-Oct-2009	29-Oct-2021	3,606.00	AUTOMATIC FIXUP OF NETWORK CONFIGURATION ON SYSTEM IMAGE MOVE
82260449	F200903890	US	US8688838	Granted		14-Dec-2009	1-Oct-2021	3,606.00	PROFILE MANAGEMENT SYSTEMS
82260881	F200904195	US	US8401925	Granted		26-Jan-2010	19-Sep-2020	3,606.00	MULTI-PRODUCT SOFTWARE LICENSE SELECTION

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82261280	F200904423	US	US8452717	Granted		27-Apr-2010	28-Nov-2020	3,606.00	PRESENTING AN INTERACTIVE GUIDANCE STRUCTURE IN A COLLABORATIV E ENVIRONMENT
82934011	F200904474	US	US9425902	Granted		11-Jan-2010	23-Feb-2024	3,766.00	SYSTEM INCLUDING DRIVER CIRCUIT FOR ELECTRICAL SIGNALING AND OPTICAL SIGNALING
82261919	F200904777	US	US8356198	Granted		30-Mar-2010	15-Jul-2020	3,606.00	PERFORMING POWER MANAGEMENT BASED ON INFORMATION REGARDING ZONES OF DEVICES IN A SYSTEM
82263782	F201000860	US	US8353489	Granted		21-Sep-2010	15-Jan-2021	$4,260.0 0	MOUNTING KIT
82264178	F201001112	US	US8356141	Granted		28-Jun-2010	15-Jan-2021	$4,260.0 0	IDENTIFYING REPLACEMENT MEMORY PAGES FROM THREE PAGE RECORD LISTS
82595313	F201001837	US	US9049034	Granted		2-Feb-2011	2-Dec-2022	3,766.00	MULTICAST FLOW MONITORING
82271222	F201003322	US	US6898210	Granted		31-May-2000	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING A LOCAL AREA NETWORK UTILIZING REMOTE TRANSCEIVERS
82271810	F201003559	US	US7133446	Granted		19-Oct-2000	N/A	N/A	PERFORMANCE INDICATOR FOR WIRELESS DIGITAL SIGNAL RECEPTION

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82272365	F201003769	US	US6763001	Granted		17-Aug-2000	N/A	N/A	DISCOVERING NON MANAGED DEVICES IN A NETWORK SUCH AS A LAN USING TELNET
82272374	F201003772	US	US6775243	Granted		15-Sep-2000	N/A	N/A	GRAPHICALLY DISTINGUISHING A PATH BETWEEN TWO POINTS ON A NETWORK
82272485	F201003815	US	US7194534	Granted		4-Apr-2001	N/A	N/A	DISPLAY OF PHONES ON A MAP OF A NETWORK
82272548	F201003843	US	US6954785	Granted		17-Aug-2000	N/A	N/A	A SYSTEM FOR IDENTIFYING DEVICES THAT HAVE THE HIGHEST TOTAL VOLUME DATA TRANSFER AND COMMUNICATE WITH AT LEAST A THRESHOLD NUMBER OF CLIENT DEVICES
82274099	F201004538	US	US7702726	Granted		10-Apr-2002	20-Oct-2021	7,706.00	SYSTEM AND METHODS FOR PROVIDING PRESENCE SERVICES IN IP NETWORK
82274312	F201004586	US	US7155622	Granted		15-May-2003	N/A	N/A	SYSTEM AND METHOD FOR THE MANAGEMENT OF POWER SUPPLIED OVER DATA LINES
82274948	F201004727	US	US8416766	Granted		2-Jun-2009	9-Oct-2024	7,706.00	METHOD FOR IMPLEMENTING DISTRIBUTED VOICE FUNCTIONS INTO SOFTWARE APPLICATIONS

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82274954	F201004727	CN	CN200910146274.0	Granted		26-Jun-2009	26-Jun-2021	1,032.98	METHOD FOR IMPLEMENTING DISTRIBUTED VOICE FUNCTIONS INTO SOFTWARE APPLICATIONS
82275887	F201005039	US	US8725781	Granted		30-Jan-2011	13-Nov-2021	3,766.00	SENTIMENT CUBE
82275890	F201005041	US	US8949211	Granted		31-Jan-2011	3-Aug-2022	3,766.00	OBJECTIVE-FUNCTION BASED SENTIMENT
82586665	F201005286	US	US8966210	Granted		4-Apr-2011	24-Aug-2022	3,606.00	ZONE GROUP CONNECTIVITY INDICATOR
82581296	F201005340	US	US8713183	Granted		27-Mar-2011	29-Oct-2021	3,766.00	RESOURCE COMPATABILITY FOR DATA CENTERS
82677110	F201005997	US	US8719478	Granted		11-Aug-2011	6-Nov-2021	3,606.00	DEADLOCK PREVENTION
82277090	F300202276	US	US7143316	Granted		8-Apr-2003	N/A	N/A	FAULT DIAGNOSIS IN A NETWORK
82069802	F30990155	US	US7096204	Granted		6-Oct-2000	N/A	N/A	ELECTRONIC COMMERCE SYSTEM
82072100	F50980009	US	US6891863	Granted		6-Oct-2000	N/A	N/A	DEVICE AND METHODS FOR PROCESSING CHANNELS IN A DATA STREAM
82664931	F700205294	US	US8478900	Granted		18-May-2011	2-Jan-2021	3,766.00	DETERMINING MISCONNECTION OF AN ELECTRONIC DEVICE TO A NETWORK DEVICE USING ZONE INFORMATION

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82774491	F700205856	US	US8578023	Granted		29-Jul-2011	5-May-2021	3,606.00	COMPUTER RESOURCE UTILIZATION MODELING FOR MULTIPLEWORK LOADS

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81967265	F10001399	US	US7032074	Expired		1-Apr-2004	N/A	N/A	METHOD AND MECHANISM TO USE A CACHE TO TRANSLATE FROM A VIRTUAL BUS TO A PHYSICAL BUS
81967427	F10001428	US	US7209248	Granted		8-Dec-2000	N/A	N/A	MANAGING THE LIFETIME OF DISTRIBUTED RESOURCE DATA USING TEMPORAL SCOPES
81969518	F10002098	US	US6557005	Granted		12-Sep-2000	N/A	N/A	METHOD AND SYSTEM FOR DYNAMICALLY GENERATING WEB FORMS IN A VARIETY OF LANGUAGES
81969818	F10002141	US	US6875930	Granted		18-Apr-2002	N/A	N/A	OPTIMIZED CONDUCTOR ROUTING FOR MULTIPLE COMPONENTS ON A PRINTED CIRCUIT BOARD
81969821	F10002141	TW	TWI255678	Granted		11-Dec-2002	20-May-2021	686.40	OPTIMIZED CONDUCTOR ROUTING FOR MULTIPLE COMPONENTS ON A PRINTED CIRCUIT BOARD
81982970	F10006721	US	US8392586	Granted		15-May-2001	5-Sep-2020	3,606.00	METHOD AND APPARATUS TO MANAGE TRANSACTIONS AT A NETWORK STORAGE DEVICE
81988511	F10010394	US	US6859892	Granted		25-Apr-2001	N/A	N/A	SYNCHRONOUS BREAKPOINT SYSTEM AND METHOD

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81989456	F10010858	US	US7020800	Granted		24-Jan-2002	N/A	N/A	SYSTEM AND METHOD FOR MEMORY FAILURE RECOVERY USING LOCKSTEP PROCESSES
82079957	F100110432	JP	JP4309215	Granted		9-Sep-2003	15-May-2021	1,069.38	CIRCUIT COOLING APPARATUS
82079963	F100110432	US	US7019973	Granted		9-Jun-2004	N/A	N/A	CIRCUIT COOLING APPARATUS
82079960	F100110432	GB	GB2393330	Granted		28-Aug-2003	28-Aug-2020	754.86	CIRCUIT COOLING APPARATUS
82080047	F100110473	US	US7218917	Granted		15-Jan-2002	N/A	N/A	METHOD FOR SEARCHING NODES FOR INFORMATION
82080056	F100110473	JP	JP4002890	Granted		15-Jan-2003	24-Aug-2021	1,655.14	A METHOD FOR SEARCHING NODES FOR INFORMATION
82080059	F100110473	DE	DE60308144.4	Granted		15-Jan-2003	15-Jan-2021	2,257.04	A METHOD FOR SEARCHING NODES FOR INFORMATION
82081022	F100111090	US	US6886353	Granted		31-Oct-2003	N/A	N/A	COOLING SYSTEM
82081025	F100111090	US	US6854287	Granted		31-Oct-2003	N/A	N/A	COOLING SYSTEM
82097813	F100111090	US	US6938433	Granted		4-Dec-2002	N/A	N/A	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82097822	F100111090	JP	JP4927335	Granted		21-Nov-2003	17-Feb-2021	663.85	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES

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82097831	F100111090	GB	GB1466234	Granted		21-Nov-2003	21-Nov-2020	753.48	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82097834	F100111090	DE	DE60305436.6	Granted		21-Nov-2003	21-Nov-2020	2,039.61	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82097837	F100111090	FR	FR1466234	Granted		21-Nov-2003	21-Nov-2020	837.35	COOLING SYSTEM WITH EVAPORATORS DISTRIBUTED IN SERIES
82082273	F100111613	US	US6957353	Granted		31-Oct-2001	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING MINIMAL POWER-CONSUMING REDUNDANT COMPUTING HARDWARE FOR DISTRIBUTED SERVICES
81990701	F10011295	US	US8036983	Granted		18-Jan-2002	11-Apr-2023	7,706.00	SYSTEM FOR AND METHOD OF WEB BASED NON-WAGE COMPENSATION
81998180	F10014757	US	US7020145	Granted		24-Sep-2001	N/A	N/A	NETWORK TOPOLOGY MANAGER
82001252	F10016873	US	US7571143	Granted		15-Jan-2002	4-Feb-2021	7,706.00	SOFTWARE PAY-PER-USE PRICING
82006175	F10019538	US	US6912607	Granted		6-Feb-2002	N/A	N/A	METHOD AND APPARATUS FOR ASCERTAINING THE STATUS OF MULTIPLE DEVICES SIMULTANEOUS LY OVER A DATA BUS

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82006970	F10019860	US	US6832270	Granted		8-Mar-2002	N/A	N/A	VIRTUALIZATIO N OF COMPUTER SYSTEM INTERCONNECTS
82082900	F100200127	US	US7085884	Granted		30-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR STORING OPERATIONAL DATA OF A STORAGE AUTOMATION DEVICE TO A REMOVABLE NONVOLATILE MEMORY COMPONENT
82082906	F100200127	US	US8370574	Granted		13-Jun-2006	5-Aug-2020	3,606.00	SYSTEM AND METHOD FOR STORING CONFIGURATION DATA OF A STORAGE AUTOMATION DEVICE
82083239	F100200246	US	US7266598	Granted		22-Oct-2002	N/A	N/A	PROGRAMMABL E DATA CENTER
82085048	F100201076	US	US6822878	Granted		9-Oct-2002	N/A	N/A	CIRCUIT BOARD SUPPORT ARRANGEMENT, METHOD, AND METHOD FOR USING THE SAME
82085051	F100201076	GB	GB2394121	Granted		23-Sep-2003	23-Sep-2020	754.86	CIRCUIT BOARD SUPPORT ARRANGEMENT, METHOD, AND METHOD FOR USING THE SAME
82085873	F100201476	US	US7519800	Granted		27-Mar-2003	N/A	N/A	APPARATUS AND METHOD FOR ENFORCING HOMOGENEITY WITHIN PARTITIONS OF HETEROGENEOU S COMPUTER SYSTEMS

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82086638	F100201724	US	US6854284	Granted		31-Oct-2003	N/A	N/A	COOLING OF DATA CENTERS
82086647	F100201724	US	US6868683	Granted		31-Oct-2003	N/A	N/A	COOLING OF DATA CENTERS
82086650	F100201724	US	US6945058	Granted		14-May-2004	N/A	N/A	COOLING OF DATA CENTERS
82086680	F100201734	US	US6812719	Granted		28-May-2003	N/A	N/A	ELECTRONIC PROBE WITH A TIP THAT IS SECURABLE TO AN ELECTRONIC DEVICE
82087196	F100201875	US	US6924777	Granted		17-Mar-2003	N/A	N/A	ENHANCED ANTENNA USING FLEXIBLE CIRCUITRY
82087199	F100201875	JP	JP4421333	Granted		2-Mar-2004	11-Dec-2020	917.77	ANTENNA WITH ENHANCED PERFORMANCE USING FLEXIBLE CIRCUIT ELEMENT
82087886	F100202130	US	US7229050	Granted		27-Nov-2002	N/A	N/A	RACEWAY SYSTEM
82088003	F100202179	US	US7513779	Granted		4-Jun-2003	N/A	N/A	CONNECTOR HAVING A BYPASS CAPACITOR AND METHOD FOR REDUCING THE IMPEDANCE AND LENGTH OF A RETURN-SIGNAL PATH
82088006	F100202179	GB	GB2402813	Granted		19-May-2004	19-May-2021	764.74	CONNECTOR HAVING A BYPASS CAPACITOR AND METHOD FOR REDUCING THE IMPEDANCE AND LENGTH OF A RETURN-SIGNAL PATH

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82088642	F100202606	US	US7058828	Granted		12-Aug-2002	N/A	N/A	SYSTEM, METHOD AND APPARATUS FOR THE FREQUENCY MANAGEMENT OF BLADES IN A BLADED ARCHITECTURE BASED ON PERFORMANCE REQUIREMENTS
82088648	F100202606	GB	GB2393540	Granted		25-Jul-2003	25-Jul-2021	837.70	SYSTEM, METHOD AND APPARATUS FOR THE FREQUENCY MANAGEMENT OF BLADES IN A BLADED ARCHITECTURE BASED ON PERFORMANCE REQUIREMENTS
82088660	F100202606	US	US7076671	Granted		12-Aug-2002	N/A	N/A	MANAGING AN OPERATING FREQUENCY OF PROCESSORS IN A MULTI-PROCESSOR COMPUTER SYSTEM
82088894	F100202721	US	US6925409	Granted		3-Oct-2002	N/A	N/A	SYSTEM AND METHOD FOR PROTECTION OF ACTIVE FILES DURING EXTREME CONDITIONS
82089791	F100203149	US	US6854092	Granted		12-Aug-2002	N/A	N/A	REDUCING VARIATION IN RANDOMIZED NANOSCALE CIRCUIT CONNECTIONS
82090853	F100204043	US	US7360295	Granted		15-Mar-2005	N/A	N/A	SYSTEM AND METHOD FOR SECURELY POSITIONING APPARATUS WITHIN A HOUSING

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82091672	F100204699	US	US6867362	Granted		7-Mar-2003	N/A	N/A	CABLE EXTENSION FOR REDUCING EMI EMISSIONS
82093010	F200205329	US	US6856518	Granted		14-Jul-2003	N/A	N/A	ASSEMBLY FOR SUPPORTING A SHORT PRINTED CIRCUIT CARD
82093061	F200205355	US	US7673125	Granted		26-Jun-2003	2-Sep-2021	7,406.00	RESETTING MULTIPLE CELLS WITHIN A PARTITION OF A MULTIPLE PARTITION COMPUTER SYSTEM
82093649	F200205884	US	US7049796	Granted		17-Jan-2003	N/A	N/A	HOT SWAP POWER DELIVERY CIRCUIT
82093655	F200205884	GB	GB2397447	Granted		30-Dec-2003	30-Dec-2020	753.48	HOT SWAP POWER DELIVERY CIRCUIT
82093763	F200205935	US	US6877926	Granted		10-Sep-2002	N/A	N/A	SLIDE MEMBER POSITIVE COUPLING ALIGNMENT ASSEMBLY
82093766	F200205938	US	US7025430	Granted		10-Sep-2002	N/A	N/A	BALL RETAINER FORWARD LOCKING ASSEMBLY
82094612	F200206279	US	US7047471	Granted		3-Mar-2003	N/A	N/A	VOLTAGE MARGIN TESTING OF BLADED SERVERS
82095557	F200206690	US	US7039734	Granted		24-Sep-2002	N/A	N/A	SYSTEM AND METHOD OF MASTERING A SERIAL BUS

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82100279	F200208659	US	US7483142	Granted		3-May-2006	27-Jul-2020	7,406.00	SECURITY SYSTEMS AND MONITORING METHODS USING QUANTUM STATES
82100504	F200208714	US	US7068498	Granted		20-May-2003	N/A	N/A	COMPUTER SYSTEM WITH SLIDABLE MOTHERBOARD
82100846	F200208792	US	US6866540	Granted		18-Apr-2003	N/A	N/A	INDICIA-EQUIPPED ACTUATOR ASSEMBLY
82101308	F200208936	US	US7140801	Granted		22-Aug-2003	N/A	N/A	PRE-LOADING LATCH
82101962	F200209130	US	US7453701	Granted		17-Aug-2005	N/A	N/A	COMPUTER SYSTEM WITH MOVABLE CARD GUIDE
82103468	F200209593	US	US8533828	Granted		21-Jan-2003	10-Mar-2021	3,606.00	A SYSTEM FOR PROTECTING SECURITY OF A PROVISIONABLE NETWORK
82103564	F200209624	GB	GB2410846	Granted		2-Feb-2005	2-Feb-2021	691.79	REDUNDANT INPUT POWER SYSTEM
82217681	F200210205	US	US7092850	Granted		29-Sep-2005	N/A	N/A	SENSOR SIGNAL DEBOUNCING
82106249	F200300486	US	US7324685	Granted		20-Oct-2003	N/A	N/A	INSPECTION SYSTEMS AND METHODS

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82120604	F200302365	US	US7152174	Granted		6-Mar-2003	N/A	N/A	METHOD AND APPARATUS FOR OPERATING A SERVER SYSTEM INCLUDING DETERMINING THE POWER SUPPLIED BY ONE OF A PLURALITY OF POWER SUPPLIES BY MEASURING VOLTAGE ON A LOAD SHARE SIGNAL LINE
82121690	F200302533	US	US7015682	Granted		30-Jan-2003	N/A	N/A	CONTROL OF A POWER FACTOR CORRECTED SWITCHING POWER SUPPLY
82121813	F200302570	US	US6858792	Granted		19-Dec-2002	N/A	N/A	TOOL-LESS COUPLING ASSEMBLY
82167731	F200308561	US	US7539027	Granted		29-Oct-2007	26-Nov-2020	7,406.00	FORCE DISTRIBUTING SPRING ELEMENT
82167908	F200308604	US	US7035096	Granted		31-Oct-2003	N/A	N/A	LOCKING MECHANISM FOR REMOVABLE COMPONENTS
82169174	F200309140	US	US6989523	Granted		11-Apr-2003	N/A	N/A	PHOTON NUMBER RESOLVING SYSTEMS AND METHODS
82180925	F200309140	US	US7002133	Granted		3-Oct-2003	N/A	N/A	DETECTING ONE OR MORE PHOTONS FROM THEIR INTERACTIONS WITH PROBE PHOTONS IN A MATTER SYSTEM

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82169510	F200309294	US	US7578733	Granted		27-Jul-2004	25-Feb-2021	7,706.00	ENCLOSURES WITH REDUNDANT FANS IN DOORS WITH INTERLOCKS
82169516	F200309297	US	US7447043	Granted		22-Dec-2003	N/A	N/A	POWER CABLING ASSEMBLY
82170770	F200309815	US	US7608194	Granted		6-Jul-2007	27-Apr-2021	7,706.00	PHOTONIC STRUCTURES, DEVICES, AND METHODS
82171055	F200309900	US	US8825902	Granted		27-Oct-2003	2-Mar-2022	3,606.00	CONFIGURATION VALIDATION CHECKER
82173314	F200310798	US	US7275068	Granted		19-Dec-2003	N/A	N/A	DISCOVERING COMMUNITIES-OF-PRACTICE
82174166	F200311115	US	US7222246	Granted		26-Sep-2003	N/A	N/A	METHOD FOR DETERMINING NUMBER OF DYNAMICALLY TEMPERATURE-ADJUSTED POWER SUPPLY UNITS NEEDED TO SUPPLY POWER ACCORDING TO MEASURE OPERATING TEMPERATURE OF POWER SUPPLY UNITS
82178384	F200312862	US	US7496740	Granted		26-Jul-2004	24-Aug-2020	7,406.00	ACCESSING INFORMATION ASSOCIATED WITH AN ADVANCED CONFIGURATION AND POWER INTERFACE ENVIRONMENT

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82179812	F200313515	US	US7502699	Granted		29-Jul-2005	10-Sep-2020	7,406.00	SYSTEM AND METHOD FOR MONITORING POWER IN A FRONT END RECTIFIER POWER SYSTEM
82180610	F200313804	US	US7277292	Granted		28-Apr-2004	N/A	N/A	EXPANDABLE BRACING APPARATUS AND METHOD
82181489	F200314217	US	US7133173	Granted		26-Jul-2004	N/A	N/A	NONLINEAR ELECTROMAGNETIC QUANTUM INFORMATION PROCESSING
82181498	F200314217	JP	JP4684294	Granted		28-Jun-2005	18-Feb-2021	1,249.62	NONLINEAR ELECTROMAGNETIC QUANTUM INFORMATION PROCESSING
82181501	F200314217	CN	CN200580024861.2	Granted		28-Jun-2005	28-Jun-2021	1,367.42	NONLINEAR ELECTROMAGNETIC QUANTUM INFORMATION PROCESSING
82184933	F200315657	US	US7512825	Granted		27-Sep-2004	30-Sep-2020	7,406.00	RESPONDING TO DC POWER DEGRADATION
82184936	F200315657	GB	GB2418502	Granted		13-Sep-2005	13-Sep-2020	610.84	RESPONDING TO DC POWER DEGRADATION
82185953	F200316140	US	US7380146	Granted		22-Apr-2005	N/A	N/A	POWER MANAGEMENT SYSTEM
82191062	F200401898	US	US7330119	Granted		29-Apr-2005	N/A	N/A	REMOTE MEASUREMENT EMPLOYING RFID
82191953	F200401898	JP	JP5022417	Granted		11-Sep-2009	22-Jun-2021	844.09	REMOTE MEASUREMENT OF MOTION EMPLOYING RFID

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82193378	F200402827	US	US7031870	Granted		28-May-2004	N/A	N/A	DATA CENTER EVALUATION USING AN AIR RE-CIRCULATION INDEX
82193786	F200402979	US	US7643458	Granted		25-May-2005	5-Jul-2021	7,406.00	COMMUNICATIN G BETWEEN WIRELESS COMMUNITIES
82199909	F200405637	US	US7514816	Granted		19-May-2005	N/A	N/A	OUTPUT CURRENT THRESHOLD ADJUSTMENT FOR A POWER SUPPLY
82201862	F200406613	US	US7492803	Granted		10-Jun-2005	17-Aug-2020	7,406.00	FIBER-COUPLED SINGLE PHOTON SOURCE
82201871	F200406613	JP	JP5068256	Granted		9-Jun-2006	24-Aug-2020	307.99	FIBER-COUPLED SINGLE PHOTON SOURCE
82201952	F200406639	US	US7289690	Granted		15-Apr-2005	N/A	N/A	PHOTONIC CRYSTAL DEVICE FOR FLUID SENSING
82202276	F200406843	US	US7544072	Granted		29-Oct-2007	9-Dec-2020	7,406.00	RETRACTABLE PROTECTION APPARATUS FOR ELECTRONIC DEVICE PINS
82208555	F200501254	US	US7742310	Granted		29-Sep-2006	22-Dec-2021	7,706.00	SEQUENCER
82208558	F200501254	GB	GB2442308	Granted		12-Sep-2007	12-Sep-2020	438.03	SEQUENCER
82208633	F200501301	US	US7186150	Granted		27-Oct-2005	N/A	N/A	SPLIT KEY IN A PRESS-FIT CONNECTOR
82210004	F200502098	US	US8000462	Granted		12-Aug-2005	16-Feb-2023	7,706.00	SCREENING OF CALLS IN A PACKET-BASED NETWORK

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82210010	F200502098	CN	CN200680038219.4	Granted		7-Aug-2006	7-Aug-2020	985.42	SCREENING OF CALLS IN A PACKET-BASED NETWORK
82210016	F200502098	IN	IN280291	Granted		7-Aug-2006	7-Aug-2020	416.00	SCREENING OF CALLS IN A PACKET-BASED NETWORK
83881516	F200502098	DE	DE602006041022.0	Granted		7-Aug-2006	7-Aug-2020	1,272.38	SCREENING OF CALLS IN A PACKET-BASED NETWORK
83881518	F200502098	GB	GB1920586	Granted		7-Aug-2006	7-Aug-2020	524.44	SCREENING OF CALLS IN A PACKET-BASED NETWORK
82213148	F200503639	US	US7474810	Granted		15-May-2007	6-Jul-2020	7,406.00	METHOD AND APPARATUS FOR CONTROLLING LIGHT FLUX WITH SUB-MICRON PLASMON WAVEGUIDES
82214672	F200504645	US	US7924413	Granted		29-Feb-2008	12-Oct-2022	7,706.00	NANOWIRE-BASED PHOTONIC DEVICES
82214693	F200504645	US	US7465954	Granted		28-Apr-2006	N/A	N/A	NANOWIRE DEVICES AND SYSTEMS, LIGHT-EMITTING NANOWIRES, AND METHODS OF PRECISELY POSITIONING NANOPARTICLES
82214696	F200504645	US	US7910915	Granted		23-Oct-2008	22-Sep-2022	7,706.00	NANOWIRE DEVICES AND SYSTEMS, LIGHT-EMITTING NANOWIRES, AND METHODS OF PRECISELY POSITIONING NANOPARTICLES

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82216058	F200505397	US	US9015308	Granted		17-Jan-2007	21-Oct-2022	3,766.00	MULTILAYER DISTRIBUTED PROCESSING SYSTEM
82216061	F200505397	GB	GB2449037	Granted		17-Jan-2007	17-Jan-2021	531.28	MULTILAYER DISTRIBUTED PROCESSING SYSTEM
82217819	F200506362	US	US7540746	Granted		6-Apr-2006	N/A	N/A	ELECTRICAL ENCODING OF CABLE TYPES AND CONFIGURATIONS
82219115	F200507109	CN	CN200780028366.8	Granted		11-Jul-2007	11-Jul-2020	985.42	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
83087119	F200507109	FR	FR2047319	Granted		11-Jul-2007	11-Jul-2020	483.88	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
83087121	F200507109	DE	DE602007026575.4	Granted		11-Jul-2007	11-Jul-2020	1,093.17	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
83087123	F200507109	GB	GB2047319	Granted		11-Jul-2007	11-Jul-2020	438.03	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
82219103	F200507109	US	US7639953	Granted		27-Jul-2006	29-Jun-2021	7,706.00	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS

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82219112	F200507109	JP	JP4842378	Granted		11-Jul-2007	14-Oct-2021	1,069.38	COMPACT SYSTEMS FOR GENERATING POLARIZATION-ENTANGLED PHOTONS
82219238	F200507162	CN	CN200780035137.9	Granted		11-Jul-2007	11-Jul-2020	985.42	COMPACT, SINGLE-CHIP-BASED, ENTANGLED POLARIZATION-STATE PHOTON SOURCES AND METHODS FOR GENERATING PHOTONS IN ENTANGLED POLARIZATION STATES
82219226	F200507162	US	US7373059	Granted		22-Sep-2006	N/A	N/A	COMPACT, SINGLE CHIP-BASED, ENTANGLED POLARIZATION-STATE PHOTON SOURCES AND METHODS FOR GENERATING PHOTONS IN ENTANGLED POLARIZATION STATES
82219235	F200507162	JP	JP4864143	Granted		11-Jul-2007	18-Nov-2020	1,006.29	COMPACT, SINGLE-CHIP-BASED, ENTANGLED POLARIZATION-STATE PHOTON SOURCES AND METHODS FOR GENERATING PHOTONS IN ENTANGLED POLARIZATION STATES
82222280	F200600747	US	US7519245	Granted		31-Oct-2006	N/A	N/A	MODULAR ARRAY COMPUTER WITH OPTICAL INTERCELL COMMUNICATIONS PATHWAYS

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82222283	F200600749	US	US9052916	Granted		21-Sep-2006	9-Dec-2022	3,766.00	SYSTEM ROM WITH AN EMBEDDED DISK IMAGE
82222934	F200601104	US	US8387053	Granted		25-Jan-2007	26-Aug-2020	3,606.00	METHOD AND SYSTEM FOR ENHANCING COMPUTER PROCESSING PERFORMANCE
83019366	F200601661	US	US8357926	Granted		1-Jun-2012	22-Jul-2020	3,606.00	GAIN-CLAMPED SEMICONDUCTOR OPTICAL AMPLIFIERS
82224152	F200601661	US	US8212235	Granted		25-Apr-2007	3-Jan-2024	7,706.00	NANOWIRE-BASED OPTO-ELECTRONIC DEVICES
82224158	F200601661	CN	CN200880013724 2	Granted		25-Apr-2008	25-Apr-2021	1,032.98	NANOWIRE-BASED OPTO-ELECTRONIC DEVICES
82224167	F200601661	KR	KR101455706	Granted		25-Apr-2008	22-Oct-2021	463.28	NANOWIRE-BASED OPTO-ELECTRONIC DEVICES
82225475	F200602319	US	US8612973	Granted		26-Sep-2007	17-Jun-2021	3,766.00	METHOD AND SYSTEM FOR HANDLING INTERRUPTS WITHIN COMPUTER SYSTEM DURING HARDWARE RESOURCE MIGRATION
82226066	F200602534	US	US7498524	Granted		23-Apr-2007	3-Sep-2020	7,406.00	ENCLOSURE AND GASKET ASSEMBLY FOR REDUCING EMI
82227224	F200603002	US	US7466410	Granted		26-Jan-2007	N/A	N/A	PHOTONIC-BASED SENSORS AND METHODS FOR DETECTING ANALYTES

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82227767	F200603277	US	US7805041	Granted		21-Mar-2007	28-Mar-2022	7,706.00	ELECTROMAGNETIC RADIATION AMPLIFICATION SYSTEMS BASED ON PHOTONIC GRATINGS
82227773	F200603277	CN	CN200880009047.7	Granted		21-Mar-2008	21-Mar-2021	1,032.98	ELECTROMAGNETIC RADIATION AMPLIFICATION SYSTEMS BASED ON PHOTONIC GRATINGS
82232504	F200700946	CN	CN200880109804.8	Granted		30-Jul-2008	30-Jul-2020	985.42	SYSTEM AND METHODS FOR ROUTING OPTICAL SIGNALS
82232498	F200700946	US	US7499615	Granted		1-Aug-2007	3-Sep-2020	7,406.00	SYSTEM AND METHODS FOR ROUTING OPTICAL SIGNALS
82232513	F200700946	KR	KR10-1508619	Granted		30-Jul-2008	30-Mar-2021	486.67	SYSTEM AND METHODS FOR ROUTING OPTICAL SIGNALS
82405250	F200700946	US	US8811778	Granted		6-May-2008	19-Feb-2022	3,766.00	SYSTEMS AND METHODS FOR ROUTING OPTICAL SIGNALS
82234532	F200701455	US	US7929865	Granted		27-Jul-2007	19-Oct-2022	7,706.00	FREE SPACE WDM SIGNAL DETECTOR
82234544	F200701455	JP	JP5133414	Granted		16-Jul-2008	16-Nov-2020	390.76	FREE SPACE WDM SIGNAL DETECTOR
82234658	F200701481	US	US7477441	Granted		24-Jul-2007	13-Jul-2020	7,406.00	MEMS DEVICE WITH NANOWIRE STANDOFF LAYER
82235153	F200701619	US	US8351204	Granted		31-Jan-2008	8-Jul-2020	3,606.00	MODULAR DATA PROCESSING COMPONENTS AND SYSTEMS

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82235141	F200701619	CN	CN200880128462.4	Granted		31-Jan-2008	31-Jan-2021	1,032.98	MODULAR DATA PROCESSING COMPONENTS AND SYSTEMS
82235150	F200701619	KR	KR10-1434239	Granted		31-Jan-2008	20-Aug-2021	415.63	MODULAR DATA PROCESSING COMPONENTS AND SYSTEMS
82235552	F200701730	US	US8738658	Granted		23-Apr-2008	27-Nov-2021	3,766.00	METHOD FOR USING PATHS IN A DIRECTORY FOR LOCATING OBJECTS
82237004	F200702142	US	US9032397	Granted		28-May-2008	12-Nov-2022	3,766.00	VIRTUAL MACHINE MIGRATION WITH DIRECT PHYSICAL ACCESS CONTROL
82239494	F200702925	CN	CN200880128457.3	Granted		31-Jan-2008	31-Jan-2021	990.04	FREE SPACE OPTICAL INTERCONNECT
82239500	F200702925	JP	JP5205473	Granted		31-Jan-2008	22-Feb-2021	366.26	FREE SPACE OPTICAL INTERCONNECT
82239503	F200702925	KR	KR10-1395169	Granted		31-Jan-2008	8-May-2021	451.15	FREE SPACE OPTICAL INTERCONNECT
82245326	F200702925	JP	JP5155444	Granted		7-May-2008	14-Dec-2020	406.20	ARRAYS, SYSTEM AND METHOD FOR BI-DIRECTIONAL DATA TRANSMISSION
82245329	F200702925	KR	KR10-1453946	Granted		7-May-2008	16-Oct-2021	530.62	ARRAYS, SYSTEM AND METHOD FOR BI-DIRECTIONAL DATA TRANSMISSION
82405286	F200702925	US	US8611758	Granted		7-May-2008	17-Jun-2021	3,766.00	ARRAYS, SYSTEM AND METHOD FOR BI-DIRECTIONAL DATA TRANSMISSION

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82240844	F200703347	US	US8355251	Granted		21-Aug-2008	15-Jul-2020	3,606.00	REMOTE EXHAUST FOR RACK SYSTEMS
82241627	F200703656	US	US8108645	Granted		26-Jun-2008	31-Jul-2023	7,706.00	OPTIMIZED MEMORY ALLOCATION VIA FEATURE EXTRACTION
82595701	F200800383	CN	CN200880130639.4	Granted		31-Jul-2008	31-Jul-2020	985.42	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595703	F200800383	DE	DE112008003958	Granted		31-Jul-2008	31-Jul-2020	913.97	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595705	F200800383	JP	JP5474065	Granted		31-Jul-2008	14-Feb-2021	397.69	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595707	F200800383	KR	KR10-1510356	Granted		31-Jul-2008	1-Apr-2021	593.23	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS
82595709	F200800383	US	US8873893	Granted		31-Jul-2008	28-Apr-2022	3,766.00	NANO-WIRE OPTICAL BLOCK DEVICES FOR AMPLIFYING, MODULATING, AND DETECTING OPTICAL SIGNALS

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82247651	F200801450	US	US8127124	Granted		19-Mar-2009	28-Aug-2023	7,706.00	REMOTE CONFIGURATION OF COMPUTING PLATFORMS
82934043	F200801450	US	US8370610	Granted		24-Feb-2012	5-Aug-2024	7,706.00	REMOTE CONFIGURATION OF COMPUTING PLATFORMS
82654452	F200802164	CN	CN200880130978.2	Granted		4-Sep-2008	4-Sep-2020	985.42	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82654456	F200802164	JP	JP5376544	Granted		4-Sep-2008	4-Oct-2021	397.69	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82654458	F200802164	KR	KR10-1515870	Granted		4-Sep-2008	22-Apr-2021	664.27	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82654460	F200802164	US	US8655124	Granted		4-Sep-2008	18-Aug-2021	3,766.00	DIELECTRIC WAVEGUIDE INTERSECTION WITH REDUCED LOSSES
82249022	F200802452	US	US8363654	Granted		7-Nov-2008	29-Jul-2020	3,606.00	PREDICTIVE PACKET FORWARDING FOR A NETWORK SWITCH
82250468	F200803661	US	US8477045	Granted		29-Oct-2009	2-Jan-2021	3,606.00	CONFIGURATION INFORMATION PROVIDED TO CONFIGURABLE ELECTRONIC DEVICE RESIDING IN A SHIPPING BOX
82938863	F200803670	US	US8780908	Granted		28-Oct-2009	15-Jan-2022	3,606.00	METHOD AND APPARATUS FOR TRACING A MULTICAST FLOW

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82259093	F200903003	US	US8521940	Granted		27-Oct-2009	27-Feb-2021	3,766.00	PAIRED NODE CONTROLLERS
82259711	F200903377	US	US8537859	Granted		26-Feb-2010	17-Mar-2021	3,766.00	REASSEMBLY OF MINI-PACKETS IN A BUFFER
82263698	F201000775	US	US8424826	Granted		12-Oct-2010	23-Oct-2024	7,406.00	ATTACHMENT APPARATUS FOR AN EXTERNAL POWER SUPPLY
83161099	F201001120	CN	CN201080068233.5	Granted		26-Jul-2010	26-Jul-2020	666.46	MITIGATION OF DETECTED PATTERNS IN A NETWORK DEVICE
83733017	F201001270	CN	CN201180071455.7	Granted		8-Aug-2011	8-Aug-2021	698.53	FABRIC CHIP HAVING TRUNKED LINKS
83733023	F201001270	US	US9369296	Granted		8-Aug-2011	14-Dec-2023	3,766.00	FABRIC CHIP HAVING TRUNKED LINKS
82264643	F201001462	US	US8353718	Granted		17-Dec-2010	15-Jan-2021	$4,260.00	HANDLE ASSEMBLY FOR ELECTRICAL CONNECTION WITH A GROUNDING MECHANISM
82271798	F201003557	US	US6829314	Granted		10-Aug-2000	N/A	N/A	ADAPTER FOR NEAR END CROSSTALK AND ECHO CANCELLER FOR BI-DIRECTIONAL DIGITAL COMMUNICATIONS
82271858	F201003574	US	US6882661	Granted		14-Sep-2000	N/A	N/A	SYSTEM FOR DETECTION OF ASYNCHRONOUS PACKET RATES AND MAINTENANCE OF MAXIMUM THEORETICAL PACKET RATE

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82271987	F201003620	US	US6694388	Granted		31-May-2000	N/A	N/A	DYNAMIC QUEUING SYSTEM INCORPORATING MULTIPLE QUEUES SHARING A SINGLE MEMORY
82272107	F201003667	US	US7286652	Granted		31-May-2000	N/A	N/A	FOUR CHANNEL AUDIO RECORDING IN A PACKET BASED NETWORK
82272131	F201003671	US	US6762995	Granted		14-Jun-2000	N/A	N/A	NETWORK SWITCH INCLUDING HYSTERESIS IN SIGNALLING FULLNESS OF TRANSMIT QUEUES
82272152	F201003677	US	US6807175	Granted		25-Aug-2000	N/A	N/A	DISTRIBUTED MULTICAST ROUTING IN PACKET-BASED COMMUNICATIO N NETWORK DEVICES
82272170	F201003682	US	US9112768	Granted		15-Sep-2000	18-Feb-2023	3,766.00	DISCOVERING NON MANAGED DEVICES IN A NETWORK SUCH AS A LAN USING HTTP
82272197	F201003693	US	US7512685	Granted		30-Nov-2000	N/A	N/A	METHOD AND SYSTEM FOR IMPLEMENTING WIRELESS DATA TRANSFERS BETWEEN A SELECTED GROUP OF MOBILE COMPUTING DEVICES

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82272332	F201003764	US	US7233601	Granted		14-Sep-2000	N/A	N/A	CASCADE ARCHITECTURE AND OPERATION FOR PACKET-BASED COMMUNICATIO N SYSTEMS
82272380	F201003773	US	US6928059	Granted		15-Sep-2000	N/A	N/A	EFFICIENT METHOD OF DEDUCING NETWORK TOPOLOGY INCLUDING ENDSTATIONS
82272401	F201003780	US	US6574414	Granted		8-Jan-2001	N/A	N/A	LIGHT TRANSMISSION APPARATUS AND METHOD
82272431	F201003795	US	US6856683	Granted		28-Feb-2001	N/A	N/A	METHOD FOR REDUCING NOISE FROM A NON-LINEAR DEVICE THAT SHARES A CUSTOMER LOOP WITH AN ASYMMETRIC DIGITAL SUBSCRIBER LINE MODEM
82272446	F201003802	US	US6801950	Granted		25-Sep-2000	N/A	N/A	STACKABLE NETWORK UNIT INCLUDING REGISTER FOR IDENTIFYING TRUNK CONNECTION STATUS OF STACKED UNITS
82272479	F201003814	US	US6912206	Granted		15-Sep-2000	N/A	N/A	DISCOVERY OF PHONES ON A NETWORK, SUCH AS A LAN

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82272509	F201003831	US	US6857027	Granted		14-Nov-2000	N/A	N/A	INTELLIGENT NETWORK TOPOLOGY AND CONFIGURATION VERIFICATION USING A METHOD OF LOOP DETECTION
82272587	F201003853	US	US7673034	Granted		9-Aug-2000	2-Sep-2021	7,706.00	SELF SERVICE DATA INTERFACE
82272593	F201003853	US	US7463732	Granted		9-Aug-2000	N/A	N/A	FLEXIBLE DATA OUTLET
82272701	F201003916	US	US6847635	Granted		20-Jun-2000	N/A	N/A	METHOD TO TRANSMIT SILENCE COMPRESSED VOICE OVER IP EFFICIENTLY IN DOCSIS CABLE NETWORKS
82272746	F201003933	US	US6865223	Granted		5-Feb-2001	N/A	N/A	EQUALIZER ADAPTER FOR A PULSE AMPLITUDE MODULATION RECEIVER
82272749	F201003934	US	US6996062	Granted		28-Feb-2001	N/A	N/A	POLICY-BASED WEIGHTED RANDOM EARLY DETECTION METHOD FOR AVOIDING CONGESTION IN INTERNET TRAFFIC
82272767	F201003939	US	US6694360	Granted		9-Jun-2000	N/A	N/A	MULTI-MODE NETWORK INTERFACE HAVING LOADABLE SOFTWARE IMAGES

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82272824	F201003964	US	US7062569	Granted		19-Jan-2001	N/A	N/A	CASCADE CONTROL ARCHITECTURE AND OPERATION FOR PACKET-BASED COMMUNICATIO N SYSTEMS
82272863	F201003994	US	US6829309	Granted		5-Feb-2001	N/A	N/A	PHASE DETECTOR FOR BAUD RATE-SAMPLED MULTI-STATE SIGNAL RECEIVER
82272998	F201004060	US	US7366168	Granted		3-Apr-2001	N/A	N/A	TCP CONTROL PACKET DIFFERENTIAL SERVICE
82273007	F201004067	US	US6914952	Granted		19-Jan-2001	N/A	N/A	SUPERFRAME ALIGNMENT TO A PRE-EXISTING ADSL DATA EXCHANGE
82273139	F201004136	US	US6920172	Granted		2-Jan-2001	N/A	N/A	DUAL PURPOSE SPREAD SPECTRUM RADIO RECEIVERS WITH CONTROLLED FREQUENCY REJECTION
82273160	F201004139	US	US6839360	Granted		20-Feb-2001	N/A	N/A	FIFO STORAGE INCLUDING POINTER MISALIGNMENT DETECTION
82273172	F201004141	US	US6819680	Granted		26-Mar-2001	N/A	N/A	LINK AGGREGATION CONTROL FOR NETWORK DEVICES
82273190	F201004170	US	US6973513	Granted		9-Apr-2001	N/A	N/A	METHOD FOR EFFICIENT USE OF A TRANSMIT ENGINE

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82273208	F201004177	US	US6854015	Granted		28-Feb-2001	N/A	N/A	SYSTEM FOR ISOLATING ETHERNET NETWORK TRAFFIC
82273253	F201004202	US	US6963921	Granted		16-Feb-2001	N/A	N/A	METHOD AND APPARATUS FOR HARDWARE ASSISTED TCP PACKET RE-ASSEMBLY
82273268	F201004211	US	US6963541	Granted		27-Feb-2001	N/A	N/A	UPSTREAM TRANSMISSION PROFILES FOR A DOCSIS OR DOCSIS-LIKE SYSTEM
82273295	F201004225	US	US6873701	Granted		29-Mar-2001	N/A	N/A	SYSTEM AND METHOD FOR DTMF DETECTION USING LIKELIHOOD RATIOS
82273307	F201004227	US	US6868088	Granted		26-Apr-2001	N/A	N/A	AUTOMATIC DETECTOR OF MEDIA INTERFACE PROTOCOL TYPE
82273313	F201004228	US	US7340515	Granted		10-Jul-2001	N/A	N/A	OPTIMISATION OF NETWORK CONFIGURATION
82273319	F201004229	US	US7385939	Granted		2-Jul-2001	N/A	N/A	NETWORK MANAGEMENT APPARATUS AND METHOD FOR DETERMINING THE TOPOLOGY OF A NETWORK
82273325	F201004230	US	US7673035	Granted		2-Jul-2001	2-Sep-2021	7,706.00	APPARATUS AND METHOD FOR PROCESSING DATA RELATING TO EVENTS ON A NETWORK

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82273337	F201004232	US	US7016955	Granted		2-Jul-2001	N/A	N/A	NETWORK MANAGEMENT APPARATUS AND METHOD FOR PROCESSING EVENTS ASSOCIATED WITH DEVICE REBOOT
82273376	F201004271	US	US7010588	Granted		2-Jul-2001	N/A	N/A	A SYSTEM USING A SERIES OF EVENT PROCESSORS FOR PROCESSING NETWORK EVENTS TO REDUCE NUMBER OF EVENTS TO BE DISPLAYED
82273394	F201004275	US	US7065670	Granted		31-Oct-2002	N/A	N/A	SERVER MONITORING AND FAILOVER MECHANISM
82273406	F201004278	US	US7028086	Granted		22-Aug-2001	N/A	N/A	APPARATUS, METHOD, AND COMPUTER PROGRAM FOR DETECTION OF SERVER-LIKE DEVICES ON A COMPUTER NETWORK BASED ON INGRESS TO EGRESS NETWORK TRAFFIC RATIOS
82273439	F201004307	US	US6877145	Granted		2-Aug-2001	N/A	N/A	AUTOMATIC GENERATION OF INTERCONNECT LOGIC COMPONENTS
82273496	F201004328	US	US7392518	Granted		21-Feb-2002	N/A	N/A	ROBUST REMOTE FLASH ROM UPGRADE SYSTEM AND METHOD

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82273550	F201004338	US	US6970921	Granted		27-Jul-2001	N/A	N/A	NETWORK INTERFACE SUPPORTING VIRTUAL PATHS FOR QUALITY OF SERVICE
82273604	F201004359	US	US7225236	Granted		7-Aug-2001	N/A	N/A	LOAD BALANCING BETWEEN LNSS USING VIRTUAL LNS WITH MINIMAL LAC CONFIGURATION
82273751	F201004415	US	US7340536	Granted		22-Jan-2002	N/A	N/A	METHOD AND APPARATUS FOR DETERMINING UNMANAGED NETWORK DEVICES IN THE TOPOLOGY OF A NETWORK
82273757	F201004416	US	US6915448	Granted		24-Apr-2002	N/A	N/A	STORAGE DISK FAILOVER AND REPLACEMENT SYSTEM
82273814	F201004432	US	US7042889	Granted		4-Mar-2002	N/A	N/A	NETWORK SWITCH WITH PARALLEL WORKING OF LOOK-UP ENGINE AND NETWORK PROCESSOR
82273865	F201004452	US	US7274703	Granted		16-Jul-2002	N/A	N/A	STACKABLE NETWORK UNITS WITH RESILIENCY FACILITY
82273868	F201004452	GB	GB2386524	Granted		29-Aug-2002	29-Aug-2021	896.07	STACKABLE NETWORKS UNITS WITH RESILIENCE FACILITY

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82273871	F201004453	US	US7249183	Granted		4-Jun-2002	N/A	N/A	METHOD TO ENABLE CONTINUOUS MOBILITY ACROSS WIRED AND WIRELESS NETWORK INTERFACES
82273874	F201004454	US	US7564861	Granted		22-Aug-2002	21-Jan-2021	7,706.00	SYSTEMS AND METHODS FOR COMPRESSING DATA
82273883	F201004458	US	US7283555	Granted		25-Jun-2002	N/A	N/A	METHOD AND APPARATUS FOR DETERMINING A POLLING INTERVAL IN A NETWORK MANAGEMENT SYSTEM
82273907	F201004475	US	US7564835	Granted		6-Nov-2002	21-Jan-2021	7,406.00	SYSTEM AND METHOD FOR MAXIMIZING THE USE OF BANDWIDTH OPTIMIZATION TECHNIQUES IN VOICE-OVER-PACKET CONNECTIONS
82273931	F201004480	US	US7123615	Granted		11-Mar-2002	N/A	N/A	STACKED NETWORK ROUTERS
82273988	F201004504	US	US8307063	Granted		25-Jun-2002	6-May-2024	7,706.00	METHOD AND APPARATUS FOR MANAGING DATA TRAFFIC ASSOCIATED WITH A USER ON A NETWORK
82274069	F201004528	US	US6807266	Granted		30-Aug-2002	N/A	N/A	METHOD AND APPARATUS FOR PROVISIONING A SOFT SWITCH
82274084	F201004533	US	US6839239	Granted		17-Jul-2002	N/A	N/A	ELECTRONIC DEVICE PACKAGING

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82274096	F201004537	US	US7089424	Granted		10-May-2002	N/A	N/A	PERIPHERAL DEVICE FOR PROTECTING DATA STORED ON HOST DEVICE AND METHOD AND SYSTEM USING THE SAME
82274120	F201004543	US	US7274750	Granted		27-Sep-2002	N/A	N/A	GAIN AND PHASE IMBALANCE COMPENSATION FOR OFDM SYSTEMS
82274231	F201004569	US	US7490155	Granted		13-Mar-2003	N/A	N/A	MANAGEMENT AND CONTROL FOR INTERACTIVE MEDIA SESSIONS
82274267	F201004572	US	US7420968	Granted		6-Jun-2003	N/A	N/A	HIGH-SPEED SWITCH ARCHITECTURE
82274273	F201004573	US	US7362750	Granted		17-Jun-2003	N/A	N/A	SWITCH MODULE ARCHITECTURE
82274282	F201004575	US	US7391784	Granted		30-Dec-2002	N/A	N/A	METHOD AND SYSTEM FOR COMMUNICATING STATE INFORMATION BETWEEN DEVICES OF A COMMUNICATIONS NETWORK
82274294	F201004582	US	US7480723	Granted		8-Apr-2003	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING DIRECTORY BASED SERVICES
82576918	F201006045	US	USD732547	Granted		31-Jan-2011	N/A	N/A	BEZEL WITH DOCKING RECESS
83852687	F201006045	US	USD753664	Granted		1-Apr-2014	N/A	N/A	BEZEL WITH DOCKING RECESS

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84161772	F201006045	US	USD765088	Granted		24-Feb-2015	N/A	N/A	BEZEL WITH DOCKING RECESS
82062347	F30003063	US	US6941476	Granted		10-May-2001	N/A	N/A	INFORMATION STORAGE
82062344	F30003063	GB	GB2362970	Expired		31-May-2000	N/A	N/A	IMPROVEMENTS RELATING TO INFORMATION STORAGE
82065557	F30014514	US	US7363425	Granted		28-Dec-2001	N/A	N/A	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO MEDIA BASED ON MEDIUM IDENTIFICATION NUMBERS
82065560	F30014514	JP	JP4716478	Granted		19-Dec-2002	8-Apr-2021	1,069.38	SYSTEM AND METHOD FOR SECURING DRIVE ACCESS TO MEDIA BASED ON MEDIUM IDENTIFICATION NUMBERS
82664940	F700205218	US	US8661279	Granted		19-Jul-2011	25-Aug-2021	3,766.00	POWER CAPPING USING C-STATES
82965470	F700207896	US	US8966313	Granted		30-Apr-2012	24-Aug-2022	3,766.00	SYSTEMS AND METHODS FOR A SHARED DEBUG PIN

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81974582	F10003624	US	US6862691	Granted		19-Sep-2001	N/A	N/A	REDUNDANT COMPONENT SYSTEM AND METHOD FOR FACILITATING ENDSYSTEM FUNCTIONALITY
81984005	F10007152	US	US6954928	Granted		8-Aug-2001	N/A	N/A	METHOD FOR SELECTING A SET OF PATCHES TO UPDATE A SYSTEM OF PROGRAMS
81986741	F10008034	US	US6708515	Granted		31-Aug-2001	N/A	N/A	PASSIVE SPRAY COOLANT PUMP
81986753	F10008038	US	US6886117	Granted		20-Nov-2001	N/A	N/A	FIELD REPAIRABLE EMBEDDED MEMORY IN SYSTEM-ON-A-CHIP
81986756	F10008039	US	US6910155	Granted		25-Jun-2001	N/A	N/A	SYSTEM AND METHOD FOR CHIP TESTING
81988508	F10010393	US	US6964035	Granted		3-Jul-2001	N/A	N/A	DEBUGGING AN OPERATING SYSTEM KERNEL WITH DEBUGGER SUPPORT IN A NETWORK INTERFACE CARD
81988553	F10010441	US	US6981104	Granted		12-Jul-2002	N/A	N/A	METHOD FOR CONDUCTING CHECKPOINTING WITHIN A WRITEBACK CACHE
81989051	F10010651	US	US6883091	Granted		30-May-2001	N/A	N/A	REDUCING BOOT TIMES VIA INTRUSION MONITORING

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83087160	F100110476	US	US9053458	Granted		7-Aug-2012	N/A	N/A	SYSTEM AND METHOD FOR PROFILING CLIENTS WITHIN A SYSTEM FOR HARVESTING COMMUNITY KNOWLEDGE
81990020	F10011053	US	US7076539	Granted		30-Jul-2001	N/A	N/A	NETWORK CONNECTIVITY ESTABLISHMENT AT USER LOG-IN
81991103	F10011520	US	US6976073	Granted		29-Nov-2001	N/A	N/A	TRANSPARENT REMOTE DATA STORAGE DEVICE AND METHOD
81991115	F10011521	US	US6907519	Granted		19-Mar-2002	N/A	N/A	SYSTEMS AND METHODS FOR INTEGRATING EMULATED AND NATIVE CODE
81993140	F10012290	US	US6874050	Granted		16-Jan-2002	N/A	N/A	CIRCUIT AND METHOD FOR EXPANDING A SERIAL BUS
81994784	F10012965	US	US7046587	Granted		23-Aug-2001	N/A	N/A	SYSTEMS AND METHODS FOR PROVIDING AUTOMATIC ACCESS TO DATA MEDIA IN A DATA STORAGE SYSTEM
81994793	F10012965	DE	DE60220350.3	Granted		22-Aug-2002	22-Aug-2020	2,108.66	SYSTEMS AND METHODS FOR PROVIDING AUTOMATIC ACCESS TO DATA MEDIA IN A DATA STORAGE SYSTEM

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81994799	F10012965	GB	GB1288937	Granted		22-Aug-2002	22-Aug-2020	826.86	SYSTEMS AND METHODS FOR PROVIDING AUTOMATIC ACCESS TO DATA MEDIA IN A DATA STORAGE SYSTEM
81995162	F10013118	US	US6901303	Granted		31-Jul-2001	N/A	N/A	METHOD AND APPARATUS FOR CONTROLLING FANS AND POWER SUPPLIES TO PROVIDE ACCELERATED RUN-IN TESTING
81996422	F10013826	US	US6889349	Granted		22-Aug-2001	N/A	N/A	DIGITAL EVENT SAMPLING CIRCUIT AND METHOD
81996431	F10013830	US	US6851064	Granted		22-Aug-2001	N/A	N/A	FINE-GRAINED THERMAL CONTROL IN MEMORY SUBSYSTEMS
82000199	F10016250	US	US6918027	Granted		30-Jul-2001	N/A	N/A	SYSTEM AND METHOD FOR IN-SYSTEM PROGRAMMING THROUGH AN ON-SYSTEM JTAG
82002023	F10017351	US	US6857047	Granted		10-Jun-2002	N/A	N/A	MEMORY COMPRESSION FOR COMPUTER SYSTEMS
82002458	F10017545	US	US7318120	Granted		24-Dec-2004	N/A	N/A	HARDWARE ASSISTED COMMUNICATIO N BETWEEN PROCESSORS
82002905	F10017839	US	US6909577	Granted		7-Jun-2002	N/A	N/A	LOW-OVERHEAD STORAGE MAGAZINE

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82002914	F10017840	US	US6883109	Granted		30-Jul-2001	N/A	N/A	METHOD FOR ACCESSING SCAN CHAINS AND UPDATING EEPROM-RESIDENT FPGA CODE THROUGH A SYSTEM MANGEMENT PROCESSOR AND JTAG BUS
82003640	F10018117	US	US7480815	Granted		10-Jun-2005	N/A	N/A	CONTROLLER COMMUNICATIONS OVER AN ALWAYS-ON CONTROLLER INTERCONNECT
82004525	F10018651	US	US7340749	Granted		3-Dec-2002	N/A	N/A	METHOD AND APPARATUS TO DETECT PRESENCE OF OR A SIZE OF A DATA CARTRIDGE
82004534	F10018651	DE	DE60307027.2	Granted		21-Nov-2003	21-Nov-2020	2,039.61	MEDIA-DETECTION SYSTEMS
82004993	F10019017	US	US6980884	Granted		16-Jul-2002	N/A	N/A	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82005002	F10019017	DE	DE60332514.9	Granted		11-Jul-2003	11-Jul-2021	2,272.89	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82005005	F10019017	FR	FR1383121	Granted		11-Jul-2003	11-Jul-2021	946.25	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82005008	F10019017	GB	GB1383121	Granted		11-Jul-2003	11-Jul-2021	837.70	INTRUSION MONITORS FOR MEDIA STORAGE SYSTEMS
82086674	F10019724	US	US7263192	Granted		20-Mar-2002	N/A	N/A	ESTABLISHING AN ENCRYPTED SESSION

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82006889	F10019840	US	US6909570	Granted		25-Nov-2002	N/A	N/A	HARD DISK DRIVE STORAGE SYSTEM
82006910	F10019852	US	US7256435	Granted		2-Jun-2003	N/A	N/A	MULTILEVEL IMPRINT LITHOGRAPHY
82082915	F100200135	US	US7529966	Granted		20-Aug-2004	5-Nov-2020	7,406.00	STORAGE SYSTEM WITH JOURNALING
82084247	F100200743	US	US6858162	Granted		1-Apr-2002	N/A	N/A	SINGLE MOLECULE REALIZATION OF THE SWITCH AND DOIDE COMBINATION
82085375	F100201208	US	US7219230	Granted		8-May-2002	N/A	N/A	OPTIMIZING COSTS ASSOCIATED WITH MANAGING ENCRYPTED DATA
82085789	F100201450	GB	GB2391582	Granted		10-Jun-2003	10-Jun-2021	837.70	FAN-SECURING DEVICE FOR USE WITH A HEAT TRANSFER DEVICE
82085792	F100201450	US	US6879487	Granted		30-Sep-2003	N/A	N/A	FAN-SECURING DEVICE FOR USE WITH A HEAT TRANSFER DEVICE
82087094	F100201843	US	US6976119	Granted		14-Jun-2002	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING A LOCATION OF A DATA INTERFACE
82087100	F100201843	GB	GB2393291	Granted		4-Jun-2003	4-Jun-2021	837.70	METHOD AND SYSTEM FOR PROVIDING A LOCATION OF A DATA INTERFACE
82087247	F100201886	US	US6907314	Granted		16-Sep-2003	N/A	N/A	INVENTORY CONTROL DEVICE

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82088090	F100202247	US	US7334978	Granted		23-Jun-2003	N/A	N/A	CARTRIDGE-HANDLING APPARATUS FOR A MEDIA STORAGE SYSTEM
82088099	F100202247	DE	DE60326440.9	Granted		29-Dec-2003	29-Dec-2021	2,272.89	CARTRIDGE-HANDLING APPARATUS FOR A MEDIA STORAGE SYSTEM
82088105	F100202247	GB	GB1492104	Granted		29-Dec-2003	29-Dec-2020	753.48	CARTRIDGE-HANDLING APPARATUS FOR A MEDIA STORAGE SYSTEM
82090061	F100203351	US	US7886430	Granted		13-Dec-2002	15-Aug-2022	7,406.00	METHOD OF INSTALLING CIRCUIT BOARD COMPONENT
82090346	F100203591	US	US7188171	Granted		23-Jan-2003	N/A	N/A	METHOD AND APPARATUS FOR SOFTWARE AND HARDWARE EVENT MONITORING AND REPAIR
82091372	F100204291	US	US6896541	Granted		18-Feb-2003	N/A	N/A	INTERFACE CONNECTOR THAT ENABLES DETECTION OF CABLE CONNECTION
82091852	F100204836	US	US6895460	Granted		19-Jul-2002	N/A	N/A	SYNCHRONIZATION OF ASYNCHRONOUS EMULATED INTERRUPTS
82578862	F109	US	US7502903	Granted		7-Nov-2005	N/A	N/A	METHOD AND APPARATUS FOR MANAGING DATA STORAGE SYSTEMS

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82578875	F109	US	US7444489	Granted		7-Nov-2005	N/A	N/A	APPLICATIONS FOR NON-DISRUPTIVELY MOVING DATA BETWEEN LOGICAL DISK REGIONS IN A DATA STORAGE SYSTEM
82031588	F10971442	US	US7062702	Granted		14-Mar-2001	N/A	N/A	EFFICIENT PARITY OPERATIONS
82578819	F12535	US	US7093278	Granted		8-May-2002	N/A	N/A	REMOTE CONSOLE FOR MONITOR AND CONTROL OF SYSTEM FIRMWARE
82578822	F12537	US	US7111157	Granted		8-May-2002	N/A	N/A	SPURIOUS INPUT DETECTION FOR FIRMWARE
82578829	F12540	US	US7124324	Granted		22-Aug-2002	N/A	N/A	METHOD OF TESTING FIBRE CHANNEL PORTS IN A STORAGE SERVER AT FULL BANDWIDTH WITHOUT CONNECTION TO EXTERNAL DEVICES
82093328	F200205608	US	US7469370	Granted		23-Dec-2002	N/A	N/A	ENABLING MULTIPLE TESTING DEVICES
82094180	F200206068	US	US6880146	Granted		31-Jan-2003	N/A	N/A	MOLECULAR-WIRE-BASED RESTORATIVE MULTIPLEXER, AND METHOD FOR CONSTRUCTING A MULTIPLEXER BASED ON A CONFIGURABLE, MOLECULAR-JUNCTION-NANOWIRE CROSSBAR

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82094192	F200206075	US	US6898098	Granted		31-Jan-2003	N/A	N/A	MOLECULAR-JUNCTION-NANOWIRE-CROSSBAR-BASED ASSOCIATIVE ARRAY
82094783	F200206363	US	US6856926	Granted		3-Mar-2003	N/A	N/A	FREQUENCY MARGIN TESTING OF BLADED SERVERS
82095791	F200206843	US	US6820146	Granted		1-Oct-2002	N/A	N/A	FILTER DRIVER FOR BLOCKING ACCESS BY HOST TO DEVICES
82097240	F200207344	US	US7493450	Granted		14-Apr-2003	N/A	N/A	METHOD OF TRIGGERING READ CACHE PRE-FETCH TO INCREASE HOST READ THROUGHPUT
82097885	F200207703	US	US7228345	Granted		15-Oct-2002	N/A	N/A	SERVER WITH LAN SWITCH THAT CONNECTS PORTS BASED ON BOOT PROGRESS INFORMATION
82098389	F200207865	US	US7100273	Granted		3-Mar-2003	N/A	N/A	INTERCONNECT VALIDATION INSTRUMENTS
82099109	F200208131	US	US7873723	Granted		30-Jan-2003	18-Jul-2022	7,706.00	DEVICE DATA
82220018	F200208131	US	US7686229	Granted		27-Mar-2006	30-Sep-2021	7,706.00	RFID READER DEVICE HAVING CLOSELY PACKED ANTENNAS
82220252	F200208131	US	US7806333	Granted		18-Oct-2006	5-Apr-2022	7,706.00	TRACKING RFID TAGS WITH OVERLAPPING ANTENNAS

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82099112	F200208132	US	US6796506	Granted		10-Mar-2003	N/A	N/A	TRACKING ELECTRONIC DEVICES
82099676	F200208397	US	US7546475	Granted		13-May-2003	N/A	N/A	POWER-AWARE ADAPTATION IN A DATA CENTER
82099691	F200208401	US	US7045996	Granted		30-Jan-2003	N/A	N/A	POSITION DETERMINATION BASED ON PHASE DIFFERENCE
82103501	F200209613	US	US7590909	Granted		24-Aug-2005	15-Mar-2021	7,406.00	IN-CIRCUIT TESTING SYSTEM AND METHOD
82103666	F200209639	US	US7145775	Granted		30-Jul-2004	N/A	N/A	CHASSIS CONDUCTED COOLING THERMAL DISSIPATION APPARATUS FOR SERVERS
82103681	F200209643	US	US8621304	Granted		7-Oct-2004	30-Jun-2021	3,606.00	BUILT-IN- SELF-TEST SYSTEM AND METHOD FOR AN INTEGRATED CIRCUIT
82105283	F200300040	US	US6868899	Granted		25-Aug-2003	N/A	N/A	VARIABLE HEIGHT THERMAL INTERFACE
82105697	F200300182	US	US6982570	Granted		30-Oct-2003	N/A	N/A	RECONFIGURAB LE DEVICE
82117616	F200301772	US	US6874103	Granted		13-Nov-2001	N/A	N/A	ADAPTER-BASED RECOVERY SERVER OPTION
82118564	F200302016	US	US7284067	Granted		20-Feb-2002	N/A	N/A	METHOD FOR INTEGRATED LOAD BALANCING AMONG PEER SERVERS

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82119695	F200302139	US	US8370468	Granted		8-Nov-2006	5-Aug-2024	7,706.00	METHOD AND APPARATUS FOR CREATING A SECURE EMBEDDED I/O PROCESSOR FOR A REMOTE SERVER MANAGEMENT CONTROLLER
82119701	F200302141	US	US7047462	Granted		4-Jan-2002	N/A	N/A	METHOD AND APPARATUS FOR PROVIDING JTAG FUNCTIONALITY IN A REMOTE SERVER MANAGEMENT CONTROLLER
82119902	F200302189	US	US6912599	Granted		19-Oct-2001	N/A	N/A	METHOD AND APPARATUS FOR SENSING POSITIONS OF DEVICE ENCLOSURES WITHIN MULTI-SHELF CABINETS
82119950	F200302202	US	US6889345	Granted		19-Oct-2001	N/A	N/A	SYSTEM AND METHOD FOR LOCATING A FAILED STORAGE DEVICE IN A DATA STORAGE SYSTEM
82120214	F200302270	US	US6870436	Granted		11-Mar-2002	N/A	N/A	METHOD AND APPARATUS TO ATTENUATE POWER PLANE NOISE ON A PRINTED CIRCUIT BOARD USING HIGH ESR CAPACITORS
82120691	F200302389	US	US7028177	Granted		31-Jan-2002	N/A	N/A	ARRAY CONTROLLER ROM CLONING IN REDUNDANT CONTROLLERS

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82120694	F200302390	US	US7093043	Granted		27-Dec-2001	N/A	N/A	DATA ARRAY HAVING REDUNDANCY MESSAGING BETWEEN ARRAY CONTROLLERS OVER THE HOST BUS
82121663	F200302525	US	US6901458	Granted		11-Jul-2002	N/A	N/A	MULTI-MODE SCSI BACKPLANE AND DETECTION LOGIC
82168088	F200308692	US	US6922496	Granted		31-Jan-2003	N/A	N/A	INTEGRATED VCSELS ON ASIC MODULE USING FLEXIBLE ELECTRICAL CONNECTIONS
82168127	F200308692	US	US6975514	Granted		31-Jan-2003	N/A	N/A	INTEGRATED VCSELS ON TRADITIONAL VLSI PACKAGING
82168292	F200308761	US	US7028106	Granted		5-Dec-2003	N/A	N/A	REMAPPING ROUTING INFORMATION ENTRIES IN AN EXPANDER
82171157	F200309939	US	US8023828	Granted		17-Oct-2005	20-Mar-2023	7,706.00	QUANTUM INFORMATION CONVERSION BETWEEN MATTER AND LIGHT REPRESENTATIONS
82171166	F200309939	JP	JP5437634	Granted		21-Jul-2006	20-Dec-2020	467.95	QUANTUM INFORMATION CONVERSION BETWEEN MATTER AND LIGHT REPRESENTATIONS

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82171169	F200309939	CN	CN200680038674.4	Granted		21-Jul-2006	21-Jul-2020	959.27	QUANTUM INFORMATION CONVERSION BETWEEN MATTER AND LIGHT REPRESENTATIONS
82174472	F200311229	US	US7930539	Granted		3-Aug-2004	19-Oct-2022	7,706.00	COMPUTER SYSTEM RESOURCE ACCESS CONTROL
82179221	F200313243	US	US8028174	Granted		4-May-2005	27-Mar-2023	7,706.00	CONTROLLING UPATE OF CONTENT OF A PROGRAMMABLE READ-ONLY MEMORY
82179365	F200313243	US	US7296146	Granted		12-Jan-2004	N/A	N/A	SECURITY MEASURES IN A PARTITIONABLE COMPUTING SYSTEM
82179857	F200313535	US	US7484065	Granted		20-Apr-2004	N/A	N/A	SELECTIVE MEMORY ALLOCATION
82203497	F200313719	US	US7307732	Granted		31-May-2005	N/A	N/A	PHOTONIC CRYSTAL INTERFEROMETER
82180394	F200313719	US	US7492979	Granted		27-Sep-2004	17-Aug-2020	7,406.00	PHOTONIC CRYSTAL LASER SENSORS AND METHODS
82187561	F200400222	US	US7519973	Granted		29-Sep-2004	N/A	N/A	PROVIDING UNIQUE EVENT NOTIFICATION TO ENABLE FIRMWARE TO REQUEST THAT AN OPERATING SYSTEM PERFORM A UNIQUE ACTION

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82187903	F200400362	US	US7386537	Granted		23-Jul-2004	N/A	N/A	METHOD AND SYSTEM FOR DETERMINING SIZE OF A DATA CENTER
82188296	F200400516	US	US7610526	Granted		24-Jan-2005	27-Apr-2021	7,706.00	ON-CHIP CIRCUITRY FOR BUS VALIDATION
82189034	F200400854	US	US7607123	Granted		21-Sep-2004	20-Apr-2021	7,706.00	SYSTEMS AND METHODS FOR VALIDATING DEBUG INFORMATION FOR OPTIMIZED CODE
82192358	F200402482	US	US8375114	Granted		9-Apr-2004	12-Aug-2024	7,706.00	DEVICE LOADING IN STORAGE NETWORKS
82192430	F200402517	US	US7633928	Granted		27-Mar-2006	15-Jun-2021	7,706.00	COMMUNICATIO N DATA METHOD AND SYSTEM FOR VOICE APPLICATIONS EXCECUTABLE BY USER EQUIPMENT.
82193402	F200402838	US	US8694423	Granted		21-May-2004	8-Oct-2021	3,606.00	SYSTEMS AND METHODS FOR BROKERING DATA IN A TRANSACTIONA L GATEWAY
82193606	F200402914	US	US7447889	Granted		20-Apr-2005	N/A	N/A	METHOD AND APPARATUS FOR CONFIGURING A COMPUTER SYSTEM UTILIZING A READ ONLY MEMORY STORING AN OPTION FILE CONTAINING SELECTABLE CONFIGURATION OPTIONS AND A SCRIPT FILE

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82194782	F200403286	US	US8059539	Granted		29-Dec-2004	15-May-2023	7,706.00	LINK THROUGHPUT ENHANCER
82198589	F200405003	US	US7555644	Granted		21-Jul-2006	30-Dec-2020	7,406.00	SYSTEM AND METHOD FOR OPERATING SYSTEM IMAGE PROVISIONING IN A UTILITY COMPUTING ENVIRONMENT
82199369	F200405354	US	US7581242	Granted		30-Apr-2005	25-Feb-2021	7,706.00	AUTHENTICATING PRODUCTS
82201619	F200406527	US	US8782186	Granted		31-Jul-2006	15-Jan-2022	3,766.00	SYSTEMS AND METHODS FOR ADDRESSING MANAGED ELEMENTS
82204112	F200407681	US	US8392546	Granted		28-Oct-2005	5-Sep-2024	7,706.00	DISTRIBUTED MANAGED SYSTEM, SYSTEM COMPONENTS, AND METHODS OF COMMUNICATING COMMANDS
82204703	F200407943	US	US7831768	Granted		30-Oct-2007	9-May-2022	7,706.00	METHOD AND APPARATUS FOR WRITING DATA TO A DISK ARRAY
82205429	F200408352	US	US7825512	Granted		12-Sep-2005	2-May-2022	7,706.00	ELECTRONIC PACKAGE WITH COMPLIANT ELECTRICALLY-CONDUCTIVE BALL INTERCONNECT
82208054	F200501046	US	US7926042	Granted		31-Oct-2005	12-Oct-2022	7,406.00	SYSTEM AND METHOD FOR DYNAMIC INSTRUMENTATION
82209239	F200501635	GB	GB2426841	Granted		4-Jun-2005	4-Jun-2021	691.79	MEMORY CONTROLLER

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82209242	F200501635	US	US7461216	Granted		23-Feb-2006	N/A	N/A	MEMORY CONTROLLER
82213925	F200504155	US	US9032127	Granted		14-Sep-2006	12-Nov-2022	3,606.00	METHOD OF BALANCING I/O DEVICE INTERRUPT SERVICE LOADING IN A COMPUTER SYSTEM
82215089	F200504853	US	US8369212	Granted		29-Aug-2006	5-Aug-2020	3,606.00	NETWORK PATH VALIDATION BASED ON USER-SPECIFIED CRITERIA
82217183	F200505971	US	US7984242	Granted		1-Jun-2009	19-Jan-2023	7,706.00	PROGRAM THREAD SYNCHRONIZATION
82218749	F200505971	US	US7587555	Granted		10-Nov-2005	8-Mar-2021	7,706.00	PROGRAM THREAD SYNCHRONIZATION
82221359	F200600469	US	US7600111	Granted		20-Sep-2006	6-Apr-2021	7,706.00	METHOD OF RESTARTING A COMPUTER PLATFORM
82222361	F200600469	US	US7962734	Granted		15-Mar-2007	14-Dec-2022	7,706.00	METHOD OF RESTARTING A COMPUTER PLATFORM
82222121	F200600653	US	US7933993	Granted		24-Apr-2006	26-Oct-2022	7,406.00	RELOCATABLE VIRTUAL PORT FOR ACCESSING EXTERNAL STORAGE
82226867	F200602849	US	US7877645	Granted		30-Jul-2007	25-Jul-2022	7,406.00	USE OF OPERATIONAL CONFIGURATION PARAMETERS TO PREDICT SYSTEM FAILURES
82230503	F200700250	US	US8929741	Granted		30-Jul-2007	6-Jul-2022	3,766.00	OPTICAL INTERCONNECT

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82232561	F200700952	US	US8255513	Granted		14-Dec-2001	28-Feb-2024	7,706.00	A TOPOLOGY INFORMATION SYSTEM FOR A MANAGED WORLD
82233401	F200701159	US	US7984150	Granted		31-Jul-2007	19-Jan-2023	7,706.00	CELL COMPATIBILTY IN MULTIPROCESSOR SYSTEMS
82233404	F200701159	CN	CN200810129477.4	Granted		31-Jul-2008	31-Jul-2021	1,032.98	CELL COMPATIBILTY IN MULTIPROCESSOR SYSTEMS
82235156	F200701620	US	US8357980	Granted		15-Oct-2007	22-Jul-2020	3,606.00	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235162	F200701620	CN	CN200880112331.7	Granted		15-Oct-2008	15-Oct-2021	1,032.98	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235165	F200701620	DE	DE112008002737	Granted		15-Oct-2008	15-Oct-2021	1,178.09	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235168	F200701620	JP	JP5222950	Granted		15-Oct-2008	15-Mar-2021	397.69	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES

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82235171	F200701620	KR	KR10-1517423	Granted		15-Oct-2008	28-Apr-2021	451.15	PLASMONIC HIGH-SPEED DEVICES FOR ENHANCING THE PERFORMANCE OF MICROELECTRONIC DEVICES
82235777	F200701831	US	US8053748	Granted		20-Oct-2008	8-May-2023	7,706.00	INTEGRATED CIRCUITS WITH PHASE CHANGE DEVICES
82854022	F200701831	US	US8212230	Granted		25-Sep-2011	3-Jan-2024	7,706.00	INTEGRATED CIRCUITS WITH PHASE CHANGE DEVICES
82236662	F200702022	US	US8254996	Granted		21-Aug-2008	28-Feb-2024	7,706.00	SYSTEMS AND METHODS FOR MANAGING ACCESS CHANNELS
82240685	F200703283	US	US9389649	Granted		25-Mar-2008	12-Jan-2024	3,766.00	LOCKING MECHANISM WITH MOVABLE AND FIXED MEMBERS EACH HAVING SINGLE AND DOUBLE LOCKING FEATURES
82241528	F200703619	US	US8373061	Granted		28-Oct-2008	12-Aug-2020	3,606.00	PHOTOVOLTAIC CELLS WITH STACKED LIGHT-ABSORPTION LAYERS AND METHODS OF FABRICATING THE SAME
82573265	F200704722	CN	CN200880130176.1	Granted		2-Jul-2008	2-Jul-2020	1,081.10	VERIFICATION OF REMOTE COPIES OF DATA
82756289	F200801174	US	US8368118	Granted		16-Dec-2008	5-Aug-2020	3,606.00	SEMICONDUCTOR STRUCTURE HAVING AN ELOG ON A THERMALLY AND ELECTRICALLY CONDUCTIVE MASK

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82853054	F200802102	CN	CN200980158980.5	Granted		27-Apr-2009	27-Apr-2021	1,032.98	ENERGY-EFFICIENT STANDBY MODE IN A SWITCHING POWER SUPPLY
82853058	F200802102	US	US9401635	Granted		27-Apr-2009	26-Jan-2024	3,766.00	SWITCHING POWER SUPPLY FOR A LOAD IN STANDBY MODE
82852232	F200802394	US	US8664605	Granted		28-Apr-2009	4-Sep-2021	3,766.00	COVERT LABEL STRUCTURE
82249742	F200803068	US	US8370688	Granted		22-Apr-2010	5-Aug-2020	3,606.00	IDENTIFYING A STORAGE DEVICE AS FAULTY FOR A FIRST STORAGE VOLUME WITHOUT IDENTIFYING THE STORAGE DEVICE AS FAULTY FOR A SECOND STORAGE VOLUME
82249793	F200803147	US	US8370571	Granted		8-Apr-2009	5-Aug-2020	3,606.00	TRANSFER CONTROL OF A STORAGE VOLUME BETWEEN STORAGE CONTROLLERS IN A CLUSTER
82854071	F200803277	US	US9494419	Granted		31-Jul-2009	15-May-2024	3,766.00	BEAM DIRECTION SENSOR
82925991	F200803277	CN	CN200980160709.5	Granted		31-Jul-2009	31-Jul-2021	1,032.98	BEAM DIRECTION SENSOR
82250642	F200803771	US	US9311319	Granted		27-Aug-2009	12-Oct-2023	3,766.00	METHOD AND SYSTEM FOR ADMINISTRATION OF STORAGE OBJECTS
82250732	F200900008	US	US7939967	Granted		25-Jun-2009	10-Nov-2022	7,706.00	MULTIPLE POWER SUPPLY CONTROL

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82257317	F200901894	US	US8930010	Granted		5-Feb-2007	6-Jul-2022	3,606.00	INTELLIGENT ASSEMBLY SYSTEM AND METHOD OF USE
82853115	F200902751	US	US8634321	Granted		18-Dec-2009	21-Jul-2021	3,606.00	PROXY AGENTS IN A NETWORK
82635896	F200903834	TW	TW477810	Granted		31-Jan-2011	20-Mar-2021	359.56	OPTICAL DEVICES BASED ON NON-PERIODIC SUB-WAVELENGTH GRATINGS
82853254	F200903834	US	US8952403	Granted		29-Jan-2010	10-Aug-2022	3,766.00	OPTICAL DEVICES BASED ON NON-PERIODIC SUB-WAVELENGTH GRATINGS
84121874	F200903834	US	US10061139	Granted		14-Jan-2015	28-Feb-2022	2,006.00	OPTICAL DEVICES BASED ON NON-PERIODIC SUB-WAVELENGTH GRATINGS
82654418	F200904389	TW	TWI440907	Granted		1-Mar-2011	10-Jun-2021	359.56	TELECENTRIC OPTICAL ASSEMBLY
83119816	F200904389	US	US8947796	Granted		7-May-2010	3-Aug-2022	3,766.00	TELECENTRIC OPTICAL ASSEMBLY
83164626	F200904841	US	US9158647	Granted		20-Jul-2010	13-Apr-2023	3,766.00	FORMATTING SYSTEM MONITORING INFORMATION
83235817	F201001046	JP	JP5777722	Granted		29-Oct-2010	17-Jul-2021	476.28	SMALL-MODE-VOLUME, VERTICAL-CAVITY, SURFACE-EMITTING LASER
83235820	F201001046	US	US9991676	Granted		29-Oct-2010	5-Dec-2021	2,006.00	SMALL-MODE-VOLUME, VERTICAL-CAVITY, SURFACE-EMITTING LASER

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82265270	F201001847	US	US8726261	Granted		6-Apr-2011	13-Nov-2021	3,766.00	ZERO DOWNTIME HARD DISK FIRMWARE UPDATE
83546345	F201001922	KR	KR101603135	Granted		10-Feb-2011	8-Mar-2021	342.80	GRATING-BASED POLARIZERS AND OPTICAL ISOLATORS
82271360	F201003405	US	US6665543	Granted		4-Oct-2000	N/A	N/A	ANTENNA EXTRACTION ON REMOVAL OF STYLUS FOR HANDHELD DEVICE
82272962	F201004041	US	US7002932	Granted		12-Jan-2001	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING NETWORK CONNECTIVITY AND MOBILITY WHILE ROAMING
82273352	F201004237	US	US7137047	Granted		5-Apr-2004	N/A	N/A	METHOD AND APPARATUS FOR SELECTION OF ARQ PARAMETERS AND ESTIMATION OF IMPROVED COMMUNICATIONS
82273664	F201004389	US	US8346938	Granted		25-Sep-2002	1-Jul-2024	7,706.00	EFFICIENT ESTABLISHMENT OF WIRELESS CONNECTIONS
82273793	F201004428	US	US7424532	Granted		15-Feb-2002	N/A	N/A	METHOD AND SYSTEM FOR AUTOMATIC NETWORK RESOURCE SELECTION AND CONFIGURATION IN A NETWORK ENVIRONMENT

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82274156	F201004550	US	US9479464	Granted		14-Apr-2009	25-Apr-2024	3,766.00	COMPUTER SYSTEM AND NETWORK INTERFACE WITH HARDWARE BASED PACKET FILTERING AND CLASSIFICATION
82274387	F201004599	US	US7702903	Granted		8-Aug-2005	20-Oct-2021	7,706.00	LICENSE RE-ALLOCATION SYSTEM AND METHOD
82274405	F201004603	GB	GB2411540	Granted		25-Feb-2004	25-Feb-2021	764.74	CASCADE CONTROL SYSTEM FOR NETWORK UNITS
82274408	F201004603	US	US7660323	Granted		28-Jun-2004	9-Aug-2021	7,706.00	CASCADE CONTROL SYSTEM FOR NETWORK UNITS
82274432	F201004608	US	US8327026	Granted		1-Jul-2004	4-Jun-2024	7,706.00	METHOD AND SYSTEM FOR SELECTING A DATA COMPRESSION TECHNIQUE FOR DATA TRANSFER THROUGH A DATA NETWORK
82274459	F201004619	US	US7480260	Granted		13-May-2004	N/A	N/A	METHOD AND APPARATUS FOR IMPLEMENTING A PRESENCE-BASED UNIVERSAL CAMP-ON FEATURE IN PACKET-BASED TELEPHONY SYSTEMS
82274465	F201004621	GB	GB2414623	Granted		27-May-2004	27-May-2021	764.74	DISTRIBUTED BRIDGING WITH SYNCHRONIZATION OF FORWARDING DATABASES

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82274468	F201004621	US	US7483999	Granted		9-Jul-2004	N/A	N/A	DISTRIBUTED BRIDGING WITH SYNCHRONIZATION FORWARDING DATABASES
82274471	F201004622	US	US7555751	Granted		11-Aug-2004	N/A	N/A	METHOD AND SYSTEM FOR PERFORMING A LIVE SYSTEM UPGRADE
82274480	F201004624	US	US8792475	Granted		11-Mar-2005	29-Jan-2022	3,606.00	METHOD AND SYSTEM FOR PROVIDING PASS THROUGH WEB CONFIGURATION ON AN INTERNET PROTOCOL (IP) TELEPHONE
82274483	F201004625	US	US9036618	Granted		11-Mar-2005	19-Nov-2022	3,606.00	METHOD AND SYSTEM FOR PROVIDING VOICE ASSISTED CONFIGURATION ON AN INTERNET PROTOCOL (IP) TELEPHONE
82274519	F201004633	US	US7480299	Granted		22-Feb-2005	N/A	N/A	RULES ENGINE FOR ACCESS CONTROL LISTS IN NETWORK UNITS
82274522	F201004635	GB	GB2420468	Granted		17-Nov-2004	17-Nov-2020	681.61	PACKET METERING IN HIGH-SPEED NETWORK UNITS
82274525	F201004635	US	US7349335	Granted		11-Jan-2005	N/A	N/A	PACKET METERING IN HIGH-SPEED NETWORK UNITS
82274528	F201004636	US	US8767974	Granted		15-Jun-2005	1-Jan-2022	3,606.00	SYSTEM AND METHOD FOR GENERATING COMFORT NOISE

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82274531	F201004637	US	US7526081	Granted		5-Oct-2004	N/A	N/A	TELEPHONE RECORDING AND STORING ARBITRARY KEYSTROKES SEQUENCE WITH REPLAY WITH A SINGLE STROKE
82274534	F201004637	US	US8218533	Granted		13-Mar-2009	10-Jan-2024	7,706.00	TELEPHONE RECORDING AND STORING ARBITRARY KEYSTROKES SEQUENCE WITH REPLAY WITH A SINGLE STROKE
82274555	F201004642	US	US7480300	Granted		22-Feb-2005	N/A	N/A	CONTENT ADDRESSABLE MEMORY ORGANIZED TO SHARE ENTRIES BETWEEN DIFFERENT ENTITIES SUCH AS PORTS OF A NETWORK UNIT
82274777	F201004678	US	US7711744	Granted		18-Jan-2006	4-Nov-2021	7,406.00	SIMPLE AND FAST DIRECTORY SEARCH WITH REDUCED KEYSTROKES AND REDUCED SERVER CALLS
82274798	F201004688	US	US7532474	Granted		21-Feb-2006	12-Nov-2020	7,406.00	APPARATUS FOR DISSIPATING HEAT FROM ELECTRONIC COMPONENTS IN AN ENCLOSED HOUSING
82062101	F30003028	US	US6925288	Granted		29-Mar-2001	N/A	N/A	GATHERING INFORMATION FROM SHORT-RANGE WIRELESS PORTALS
82065014	F30012087	US	US6873270	Granted		30-Oct-2002	N/A	N/A	DATA STORAGE AND ANALYSIS

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82070618	F50004606	US	US6920492	Granted		18-Jun-2001	N/A	N/A	PROCESS FOR CONTROLLING DEVICES OF AN INTRANET NETWORK THROUGH THE WEB
82070621	F50004606	DE	DE60039975.3	Expired		19-Jun-2000	N/A	N/A	PROCESS FOR CONTROLLING DEVICES OF AN INTRANET NETWORK THROUGH THE WEB
82070627	F50004606	GB	GB1168711	Expired		19-Jun-2000	N/A	N/A	PROCESS FOR CONTROLLING DEVICES OF AN INTRANET NETWORK THROUGH THE WEB
82070990	F50011154	US	US7062672	Granted		7-Jun-2002	N/A	N/A	METHOD OF AND COMPUTER NETWORK ARRANGEMENT FOR RESTORING AN IMPAIRED SOFTWARE IMAGE
82801074	F700205328	US	US8862577	Granted		15-Aug-2011	14-Apr-2022	3,766.00	VISUALIZING SENTIMENT RESULTS WITH VISUAL INDICATORS REPRESENTING USER SENTIMENT AND LEVEL OF UNCERTAINTY
82689078	F700205361	US	US8539113	Granted		16-Jun-2011	17-Mar-2021	3,766.00	INDICATORS FOR STREAMS ASSOCIATED WITH MESSAGES
83791163	F700205461	KR	KR101602811	Granted		29-Jul-2011	7-Mar-2021	383.94	OPTICAL POWER SPLITTERS
83791132	F700205462	KR	KR10-1563608	Granted		29-Jul-2011	21-Oct-2021	463.28	FIBER OPTICS CONNECTORS

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83791138	F700205462	US	US9052475	Granted		29-Jul-2011	9-Dec-2022	3,766.00	FIBER OPTICS CONNECTORS
82654416	F700205946	US	US8549219	Granted		7-Dec-2010	1-Apr-2021	3,766.00	PREVENTING HARD DRIVE FAILURE AND DATA LOSS DUE TO VIBRATION
82755131	F700206210	US	US8924667	Granted		3-Oct-2011	30-Jun-2022	3,766.00	BACKUP STORAGE MANAGEMENT
83698837	F700206222	CN	CN201180070805.8	Granted		18-Jul-2011	18-Jul-2020	666.46	OPTICAL INTERCONNECT
83698845	F700206222	US	US9170377	Granted		18-Jul-2011	27-Apr-2023	3,766.00	OPTICAL INTERCONNECT
82753547	F700206817	US	US9218527	Granted		29-Sep-2011	22-Jun-2023	3,766.00	ANOMALY DETECTION IN STREAMING DATA
82859781	F700206858	US	US9413358	Granted		29-Apr-2012	9-Feb-2024	3,766.00	FORWARD COUNTER BLOCK
84049818	F700207121	US	US9164250	Granted		14-Mar-2012	20-Apr-2023	3,766.00	REPLACEABLE MODULAR OPTICAL CONNECTION ASSEMBLY
82871690	F700207287	US	US8811210	Granted		13-Feb-2012	19-Feb-2022	3,766.00	EFFECTIVE APPLICATION DENSITIES FOR FABRICS
83930310	F700207642	US	US9341780	Granted		9-Dec-2011	17-Nov-2023	3,766.00	OPTICAL CONNECTIONS
82978201	F700207679	US	US8883616	Granted		31-Jul-2012	11-May-2022	3,766.00	GERMANIUM ON INSULATOR APPARATUS
82850245	F700207691	US	US8711693	Granted		21-Feb-2012	29-Oct-2021	3,766.00	GATEWAY CHANNEL UTILIZATION

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83996161	F700208065	US	US9372522	Granted		20-Apr-2012	21-Dec-2023	3,766.00	OVERVOLTAGE PROTECTION SYSTEMS AND METHOD
83991414	F700208157	US	US9413623	Reviving		26-Apr-2012	9-Feb-2024	3,606.00	MULTICAST ROUTING PATH CHECK
83992351	F700208617	US	US9161105	Granted		11-Apr-2012	13-Apr-2023	3,766.00	ROUTING OPTICAL SIGNALS
83150130	F700209140	US	US9246774	Granted		21-Feb-2013	26-Jul-2023	3,766.00	SAMPLE BASED DETERMINATION OF NETWORK POLICY VIOLATIONS
84076180	F700209670	US	US9520946	Granted		26-Jul-2012	13-Jun-2024	3,766.00	OPTICAL ENGINE
83992436	F700209695	US	US9176279	Granted		25-Apr-2012	3-May-2023	3,766.00	ANALYZING LIGHT BY MODE INTERFERENCE
83206779	F700212807	US	US9058295	Granted		25-Apr-2013	16-Dec-2022	3,766.00	ENCRYPT DATA OF STORAGE DEVICE
90142920	F700214270	US	US9715431	Granted		15-Jul-2013	25-Jan-2021	2,006.00	REBUILDING DRIVE DATA
83777585	F700215692	US	US9329965	Granted		31-Jan-2014	3-Nov-2023	3,766.00	EXTRACTING LOG FILES FROM STORAGE DEVICES
84293496	FARBA0002	CN	CN200780041079.0	Granted		3-Jul-2007	3-Jul-2021	1,032.98	A METHOD AND SYSTEM FOR DYNAMIC METRIC AND WIRELESS HELLO PROTOCOL
84268251	FARBA0042	US	US8351546	Granted		17-Dec-2008	8-Jul-2024	7,706.00	SENSING DEVICE ORIENTATION IN WIRELESS NETWORKS

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84268551	FARBA0118	US	US7983163	Granted		23-Dec-2008	19-Jan-2023	7,706.00	SYSTEM AND METHOD FOR IMPLEMENTING ADAPTIVE LOAD SHARING TO BALANCE NETWORK TRAFFIC

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81966353	F10001098	US	US6857086	Expired		21-Apr-2003	N/A	N/A	HIERARCHY OF FAULT ISOLATION TIMERS
81969824	F10002142	US	US7124180	Expired		27-Apr-2000	N/A	N/A	INTERNET USAGE DATA RECORDING SYSTEM AND METHOD EMPLOYING A CONFIGURABLE RULE ENGINE FOR THE PROCESSING AND CORRELATION OF NETWORK DATA
81971150	F10002493	US	US6813275	Expired		21-Apr-2000	N/A	N/A	METHOD AND APPARATUS FOR PREVENTING UNDERFLOW AND OVERFLOW ACROSS AN ASYNCHRONOUS CHANNEL
81971252	F10002509	US	US6912679	Expired		29-Apr-2000	N/A	N/A	SYSTEM AND METHOD FOR ELECTRICAL DATA LINK TESTING
81971258	F10002511	US	US6647469	Expired		1-May-2000	N/A	N/A	USING READ CURRENT TRANSACTIONS FOR IMPROVED PERFORMANCE IN DIRECTORY-BASED COHERENT I/O SYSTEMS
81971459	F10002566	US	US6928525	Expired		28-Apr-2000	N/A	N/A	PER CACHE LINE SEMAPHORE FOR CACHE ACCESS ARBITRATION
81972005	F10002818	US	US6671792	Expired		28-Apr-2000	N/A	N/A	SHARE MASKS AND ALIAS FOR DIRECTORY COHERENCY

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81972032	F10002825	US	US6651124	Expired		28-Apr-2000	N/A	N/A	METHOD AND APPARATUS FOR PREVENTING DEADLOCK IN A DISTRIBUTED SHARED MEMORY SYSTEM
81972035	F10002825	US	US6865634	Expired		16-Oct-2003	N/A	N/A	METHOD AND APPARATUS FOR DEADLOCK PREVENTION IN A DISTRIBUTED SHARED MEMORY SYSTEM
81972050	F10002834	US	US6647517	Expired		27-Apr-2000	N/A	N/A	APPARATUS AND METHOD FOR PROVIDING ERROR ORDERING INFORMATION AND ERROR LOGGING INFORMATION
81972209	F10002924	US	US6799287	Expired		1-May-2000	N/A	N/A	METHOD AND APPARATUS FOR VERIFYING ERROR CORRECTING CODES
81977594	F10004587	US	US7032086	Granted		28-Feb-2003	N/A	N/A	SYSTEM AND METHOD FOR ADJUSTING STORAGE DEVICE LAYOUT WITH AT LEAST ONE STATUS FOR THE ADJUSTING
81986432	F10007913	US	US7424461	Granted		28-Jun-2001	N/A	N/A	MULTI-MODULE GENETIC PROGRAMMING WITH MULTIPLE GENETIC DATA REPRESENTATIO NS
82082450	F100111713	US	US7224891	Granted		13-Feb-2002	N/A	N/A	DIGITAL PHOTOGRAPH PRESENTATION USING DVD PLAYERS

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81994958	F10013045	US	US7774611	Granted		6-May-2002	10-Feb-2022	7,706.00	ENFORCING FILE AUTHORIZATION ACCESS
81996038	F10013647	US	US7502839	Granted		28-Sep-2001	10-Sep-2020	7,406.00	MODULE-BUILDING METHOD FOR DESIGNING INTERCONNECT FABRICS
81996071	F10013661	US	US8032828	Granted		4-Mar-2002	4-Apr-2023	7,706.00	METHOD AND SYSTEM OF DOCUMENT TRANSFORMATION BETWEEN A SOURCE EXTENSIBLE MARKUP LANGUAGE (XML) SCHEMA AND A TARGET XML SCHEMA
81999323	F10015521	US	US8051176	Granted		7-Nov-2002	1-May-2023	7,706.00	METHOD AND SYSTEM FOR PREDICTING CONNECTIONS IN A COMPUTER NETWORK
82085489	F100201273	US	US8798964	Granted		6-Nov-2002	5-Feb-2022	3,766.00	METHODS AND APPARATUS FOR DESIGNING THE RANKING AND WIRING CONFIGURATIONS FOR PIECES OF HARDWARE
82095059	F100201387	US	US8799501	Granted		27-Jun-2002	5-Feb-2022	3,766.00	SYSTEM AND METHOD FOR ANONYMOUSLY SHARING AND SCORING INFORMATION POINTERS, WITHIN A SYSTEM FOR HARVESTING COMMUNITY KNOWLEDGE
82087874	F100202128	US	US7024758	Granted		28-May-2003	N/A	N/A	ASSEMBLY FOR ALIGNING A COMPONENT

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82089530	F100203011	US	US6829142	Granted		25-Oct-2002	N/A	N/A	CELL THERMAL CONNECTOR
82090361	F100203618	US	US7073029	Granted		27-Jan-2003	N/A	N/A	STORAGE SYSTEM USING FAST STORAGE AND LOG-STRUCTURED STORAGE
81956231	F1094649	GB	GB2048314	Expired		21-Jun-1995	N/A	N/A	MEDIA AUTOCHANGER SUCH AS AN OPTICAL DISK AUTOCHANGER
82008596	F10950142	GB	GB2048315	Expired		21-Jun-1995	N/A	N/A	CONTROL MODULE FOR A COMPUTER PERIPHERAL SUCH AS A MEDIA AUTOCHANGER
82035512	F10972015	US	US6728951	Expired		14-Apr-2000	N/A	N/A	SYSTEM AND METHOD FOR PERFORMING AUTOMATED INCREMENTAL COMPILATION OF COMPUTER PROGRAMS
82040858	F10980981	US	US8171266	Granted		2-Aug-2001	N/A	N/A	LOOK-AHEAD LOAD PRE-FETCH IN A PROCESSOR
82041722	F10981145	US	US6941569	Expired		3-Dec-2002	N/A	N/A	SYSTEM AND METHOD UTILIZING A CONDUCTIVE BRUSH FOR PROVIDING POWER SIGNALS TO A CARTRIDGE ACCESS DEVICE
82047860	F10990153	DE	DE49906067.9	Granted		22-Jun-1999	N/A	N/A	BEZEL FOR RACK MOUNTED DEVICE

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82052933	F10991388	US	US6888836	Expired		26-May-1999	N/A	N/A	METHOD FOR ALLOCATING WEB SITES ON A WEB HOSTING CLUSTER
82054217	F10991599	US	US7143315	Expired		16-Oct-2003	N/A	N/A	DATA STORAGE SYSTEMS AND METHODS
82055057	F10991802	US	US6671802	Expired		13-Apr-2000	N/A	N/A	PERFORMANCE OPTIMIZATION OF COMPUTER SYSTEM BY DYNAMICALLY AND IMMEDIATELY UPDATING A CONFIGURATION SETTING BASED ON DETECTED CHANGE IN PREFERRED USE
82058666	F10992650	US	US6487636	Expired		24-Apr-2000	N/A	N/A	METHOD AND APPARATUS FOR MAPPING DATA IN A HETEROGENEOUS DISK ARRAY STORAGE SYSTEM
82094639	F200206289	US	US7983422	Granted		25-Jul-2003	19-Jan-2023	7,706.00	QUANTUM CRYPTOGRAPHY
82094648	F200206289	JP	JP4829788	Granted		22-Jul-2004	22-Sep-2020	1,770.42	QUANTUM CRYPTOGRAPHY WITH QUANTUM CHANNEL CHECK
82094651	F200206289	DE	DE602004010270.9	Granted		22-Jul-2004	22-Jul-2020	1,690.52	QUANTUM CRYPTOGRAPHY WITH QUANTUM CHANNEL CHECK
82094657	F200206289	GB	GB1652334	Granted		22-Jul-2004	22-Jul-2020	682.85	QUANTUM CRYPTOGRAPHY WITH QUANTUM CHANNEL CHECK

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82096223	F200207002	US	US7607136	Granted		28-Oct-2003	20-Apr-2021	7,706.00	METHOD AND APPARATUS FOR INTERFACING WITH A DISTRIBUTED COMPUTING SERVICE
82096484	F200207094	US	US7337018	Granted		31-Jul-2003	N/A	N/A	HEAT SINK FAN MANAGEMENT BASED ON PERFORMANCE REQUIREMENTS
82096487	F200207094	GB	GB2404792	Granted		29-Jul-2004	29-Jul-2020	682.85	HEAT SINK FAN MANAGEMENT BASED ON PERFORMANCE REQUIREMENTS
82096490	F200207095	US	US7054156	Granted		2-Sep-2003	N/A	N/A	FAN ROTOR SYSTEMS HAVING COLLAPSIBLE FAN BLADES
82101161	F200208889	US	US6896539	Granted		30-Jun-2003	N/A	N/A	PIVOT COMPONENT COUPLED WITH FIRST CIRCUIT BOARD FOR CONTROL OF RELATIVE ALIGNMENT OF FIRST CIRCUIT BOARD CONNECTION COMPONENT WITH SECOND CIRCUIT BOARD CONNECTION COMPONENT
82103495	F200209610	US	US7082032	Granted		25-Aug-2003	N/A	N/A	HEAT DISSIPATION DEVICE WITH TILTED FINS
82103654	F200209636	US	US7079390	Granted		5-Jun-2003	N/A	N/A	SYSTEM AND METHOD FOR HEAT DISSIPATION AND AIR FLOW REDIRECTION IN A CHASSIS

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82104851	F200210142	US	US7480797	Granted		31-Jul-2004	20-Jul-2020	7,406.00	METHOD AND SYSTEM FOR PREVENTING CURRENT-PRIVILEGE-LEVEL-INFORMATION LEAKS TO NON-PRIVILEGED CODE
82104926	F200210171	US	US7643983	Granted		27-Mar-2003	5-Jul-2021	7,706.00	DATA STORAGE SYSTEM EMULATION
82105160	F200300004	US	US7107600	Granted		17-Mar-2003	N/A	N/A	SYSTEM AND METHOD FOR CLEANING ELECTRICAL DELIVERY SYSTEMS
82117313	F200301707	US	US6456510	Expired		31-Aug-2000	N/A	N/A	REGULATED DC POWER SUPPLY
82117337	F200301713	US	US6442067	Expired		23-May-2000	N/A	N/A	RECOVERY ROM FOR ARRAY CONTROLLERS
82117649	F200301781	US	US6678840	Granted		31-Aug-2000	N/A	N/A	FAULT CONTAINMENT AND ERROR RECOVERY IN A SCALABLE MULTIPROCESSOR
82117652	F200301781	US	US7152191	Expired		23-Oct-2003	N/A	N/A	FAULT CONTAINMENT AND ERROR RECOVERY IN A SCALABLE MULTIPROCESSOR

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82118051	F200301885	US	US6832282	Expired		1-Jul-2003	N/A	N/A	SYSTEM AND METHOD FOR PROVIDING FORWARD PROGRESS AND AVOIDING STARVATION AND LIVELOCK IN A MULTIPROCESSOR COMPUTER SYSTEM
82122050	F200302633	US	US7023708	Granted		20-Dec-2002	N/A	N/A	MULTILEVEL CABLE SUPPORT ARM AND SYSTEM AND METHOD INCORPORATING SAME
82132523	F200304132	US	US6842833	Expired		30-Jun-1998	N/A	N/A	COMPUTER SYSTEM AND METHOD FOR TRANSFERRING DATA BETWEEN MULTIPLE PEER-LEVEL STORAGE UNITS
82166255	F200308314	US	US6654902	Expired		11-Apr-2000	N/A	N/A	PERSISTENT RESERVATION IO BARRIERS
82166258	F200308314	US	US7346801	Expired		1-Aug-2003	N/A	N/A	PERSISTENT RESERVATION IO BARRIERS
82166381	F200308347	US	US7114020	Expired		28-Apr-2000	N/A	N/A	SOFTWARE MECHANISM FOR UNIQUE IDENTIFICATION OF SCSI DEVICE
82167758	F200308575	US	US7348498	Granted		17-Jul-2003	N/A	N/A	PARTIALLY VOIDED ANTI-PADS

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82168118	F200308700	US	US7333293	Granted		29-Jun-2004	N/A	N/A	STORAGE SYSTEM HAVING A READER WITH A LIGHT SENSING PORTION INCLINED WITH RESPECT TO AN AXIS OF A LABEL OF A STORAGE MEDIUM
82171787	F200310143	US	US7761421	Granted		16-May-2003	20-Jan-2022	7,706.00	READ, WRITE, AND RECOVERY OPERATIONS FOR REPLICATED DATA
82174301	F200311171	US	US7697690	Granted		21-Jul-2003	13-Oct-2021	7,706.00	WINDOWED BACKWARD KEY ROTATION
82176806	F200312160	US	US7505261	Granted		18-Mar-2004	17-Sep-2020	7,406.00	ELECTRICAL-OPTICAL SIGNAL CONVERSION FOR AUTOMATED STORAGE SYSTEMS
82176827	F200312171	US	US7230792	Granted		19-Nov-2003	N/A	N/A	MEDIA SELECTION SYSTEMS AND METHODS HAVING A COUPLER FOR SLIDABLY ENGAGING A STORAGE MEDIUM IN A STORAGE SYSTEM
82179566	F200313377	US	US7336490	Granted		24-Nov-2004	N/A	N/A	MULTI-CHIP MODULE WITH POWER SYSTEM
82179569	F200313377	US	US7499281	Granted		2-Jan-2008	3-Sep-2020	7,406.00	MULTI-CHIP MODULE WITH POWER SYSTEM

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82179656	F200313407	US	US7451302	Granted		10-Mar-2004	N/A	N/A	SYSTEM AND METHOD FOR MANAGING CONFIGURATION DATA FOR A MULTI-CELL COMPUTER SYSTEM
82180403	F200313720	US	US7289221	Granted		27-Sep-2004	N/A	N/A	MACH ZEHNDER PHOTONIC CRYSTAL SENSORS AND METHODS
82184357	F200315378	US	US7823156	Granted		3-Feb-2005	26-Apr-2022	7,706.00	METHOD OF HASHING ADDRESS SPACE TO STORAGE SERVERS
82186991	F200316679	US	US7480113	Granted		8-Aug-2007	20-Jul-2020	7,406.00	TAPE DRIVE APPARATUS
82216535	F200401087	US	US7436209	Granted		30-Oct-2006	N/A	N/A	NANOSCALE ELECTRONIC LATCH
82189427	F200401087	US	US7307448	Granted		24-May-2005	N/A	N/A	INTERCONNECTABLE NANOSCALE COMPUTATIONAL STAGES
82189433	F200401087	US	US7257016	Granted		24-May-2005	N/A	N/A	ENHANCED NANOWIRE-CROSSBAR LATCH ARRAY
82189598	F200401152	US	US7529060	Granted		2-Feb-2004	5-Nov-2020	7,406.00	READ AND WRITE HEAD ELEMENT ARRANGEMENT
82190375	F200401591	US	US7546600	Granted		30-Apr-2004	9-Dec-2020	7,406.00	METHOD OF ASSIGNING VIRTUAL PROCESS IDENTIFIER TO PROCESS WITHIN PROCESS DOMAIN

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82191587	F200402090	US	US7289321	Granted		16-Nov-2004	N/A	N/A	VENTILATED CASING FOR AN ELECTRONIC DEVICE
82193519	F200402893	US	US7552434	Granted		30-Apr-2004	23-Dec-2020	7,406.00	METHOD OF PERFORMING KERNEL TASK UPON INITIAL EXECUTION OF PROCESS AT USER LEVEL
82194107	F200403003	US	US8364829	Granted		24-Sep-2004	29-Jul-2020	3,606.00	SYSTEM AND METHOD FOR ASCRIBING RESOURCE CONSUMPTION TO ACTIVITY IN A CAUSAL PATH OF A NODE DISTRIBUTED COMPUTING SYSTEM
82194314	F200403103	US	US7471638	Granted		8-Oct-2004	N/A	N/A	TESTING FOR A MISCONNECTION BETWEEN FIRST AND SECOND NETWORKS
82194803	F200403293	US	USD523859	Expired		4-Apr-2005	N/A	N/A	MEDIA CARTRIDGE
82195382	F200403483	US	US8627213	Granted		10-Aug-2004	7-Jul-2021	3,766.00	CHAT ROOM SYSTEM
82196798	F200404117	US	US8392900	Granted		17-Mar-2005	5-Sep-2020	3,606.00	METHODS AND SYSTEMS FOR BARRIER REDUCTION IN PARALLEL PROCESSING SYSTEMS
82197119	F200404283	US	US7467329	Granted		23-Jun-2005	16-Jun-2020	7,406.00	METHOD OF ESTIMATING STORAGE SYSTEM RELIABILITY
82197158	F200404313	US	US9053501	Granted		31-Oct-2004	9-Dec-2022	3,766.00	SPONTANEOUS SHARING OF MEDIA ASSET REFERENCES

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82201010	F200406253	US	US7544591	Granted		18-Jan-2007	9-Dec-2020	7,406.00	METHOD OF CREATING ISOLATED ELECTRODES IN A NANOWIRE-BASED DEVICE
82201907	F200406631	US	US7242199	Granted		21-Apr-2005	N/A	N/A	ACTIVE INTERCONNECTS AND CONTROL POINTS IN INTEGRATED CIRCUITS
82205042	F200408089	US	US7480424	Granted		19-Sep-2005	20-Jul-2020	7,406.00	METHOD AND APPARATUS FOR MODIFYING AN ELECTROMAGNETIC RADIATION BEAM
82207400	F200408089	US	US8098971	Granted		19-Sep-2005	17-Jul-2023	7,706.00	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82207409	F200408089	JP	JP4829971	Granted		21-Jul-2006	22-Sep-2020	1,031.63	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82207415	F200408089	DE	DE602006009536.8	Granted		21-Jul-2006	21-Jul-2020	1,272.38	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82207418	F200408089	FR	FR1938429	Granted		21-Jul-2006	21-Jul-2020	555.56	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL

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82207421	F200408089	GB	GB1938429	Granted		21-Jul-2006	21-Jul-2020	524.44	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE USING NEGATIVE INDEX MATERIAL
82218434	F200408089	US	US7352941	Granted		31-Oct-2006	N/A	N/A	METHOD AND APPARATUS FOR ELECTROMAGNETIC RESONANCE AND AMPLIFICATION USING NEGATIVE INDEX MATERIAL
82206395	F200500206	US	US7836111	Granted		29-Apr-2005	16-May-2022	7,706.00	DETECTING CHANGE IN DATA
82206401	F200500206	US	US7505868	Granted		29-Apr-2005	17-Sep-2020	7,406.00	PERFORMING QUALITY DETERMINATION OF DATA
82206671	F200500369	US	US8781977	Granted		29-Mar-2005	15-Jan-2022	3,766.00	SYSTEM AND METHOD OF PRICING RESOURCES
82208927	F200501467	US	US7437338	Granted		21-Mar-2006	N/A	N/A	PROVIDING INFORMATION REGARDING A TREND BASED ON OUTPUT OF A CATEGORIZER
82210514	F200502276	US	US7474823	Granted		12-Oct-2006	6-Jul-2020	7,406.00	TUNABLE DISPERSION COMPENSATION
82210871	F200502477	US	US7251092	Granted		25-Jul-2005	N/A	N/A	DATA TRANSFER APPARATUS AND METHOD FOR TRANSFERRING DATA

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82211144	F200502628	US	US7289868	Granted		22-Aug-2005	N/A	N/A	SYSTEM AND METHOD FOR CALCULATING A SHIFT VALUE BETWEEN PATTERN INSTANCES
82212551	F200503308	US	US7502971	Granted		12-Oct-2005	N/A	N/A	DETERMINING A RECURRENT PROBLEM OF A COMPUTER RESOURCE USING SIGNATURES
82213670	F200503906	US	US7489583	Granted		6-Sep-2005	N/A	N/A	CONSTANT-WEIGHT-CODE-BASED ADDRESSING OF NANOSCALE AND MIXED MICROSCALE/NANOSCALE ARRAYS
82214174	F200504358	US	US8606894	Granted		27-Apr-2006	10-Jun-2021	3,766.00	SERVER CONSOLIDATION
82214600	F200504603	US	US7546013	Granted		31-May-2006	N/A	N/A	NANOPARTICLE COUPLED TO WAVEGUIDE
82214609	F200504603	JP	JP4871994	Granted		22-May-2007	25-Nov-2020	873.50	NANOPARTICLE COUPLED TO WAVEGUIDE
82214642	F200504613	US	US7530032	Granted		28-Oct-2005	5-Nov-2020	7,406.00	NANOWIRE CROSSBAR IMPLEMENTATIONS OF LOGIC GATES USING CONFIGURABLE, TUNNELING RESISTOR JUNCTIONS
82216148	F200505468	US	US7447026	Granted		31-Aug-2006	N/A	N/A	SYSTEM FOR HOT SWAPPING HEAT EXCHANGERS

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82217930	F200506432	US	US7823154	Granted		16-Sep-2005	26-Apr-2022	7,706.00	SYSTEM AND METHOD FOR PROVIDING, BY A PLURALITY OF SCHEDULERS, DIFFERENTIATED SERVICE TO CONSUMERS OF DISTRIBUTED RESOURCES
82218791	F200506906	US	US7243877	Granted		7-Apr-2006	N/A	N/A	TAPE REEL
82218968	F200507008	US	US8214838	Granted		26-Jul-2006	3-Jan-2024	7,400.00	SYSTEM AND METHOD FOR ATTRIBUTING TO A CORRESPONDING VIRTUAL MACHINE CPU UTILIZATION OF A NETWORK DRIVER DOMAIN BASED ON WEIGHTED COMMUNICATION
82219595	F200507343	US	US7517794	Granted		21-Oct-2005	N/A	N/A	METHOD FOR FABRICATING NANOSCALE FEATURES
82219769	F200507436	US	US8732307	Granted		25-Jul-2006	20-Nov-2021	3,766.00	PREDICTIVE CONTROL FOR RESOURCE ENTITLEMENT
82220357	F200600115	US	US7707215	Granted		17-Oct-2006	27-Oct-2021	7,706.00	PARIMUTUEL CONTENT PROVISIONING
82222718	F200601010	US	US7610383	Granted		11-Aug-2006	27-Apr-2021	7,706.00	DATA-OBJECT-RELATED-REQUEST ROUTING IN A DYNAMIC, DISTRIBUTED DATA-STORAGE SYSTEM

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82223486	F200601309	US	US8347726	Granted		25-Apr-2007	8-Jul-2020	3,606.00	FREE-STANDING NANOWIRE SENSOR AND METHODS FOR FORMING AND USING THE SAME
82223495	F200601311	US	US8773882	Granted		15-Apr-2010	8-Jan-2022	3,766.00	MIXED-SCALE ELECTRONIC INTERFACES
82225259	F200602234	US	USD627772	Granted		26-Mar-2007	N/A	N/A	AN OPERATOR CONTROL PANEL WITH DISPLAY AND MULTIPLE FUNCTION BUTTONS FOR A STORAGE LIBRARY
82233167	F200602441	US	US8024514	Granted		17-Jul-2007	20-Mar-2023	7,706.00	ACCESS CONTROL MANAGEMENT
82226204	F200602589	US	US8395896	Granted		24-Feb-2007	12-Sep-2020	3,606.00	REDUNDANT COOLING SYSTEMS AND METHODS
82230137	F200700096	US	US7757023	Granted		1-Aug-2007	13-Jan-2022	7,706.00	STORAGE-CENTRIC MANAGEABILITY IN A SYSTEM
82231646	F200700635	US	US7962480	Granted		31-Jul-2007	14-Dec-2022	7,406.00	USING A WEIGHTED TREE TO DETERMINE DOCUMENT RELEVANCE
82231916	F200700731	US	US8793264	Granted		18-Jul-2007	29-Jan-2022	3,766.00	DETERMINING A SUBSET OF DOCUMENTS FROM WHICH A PARTICULAR DOCUMENT WAS DERIVED
82232318	F200700875	US	US8392708	Granted		29-Sep-2008	5-Sep-2020	3,606.00	AUDITING DATA INTEGRITY

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82239869	F200700875	US	US8281151	Granted		1-Oct-2008	2-Apr-2024	7,706.00	AUDITOR ASSISTED EXTRACTION AND VERIFICATION OF CLIENT DATA RETURNED FROM A STORAGE PROVIDED WHILE HIDING CLIENT DATA FROM THE AUDITOR
82232477	F200700945	US	US7477809	Granted		31-Jul-2007	13-Jul-2020	7,406.00	PHOTONIC GUIDING DEVICE
82232483	F200700945	US	US7835602	Granted		23-Oct-2008	16-May-2022	7,706.00	PHOTONIC GUIDING DEVICE
82232486	F200700945	CN	CN200880101515.3	Granted		30-Jul-2008	30-Jul-2021	990.04	PHOTONIC GUIDING DEVICE
82232495	F200700945	KR	KR10-1588348	Granted		30-Jul-2008	19-Jan-2021	260.52	PHOTONIC GUIDING DEVICE
82239827	F200702994	US	US8732308	Granted		1-Oct-2008	20-Nov-2021	3,766.00	COORDINATED MANAGEMENT IN VIRTUALIZED SYSTEMS USING MANAGEMENT BROKERS AND MANAGEMENT CHANNELS
82245341	F200702994	US	US9395786	Granted		9-Oct-2008	19-Jan-2024	3,766.00	CROSS-LAYER POWER MANAGEMENT IN A MULTI-LAYER SYSTEM
82239983	F200703037	US	US8812508	Granted		14-Dec-2007	19-Feb-2022	3,766.00	SYSTEMS AND METHODS FOR EXTRACTING PHASES FROM TEXT
82241663	F200703681	US	US8694991	Granted		22-Aug-2008	8-Oct-2021	3,766.00	SERVER VIRTUALIZED USING VIRTUALIZATION PLATFORM

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82654469	F200703809	US	US8677365	Granted		27-Aug-2008	18-Sep-2021	3,766.00	PERFORMING ZONE BASED WORKLOAD SCHEDULING ACCORDING TO ENVIRONMENTAL CONDITIONS
82242488	F200703973	US	US7925927	Granted		30-Oct-2008	12-Oct-2022	7,706.00	SIMULATOR FOR DETERMINING DATA LOSS IN A FAULT TOLERANT SYSTEM
82242503	F200703974	US	US8677208	Granted		19-Sep-2008	18-Sep-2021	3,766.00	GENERATING A PARALLEL RECOVERY PLAN FOR A DATA STORAGE SYSTEM
82242506	F200703974	CN	CN200880117051.5	Granted		19-Sep-2008	19-Sep-2020	985.42	GENERATING A PARALLEL RECOVERY PLAN FOR A DATA STORAGE SYSTEM
82243097	F200704122	US	US8019765	Granted		29-Oct-2008	13-Mar-2023	7,706.00	IDENTIFYING FILES ASSOCIATED WITH A WORKFLOW
82620394	F200704234	US	US8774625	Granted		8-Aug-2008	8-Jan-2022	3,766.00	METHOD AND SYSTEMS FOR IMPLEMENTING HIGH-RADIX SWITCH TOPOLOGIES ON RELATIVELY LOWER-RADIX SWITCH PHYSICAL NETWORKS
82244438	F200704554	GB	GB2461899	Granted		17-Jul-2008	17-Jul-2021	443.74	CONTROLLING MOTION OF STORAGE MEDIA
82244441	F200704554	US	US7911727	Granted		1-Oct-2008	22-Sep-2022	7,706.00	CONTROLLING MOTION OF STORAGE MEDIA

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82641262	F200704721	US	US8386494	Granted		7-Aug-2008	26-Aug-2020	3,606.00	PROVIDING DATA STRUCTURES FOR DETERMINING WHETHER KEYS OF AN INDEX ARE PRESENT IN A STORAGE SYSTEM
82245164	F200800251	US	US8347070	Granted		30-Oct-2008	1-Jul-2024	7,706.00	METHOD FOR CONTROLLING RESOURCE UTILIZATION RATE AND COMPUTER SYSTEM
82245167	F200800252	US	US8677375	Granted		29-Jan-2009	18-Sep-2021	3,766.00	SELECTING EXECUTING REQUESTS TO PREEMPT
82247732	F200801486	US	US8516099	Granted		26-Jan-2009	20-Feb-2021	3,606.00	SCALING MANAGEMENT TASKS PERFORMED BY A MANAGEMENT SYSTEM ACCORDING TO A DETERMINED SIZE OF A MANAGED ENVIRONMENT
82910274	F200802535	US	US9179580	Granted		10-Jun-2010	3-May-2023	3,766.00	DATA CENTER COOLER WITH CHILLER AND COOLING TOWER (AS AMENDED)
82249292	F200802683	US	US8355828	Granted		13-Mar-2009	15-Jul-2020	3,606.00	DETERMINING OPTIMAL SETTINGS FOR RESOURCE ACTUATORS
82853976	F200803285	US	US8774638	Granted		31-Jul-2009	8-Jan-2022	3,766.00	PHOTONIC QUANTUM SYSTEM ALIGNMENT USING MULTIPLE BEAMS

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82925997	F200803285	CN	CN200980160706.1	Granted		31-Jul-2009	31-Jul-2021	1,032.98	PHOTONIC QUANTUM SYSTEM ALIGNMENT USING MULTIPLE BEAMS
82250756	F200900032	US	US8390705	Granted		27-Oct-2009	5-Sep-2024	7,706.00	NANOWIRE PHOTODIODES
82250801	F200900057	US	US8402016	Granted		27-May-2009	19-Sep-2020	3,606.00	FETCHING OPTIMIZATION IN MULTI-WAY PIPELINED DATABASE JOINS
82922683	F200900329	US	US8569900	Granted		20-Jul-2009	29-Apr-2021	3,766.00	NANOWIRE SENSOR WITH ANGLED SEGMENTS THAT ARE DIFFERENTLY FUNCTIONALIZED
82251176	F200900333	US	US8327721	Granted		26-Oct-2009	11-Jun-2024	7,706.00	SENSOR FABRIC FOR SHAPE PERCEPTION
82251317	F200900411	US	US8374622	Granted		12-Dec-2007	12-Aug-2024	7,706.00	CALL ADMISSION CONTROL FOR WI FI
82918780	F200902356	CN	CN200980161379.1	Granted		10-Jul-2009	10-Jul-2020	666.46	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER
82258220	F200902356	TW	TWI517465	Granted		9-Jul-2010	10-Jan-2021	237.00	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER
82852408	F200902356	US	US8710483	Granted		10-Jul-2009	29-Oct-2021	3,766.00	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER
82918782	F200902356	KR	KR10-1530118	Granted		10-Jul-2009	12-Jun-2021	664.27	MEMRISTIVE JUNCTION WITH INTRINSIC RECTIFIER

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82258373	F200902417	TW	TWI523290	Granted		27-Jul-2010	20-Feb-2021	237.00	MEMRISTORS WITH ASYMMETRIC ELECTRODES
82853070	F200902417	US	US9171613	Granted		28-Jul-2009	27-Apr-2023	3,766.00	MEMRISTORS WITH ASYMMETRIC ELECTRODES
82258460	F200902461	US	US9405731	Granted		26-Aug-2009	2-Feb-2024	3,766.00	ENERGY BASED WAVELET THRESHOLDING
82259390	F200903200	US	US8431474	Granted		25-Sep-2009	30-Oct-2024	7,406.00	THREE DIMENSIONAL MULTILAYER CIRCUIT
82259435	F200903225	US	US8392168	Granted		3-Nov-2009	5-Sep-2020	3,606.00	SIMULATING AN APPLICATION DURING A SAMPLING PERIOD AND A NON-SAMPLING PERIOD
82259600	F200903307	US	US8402461	Granted		15-Nov-2009	19-Sep-2020	3,606.00	SWITCHING BETWEEN DIRECT MODE AND INDIRECT MODE FOR VIRTUAL MACHINE I/O REQUESTS
90045005	F200903800	JP	JP5969677	Granted		5-Oct-2015	15-Jul-2020	182.67	MULTIMODE VERTICAL-CAVITY SURFACE-EMITTING LASER ARRAYS
83034236	F200903989	US	US8904176	Granted		28-Apr-2010	2-Jun-2022	3,766.00	PROTECTING THE INFORMATION ENCODED IN A BLOOM FILTER USING ENCODED BITS OF DATA

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90648620	F200903989	DE	DE602010053953.9	Granted		28-Apr-2010	28-Apr-2021	804.57	PROTECTING THE INFORMATION ENCODED IN A BLOOM FILTER USING ENCODED BITS OF DATA
90648624	F200903989	GB	GB2564346	Granted		28-Apr-2010	28-Apr-2021	327.01	PROTECTING THE INFORMATION ENCODED IN A BLOOM FILTER USING ENCODED BITS OF DATA
82261124	F200904320	US	US8364909	Granted		25-Jan-2010	29-Jul-2020	3,606.00	DETERMINING A CONFLICT IN ACCESSING SHARED RESOURCES USING A REDUCED NUMBER OF CYCLES
82261316	F200904449	US	US8664940	Granted		12-Oct-2010	4-Sep-2021	3,766.00	GRAPHITE-BASED SENSOR
83214681	F201000277	CN	CN201080069548.1	Granted		11-Oct-2010	11-Oct-2020	648.83	SYSTEM AND METHOD FOR QUERYING A DATA STREAM
82263137	F201000463	US	US8539059	Granted		2-Jun-2010	17-Mar-2021	3,766.00	MANAGING COOLING DEVICES AND COMPUTING NODES IN AN INFRASTRUCTURE
83139124	F201000520	US	US8990165	Granted		13-Jul-2010	24-Sep-2022	3,766.00	METHODS, APPARATUS AND ARTICLES OF MANUFACTURE TO ARCHIVE DATA
82585683	F201000596	US	US8725904	Granted		18-Aug-2011	13-Nov-2021	3,766.00	MANAGEMENT PROCESSORS, METHODS AND ARTICLES OF MANUFACTURE

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83166392	F201000824	US	US9275542	Granted		30-Jul-2010	1-Sep-2023	3,766.00	LOCATION-INDEXED AUDIO CONTENT
83834197	F201001697	CN	CN201180074045.8	Granted		2-Sep-2011	2-Sep-2021	698.53	APPARATUS TO STORE DATA AND METHODS TO READ MEMORY CELLS
83834203	F201001697	US	US9311998	Granted		2-Sep-2011	12-Oct-2023	3,766.00	APPARATUS TO STORE DATA AND METHODS TO READ MEMORY CELLS
90175060	F201001697	US	US9431103	Granted		9-Mar-2016	29-Feb-2024	3,766.00	APPARATUS TO STORE DATA AND METHODS TO READ MEMORY CELLS
82267643	F201002333	US	US6937610	Expired		6-Oct-2000	N/A	N/A	METHOD AND PROTOCOL FOR A MEDIUM ACCESS CONTROL LAYER FOR LOCAL AREA NETWORKS WITH MULTIPLE-PRIORITY TRAFFIC
82268585	F201002556	US	US6959082	Expired		10-Jul-2001	N/A	N/A	METHOD AND SYSTEM FOR AUTOMATIC GAIN CONTROL WITH ADAPTIVE TABLE LOOKUP
82269776	F201002905	US	US7660408	Expired		28-Apr-2000	N/A	N/A	ATTENUATION AND TERMINATION CIRCUIT USING IMPEDANCE SYNTHESIS
82269779	F201002905	US	US8472614	Expired		22-Dec-2009	N/A	N/A	ATTENUATION AND TERMINATION CIRCUIT USING IMPEDANCE SYNTHESIS

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82269821	F201002924	US	US6859051	Expired		2-Jun-2003	N/A	N/A	SYSTEMS AND METHODS FOR IMPEDANCE SYNTHESIS
82270880	F201003297	US	US6507303	Expired		31-May-2000	N/A	N/A	DIRECT DIGITAL CONVERSION OF BASEBAND SIGNALS TO SUPER-NYQUIST FREQUENCIES
82272755	F201003297	US	US6703954	Expired		20-Dec-2002	N/A	N/A	DIRECT DIGITAL CONVERSION OF BASEBAND SIGNALS TO SUPER-NYQUIST FREQUENCIES
82271678	F201003514	US	US6601180	Expired		14-Apr-2000	N/A	N/A	METHOD AND SYSTEM FOR PROVIDING LINK DETECTION TO A PC CARD FOR POWER MANAGEMENT
82271741	F201003533	US	US7275093	Expired		26-Apr-2000	N/A	N/A	METHODS AND DEVICE FOR MANAGING MESSAGE SIZE TRANSMITTED OVER A NETWORK
82271903	F201003585	US	US6826279	Expired		25-May-2000	N/A	N/A	BASE BAND ECHO CANCELLATION USING LAGUERRE ECHO ESTIMATION
82272026	F201003635	US	US6982962	Expired		10-Apr-2000	N/A	N/A	SYSTEM AND METHOD FOR SELECTING A NETWORK ACCESS PROVIDER USING A PORTABLE INFORMATION DEVICE

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82272263	F201003731	US	US6545643	Expired		8-Sep-2000	N/A	N/A	EXTENDABLE PLANAR DIVERSITY ANTENNA
82272266	F201003731	US	US6933896	Expired		7-Apr-2003	N/A	N/A	EXTENDABLE PLANAR DIVERSITY ANTENNA
82272293	F201003749	US	US6766453	Expired		28-Apr-2000	N/A	N/A	AUTHENTICATED DIFFIE-HELLMAN KEY AGREEMENT PROTOCOL WHERE THE COMMUNICATING PARTIES SHARE A SECRET KEY WITH A THIRD PARTY
82272296	F201003753	US	US7024690	Expired		28-Apr-2000	N/A	N/A	PROTECTED MUTUAL AUTHENTICATION OVER AN UNSECURED WIRELESS COMMUNICATION CHANNEL
82272530	F201003835	US	US6772349	Expired		3-May-2000	N/A	N/A	DETECTION OF AN ATTACK SUCH AS A PRE-ATTACK ON A COMPUTER NETWORK
82272536	F201003836	US	US6862286	Expired		8-May-2000	N/A	N/A	TRACKING DYNAMIC ADDRESSES ON A NETWORK
82272572	F201003848	US	US6704016	Expired		8-May-2000	N/A	N/A	METHOD AND APPARATUS FOR THE GRAPHICAL PRESENTATION OF SELECTED DATA

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82272617	F201003860	US	US6701442	Expired		9-May-2000	N/A	N/A	A POWER MANAGEMENT CIRCUIT FOR SELECTIVELY APPLYING POWER TO NETWORK MONITORING CIRCUITRY WHICH MONITORS THE RECEIPT OF NETWORK WAKE-UP MESSAGES
82272695	F201003911	US	US6273735	Expired		25-Oct-2000	N/A	N/A	ROTATING TURRET SIDE-ENTRY RETRACTABLE JACK
82272893	F201004009	US	US6366261	Expired		8-Sep-2000	N/A	N/A	METHOD AND APPARATUS FOR OVERMOLDED ANTENNA
82272908	F201004015	US	US6509876	Expired		8-Sep-2000	N/A	N/A	ANTENNA FOR WIRELESS COMMUNICATIO N SYSTEM
82818908	F201005231	US	US9275041	Granted		24-Oct-2011	1-Sep-2023	3,766.00	PERFORMING SENTIMENT ANALYSIS ON MICROBLOGGIN G DATA, INCLUDING IDENTIFYING A NEW OPINION TERM THEREIN (AS AMENDED)
82576208	F201005331	US	US8390959	Granted		24-Mar-2011	5-Sep-2020	3,606.00	ACTUATOR WITH NON-MOVING MASS
83051101	F201005530	TW	TWI529988	Granted		19-Jul-2012	10-Apr-2021	237.00	MEMRISTOR STRUCTURE WITH A DOPANT SOURCE
83786501	F201005530	US	US9178153	Granted		20-Jul-2011	3-May-2023	3,766.00	MEMRISTOR STRUCTURE WITH A DOPANT SOURCE

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83057100	F201005561	TW	TWI520149	Granted		26-Jul-2012	31-Jan-2021	237.00	METHOD AND SYSTEM FOR REDUCING WRITE-BUFFER CAPACITIES WITHIN MEMRISTOR-BASED DATA-STORAGE DEVICES
83769079	F201005561	KR	KR10-1620761	Granted		27-Jul-2011	4-May-2021	383.94	METHOD AND SYSTEM FOR REDUCING WRITE-BUFFER CAPACITIES WITHIN MEMRISTOR-BASED DATA-STORAGE DEVICES
83769083	F201005561	US	US9405614	Granted		27-Jul-2011	2-Feb-2024	3,766.00	METHOD AND SYSTEM FOR REDUCING WRITE-BUFFER CAPACITIES WITHIN MEMRISTOR-BASED DATA-STORAGE DEVICES
82678579	F201005877	US	US8373584	Granted		16-May-2011	12-Aug-2020	3,606.00	COMPRESSING AND DECOMPRESSING DATA
83051185	F201006081	TW	TWI520393	Granted		26-Jul-2012	31-Jan-2021	237.00	NITRIDE-BASED MEMRISTORS
83807343	F201006081	KR	KR10-1528572	Granted		3-Aug-2011	8-Jun-2021	522.19	NITRIDE-BASED MEMRISTORS
83566663	F700205541	JP	JP5859654	Lapsed		25-Aug-2011	25-Dec-2020	206.51	MODEL-BASED STEREOSCOPIC AND MULTIVIEW CROSS-TALK REDUCTION
82835640	F700206343	US	US8854860	Granted		31-Jan-2012	7-Apr-2022	3,766.00	METAL-INSULATOR TRANSITION LATCH

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SAP v. Valtrus et al. - IPR2025-00419
Page 248 of 622

Patent ID Tranche 8	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
83862114	F700206343	KR	KR10-1634191	Granted		28-Oct-2011	22-Jun-2021	383.94	METAL-INSULATOR PHASE TRANSITION FLIP-FLOP
83862120	F700206343	US	US9331700	Granted		28-Oct-2011	3-Nov-2023	3,766.00	METAL-INSULATOR PHASE TRANSITION FLIP-FLOP
83863051	F700206384	KR	KR101620247	Granted		4-Nov-2011	3-May-2021	486.79	DECODER CIRCUITS HAVING METAL-INSULATOR-METAL THRESHOLD SWITCHES
83815245	F700206830	US	US9064568	Granted		26-Aug-2011	23-Dec-2022	3,766.00	CIRCUIT AND METHOD FOR READING A RESISTIVE SWITCHING DEVICE IN AN ARRAY
84020521	F700208907	US	US9224821	Granted		26-Apr-2012	29-Jun-2023	3,766.00	CUSTOMIZABLE NONLINEAR ELECTRICAL DEVICES
83013477	F700210371	US	US8793258	Granted		31-Jul-2012	29-Jan-2022	3,766.00	PREDICTING SHARING ON A SOCIAL NETWORK
83099558	F700211223	US	US9411657	Granted		9-Nov-2012	9-Feb-2024	3,766.00	LOAD-BALANCED SPARSE ARRAY PROCESSING
83138539	F700212517	US	US8810780	Granted		31-Jan-2013	19-Feb-2022	3,766.00	PLASMON RESONANCE BASED STRAIN GAUGE
83139311	F700212552	US	US9408050	Granted		31-Jan-2013	2-Feb-2024	3,766.00	REDUCING BANDWIDTH USAGE OF A MOBILE CLIENT

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Page 249 of 622

Patent ID Tranche 8	Patent Family Id	CC	Patent Number	Patent Status	Application Number if not Granted	Filed Date	Annuity Due Date	Annuity Cost (Est. USD)	Application Title
83140845	F700212571	US	US9195727	Granted		30-Jan-2013	24-May-2023	3,766.00	DELTA PARTITIONS FOR BACKUP AND RESTORE
84191546	F700220555	EM	EM28789910001	Granted		27-Nov-2015	27-Nov-2020	135.11	RDX MICROSERVER MODULE
90405775	F700220555	EM	EM28789910002	Granted		27-Nov-2015	27-Nov-2020	135.11	SERVER MODULE

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Page 250 of 622

Recordable Assignment - Escrow (PEA) Valtrus_v3

Final Audit Report 2021-01-21

Created:	2021-01-20
By:	Valerie Castro (valerie.castro@hpe.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAOFbUVbD3Ds5chRp3oMNevtMKdX88P_Q-

"Recordable Assignment - Escrow (PEA) Valtrus_v3" History

Document created by Valerie Castro (valerie.castro@hpe.com)
2021-01-20 - 11:32:48 PM GMT- IP address: 104.129.202.52

Document emailed to Brett Alten (brett.alten@hpe.com) for signature
2021-01-20 - 11:34:34 PM GMT

Email viewed by Brett Alten (brett.alten@hpe.com)
2021-01-21 - 3:10:27 AM GMT- IP address: 73.63.232.31

Document e-signed by Brett Alten (brett.alten@hpe.com)
Signature Date: 2021-01-21 - 3:11:26 AM GMT - Time Source: server- IP address: 73.63.232.31

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HPE-OT_Valtrus_ Assignment and Lien

Final Audit Report 2021-01-21

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By:	Nishant jaiswal (nishant.jaiswal@hpe.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAWWq_KQA2lmdd3UFgVyzP2wKtNYODlSoY

"HPE-OT_Valtrus_ Assignment and Lien" History

Document created by Nishant jaiswal (nishant.jaiswal@hpe.com)
2021-01-21 - 6:16:35 PM GMT- IP address: 165.225.243.25

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2021-01-21 - 6:17:26 PM GMT

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2021-01-21 - 7:05:32 PM GMT- IP address: 45.41.142.151

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www.uspto.gov

APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/536,625	7936738	2464	9200

OC000000073819478

Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 56436 on 03/06/2015

- **Correspondence Address**
- **Maintenance Fee Address**

The address of record for Customer Number 56436 is:

56436
HP Company
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
Fort Collins, CO 80528

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10/536,625	7936738	2464	9200

OC000000073862134

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HP Company
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
Fort Collins, CO 80528

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	05/03/2011	7936738	200309832-4	2264

22879 7590 04/13/2011

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1381 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Sebastien Bouat, St Martin d'Uriage, FRANCE;

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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22879 7590 02/01/2011

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	200309832-4	2364

TITLE OF INVENTION: FAULT TOLERANT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	05/02/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHUNG, LUAT	2464	370-242000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1.
2.
3.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Hewlett-Packard Development Company, L.P.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Houston, Texas

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☑ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☑ Issue Fee
- ☑ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies: .....

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 08-2025 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature: /David A. Plettner/ Date: March 24, 2011

Typed or printed name: David A. Plettner Registration No.: 36,241

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Page 256 of 622

Electronic Patent Application Fee Transmittal

Application Number:	10536625
Filing Date:	02-Mar-2006
Title of Invention:	FAULT TOLERANT SYSTEMS
First Named Inventor/Applicant Name:	Sebastien Bouat
Filer:	David A. Plettner/Jerome Dechant
Attorney Docket Number:	200309832-4
Filed as Large Entity	

U.S. National Stage under 35 USC 371 Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1810**

Electronic Acknowledgement Receipt	
EFS ID:	9734235
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	FAULT TOLERANT SYSTEMS
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David A. Plettner/Jerome Dechant
Filer Authorized By:	David A. Plettner
Attorney Docket Number:	200309832-4
Receipt Date:	24-MAR-2011
Filing Date:	02-MAR-2006
Time Stamp:	16:49:18
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	200309832-4-part-b-signed-.pdf	432815 e0b4cc2574e074f7c0e8995ac3e8fbf61a5493c0	no	1

Warnings:
Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	31944 cc7cec6389ec893d24eaaf0ef59942803c5c9604	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	464759	

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bossa	200309832-4	2264

TITLE OF INVENTION: FAULT TOLERANT SYSTEMS

03/25/2011 HVUONG2 00000008 082025 10536625
01 FC:1501 1510.00 DA
02 FC:1504 300.00 DA

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	05/02/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHUNG, LUAT	2464	370-242000

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(A) NAME OF ASSIGNEE: Hewlett-Packard Development Company, L.P.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Houston, Texas

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
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- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature: /David A. Plettner/ Date: March 24, 2011

Typed or printed name: David A. Plettner Registration No.: 36,241

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	200309832-4	2264

7590 03/11/2011

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER	
PHUNG, LUAT	
ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 03/11/2011

PRIORITY ACKNOWLEDGMENT

☑ 1. Receipt is acknowledged of priority papers submitted under 35 U.S.C. 119. The papers have been placed of record in the file.

☐ 2. Applicant's claim for priority, based on papers filed in parent Application Number _____ submitted under 35 U.S.C. 119, is acknowledged.

☐ 3. The priority papers, submitted _____, after payment of the issue fee are

- ☐ acknowledged
  While the priority claim or certified copy filed will be placed in the file record, neither will be reviewed and the patent when published will not include the priority claim.
  See 37 CFR 1.55(a)(2).
- ☐ not acknowledged since the processing fee in 37 CFR 1.17(i) has not been received.

☐ 4. For utility and plant applications filed on or after November 29, 2000, the priority claim is not entered because the claim was not presented within the time limit required by 37 CFR 1.55(a)(1). A petition to accept a delayed claim for priority under 35 U.S.C. 119(a) - (d) or (f), or 365(a) may be filed. See 37 CFR 1.55(c) and MPEP 201.14(a).

Carlota Evans

571-272-4200 or 1-888-786-0101
Application Assistance Unit
Office of Data Management

PTOL-147 (Rev. 03/08)

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NOTICE OF ALLOWANCE AND FEE(S) DUE

22879 7590 02/01/2011

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Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER	
PHUNG, LUAT	
ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 02/01/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	200309832-4	2264

TITLE OF INVENTION: FAULT TOLERANT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	05/02/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22879 7590 02/01/2011

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	200309832-4	2264

TITLE OF INVENTION: FAULT TOLERANT SYSTEMS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	05/02/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
PHUNG, LUAT	2464	370-242000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	200309832-4	2264

22879 7590 02/01/2011

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER	
PHUNG, LUAT	
ART UNIT	PAPER NUMBER
2464	

DATE MAILED: 02/01/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 701 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 701 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Notice of Allowability	Application No.	Applicant(s)	
	10/536,625	BOUAT, SEBASTIEN	
	Examiner	Art Unit	
	LUAT PHUNG	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment After Final filed 11 January 2011*.

2. ☒ The allowed claim(s) is/are *1-13,15-30 and 32-36 (renumbered 1-34, respectively)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Luat Phung/ Examiner, Art Unit 2464	/Ricky Ngo/ Supervisory Patent Examiner, Art Unit 2464

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S202	330	(switch$1over or fail$1over) near10 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S203	1542	714/2.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S204	531	714/3.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S205	840	714/10.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S206	992	714/11.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S207	1489	"370/242".CCLS.	US-PGPUB; USPAT	ADJ	ON	2011/01/15 08:56
S208	5094	S207 or S203 or S204 or S205 or S206	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S209	21	S208 and S202	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:56
S210	11	S209 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:57

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S211	965	(layer or protocol) near5 (restor$3 or recover$3) same3 stack	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:58
S212	128	S211 and (fail$1over or switch $1over or redundan$3 or toleran$3).ab,ti,bsum.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:58
S213	113	S212 and ("370".clas. or "709". clas. or "714".clas.)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:58
S214	81	S213 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 08:58
S215	90	S211 same3 (fail$1over or switch$1over or redundan$3 or toleran$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:04
S216	68	S215 and ("370".clas. or "709". clas. or "714".clas.)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:04
S217	43	S216 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:04
S219	58	(layer or protocol) near3 context with (restor$3 or recover$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:06
S220	23	S219 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:06
S221	37	S219 and ("370".clas. or "709". clas. or "714".clas.)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:08

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S222	14	S221 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:08
S223	14	(layer or protocol or level) near3 stack near5 context with (restor$3 or recover$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:09
S224	11	S223 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:10
S225	893	(layer or level) near5 context.clm.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:12
S226	67	S225 and stack.clm.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:12
S227	50	S226 and (initial or first).clm.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:35
S228	22	S225 and (protocol adj2 stack).clm.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:37
S229	1	S225 near10 (protocol adj2 stack).clm.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2011/01/15 09:37
S230	1	("2006/0143494").URPN.	USPAT	ADJ	ON	2011/01/15 09:38

1/15/2011 9:39:33 AM
C:\Documents and Settings\lphung\My Documents\EAST\Workspaces\10536625.wsp

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2464

SEARCHED			
Class	Subclass	Date	Examiner
370	342	3/29/2009	LP
714	2, 3, 10, 11		
Updated	above	9/12/2009	LP
Updated	above	5/8/2010	LP
Updated	above	10/9/2010	LP
Updated	above	1/15/2010	LP

SEARCH NOTES		
Search Notes	Date	Examiner
Inventorship search	3/29/2009	LP
Web search		
EAST search		
Consulted with SPE Ricky Ngo	9/8/2009	LP
Updated EAST search	9/12/2009	LP
Consulted with SPE Ricky Ngo	4/22/2010	LP
Consulted with primary examiner Ian Moore	4/22/2010	LP
Updated web search	5/8/2010	LP
Updated EAST search	5/8/2010	LP
Updated web search	10/9/2010	LP
Updated EAST search	10/9/2010	LP
Updated EAST search	1/15/2010	LP

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
370	ALL	1/15/2010	LP

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	**Art Unit**
	LUAT PHUNG	2464

ORIGINAL		INTERNATIONAL CLASSIFICATION									
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED				
370	342	H	0	4	B	7 / 216 (2006.0)					

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
714	2	3	10	11	

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	16	17	31	33										
2	2	17	18	32	34										
3	3	18	19	33	35										
4	4	19	20	34	36										
5	5	20	21												
6	6	21	22												
7	7	22	23												
8	8	23	24												
9	9	24	25												
10	10	25	26												
11	11	26	27												
12	12	27	28												
13	13	28	29												
	14	29	30												
14	15		31												
15	16	30	32												

/LUAT PHUNG/ Examiner.Art Unit 2464	01/15/2011	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	34	
/RICKY NGO/ Supervisory Patent Examiner.Art Unit 2464	01/18/2011	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	4

SAP - Exhibit 1102
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/29/2009	09/13/2009	05/08/2010	10/09/2010	01/15/2011				
1	1	✓	✓	✓	=	=				
2	2	✓	✓	✓	=	=				
3	3	✓	✓	✓	=	=				
4	4	✓	✓	✓	=	=				
5	5	✓	✓	✓	=	=				
6	6	✓	✓	✓	=	=				
7	7	✓	✓	✓	=	=				
8	8	✓	✓	✓	=	=				
9	9	✓	✓	✓	=	=				
10	10	✓	✓	✓	=	=				
11	11	✓	✓	✓	✓	=				
12	12	✓	✓	✓	✓	=				
13	13	✓	✓	✓	✓	=				
	14	✓	✓	✓	O	-				
14	15	✓	✓	✓	O	=				
15	16	✓	✓	✓	O	=				
16	17	✓	✓	✓	O	=				
17	18	✓	✓	✓	=	=				
18	19	✓	✓	✓	=	=				
19	20	✓	✓	✓	=	=				
20	21	✓	✓	✓	=	=				
21	22	✓	✓	✓	=	=				
22	23	✓	✓	✓	=	=				
23	24	✓	✓	✓	=	=				
24	25	✓	✓	✓	=	=				
25	26	✓	✓	✓	=	=				
26	27	✓	✓	✓	=	=				
27	28	✓	✓	✓	✓	=				
28	29	✓	✓	✓	✓	=				
29	30	✓	✓	✓	✓	=				
	31	✓	✓	✓	O	-				
30	32	✓	✓	✓	O	=				
31	33	✓	✓	✓	O	=				
32	34	✓	✓	✓	O	=				
33	35	✓	✓	✓	=	=				
34	36	✓	✓	✓	✓	=				

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sebastien BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2464
Filed:	March 2, 2006	§	Examiner:	Luat Phung
For:	Improvements In Or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

RESPONSE TO FINAL OFFICE ACTION DATED OCTOBER 15, 2010

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: January 11, 2011

AMENDMENT

Sir:

In response to the final Office action of October 15, 2010, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 9 of this paper.

OK TO ENTER: /L.P./
01/15/2011

SAP - Exhibit 1102
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sebastien BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2464
Filed:	March 2, 2006	§	Examiner:	Luat Phung
For:	Improvements In Or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

RESPONSE TO FINAL OFFICE ACTION DATED OCTOBER 15, 2010

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: January 11, 2011

AMENDMENT

Sir:

In response to the final Office action of October 15, 2010, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 9 of this paper.

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REMARKS

Applicant has received the final Office action dated October 15, 2010, in which the Examiner: 1) allowed claims 1-10, 18-27, and 35; 2) found claims 14-17 and 31-34 allowable if rewritten in independent form, but objected to as depending from a rejected base claim;[1] and 3) rejected claims 11-13, 28-30, and 36 under 35 U.S.C. § 103(a) as allegedly obvious over Kim (U.S. Pat. No. 6,320,949).

With this Response, Applicant has amended claims 11, 28, and 36, and cancelled claims 14 and 31. With these amendments and the remarks presented below Applicant respectfully submits that all claims are in condition for allowance.

I. REJECTIONS UNDER 35 U.S.C. § 103(a) OVER KIM

A. Claim 11

Claim 11 has been amended to include the limitations of cancelled claim 14 which the Examiner found to be allowable. Therefore, Applicant respectfully submits that claims 11-13 are allowable over the cited art.

B. Claim 28

Claim 28 has been amended to include the limitations of cancelled claim 31 which the Examiner found to be allowable. Therefore, Applicant respectfully submits that claims 28-30 are allowable over the cited art.

C. Claim 36

Claim 36 has been amended to include limitations similar to those of cancelled claim 14 which the Examiner found allowable. Therefore, Applicant respectfully submits that claim 36 is allowable over the cited art.

II. CONCLUSION

In the course of the foregoing discussions, Applicant may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that

[1] The Office Action fails to state a reason for the objections. In a telephone interview with Examiner Phung conducted on December 27, 2010 regarding the objections, the Examiner confirmed that the claims were objected to as depending from a rejected base claim, but allowable if rewritten in independent form.

the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the cited art which have yet to be raised, but which may be raised in the future.

Applicant respectfully requests reconsideration and that a timely Notice of Allowance be issued in this case. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

/David M. Wilson/

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
Legal Dept., M/S 35
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Electronic Acknowledgement Receipt

EFS ID:	9209325
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	Fault tolerant systems
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David M. Wilson/Colleen Brown
Filer Authorized By:	David M. Wilson
Attorney Docket Number:	200309832-4
Receipt Date:	11-JAN-2011
Filing Date:	02-MAR-2006
Time Stamp:	16:03:10
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (PTO-875)	200309832-4_FEE_TRANS_RFOA_101510.pdf	36529 570d8d296b699b852833d9791c4bdb0480e17386	no	1

Warnings:	
Information:	

2		200309832-4_AMEND_FINAL_REJ_101510.pdf	95720 4466cc386dcacf5558bc2510f0d165101a6e4380	yes	10

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment After Final	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	10

Warnings:	
Information:	
Total Files Size (in bytes):	132249

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

HEWLETT-PACKARD COMPANY
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PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-4

Inventor(s): Sebastien BOUAT

Application No.: 10/536,625

Filing Date: 03/02/2006

Confirmation No.: 2264

Examiner: Luat Phung

Group Art Unit: 2464

Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

Mail Stop After Final
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Transmitted herewith is/are the following in the above-identified application:

- [x] Response/Amendment
- [ ] New fee as calculated below
- [x] No additional fee
- [ ] Other _____ Fee$_____
- [ ] Petition to extend time to respond
- [ ] Supplemental Declaration

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY

(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	34	MINUS	36	= 0	X $52	$ 0
INDEP. CLAIMS	6	MINUS	6	= 0	X $220	$ 0
☐ FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ $390	$ 0
EXTENSION FEE	☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730		$ 0
OTHER FEES						$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						$ 0

Charge $ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Sebastien BOUAT

By: /David M. Wilson/

David M. Wilson

Attorney/Agent for Applicant(s)

Reg No. : 56,790

Date : 01/11/2010

Telephone : (713) 238-8000

Rev 10/09 (E-TransAmd)

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/536,625	Filing Date 03/02/2006	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	01/11/2011	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 34	Minus	** 36	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Wanda Meredith/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node;

selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer;

obtaining, by the computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the outgoing message such that a response, received from the destination node, to the outgoing message contains the obtained context information.

2. (Previously presented) The method of claim 1, further comprising adding context information obtained from a different protocol stack layer to the outgoing message.

3. (Previously presented) The method of claim 1, wherein the outgoing message is sent from the node is to a remote node across a network.

4. (Previously presented) The method of claim 1, used with a message-based communications system.

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5. (Previously presented) The method of claim 1, wherein the step of obtaining context information obtains context information related to the outgoing message.

6. (Previously presented) The method of claim 1, wherein the step of adding the obtained context information appends the obtained context information to a separate field of the message.

7. (Previously presented) The method of claim 1, for use with a session initiation protocol (SIP) network.

8. (Previously presented) The method of claim 7, wherein the step of adding the obtained context information appends the obtained context information to a SIP TAG field.

9. (Previously presented) The method of claim 7, wherein the step of adding the obtained context information appends the obtained context information to a SIP extension header.

10. (Previously presented) The method of claim 1, further comprising adding, to the message, an indication associated with the obtained context information where it is determined that the obtained context information is potentially inaccurate or incomplete.

11. (Currently amended) A method of restoring context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

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determining, by the computing device, the presence, within the message, of context information relevant to the layer; and

restoring, by the computing device, the context information of the layer using the context information within the message;

wherein the determining whether the context information of the layer is to be restored further comprises checking whether the received message is an initial message.

12. (Previously presented) The method of claim 11, wherein the step of determining determines whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message.

13. (Previously presented) The method of claim 11, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. (Cancelled).

15. (Previously presented) The method of claim 11, used with the session initiation protocol (SIP).

16. (Previously presented) The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP TAG.

17. (Previously presented) The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP extension header.

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18. (Previously presented) A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:

a circuit for providing the outgoing message from an application to a layer of the protocol stack; the outgoing message is destined for an application on a destination node;

means for indicating to the layer of the protocol stack that context information is to be obtained for that layer;

a module for obtaining context information in accordance with the indication;

a circuit for adding the obtained context information to the outgoing message such that a response, received from the destination node, to the outgoing message contains the obtained context information.

19. (Previously presented) A system according to claim 18, wherein the node is configured to add context information obtained from a plurality of protocol stack layers to the outgoing message.

20. (Previously presented) A system according to claim 18, wherein the outgoing message is sent from the node to a remote node across a network.

21. (Previously presented) A system according to claim 18, for use with a message-based communications system.

22. (Previously presented) A system according to claim 18, wherein the context information obtained is related to the outgoing message.

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23. (Previously presented) A system according to claim 18, wherein the obtained context information is appended to a separate field of the outgoing message.

24. (Previously presented) A system according to claim 18, for use with a session initiation protocol (SIP).

25. (Original) A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

26. (Original) A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. (Previously presented) A system according to claim 18, wherein an indication associated with the obtained context information is added to the outgoing message where it is determined that the obtained context information is potentially inaccurate or incomplete.

28. (Currently amended) A system of restoring context information of a layer of a protocol stack of a node comprising:

receiving means for receiving a message;

logic for determining whether the context information of the layer is to be restored;

a circuit for determining the presence, within the message, of context information relevant to the layer; and

restoration means for restoring the context information of the layer using the context information within the message;

wherein the logic for determining is configured for checking whether the received message is an initial message.

29. (Previously presented) A system according to claim 28, wherein the logic for determining is configured for determining based in part on the context information of the layer and in part on the received message.

30. (Previously presented) A system according to claim 28, wherein the logic for determining is configured for checking the existence at the layer of context information associated with the received message.

31. (Cancelled).

32. (Previously presented) A system according to claim 28, for use with the session initiation protocol (SIP).

33. (Previously presented) A system according to claim 32, wherein the restoration means is configured for restoring the context information of the layer using context information stored in a SIP TAG.

34. (Previously presented) A system according to claim 32, wherein the restoration means is configured for restoring the context information of the layer using context information stored in a SIP TAG.

35. (Previously presented) A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:

indicating to a layer that context information is to be obtained for that layer;

obtaining, by a computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the message, such that a response to the message contains the

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obtained context information needed to restore a pre-switchover context of the layer.

36. (Currently amended) A method of restoring context information of a layer of a hierarchical structure of discreet layers comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence, within the message, of context information relevant to the layer; and

restoring, by the computing device, the context information of the layer using the context information within the message;

wherein the determining whether the context information of the layer is to be restored further comprises checking whether the received message is an initial message.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	200309832-4	2264

22879 7590 10/15/2010

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
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EXAMINER	
PHUNG, LUAT	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
10/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
ipa.mail@hp.com
laura.m.clark@hp.com

Office Action Summary	Application No.	Applicant(s)	
	10/536,625	BOUAT, SEBASTIEN	
	Examiner	Art Unit	
	LUAT PHUNG	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-10,18-27 and 35* is/are allowed.

6)☒ Claim(s) *11-13,28-30 and 36* is/are rejected.

7)☒ Claim(s) *14-17 and 31-34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed on July 29, 2010 have been fully considered but they are moot in view of the new ground(s) of rejection.

2. Claims 1-36 are pending.

3. Claims 1, 6, 8-11, 18, 23, 27, 28 and 33-36 have been amended.

4. Claims 11-13, 28-30 and 36 are rejected.

5. Claims 14-17 and 31-34 are objected to.

6. Claims 1-10, 18-27 and 35 are allowed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 11-13, 28-30 and 36 are rejected under U.S.C. 103(a) as being unpatentable over Kim (US patent no. 6,320,949).

Regarding **claims 11, 28 and 36**, Kim discloses **a method and a system of restoring context information of a layer of a protocol stack of a node, and a method of restoring context information of a layer of a hierarchical structure of discreet layers, comprising:**

receiving a message by a computing device; (fig. 4, standby processor of remote subscriber system receiving message 438 containing DB1, DB2 and DB3)

determining, by the computing device, whether the context information of the layer is to be *stored*; (fig. 4; col. 3, lines 17-63; standby processor sends Ack in response to receiving a ready-to-receive enquiry message, indicating processor is ready to receive databases containing information related to the system; tone-related DB1, subscriber type DB2, and parameter related DB3 constitute context information of layers of a protocol stack or of a hierarchical structure of discreet layers) **and**

where it is so determined,

determining, by the computing device, the presence, within the message, of context information relevant to the layer; (fig. 4, line DB1, DB2, DB3 438; col. 6, lines 65+; DB1, DB2 and DB3 [as context information relevant to the layer] are transmitted via line 438 [as the message] to standby processor) and

***storing*, by the computing device, the context information of the layer using the context information within the message.** (col. 4, lines 7+; standby processor stores DB1, DB2 and DB3).

Kim discloses *storing* the context information, as recited above, and not *restoring* the context information. However Kim discloses an active-standby architecture in which

a standby processor stores the databases, as recited above, and B channel number and subscriber number of talk state and call release state [as further examples of context information] (fig. 2, 5; col. 2, lines 39+; col. 4, lines 44-65). It would have been obvious to one of ordinary skill in the art at the time of the invention that in the event of system failure requiring a switchover, a similar procedure takes place to restore the context information, in order to improve system reliability and stability (col. 5, lines 10+).

Regarding **claims 12 and 29**, Kim further discloses wherein the step of determining determines whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message. (col. 4, lines 7+)

Regarding **claims 13 and 30**, Kim further discloses wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message. (col. 3, lines 25-45)

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form 892).

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2464

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2464

Notice of References Cited	Application/Control No. 10/536,625	Applicant(s)/Patent Under Reexamination BOUAT, SEBASTIEN	
	Examiner LUAT PHUNG	Art Unit 2464	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,320,949	11-2001	Kim, Young-Hwi	379/201.01
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S159	321	(switch$1over or fail$1over) near10 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S160	1478	714/2.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S161	506	714/3.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S162	809	714/10.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S163	964	714/11.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S164	1411	"370/242".CCLS.	US-PGPUB; USPAT	ADJ	ON	2010/10/09 17:25
S165	4887	S164 or S160 or S161 or S162 or S163	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S166	19	S165 and S159	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:25
S167	64	(switch$1over or fail$1over) same (protocol or layer or level or stack) with (state or status) with (call or transaction)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:26

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S168	36	S167 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 17:26
S169	10547	silverbrook.as.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 19:06
S170	9813	S169 and silverbrook.in.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 19:06
S171	4721	S170 and print$3.clm.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 19:06
S172	16333	layer near3 (restor$3 or recover$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:13
S173	7	S172 with context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:14
S174	159	S172 and (layer or protocol or level) near3 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:16
S177	42	S174 and (fail$1over or switch $1over or redundan$3 or toleran$3).ab,ti,bsum.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:17
S178	23	S177 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:18
S179	14	S172 same (layer or protocol or level) near3 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:19

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S180	7	S179 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:19
S181	59	S174 and ("370".clas. or "709".clas. or "714".clas.)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:20
S182	37	S181 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:21
S183	7	(application and protocol and redundancy).ti.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:32
S184	60	feyerabend.in.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:34
S185	2	S184 and polle.in.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:35
S186	2	"0981226"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:38
S187	2	"6148410".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:41
S188	868	(select$3 or determin$3 or identif$6 or indicat$3) near5 (layer or protocol) near5 (restor$3 or recover$3)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:49
S189	149	S188 and (fail$1over or switch$1over or redundan$3 or toleran$3).ab,ti,bsum.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:49

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S190	89	S189 and ("370".clas. or "709". clas. or "714".clas.)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:49
S191	55	S190 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:49
S192	22	(select$3 or determin$3 or identif$6 or indicat$3) near5 (layer or protocol) near5 (restor$3 or recover$3) same stack	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:50
S193	36	(select$3 or determin$3 or identif$6 or indicat$3) near5 (layer or protocol) near5 (restor$3 or recover$3) same3 stack	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 21:50
S194	919	(layer or protocol) near5 (restor$3 or recover$3) same3 stack	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 22:17
S195	124	S194 and (fail$1over or switch $1over or redundan$3 or toleran$3).ab,ti,bsum.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 22:17
S196	113	S195 and ("370".clas. or "709". clas. or "714".clas.)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 22:17
S197	81	S196 and (@ad<"20030725" or @rlad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/10/09 22:18

10/9/2010 11:53:16 PM
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/29/2009	09/13/2009	05/08/2010	10/09/2010					
	1	✓	✓	✓	=					
	2	✓	✓	✓	=					
	3	✓	✓	✓	=					
	4	✓	✓	✓	=					
	5	✓	✓	✓	=					
	6	✓	✓	✓	=					
	7	✓	✓	✓	=					
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	10	✓	✓	✓	=					
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	13	✓	✓	✓	✓					
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	34	✓	✓	✓	O					
	35	✓	✓	✓	=					
	36	✓	✓	✓	✓					

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2464

SEARCHED

Class	Subclass	Date	Examiner
370	342	3/29/2009	LP
714	2, 3, 10, 11		
Updated	above	9/12/2009	LP
Updated	above	5/8/2010	LP
Updated	above	10/9/2010	LP

SEARCH NOTES

Search Notes	Date	Examiner
Inventorship search	3/29/2009	LP
Web search		
EAST search		
Consulted with SPE Ricky Ngo	9/8/2009	LP
Updated EAST search	9/12/2009	LP
Consulted with SPE Ricky Ngo	4/22/2010	LP
Consulted with primary examiner Ian Moore	4/22/2010	LP
Updated web search	5/8/2010	LP
Updated EAST search	5/8/2010	LP
Updated web search	10/9/2010	LP
Updated EAST search	10/9/2010	LP

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sebastien BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2464
Filed:	March 2, 2006	§	Examiner:	Luat Phung
For:	Improvements In Or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

RESPONSE TO OFFICE ACTION DATED MAY 14, 2010

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: July 29, 2010

AMENDMENT

Sir:

In response to the Office Action of May 14, 2010, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Remarks begin on page 9 of this paper.

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REMARKS

Applicant has received the Office Action dated May 14, 2010, in which the Examiner: 1) objected to claims 1, 8,[1] 35, and 36; and 2) rejected claims 1-36 under 35 U.S.C. § 112 ¶ 2 as being allegedly indefinite.

With this Response, Applicant has amended claims 1, 6, 8-11, 18, 23, 27, 28, and 33-36. With these amendments and the remarks presented below Applicant respectfully submits that all claims are in condition for allowance.

I. OBJECTIONS TO THE CLAIMS

Line 12 of claims 1 and 18 has been amended to recite "the outgoing message" rather than "the message." Applicant notes that the recitation "the message" was unambiguous because "the message" necessarily referred back "an outgoing message" as the only possible antecedent. The Examiner's suggested amendment has been implemented to expedite prosecution of the application.

The recitation "the message" of claims 35 and 36 has not been changed because the recitation "the message" clearly refers to the antecedent recitation "a message" in claims 35 and 36. Therefore, Applicant is unable to ascertain the Examiner's reason for objecting to claims 35 and 36.

Applicant respectfully requests that the objections to claims 1, 18, 35, and 36 be withdrawn.

II. REJECTIONS UNDER 35 U.S.C. § 112 ¶ 2

A. Claim 1

Line 13 of claim 1 has been amended to recite "the obtained context information" rather than "the context information." Though not required by the Examiner, for consistency with claim 1, claims 6, 8, and 9 have also been amended to recited "the obtained context information."

[1] Applicant assumes the Examiner intended to list claim 18 rather than claim 8, as claim 8 does not include the term "message."

The Examiner inquired as to the purpose of "the response having the same context information contained in the message." *Office Action*, p. 4 (May 14, 2010). The specification explains at page 11, lines 6-10:

> In this way, the context data does not need to be stored locally at the HA node since response messages will, where context data has previously been stored, include the context field containing context data to enable the protocol stack to be re-initialized in the event of a switchover.

In contrast, note the explanation given for reinitialization using locally stored data at page 6 line 29 to page 7 line 6 of the specification.

Applicant respectfully submits that the amendments to claims 1, 6, 8, and 9 satisfy the Examiner's antecedent basis concern, and requests that the rejection of claims 1-9 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

B. Claim 10

Claim 10 has been amended to recite "the obtained context information" rather than "the obtained context data" and "the context data," thereby obtaining proper antecedent basis. Applicant respectfully requests that the rejection of claim 10 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

C. Claim 11

Line 1 of claim 11 has been amended to recite "context information" rather than "the context information." Lines 7-8 of claim 11 have been amended to recite "determining . . . the presence, within the message, of context information relevant to the layer" rather than "determining . . . the presence of context information relevant to the layer within the message." Lines 10-11 of claim 11 have been amended to recite "restoring . . . the context information of the layer using the context information within the message" rather than "restoring . . . the context of the layer using context information from the message."

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Applicant respectfully submits that the amendments to claim 11 satisfy the Examiner's antecedent basis and clarity concerns, and requests that the rejection of claims 11-17 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

D. Claim 12

Applicant is unable to ascertain whether the Examiner intended to reject claim 12 on grounds additional to those applied to claim 11, as the Examiner failed to clearly state such a rejection. However, the Examiner did inquire as to the meaning of "determining whether context information is to be restored based on the same context information, which has not yet been restored." *Office Action*, p. 5 (May 14, 2010).

Claim 12 recites "determining . . . whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message." Clear explanation of the "determining" being based on the context information of the layer and the received message can be found at least at page 10, lines 14-33 of the specification.

E. Claim 18

Line 13 of claim 18 has been amended to recite "the obtained context information" rather than "the context information." Though not required by the Examiner, for consistency with claim 18, claim 23 has also been amended to recite "the obtained context information." Applicant respectfully submits that the amendments to claims 18 and 23 satisfy the Examiner's antecedent basis concern, and requests that the rejection of claims 18-26 under 35 U.S.C. § 112 ¶ 2 be withdrawn.[2]

[2] Applicant assumes that the Examiner intended to state that "claims 19-26 are rejected as being dependent upon a rejected base claim," namely claim 18, rather than "namely claim 11," as claims 19-26 do not depend from claim 11. *Office Action*, p. 5 (May 14, 2010).

F. Claim 27

Claim 27 has been amended to recite "the obtained context information" rather than "the obtained context data" and "the context data," thereby obtaining proper antecedent basis. Applicant respectfully requests that the rejection of claim 27 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

G. Claim 28

Line 1 of claim 28 has been amended to recite "context information" rather than "the context information." Lines 6-7 of claim 28 have been amended to recite "determining . . . the presence, within the message, of context information relevant to the layer" rather than "determining . . . the presence of context information relevant to the layer within the message." Lines 8-9 of claim 28 have been amended to recite "restoring . . . the context information of the layer using the context information within the message" rather than "restoring . . . the context of the layer using context information from the message."

Applicant respectfully submits that the amendments to claim 28 satisfy the Examiner's antecedent basis and clarity concerns, and requests that the rejection of claims 28-34 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

H. Claim 29

The Examiner stated that "[c]laim 29 is rejected for the same reason set forth in the rejection of claim 12 above." However, as noted above with regard to claim 12, Applicant is unable to identify any specific rejection applied to claim 12. If the Examiner intended to assert a specific rejection with regard to claims 12 and 29, Applicant respectfully requests clarification thereof. Otherwise, Applicant respectfully refers the Examiner to the explanation above regarding the clarity of claim 12.

I. Claim 35

Lines 8-9 of claim 35 have been amended to recite "the obtained context information" rather than "context information." Applicant respectfully submits that the amendment to claim 35 satisfies the Examiner's antecedent basis concern,

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and requests that the rejection of claim 35 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

J. Claim 36

Line 1 of claim 36 has been amended to recite "context information" rather than "the context information." Lines 7-8 of claim 36 have been amended to recite "determining . . . the presence, within the message, of context information relevant to the layer" rather than "determining . . . the presence of context information relevant to the layer within the message." Lines 10-11 of claim 36 have been amended to recite "restoring . . . the context information of the layer using the context information within the message" rather than "restoring . . . the context of the layer using context information from the message."

Applicant respectfully submits that the amendments to claim 36 satisfy the Examiner's antecedent basis and clarity concerns, and requests that the rejection of claim 35 under 35 U.S.C. § 112 ¶ 2 be withdrawn.

III. OTHER CLAIM AMENDMENTS

A. Claim 1

Claim 1 has been amended for purposes of clarification. The phrase "the response is receive from the destination node" at the end of the claim has been deleted, and the phrase "received from the destination node" has been inserted following "such that a response."

B. Claims 33 and 34

Though not required by the Examiner, for consistency with claim 28, claims 33 and 34 have been amended to recite "restoring the context information of the layer" rather than "restoring the context."

IV. CONCLUSION

In the course of the foregoing discussions, Applicant may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining

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the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the cited art which have yet to be raised, but which may be raised in the future.

Applicant respectfully requests reconsideration and that a timely Notice of Allowance be issued in this case. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

/David M. Wilson/

David M. Wilson
PTO Reg. No. 56,790
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(713) 238-8008 (Fax)
ATTORNEY FOR APPLICANT

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
Legal Dept., M/S 35
3404 E. Harmony Road
Fort Collins, CO 80528

Electronic Acknowledgement Receipt

EFS ID:	8120234
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	Fault tolerant systems
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David M. Wilson/Colleen Brown
Filer Authorized By:	David M. Wilson
Attorney Docket Number:	200309832-4
Receipt Date:	29-JUL-2010
Filing Date:	02-MAR-2006
Time Stamp:	17:49:20
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (PTO-875)	200309832-4_FEE_TRANS_ROA_051410.pdf	36518 099ba89923d38485c27dd8088dee0c811aeaa013	no	1

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Information:	

2		200309832-4_AMEND_NONFINAL_REJ_051410.pdf	326905 b943159faa2699cd4af7414657fbfc14ce920a3f	yes	14

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	14

Warnings:	
Information:	
Total Files Size (in bytes):	363423

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
Fort Collins, Colorado 80528

PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-4

Inventor(s): Sebastien BOUAT

Application No.: 10/536,625

Filing Date: 03/02/2006

Confirmation No.: 2264

Examiner: Luat Phung

Group Art Unit: 2464

Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

Mail Stop Amendment
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Transmitted herewith is/are the following in the above-identified application:

- [x] Response/Amendment
- [ ] New fee as calculated below
- [x] No additional fee
- [ ] Other _____ Fee$_____
- [ ] Petition to extend time to respond
- [ ] Supplemental Declaration

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY

(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	36	MINUS	36	= 0	X $52	$ 0
INDEP. CLAIMS	6	MINUS	6	= 0	X $220	$ 0
☐ FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ $390	$ 0
EXTENSION FEE	☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730		$ 0
					OTHER FEES	$
					TOTAL ADDITIONAL FEE FOR THIS AMENDMENT	$ 0

Charge $ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Sebastien BOUAT

By: /David M. Wilson/

David M. Wilson

Attorney/Agent for Applicant(s)

Reg No. : 56,790

Date : 07/29/2010

Telephone : (713) 238-8000

Rev 10/09 (E-TransAmd)

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/536,625	Filing Date 03/02/2006	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☒ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	200
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	500

APPLICATION AS AMENDED – PART II

AMENDMENT	07/29/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 36	Minus	** 36	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
//Angela E. Jones//

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node;

selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer;

obtaining, by the computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the outgoing message such that a response, received from the destination node, to the outgoing message contains the obtained context information~~, the response is received from the destination node~~.

2. (Previously presented) The method of claim 1, further comprising adding context information obtained from a different protocol stack layer to the outgoing message.

3. (Previously presented) The method of claim 1, wherein the outgoing message is sent from the node is to a remote node across a network.

4. (Previously presented) The method of claim 1, used with a message-based communications system.

5. (Previously presented) The method of claim 1, wherein the step of obtaining context information obtains context information related to the outgoing message.

6. (Currently amended) The method of claim 1, wherein the step of adding the obtained context information appends the obtained context information to a separate field of the message.

7. (Previously presented) The method of claim 1, for use with a session initiation protocol (SIP) network.

8. (Currently amended) The method of claim 7, wherein the step of adding the obtained context information appends the obtained context information to a SIP TAG field.

9. (Currently amended) The method of claim 7, wherein the step of adding the obtained context information appends the obtained context information to a SIP extension header.

10. (Currently amended) The method of claim 1, further comprising adding, to the message, an indication associated with the obtained context ~~data~~ information where it is determined that the obtained context information ~~data~~ is potentially inaccurate or incomplete.

11. (Currently amended) A method of restoring ~~the~~ context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence, within the message, of context information relevant to the layer ~~within the message~~; and

restoring, by the computing device, the context information of the layer using the context information ~~from~~ within the message.

12. (Previously presented) The method of claim 11, wherein the step of determining determines whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message.

13. (Previously presented) The method of claim 11, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. (Previously presented) The method of claim 11, wherein the step of determining further comprises checking whether the received message is an initial message.

15. (Previously presented) The method of claim 11, used with the session initiation protocol (SIP).

16. (Previously presented) The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP TAG.

17. (Previously presented) The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP extension header.

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18. (Currently amended) A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:

a circuit for providing the outgoing message from an application to a layer of the protocol stack; the outgoing message is destined for an application on a destination node;

means for indicating to the layer of the protocol stack that context information is to be obtained for that layer;

a module for obtaining context information in accordance with the indication;

a circuit for adding the obtained context information to the outgoing message such that a response, received from the destination node, to the outgoing message contains the obtained context information~~, the response is received from the destination node~~.

19. (Previously presented) A system according to claim 18, wherein the node is configured to add context information obtained from a plurality of protocol stack layers to the outgoing message.

20. (Previously presented) A system according to claim 18, wherein the outgoing message is sent from the node to a remote node across a network.

21. (Previously presented) A system according to claim 18, for use with a message-based communications system.

22. (Previously presented) A system according to claim 18, wherein the context information obtained is related to the outgoing message.

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23. (Currently amended) A system according to claim 18, wherein the obtained context information is appended to a separate field of the outgoing message.

24. (Previously presented) A system according to claim 18, for use with a session initiation protocol (SIP).

25. (Original) A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

26. (Original) A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. (Currently amended) A system according to claim 18, wherein an indication associated with the obtained context ~~data~~ information is added to the outgoing message where it is determined that the obtained context ~~data~~ information is potentially inaccurate or incomplete.

28. (Currently amended) A system of restoring ~~the~~ context information of a layer of a protocol stack of a node comprising:

receiving means for receiving a message;

logic for determining whether the context information of the layer is to be restored;

a circuit for determining the presence, within the message, of context information relevant to the layer ~~within the message~~; and

restoration means for restoring the context information of the layer using the context information ~~from~~ within the message.

29. (Previously presented) A system according to claim 28, wherein the logic for determining is configured for determining based in part on the context information of the layer and in part on the received message.

30. (Previously presented) A system according to claim 28, wherein the logic for determining is configured for checking the existence at the layer of context information associated with the received message.

31. (Previously presented) A system according to claim 30, wherein the logic for determining is configured for checking whether the received message is an initial message.

32. (Previously presented) A system according to claim 28, for use with the session initiation protocol (SIP).

33. (Currently amended) A system according to claim 32, wherein the restoration means is configured for restoring the context information of the layer using context information stored in a SIP TAG.

34. (Currently amended) A system according to claim 32, wherein the restoration means is configured for restoring the context information of the layer using context information stored in a SIP TAG.

35. (Currently amended) A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:

indicating to a layer that context information is to be obtained for that layer;

obtaining, by a computing device, context information in accordance with the indication; and

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adding, by the computing device, the obtained context information to the message, such that a response to the message contains the obtained context information needed to restore a pre-switchover context of the layer.

36. (Currently amended) A method of restoring ~~the~~ context information of a layer of a hierarchical structure of discreet layers comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence, within the message, of context information relevant to the layer ~~within the message~~; and

restoring, by the computing device, the context information of the layer using the context information within ~~from~~ the message.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	B-5727PCT 622708-2	2264

22879 7590 05/14/2010

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER	
PHUNG, LUAT	
ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
05/14/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
ipa.mail@hp.com
laura.m.clark@hp.com

Office Action Summary	Application No.	Applicant(s)	
	10/536,625	BOUAT, SEBASTIEN	
	Examiner	Art Unit	
	LUAT PHUNG	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

PROSECUTION REOPENED

1. In view of the Appeal Brief filed on 28 January 2010, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

/Ricky Ngo/

Supervisory Patent Examiner, Art Unit 2464

DETAILED ACTION

Response to Amendment

2. Applicant's arguments filed on 28 January 2010 have been fully considered but they are moot in view of the new ground(s) of rejection.

3. Claims 1-36 are pending.

4. Claims 1-36 are rejected.

Claim Objections

5. Claims 1, 8, 35 and 36 are objected to because of the following informalities:

Claim 1 recites "the message" in line 12, which appears to refer to the preceding "the outgoing message" in lines 11-12, and should be changed accordingly.

Claims 8, 35 and 36 are object to for the same reason set forth in the objection of claim 1 above.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the context information" in line 13. There is insufficient antecedent basis for this limitation in the claim. It's not clear if it refers to "context information" recited in "storing context information" in line 1, "obtaining …

context information" in line 9, or yet another instance of context information. It is noted that line 11 recites "adding … the obtained context information". If the limitation "the context information" in line 13 refers to the same, it should be clarified to recite "the obtained context information". If so, the claim recites obtaining context information, adding the obtained context information in an outgoing message, and receiving a response to the outgoing message, the response contains the same obtained context information; the outgoing message is destined to a destination node, and the response is from the same destination node. In other words, it is claimed that the destination node is to provide a response to a message, the response having the same context information contained in the message. Why?

Claims 2-9 are rejected as being dependent upon a rejected base claim, namely claim 1.

Claim 10 recites the limitation "the obtained context data" in line 2, and "the context data" in line 3. There is insufficient antecedent basis for these limitations in the claim. It's not clear if both limitations refer to context *information* in the obtaining step of claim 1.

Claim 11 recites the limitation "the context information" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the presence of context information relevant to the layer *within the message*" in lines 7-8. It's not clear which is within the message—context information or the layer.

Claim 11 recites the limitation "the context" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites "determining whether the context information of the layer is to be restored based in part on the context information of the layer". If both references to context information are the same, it's not clear how the determining is based on context information that is yet to be restored. It would be logical for context information to be restored *before* it can be used as a basis for determining. Yet the claim recites determining whether context information is to be restored based on the same context information, which has not yet been restored.

Claims 13-17 are rejected as being dependent upon a rejected base claim, namely claim 11.

Claim 18 recites the limitation "the context information" in lines 11-12. There is insufficient antecedent basis for this limitation in the claim. It's not clear if it refers to "context information" recited in "storing context information" in line 1, "obtaining … context information" in line 8, or yet another instance of context information. It is noted that line 10 recites "adding … the obtained context information". If the limitation "the context information" in lines 11-12 refers to the same, it should be clarified to recite "the obtained context information". See similar discussion in claim 1 above.

Claims 19-26 are rejected as being dependent upon a rejected base claim, namely claim 11.

Claim 27 recites the limitation "the obtained context data" in line 2, and "the context data" in line 3. There is insufficient antecedent basis for these limitations in the

claim. It's not clear if both limitations refer to context *information* in the module for obtaining context information of claim 18.

Claim 28 recites the limitation "the context information" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 28 recites the limitation "the presence of context information relevant to the layer *within the message*" in lines 6-7. It's not clear which is within the message—context information or the layer.

Claim 28 recites the limitation "the context" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 is rejected for the same reason set forth in the rejection of claim 12 above.

Claims 30-34 are rejected as being dependent upon a rejected base claim, namely claim 28.

Claims 35 and 36 are rejected for the same reason set forth in the rejection of claim 1 above.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2464

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S132	299	(switch$1over or fail$1over) near10 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:45
S133	17	S132 near10 (stack or layer or level)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:45
S134	13	S133 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:45
S135	299	(switch$1over or fail$1over) near10 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:46
S137	17	S135 near10 (stack or layer or level)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S138	38	S135 same (stack or layer or level)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S139	1396	714/2.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S140	474	714/3.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S141	785	714/10.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47

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S142	928	714/11.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S143	1265	"370/242".CCLS.	US-PGPUB; USPAT	ADJ	ON	2010/05/08 19:47
S144	4581	S143 or S139 or S140 or S141 or S142	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S145	17	S144 and S132	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 19:47
S146	62	(switch$1over or fail$1over) same (protocol or layer or level or stack) with (state or status) with (call or transaction)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 21:55
S147	36	S146 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2010/05/08 21:55

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2464

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/29/2009	09/13/2009	05/08/2010						
	1	✓	✓	✓						
	2	✓	✓	✓						
	3	✓	✓	✓						
	4	✓	✓	✓						
	5	✓	✓	✓						
	6	✓	✓	✓						
	7	✓	✓	✓						
	8	✓	✓	✓						
	9	✓	✓	✓						
	10	✓	✓	✓						
	11	✓	✓	✓						
	12	✓	✓	✓						
	13	✓	✓	✓						
	14	✓	✓	✓						
	15	✓	✓	✓						
	16	✓	✓	✓						
	17	✓	✓	✓						
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	30	✓	✓	✓						
	31	✓	✓	✓						
	32	✓	✓	✓						
	33	✓	✓	✓						
	34	✓	✓	✓						
	35	✓	✓	✓						
	36	✓	✓	✓						

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2464

SEARCHED			
Class	Subclass	Date	Examiner
370	342	3/29/2009	LP
714	2, 3, 10, 11		
Updated	above	9/12/2009	LP
Updated	above	5/8/2010	LP

SEARCH NOTES		
Search Notes	Date	Examiner
Inventorship search	3/29/2009	LP
Web search		
EAST search		
Consulted with SPE Ricky Ngo	9/8/2009	LP
Updated EAST search	9/12/2009	LP
Consulted with SPE Ricky Ngo	4/22/2010	LP
Consulted with primary examiner Ian Moore	4/22/2010	LP
Updated web search	5/8/2010	LP
Updated EAST search	5/8/2010	LP

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Sebastien BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2416
Filed:	March 02, 2006	§	Examiner:	Luat Phung
For:	Improvements In or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: January 28, 2010

Sir:

Appellant hereby submits this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on December 18, 2009.

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I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, L.P. (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). The Assignment to HPDC was recorded on March 2, 2006, at Reel/Frame 017311/0966.

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II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

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III. STATUS OF THE CLAIMS

Originally filed claims:	1-36.
Claim cancellations:	None.
Added claims:	None.
Presently pending claims:	1-36.
Presently allowed claims:	None.
Presently appealed claims:	1-36.

IV. STATUS OF THE AMENDMENTS

No claims were amended after the final Office action dated September 18, 2009.

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V. SUMMARY OF THE CLAIMED SUBJECT MATTER

This section provides a concise explanation of the subject matter defined in each of the independent claims, referring to the specification by page and line number or to the drawings by reference characters as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified with a corresponding reference to the specification or drawings where applicable. The specification references are made to the application as filed by Appellant. Note that the citation to passages in the specification or drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element. Also note that these specific references are not exclusive; there may be additional support for the subject matter elsewhere in the specification and drawings.

Many critical systems, such as telecommunications networks, have essential elements which are required to function with downtime of no more than a few minutes per year.[1] To achieve this, critical systems are often designed to be fault tolerant, such that a fault or failure of a system or component of a system does not cause significant disruption to the services provided thereby.[2] Such systems are often referred to as high-availability (HA) systems.[3]

A system may be arranged to be high-availability in a number of different ways, for example, through use of an active and standby system, or using a cluster of servers.[4] With an active/standby system, on detection of a fault by the active system, a switchover of the active and standby systems occurs such that the standby system becomes the active system, and vice versa.[5] In this way,

[1] P. 1, lines 1-4.

[2] P. 1, lines 4-7.

[3] P. 1, line 7.

[4] P. 1, lines 16-17.

[5] P. 1, lines 18-20.

services are restored, albeit, potentially, after a short delay, once the switchover has occurred.[6]

Different levels of high-availability exist which may be split into two broad categories, referred to herein as 'service continuity' and 'task preservation'.[7] Service continuity refers to the ability to continue to use the services provided by a system after a fault or switchover of a high-availability system, whereas task preservation, a higher level of high-availability, refers to the ability for tasks being processed when a fault or switchover occurs to be largely unaffected by the switchover.[8]

In order to provide task preservation, a common storage element is often provided in addition to a high-availability configuration.[9] Context data relating to each task is stored in the common storage area, and may be used in the event of a switchover for reinitializing the new active system with the context of any tasks which were in progress when the switchover occurred.[10] Telephony system context information may relate to the state of different protocol layers of a protocol stack as well as any application specific data related to individual calls.[11] Upon a switchover to a standby system, the newly activated system can recover the stored context data from the common storage element and rebuild the protocol stack and application context for calls open at the time of the switchover.[12] In this way, processing of calls open at the time of a switchover may continue on the new active system without significant interruption.[13]

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[6] P. 1, lines 20-22.

[7] P. 1, lines 24-25.

[8] P. 1, lines 25-29.

[9] P. 2, lines 5-6.

[10] P. 2, lines 6-9.

[11] P. 2, lines 11-13.

[12] P. 2, lines 13-15.

[13] P. 2, lines 16-17.

However, the requirement for a common storage area for storing context data adds to the complexity and cost of such systems.[14]

Appellant has devised a method for storing context information in an outgoing message sent from a HA node using a protocol stack.[15] A different node receiving the message will include the context information in a response to the HA node.[16] If a switchover of the HA node has occurred the HA node will have no context information related to the response, and will restore its context from the message.[17] Thus, the need for a common storage is is alleviated.

The invention of claim 1 is directed to a method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer.[18] The method includes providing, by the computing device, the outgoing message from an application to a layer of the protocol stack.[19] The outgoing message is destined for an application on a destination node.[20] The method also includes selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer.[21] Context information in accordance with the indication is obtained by the computing device.[22] The obtained context information is added to the outgoing message,[23] by the computing device, such that a

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[14] P. 2, lines 19-20.

[15] P. 2, lines 25-26.

[16] P. 10, lines 1-3.

[17] P. 10, lines 21-32.

[18] Figs. 4-5.

[19] Fig. 5 500, p. 9, lines 17-29.

[20] P. 8, lines 23-25.

[21] P. 2, lines 27-28; p. 8, lines 31-32.

[22] Fig. 5 506; p. 9, lines 18-19.

[23] Fig. 5 508; p. 9, lines 19-20.

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response to the message contains the context information.[24] The response is received from the destination node.[25]

The invention of claim 11 is directed to a method of restoring the context information of a layer of a protocol stack of a node.[26] The method includes receiving a message by a computing device.[27] Whether the context information of the layer is to be restored is determined by the computing device.[28] Where it is so determined, the presence of context information relevant to the layer within the message is determined by the computing device,[29] and the context of the layer is restored, by the computing device, using context information from the message.[30]

The invention of claim 18 is directed to a system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer.[31] The system includes a circuit for providing the outgoing message from an application to a layer of the protocol stack.[32] The outgoing message is destined for an application on a destination node.[33] The system also includes means for indicating to the layer of the protocol stack that context information is to be obtained for that layer.[34] The system further includes a module for obtaining context information in accordance with the

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[24] P. 10, lines 1-3.

[25] P. 10, lines 1-3.

[26] Figs. 4, 6.

[27] Fig. 6 600; p. 10, lines 10-12.

[28] Fig. 6 602; p. 10, lines 14-25.

[29] Fig. 6 606; p. 10, lines 25-27.

[30] Fig. 6 608, 610; p. 10, lines 29-32.

[31] Figs. 4-5.

[32] Fig. 5 500, p. 9, lines 17-29; p. 12, lines 32-34.

[33] P. 8, lines 23-25.

[34] P. 12, lines 32-34, "programmed computing device, electronic circuitry." P. 8, lines 31-32.

indication.[35] The system yet further includes a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.[36] The response is received from the destination node.[37]

The invention of claim 28 is directed to a system of restoring the context information of a layer of a protocol stack of a node.[38] The system includes receiving means for receiving a message.[39] The system also includes logic for determining whether the context information of the layer is to be restored.[40] The system further includes a circuit for determining the presence of context information relevant to the layer within the message.[41] The system yet further includes restoration means for restoring the context of the layer using context information from the message.[42]

The invention of claim 35 is directed to a method of sending a message from a node through a hierarchical structure of one or more discreet layers.[43] The method includes indicating to a layer that context information is to be obtained for that layer.[44] Context information in accordance with the indication is obtained by a computing device.[45] The obtained context information is added to the message by the computing device,[46] such that a response to the

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[35] Fig. 5 506; p. 9, lines 18-19.

[36] P. 4, lines 10-11; Fig. 5 508; p. 9, lines 19-20; P. 10, lines 1-3; p. 12, lines 32-34.

[37] P. 10, lines 1-3.

[38] Figs. 4, 6.

[39] P. 12, lines 32-34, "programmed computing device, electronic circuitry." Fig. 6 600; p. 10, lines 10-12.

[40] P. 4, lines 31-32; Fig. 6 602; p. 10, lines 14-25; p. 12, lines 32-34.

[41] Fig. 6 606; p. 10, lines 25-27; p. 12, lines 32-34.

[42] P. 12, lines 32-34, "programmed computing device, electronic circuitry." Fig. 6 608, 610; p. 10, lines 29-32.

[43] Figs. 4-5.

[44] P. 2, lines 27-28; p. 8, lines 31-32; p. 9, lines 17-18.

[45] Fig. 5 506; p. 9, lines 18-19.

[46] Fig. 5 508; p. 9, lines 19-20.

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message contains context information needed to restore a pre-switchover context of the layer.[47]

The invention of claim 36 is directed to a method of restoring the context information of a layer of a hierarchical structure of discreet layers.[48] The method includes receiving a message by a computing device.[49] Whether the context information of the layer is to be restored is determined by the computing device.[50] Where it is so determined, the presence of context information relevant to the layer within the message is determined by the computing device,[51] and the context of the layer is restored by the computing device using context information from the message.[52]

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[47] P. 10, lines 1-3, lines 21-32.

[48] Figs. 4, 6.

[49] Fig. 6 600; p. 10, lines 10-12.

[50] Fig. 6 602; p. 10, lines 14-25.

[51] Fig. 6 606; p. 10, lines 25-27.

[52] Fig. 6 608, 610; p. 10, lines 29-32.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 2, 4-6, 10-14, 18, 19, 21-23, 27, 35 and 36 are obvious over Iyer et al. (U.S. Pub. No. 2004/0088418, hereinafter "Iyer"), in view of Ho et al. (U.S. Pat. No. 6,910,148, hereinafter "Ho").

Whether claims 3, 7-9, 15-17, 20 and 24-26 are obvious over Iyer in view of Ho, and further in view of Lau et al. (U.S. Pub. 2003/0046604, hereinafter "Lau") or Vasavada et al. (U.S. Pub. No. 2004/0078619, hereinafter "Vasavada").

Whether claims 28-31 are obvious over Iyer.

Whether claims 32-34 are obvious over Iyer, in view of Lau or Vasavada.

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VII. ARGUMENT

A. Rejections Under 35 U.S.C. § 103 over Iyer and Ho

1. Claim 1

Independent claim 1 requires "adding, by the computing device, the obtained context information to the outgoing message." The "obtained context information" is obtained in accordance with a selective indication "to the layer of the protocol stack that context information is to be obtained for that layer."[53] The "outgoing message" is provided from an application and destined for an application of a destination node."[54] The Examiner cited Iyer Figs. 4-5 and ¶¶ 44-46 and 60 as allegedly teaching these limitations. Iyer is directed to implementing socket redundancy.[55] Iyer teaches creation of a redundant socket on a standby side that becomes active should the active side fail.[56]

Iyer Fig. 4 shows a block diagram of an architecture for socket redundancy.[57] Each of primary side 402 and standby side 404 include an application, socket library, and socket layer.

Iyer Fig. 5 shows a socket control redundancy procedure.[58]

Iyer ¶¶ [0044]-[0046] teach redundancy procedure operation in accordance with the architecture of Fig. 4. More specifically, Iyer ¶ [0044] teaches an "[a]pplication 405 . . . performs an open socket operation using socket library 410." Thereafter, the application sets parameters of the opened socket via a set socket operation.[59] One of the available parameters sets the socket to be redundant.[60] When the socket layer 415 receives the redundancy parameter, "[t]he socket layer . . . sends a message with the socket parameters

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[53] Claim 1.

[54] *Id.*

[55] *Iyer*, ¶ [0007].

[56] *Iyer*, Abstract.

[57] *Iyer*, ¶ [0014].

[58] *Iyer*, ¶ [0072].

[59] *Iyer*, ¶ [0044].

[60] *Id.*

to the standby socket layer 430."[61] In response to the message sent by the socket layer 415, socket layer 430 creates a socket.[62] Thus, Iyer ¶ [0044] teaches an application 405 setting a socket to be redundant.[63] The socket layer 415 then creates and sends a message to the standby side 404 causing the standby side 404 to create a socket.[64]

Iyer ¶ [0045] teaches that the application 405 obtains the cookie sent to socket layer 430 by socket layer 415 and sends the cookie to application 420. Application 430 may thereafter perform a set socket operation to complete association with the active side.[65]

Iyer ¶ [0046] teaches that "[o]nce socket association has been performed successfully, all new socket control operations . . . are automatically transferred to the standby by the socket layer 415."

Iyer ¶ [0060] teaches that data redundancy may start once control redundancy is established.

These passages of Iyer teach the creation of a redundant socket by various messages sent from primary side 402 to standby side 402. For example: socket creation message from socket layer 415 to socket layer 430, responsive ACK from socket layer 430 to socket layer 415, cookie from application 405 to application 420 and responsive ACK. The passages further teach maintenance of the redundancy by control transfer.

None of the cited passages of Iyer, or any other portion of Iyer teach or suggest that context of a selected protocol layer is added to an outgoing message sent from an application on a node to an application on a destination node. The Examiner contended that "all socket operations, i.e., context information at socket layer, are automatically transferred by socket layer, i.e.,

---

[61] *Id.*

[62] *Id.*

[63] *Id.*

[64] *Id.*

[65] *Iyer*, ¶ [0045].

computing device, to the standby node."[66] However, while Iyer does teach that "all new socket control operations . . . are transferred," such teaching does not suggest that any protocol layer context is added to an inter-application message. Ho fails to satisfy this deficiency of Iyer.

The Examiner admitted that Iyer fails to teach that "a response to the message contains the context information [added to the outgoing message], the response is received from the destination node." The Examiner proposed that because Iyer teaches redundancy and switchover from active to standby sides on failure of the active side, "it would have been obvious . . . to send a response from the standby node when a failure is detected at the active node, the response containing context information of the socket layer, the context information being restored prior to the switchover, to ensure data redundancy with the active-turned-standby node."[67] However, Iyer fails to teach or even suggest returning context or any message to a failed (i.e., an active-turned-standby) node. Iyer further fails to teach or suggest using a failed node as a standby node, or even suggest that a failed node is capable of operating as a standby node or receiving a response. Moreover, the Examiner admitted that Iyer fails to teach a response including context, much less a response including context contained in the message to which the standby side is responding. For at least these reasons, Appellant respectfully submits that one skilled in the skilled in art of high availability system design would not have performed the claimed operation based on the disclosure of Iyer. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness.

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[66] *Final Office Action*, p. 9.

[67] *Final Office Action*, p. 10.

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The Examiner further proffers Ho as teaching the context including message response that Iyer lacks.[68] Ho teaches an active card 910 and a standby card 950 in node 104.[69] If the active card 910 fails, the standby card 950 resumes protocol sessions with peer nodes.[70] Routing protocol information is replicated from active card 910 to standby card 950.[71]

Ho Fig. 28 and associated text at col. 30, line 45 to col. 31, line 4, cited by the Examiner, teach bulk updating for BGP protocol redundancy by replicating databases from the active card 910 to the standby card 950. The Examiner contended that "it would have been obvious . . . to replicate the databases, by sending a message containing context information previously received as suggested by Ho, in the redundancy system of Iyer in order to implement a graceful switchover to ensure high availability."[72]

Ho teaches replication of active card 910 databases in a standby card 950. Thus, the active card 910 sends previously received routing information to the standby card 950. Iyer teaches the active side automatically transfers control operations to the standby side. Neither Ho nor Iyer teach or even suggest "a response to the message contains the context information" received in the message. The Examiner apparently proposes that sending a second message containing information previously received in a first message is "a response to the [first] message." If this is the case, Appellant respectfully disagrees, as a "response" is commonly known to be "a reply or answer."[73] Neither Iyer nor Ho teaches or suggests such operations. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness.

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[68] *Id.*

[69] *Ho*, Fig. 4A.

[70] *Ho*, col. 6, lines 21-29.

[71] *E.g.*, *Ho*, col. 8, lines 49-53.

[72] *Final Office Action*, p. 10.

[73] THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE, 4th Ed., ©2000.

For the aforementioned reasons, no combination of Iyer and Ho teach or suggests the limitations of independent claim 1. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 1 and claims 2, 4-6, and 10 depending from claim 1, and respectfully requests that the claims be set for issue.

2. Claim 18

Independent claim 18 includes limitations similar to those of claim 1 explained above. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 18 and claims 19, 21-23, and 27 for much the same reasons as are given above regarding claim 1.

3. Claim 35

Independent claim 35 includes limitations similar to those of claim 1 explained above, and further requires that "a response to the message contains context information needed to restore a pre-switchover context of the layer." As explained above, neither Iyer nor Ho, nor any combination of Iyer and Ho teach a response to the message including context information. For at least this reason, and other reasons given with regard to claim 1, Appellant respectfully submits that the Examiner erred in rejecting claim 35, and respectfully request that claim 35 be set for issue.

4. Claim 11

Independent claim 11 requires "determining, by the computing device, whether the context information of the layer is to be restored." The Examiner cited Iyer ¶ [0054] as allegedly teaching these limitations. Iyer ¶ [0054] teaches switchover before the connection is established. However, switchover as taught by Iyer does not involve restoring the context information of a layer of a protocol stack of a node, but rather involves activation of a previously initialized socket of a node. Consequently, Iyer does not teach or even suggest "determining . . . whether the context information of the layer is to be restored." Iyer does not teach restoring a protocol stack layer, instead Iyer teaches the standby side 404

is previously initialized and ready to "seamlessly take over the socket operations."[74] Ho fails to satisfy this deficiency of Iyer.

Claim 11 also requires "determining, by the computing device, the presence of context information relevant to the layer within the message." The Examiner again cited Iyer ¶ [0054] as allegedly teaching these parameters. The Examiner apparently equates the Iyer error code ESWITCHOVER with "context information relevant to the layer within the message." However, the error code is not protocol layer context information, but rather an indication that the standby side should become active. Thus, Iyer fails to teach or even suggest "determining . . . the presence of context information relevant to the layer within the message." Ho fails to satisfy this deficiency of Iyer.

Claim 11 further requires "restoring, by the computing device, the context of the layer using context information from the message." The Examiner cited Iyer ¶¶ [0046], [0054], [0060], and [0063] as allegedly teaching these limitations. The cited portions of Iyer teach switchover from active side 402 to standby side 404. However, Iyer switchover does not restore the context layer of a node, but rather activates a pre-initialized standby side 404 to take over for a failed active side 402. Moreover, initiating the TCP state machine as taught in Iyer ¶ [0054] is not restoring context to a protocol layer using context information from the received message, but merely resetting the state machine.

In lieu of Iyer, the Examiner cites Ho as teaching each of the above limitations. The Examiner refers to the Ho switchover process and cited Ho Fig. 9 item 950, Fig. 12 items 1208, 1212, and col. 19, lines 11-33 as allegedly teaching these limitations. Ho Fig. 12 and associated text at col. 19, lines 11-33 teach graceful switchover from active card 910 to standby card 950. Like Iyer, when Ho switches over, the standby card 950 is activated to take over the functions of the active card 910. However, Ho fails to teach or even suggest "determining . . . whether the context information of the layer is to be restored." Instead, Ho teaches determining whether a switchover should be performed,

[74] *Iyer*, ¶ [0009].

where the standby card 950 includes a replica of the active card's databases.[75] No node's protocol layer context is restored. Instead of restoring context information in a card, Ho simply enables the standby card 950 to use the BGP and TCP routing information already stored in the standby card 950.

Ho also fails to teach or suggest "determining . . . the presence of context information relevant to the layer within the message." The Examiner pointed out that the active card 910 informs the standby card 950 to activate.[76] However, Ho fails to teach or suggest that any such message includes protocol layer context information.

Ho further fails to teach or suggest "restoring . . . the context of the layer using context information from the message." As explained above Ho teaches implementing high availability by maintaining a replica of the TCP and BGP databases in a standby card 950. No restoration of context is necessary in Ho, because the standby card 950 includes the replica databases.

For the aforementioned reasons, no combination of Iyer and Ho teach or suggests the limitations of independent claim 11. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 11 and claims 12-14 depending from claim 11, and respectfully requests that the claims be set for issue.

5. Claim 36

Independent claim 36 includes limitations similar to those of claim 11 explained above. Ho fails to satisfy these deficiencies of Iyer. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 36 for much the same reasons as are given above regarding claim 11.

6. Claims 5 and 22

Claims 5 requires "the step of obtaining context information obtains context information related to the outgoing message." Claim 22 includes similar limitations. The Examiner cited Iyer ¶¶ [0046] and [0063] as allegedly teaching

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[75] *Ho*, col. 2, lines 45-60.

[76] *Final Office Action*, p. 12.

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these limitations. Iyer ¶ [0046] teaches transferring control operations to the standby side. Such transfer does not teach or suggest sending an outgoing message from application to application and obtaining context information related to the message. Instead, the transfer is a control message. No obtaining of context related to the control message is taught or suggested.

Iyer ¶ [0063] teaches switchover, indicating that the standby side is capable of taking over active side operations. This does not imply, however, that the active side obtains context information related to an outgoing message and adds the context to the message. Instead, Iyer teaches that the sockets are synchronized by way of the control transfers of ¶ [0046].

Ho fails to satisfy these deficiencies of Iyer. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 5 and 22.

7. Claims 10 and 27

Claim 10 requires "adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete." Claim 27 includes similar limitations. The Examiner cited Ho, col. 21, lines 16+, and col. 22, lines 21+ as allegedly teaching these limitations. The cited portions of Ho teach the use of negative and positive acknowledgement on transactions between the active card 910 and the standby card 950. However, an acknowledgement transmitted in response to a message is not adding to a message an indication that context information in the message is potentially inaccurate or incomplete, but rather a different separate message communicating status of operations associated with receipt of the message. A message and an acknowledgement are transmitted from different sources and communicate different information.

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Iyer fails to satisfy these deficiencies of Ho. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 10 and 27.

8. Claim 12

Claim 12 requires the "step of determining determines whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message." The Examiner cited Iyer ¶¶ [0044] and [0050]-[0054] as allegedly teaching these limitations. With regard to the "step of determining," the Examiner cited the ESWITCHOVER error code.[77] Iyer ¶¶ [0050-54] teach "connect" operations. Iyer ¶ [0054] teaches that if a switchover is detected before connection "the application 420 calls connect . . . to initiate the TCP state machine." Thus, the operations of Iyer ¶ [0054] are predicated on prior connection establishment rather than "context information of the layer" as required by claim 29.

Iyer ¶ [0044] teaches establishing a redundant socket, and fails to teach or suggest determining whether a protocol layer is to be restored based on the context information of the layer.

Ho fails to satisfy these deficiencies of Iyer. For at least these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claim 29.

9. Claim 13

Claim 13 requires the step of determining further comprises checking the existence at the layer of context information associated with the received message." The Examiner cited Iyer ¶¶ [0044] and [0050]-[0054], explained above, as allegedly teaching these limitations. Iyer ¶ [0044] fails to teach or suggest checking for the existence of context information at the layer" as part of determining whether layer context should be restored. Moreover, determining whether a connection has been established[78] does not involve checking for the

[77] *Final Office Action*, p. 15.

[78] *Iyer*, ¶ [0054].

existence of context information. For at least these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claim 30.

10. Claim 14

Claim 14 requires "the step of determining further comprises checking whether the received message is an initial message." The Examiner cited Iyer ¶¶ [0044]-[0045] as allegedly teaching these limitations. Nothing in the cited portion of Iyer teaches or suggests determining whether the received message is an initial message, but rather merely teach various messages transferred between active and standby sides as part of socket setup and associated operations. No determination of whether a message is an "initial message" is taught. For at least this additional reason, Appellant respectfully submits that the Examiner erred in rejecting claim 31.

B. Rejections Under 35 U.S.C. § 103 Over Iyer, Ho, and Lau or Vasavada

Claims 3, 7-9, 15-17, 20 and 24-26 each depend from one of claims 1, 11, and 18. Neither Lau nor Vasavada satisfy the deficiencies of Iyer and Ho explained above with regard to claims 1, 11, and 18. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claims 3, 7-9, 15-17, 20 and 24-26 for much the same reasons as given above with regard to the respective independent claims.

1. Claims 3 and 20

Claims 3 and 20 require "the outgoing message is sent from the node to a remote node across a network." The Examiner admitted that Iyer and Ho fail to teach these limitations.[79] The Examiner cited Lau ¶ [0024] as allegedly teaching these limitations. Lau ¶ [0024] teaches a "[s]tandby MPLS control card 14 is removably coupled to router 11." As shown in Lau Fig. 1, the standby MPLS control card 14 is part of the router 11. Thus, Lau fails to teach or even suggest "the outgoing message is sent from the node to a remote node." For this

[79] *Final Office Action*, p. 13.

additional reason, Appellant respectfully submits that the Examiner erred in rejecting claims 3 and 20.

2. Claims 7, 15, and 24

Claims 7 and 24 require "use with a session initiation protocol (SIP) network." Claim 15 includes similar limitations. The Examiner admitted that Iyer and Ho fail to teach these limitations.[80] The Examiner cited Lau and Vasavada as teaching MPLS and IS-IS protocols.[81] The Examiner postulated that these protocols make use of the SIP protocol obvious.[82]

> *Graham v. John Deere Co. of Kansas City,* 383 U.S. 1, 17-18, 86 S.Ct. 684, 15 L.Ed.2d 545, set out an objective analysis for applying § 103: "[T]he scope and content of the prior art are ... determined; differences between the prior art and the claims at issue are ... ascertained; and the level of ordinary skill in the pertinent art resolved.[83]

Here, the Examiner has admitted that Iyer and Ho fail to teach the limitations of the present claims, and has failed show any such teaching in Lau and Vasavada. Thus, the prior art presented fails to teach or suggest use of SIP. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 7, 15, and 24.

3. Claims 8, 16, and 25

Claim 8 requires "the step of adding the obtained context information appends the context information to a SIP TAG field." Claim 25 includes similar limitations. Claim 16 requires "the step of restoring the context of the layer

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[80] *Final Office Action*, p. 14.

[81] *Final Office Action*, p. 14 (the Examiner neglected to cite any particular passages of Lau or Vasavada). "[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 USPQ.2d 1461, 1462 (Bd. Pat. App. & Int'f 1990).

[82] *Final Office Action*, p. 14.

[83] *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 399 (2007).

restores the context using context information stored in a SIP TAG." The Examiner admitted that Iyer and Ho fail to teach these limitations.[84] The Examiner cited Lau and Vasavada as teaching MPLS and IS-IS protocols.[85] The Examiner postulated that these protocols make appending context to a SIP TAG field, and restoring context using information stored in a SIP TAG field obvious.[86]

The Examiner has admitted that Iyer and Ho fail to teach storing/restoring context in/from a SIP TAG field, and has failed show any such teaching in Lau and Vasavada. Thus, the prior art presented fails to teach or suggest such use of a SIP TAG field. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 8, 16, and 25.

4. Claims 9, 17, and 26

Claim 9 requires "the step of adding the obtained context information appends the context information to a SIP extension header." Claim 26 includes similar limitations. Claim 17 requires "the step of restoring the context of the layer restores the context using context information stored in a SIP extension header." The Examiner admitted that Iyer and Ho fail to teach these limitations.[87] The Examiner cited Lau and Vasavada as teaching MPLS and IS-IS protocols.[88] The Examiner postulated that these protocols make appending context to a SIP

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[84] *Final Office Action*, p. 14.

[85] *Final Office Action*, p. 14 (the Examiner neglected to cite any particular passages of Lau or Vasavada). "[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 USPQ.2d 1461, 1462 (Bd. Pat. App. & Int'f 1990).

[86] *Final Office Action*, p. 14.

[87] *Final Office Action*, p. 14.

[88] *Final Office Action*, p. 14 (the Examiner neglected to cite any particular passages of Lau or Vasavada). "[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 USPQ.2d 1461, 1462 (Bd. Pat. App. & Int'f 1990).

extension header, and restoring context using information stored in a SIP extension header obvious.[89]

The Examiner has admitted that Iyer and Ho fail to teach storing/restoring context in/from a SIP extension header, and has failed show any such teaching in Lau and Vasavada. Thus, the prior art presented fails to teach or suggest such use of a SIP extension header. Therefore, Appellant respectfully submits that the Examiner has failed to state a prima facie case of obviousness. For these additional reasons, Appellant respectfully submits that the Examiner erred in rejecting claims 9, 17, and 26.

C. Rejections Under 35 U.S.C. § 103 Over Iyer

1. Claim 28

Independent claim 28 includes limitations similar to those of claim 11 explained above. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claim 28 and claims 29-31 depending from claim 28 for much the same reasons as are given above regarding claim 11.

2. Claims 29-31

Claims 29-31 respectively include limitations similar to those of claims 12-14 explained above. Therefore, Appellant respectfully submits that the Examiner erred in rejecting claims 29-31 for much the same additional reasons as are given above with regard to claims 12-14.

D. Rejections Under 35 U.S.C. § 103 Over Iyer, and Lau or Vasavada

Claims 32-34 respectively include limitations similar to the limitations of claim 15-17 explained above. Therefore, Appellant respectfully submits that the Examiner erred n rejecting claims 32-34 for much the same additional reasons as are given above with regard to claims 15-17.

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[89] *Final Office Action*, p. 14.

E. Conclusion

For the reasons stated above, Appellant respectfully submits that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

/David M. Wilson/

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VIII. CLAIMS APPENDIX

1. A method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node;

selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer;

obtaining, by the computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the outgoing message such that a response to the message contains the context information, the response is received from the destination node.

2. The method of claim 1, further comprising adding context information obtained from a different protocol stack layer to the outgoing message.

3. The method of claim 1, wherein the outgoing message is sent from the node is to a remote node across a network.

4. The method of claim 1, used with a message-based communications system.

5. The method of claim 1, wherein the step of obtaining context information obtains context information related to the outgoing message.

6. The method of claim 1, wherein the step of adding the obtained context information appends the context information to a separate field of the message.

7. The method of claim 1, for use with a session initiation protocol (SIP) network.

8. The method of claim 7, wherein the step of adding the obtained context information appends the context information to a SIP TAG field.

9. The method of claim 7, wherein the step of adding the obtained context information appends the context information to a SIP extension header.

10. The method of claim 1, further comprising adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete.

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11. A method of restoring the context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; and

restoring, by the computing device, the context of the layer using context information from the message.

12. The method of claim 11, wherein the step of determining determines whether the context information of the layer is to be restored based in part on the context information of the layer and in part on the received message.

13. The method of claim 11, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. The method of claim 11, wherein the step of determining further comprises checking whether the received message is an initial message.

15. The method of claim 11, used with the session initiation protocol (SIP).

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16. The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP TAG.

17. The method of claim 15, wherein the step of restoring the context of the layer restores the context using context information stored in a SIP extension header.

18. A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:

a circuit for providing the outgoing message from an application to a layer of the protocol stack; the outgoing message is destined for an application on a destination node;

means for indicating to the layer of the protocol stack that context information is to be obtained for that layer;

a module for obtaining context information in accordance with the indication;

a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information, the response is received from the destination node.

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19. A system according to claim 18, wherein the node is configured to add context information obtained from a plurality of protocol stack layers to the outgoing message.

20. A system according to claim 18, wherein the outgoing message is sent from the node to a remote node across a network.

21. A system according to claim 18, for use with a message-based communications system.

22. A system according to claim 18, wherein the context information obtained is related to the outgoing message.

23. A system according to claim 18, wherein the obtained context information is appended to a separate field of the message.

24. A system according to claim 18, for use with a session initiation protocol (SIP).

25. A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

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26. A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. A system according to claim 18, wherein an indication associated with the obtained context data is added to the message where it is determined that the context data is potentially inaccurate or incomplete.

28. A system of restoring the context information of a layer of a protocol stack of a node comprising:

receiving means for receiving a message;

logic for determining whether the context information of the layer is to be restored;

a circuit for determining the presence of context information relevant to the layer within the message; and

restoration means for restoring the context of the layer using context information from the message.

29. A system according to claim 28, wherein the logic for determining is configured for determining based in part on the context information of the layer and in part on the received message.

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30. A system according to claim 28, wherein the logic for determining is configured for checking the existence at the layer of context information associated with the received message.

31. A system according to claim 30, wherein the logic for determining is configured for checking whether the received message is an initial message.

32. A system according to claim 28, for use with the session initiation protocol (SIP).

33. A system according to claim 32, wherein the restoration means is configured for restoring the context using context information stored in a SIP TAG.

34. A system according to claim 32, wherein the restoration means is configured for restoring the context using context information stored in a SIP TAG.

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35. A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:

indicating to a layer that context information is to be obtained for that layer;

obtaining, by a computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the message, such that a response to the message contains context information needed to restore a pre-switchover context of the layer.

36. A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer is to be restored; and,

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; and

restoring, by the computing device, the context of the layer using context information from the message.

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IX. EVIDENCE APPENDIX

None.

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X. RELATED PROCEEDINGS APPENDIX

None.

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Electronic Acknowledgement Receipt

EFS ID:	6904028
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	Fault tolerant systems
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David M. Wilson/Colleen Brown
Filer Authorized By:	David M. Wilson
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Receipt Date:	28-JAN-2010
Filing Date:	02-MAR-2006
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Application Type:	U.S. National Stage under 35 USC 371

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (PTO-875)	200309832-4_FEE_TRANS_AB_FOA_091809.pdf	34917 bbff9073baee6974df62e43aa8e98a9fe6e3cfb6	no	1

Warnings:	
Information:	

2	Appeal Brief Filed	200309832-4_APPEAL_BRIEF_FOA_091809.pdf	380347 8b65b3e44e95aad72a23b7c6e47a5cd200e14798	no	38
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			Total Files Size (in bytes):	415264	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

HEWLETT-PACKARD COMPANY
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PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-4

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Sebastien BOUAT	Confirmation No.:	2264
Application No.:	10/536,625	Examiner:	Luat Phung
Filing Date:	03/02/2006	Group Art Unit:	2416

Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 12/18/2009.

☒ The fee for filing this Appeal Brief is $540.00 (37 CFR 41.20).

☐ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 540. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,
Sebastien BOUAT

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Rev 10/09 (E-AplBrief)

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HEWLETT-PACKARD COMPANY
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P.O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Sebastien BOUAT

Confirmation No.: 2264

Application No.: 10/536,625

Examiner: Luat Phung

Filing Date: 03/02/2006

Group Art Unit: 2416

Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the examiner date, 09/18/2009, rejecting the following claims 1-36.

☒ The fee for filing this Notice of Appeal is $540.00 (37 CFR 41.20).

☐ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.13 6(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (FEES: 37 CFR 1.17 (a)-(d) for the total number of months checked below:

☐ 1st Month $130 ☐ 2nd Month $490 ☐ 3rd Month $1110 ☐ 4th Month $1730

☐ The extension fee has already been filed in this application

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **08-2025** the sum of $ 540.00. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **08-2025** pursuant to 37 CRF 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Sebastien BOUAT

By: /David M. Wilson/

David M. Wilson

Attorney/Agent for Applicant(s)

Reg No. : 56,790

Date : 12/18/2009

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Rev 05/09 (E-NoteAppeal)

Electronic Acknowledgement Receipt	
EFS ID:	6672392
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	Fault tolerant systems
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David M. Wilson/Colleen Brown
Filer Authorized By:	David M. Wilson
Attorney Docket Number:	B-5727PCT 622708-2
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Filing Date:	02-MAR-2006
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Application Type:	U.S. National Stage under 35 USC 371

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1	Notice of Appeal Filed	200309832-4_NOT_APPEAL_FOA_091809.pdf	31791 c967eabf2ea1eb7ac36ec23bf2b7706b6fbcb358	no	1

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Total Files Size (in bytes):	31791

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Document code: WFEE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	B-5727PCT 622708-2	2264

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EXAMINER	
PHUNG, LUAT	
ART UNIT	PAPER NUMBER
2416	

NOTIFICATION DATE	DELIVERY MODE
09/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/536,625	BOUAT, SEBASTIEN	
	Examiner	Art Unit	
	LUAT PHUNG	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed on June 11, 2009 have been fully considered but they are not deemed to be persuasive.

2. Claims 1-36 are pending.

3. Claims 1, 2, 4-6, 8-12, 15-19, 27-31 and 33-36 have been amended.

4. Claims 1-36 are rejected.

5. On page 11, applicant's representative argues that:

Iyer fails to teach or even suggest an application provides a message to a layer of the protocol stack and the protocol stack layer adds layer context to the message.

On page 12, applicant's representative argues that:

Claim 1 also requires "such that a response to the message contains the context information." The Examiner admits that Iyer fails to teach these limitations (Office Action, p. 4). The Examiner cites Iyer [0045], [0072] as allegedly teaching "a response." However, Iyer teaches a response from the socket 415 to the application 405. Claim 1 has been amended to clarify that "the response is received from the destination node." Support for this amendment can be found at least at page 10, lines 1-3 of the specification. Moreover, the Iyer cookie only identifies the socket. (Iyer [0044]). Iyer fails to teach or even suggest that the cookie includes context information, and one skilled in the computer arts would not understand a cookie that identifies a socket to include layer context information.

On page 13, applicant's representative argues that:

Claim 35 has been amended to include the computing device limitations explained with regard to claim 1, and to recite, "a response to the message contains context information needed to restore a pre-switchover context of the layer." Support for the amendment can be found at least at page 10, line 30 to page 11, line 2 of the specification, Iyer fails to teach or even suggest a response containing such information."

Examiner respectfully disagrees.

Hello, Conley Rose Dallas!

As a recap of the rejection of claim 1, Iyer discloses …

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node; (Fig. 4, 5; para. 19, 44-46; application 405 using socket library to send instruction to socket layer 415, i.e., application sending outgoing message to a layer of the protocol stack, to establish redundant socket on standby side; socket layer sending message with socket parameters to standby socket layer 430 and application 405 sending cookie to standby application 420, i.e., outgoing message is destined for an application on a destination node; message-based interaction among application, socket library and socket layer, i.e., between application and layer)

…

adding, by the computing device, the obtained context information to the outgoing message. (Fig. 4, 5; para. 44-46, 60; all socket operations, i.e., context

information at socket layer, are automatically transferred by socket layer, i.e., computing device, to the standby node)

Iyer further discloses sending a response message (Fig. 5, elements 520, 550; para. 44, 72). Iyer discloses all of the subject matter except *such that a response to the message contains the context information, the response is received from the destination node, and the context information is needed to restore a pre-switchover context of the layer*. However Iyer discloses establishing control and data redundancy for the socket layer, and seamless switchover by the standby node when the active node fails (para. 46, 63). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to send a response from the standby node when a failure is detected at the active node, the response containing context information of the socket layer, the context information being restored prior to the switchover, to ensure data redundancy with the active-turned-standby node, in order to perform a seamless switchover.

Specifically Iyer discloses context information as all the data required to configure a redundant socket layer, including cookie, socket id, socket parameters, and socket control operations, through the interaction between the application and the socket layer on the active side and the same on the standby side. The examiner notes the broadest reasonable interpretation in light of Applicant's specification. In Iyer the application controls the procedure of creating a redundant socket layer by invoking the socket library to send context information from the standby side to the active side, and in response to switchover, sending context information from the standby-turned-active

side back to the previously-active side by performing a seamless switchover, ensuring redundancy of context information on both sides. Thus it's clear that Iyer teaches having the context information in the outgoing message and the response, the context information being added by a layer of the protocol stack, as claimed.

6. On pages 13-14, applicant's representative argues that:

Claim 11 requires "receiving a message." The Examiner cites Iyer [0054] as teaching these limitations. However, as explained by the Examiner (Office Action, p. 5), the cited location teaches detection of a switchover. Such detection does not suggest "receiving a message" as required by claim 11.

Claim 11 also requires "determining ... whether the context information of the layer is to be restored." The Examiner cites Iyer [0051] as teaching these limitations, Iyer [0051] teaches application of the connect operation to the active and/or standby sides. The connect operation is not related to determining whether the context information of a layer should be restored, Iyer does not teach or suggest restoring context, but rather teaches switching to the standby side, which uses whatever context it has at switchover.

Claim 11 further requires "restoring the context of the layer." As explained above, Iyer does teach or even suggest "restoring the context of the layer," but rather teaches using a standby system in whatever state the system stands at switchover. The Examiner admits Iyer2 fails to teach "where it is so determined [that context should be restored], determining the presence of context information relevant to the layer within

the message" and "restoring . using context information from the message." (Office Action, p. 6). The Examiner suggests the cookie and the association of the sockets make these limitations obvious. Id, However, an identifying cookie is not and in no way suggests context information relevant to the layer as required by claim 11 or using such information to restore the layer as required by claim 11. Thus, the context and restoration cannot be obvious based on the cookie and association. Moreover, the Examiner has not explained how "determining the presence" is based on "determining whether the context information of the layer is to be restored" as required by claim 11.

Examiner respectfully disagrees.

As a recap of the rejection of claim 11, Iyer discloses …

receiving a message by a computing device; (para. 54, 59; application on the standby-turned-active side awoken with error, i.e., computing device receiving a message, when socket layer detects on the standby-turned-active side detects switchover)

determining, by the computing device, whether the context information of the layer is to be restored; (para. 54; error having error code ESWITCHOVER, indicating application should be come active) and

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; (para. 54; error having error code ESWITCHOVER, i.e., context information in the message, indicating application should become active) and

restoring, by the computing device, the context of the layer using context information from the message. (para. 46, 54, 60, 63; application calling connect to initiate the TCP state machine, i.e. restoring context of the TCP layer; standby side taking over seamlessly, i.e., using restored context data previously received in message from active side)

Specifically Iyer discloses context information as all the data required to maintain a redundant configuration, even after a switchover having being initiated by the standby side receiving a message. In Iyer, seamless switchover involves initiating the TCP state machine on the standby-turned-active side, thereby restoring the context information previously received from the then-active side. Thus it's clear that Iyer teaches all the claimed limitations.

7. Examiner's Note: Examiner has cited particular paragraphs, columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s)

the structure relied on for proper interpretation and, also to verify and ascertain the metes and bounds of the Claimed invention.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1, 2, 4-6, 10-14, 18, 19, 21-23, 27, 35 and 36 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al (US Pub. 2004/0088418) in view of Ho, et al (US 6,910,148).

Regarding claims 1, 18 and 35, Iyer discloses a method of, and a system (Fig. 3, element 340A; Fig. 4, element 402) for, storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a

destination node; (Fig. 4, 5; para. 19, 44-46; application 405 using socket library to send instruction to socket layer 415, i.e., application sending outgoing message to a layer of the protocol stack, to establish redundant socket on standby side; socket layer sending message with socket parameters to standby socket layer 430 and application 405 sending cookie to standby application 420, i.e., outgoing message is destined for an application on a destination node; message-based interaction among application, socket library and socket layer, i.e., between application and layer)

selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer; (Fig. 4, 5; para. 44-46; socket layer receiving instruction to establish a redundant socket; socket-related operations invoked to create redundancy at socket layer)

obtaining, by the computing device, context information in accordance with the indication; (Fig. 4, 5; para. 44-46; all socket operations, i.e., context information at socket layer, are automatically transferred by socket layer of the active side, i.e., computing device, to the standby side) and

adding, by the computing device, the obtained context information to the outgoing message. (Fig. 4, 5; para. 44-46, 60; all socket operations, i.e., context information at socket layer, are automatically transferred by socket layer, i.e., computing device, to the standby node)

Iyer further discloses sending a response message (Fig. 5, elements 520, 550; para. 44, 72). Iyer discloses all of the subject matter except *such that a response to the message contains the context information, the response is received from the destination*

node, and the context information is needed to restore a pre-switchover context of the layer. However Iyer discloses establishing control and data redundancy for the socket layer, and seamless switchover by the standby node when the active node fails (para. 46, 63). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to send a response from the standby node when a failure is detected at the active node, the response containing context information of the socket layer, the context information being restored prior to the switchover, to ensure data redundancy with the active-turned-standby node, in order to perform a seamless switchover.

Furthermore Ho from an analogous art discloses replicating BGP and TCP databases, i.e., context information, using bulk update operation, i.e., in the outgoing messages, from the active card to the standby card (Fig. 28, element 2802; col. 9, lines 9+; col. 30, lines 45+). In this procedure Ho discloses performing bulk updating for redundancy by replicating BGP and TCP databases, i.e., context information, previously received from the then-active card. Thus it would have been obvious to one of ordinary skill in the art to replicate the databases, by sending a message containing context information previously received, as suggested by Ho, in the redundancy system of Iyer in order to implement a graceful switchover to ensure high availability.

Regarding claims 2 and 19, Ho further discloses further comprising adding context information obtained from a different protocol stack layer to the outgoing message. (col. 8, lines 19-51; col. 9, lines 17+)

Regarding claims 4 and 21, Iyer in view of Ho further discloses used with a message-based communications system. (para. 19, 27)

Regarding claims 5 and 22, Iyer in view of Ho further discloses wherein the step of obtaining context information obtains context information related to the outgoing message. (para. 46, 63)

Regarding claims 6 and 23, Iyer in view of Ho further discloses wherein the step of adding the obtained context information appends the context information to a separate field of the message. (para. 44)

Regarding claims 10 and 27, Ho further discloses further comprising adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete. (col. 21, lines 16+; col. 22, lines 21+; if update fails, use negative acknowledgement, i.e., sending an indication if context data is incomplete)

Regarding claims 11 and 36, Iyer discloses a method, and a system, of restoring the context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device; (para. 54, 59; application on the standby-turned-active side awoken with error, i.e., computing device receiving a message, when socket layer detects on the standby-turned-active side detects switchover)

determining, by the computing device, whether the context information of the layer is to be restored; (para. 54; error having error code ESWITCHOVER, indicating application should be come active) and

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; (para. 54; error having error code ESWITCHOVER, i.e., context information in the message, indicating application should become active) and

restoring, by the computing device, the context of the layer using context information from the message. (para. 46, 54, 60, 63; application calling connect to initiate the TCP state machine, i.e. restoring context of the TCP layer; standby side taking over seamlessly, i.e., using restored context data previously received in message from active side)

Iyer discloses all of the subject matter as recited above. However assuming *arguendo* that Iyer does not explicitly disclose:

receiving a message by a computing *device.*

Ho from an analogous art discloses the standby card receiving a message (from the active card to become active) (col. 18, lines 32+). Ho further discloses the switchover process at the standby card, including determining whether context information needs to be restored, determining presence of context information, and restoring context information (Fig. 9, standby card 950; Fig. 12A, inform tasks to become active 1208, 1212; col. 19, lines 11-33). In Ho, context information pertains to particular layers such as BGP or TCP (Fig. 21A, 21B). Thus it would have been obvious to one of ordinary skill in the art to have the standby side receive a message to become active as suggested by Ho and determining and restoring context information in

the system of Iyer in order to implement a graceful switchover to ensure high availability.

Regarding claim 12, Iyer in view of Ho further discloses wherein the step of determining determines whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message. (para. 44, 50-54)

Regarding claim 13, Iyer in view of Ho further discloses wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message. (para. 44, 50-54)

Regarding claim 14, Iyer in view of Ho further discloses wherein the step of determining further comprises checking whether the received message is an initial message. (para. 44-45)

11. Claims 3, 7-9, 15-17, 20 and 24-26 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al in view of Ho, et al, and further in view of Lau, et al (US Pub. 2003/0046604) or Vasavada, et al (US Pub. 2004/0078619).

Regarding claims 3 and 20, the combination of Iyer and Ho discloses all of the subject matter as recited previously in this office action except *wherein the outgoing message is sent from the node to a remote node across a network*. However, redundant configuration including active and standby nodes across a network is well known in the art. In particular Lau from the same or similar fields of endeavor discloses an active control card communicates over a communication such as Ethernet with a

standby control card. (Lau para. 24) Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to configure the standby and active nodes of network Iyer and Ho in the remote arrangement suggested by Lau. The motivation for doing so would have been to improve switchover in the event of failure.

Regarding claims 7-9, 15-17 and 24-26, the combination of Iyer and Ho discloses all of the subject matter as recited previously in this office action except:

for use with a session initiation protocol (SIP) network, as recited in claims 7, 15 and 24;

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field, as recited in claims 8, 16 and 25; and

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header, as recited in claims 9, 17 and 26.

Lau or Vasavada from the same or similar fields of endeavor discloses implementing redundancy for MPLS and IS-IS protocols using the same base architecture (title, abstract). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to apply the redundancy system of Iyer and Ho, not only to TCP/UDP (Iyer, para. 10), but also for SIP by using the protocol-specific messaging to carry context information in order to facilitate high availability.

12. Claims 28-31 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al.

Regarding claim 28, Iyer discloses a system of restoring the context information of a layer of a protocol stack of a node comprising:

receiving means for receiving a message; (para. 54, 59; application on the standby-turned-active side awoken with error, i.e., computing device receiving a message, when socket layer detects on the standby-turned-active side detects switchover)

logic for determining whether the context information of the layer is to be restored; (para. 54; error having error code ESWITCHOVER, indicating application should be come active)

a circuit for determining the presence of context information relevant to the layer within the message; (para. 54; error having error code ESWITCHOVER, i.e., context information in the message, indicating application should become active) and

restoration means for restoring the context of the layer using context information from the message. (para. 46, 54, 60, 63; application calling connect to initiate the TCP state machine, i.e. restoring context of the TCP layer; standby side taking over seamlessly, i.e., using restored context data previously received in message from active side)

Iyer discloses all of the subject matter as recited above. However assuming *arguendo* that Iyer does not explicitly disclose:

receiving means for receiving a message.

However Iyer discloses the application on the standby-turned-active side awoken with error. (para. 54) It would have been obvious to one of ordinary skill in the art that the error is received in a form of a message as message-based systems are well known in the communications art.

Regarding claim 29, Iyer further discloses wherein the step of determining determines whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message. (para. 44, 50-54)

Regarding claim 30, Iyer further discloses wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message. (para. 44, 50-54)

Regarding claim 31, Iyer further discloses wherein the step of determining further comprises checking whether the received message is an initial message. (para. 44-45)

13. Claims 32-34 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al in view of Lau, et al or Vasavada, et al.

Regarding claims 32-34, Iyer discloses all of the subject matter as recited previously in this office action except:

for use with a session initiation protocol (SIP) network, as recited in claim 32;

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field, as recited in claim 33; and

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header, as recited in claim 34.

Lau or Vasavada from the same or similar fields of endeavor discloses implementing redundancy for MPLS and IS-IS protocols using the same base architecture (title, abstract). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to apply the redundancy system of Iyer, not only to TCP/UDP (Iyer, para. 10), but also for SIP by using the protocol-specific messaging to carry context information in order to facilitate high availability.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form 892).

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2416

/Ricky Ngo/

Supervisory Patent Examiner, Art Unit 2416

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2416

SEARCHED			
Class	Subclass	Date	Examiner
370	342	3/29/2009	LP
714	2, 3, 10, 11		
Updated	above	9/12/2009	LP

SEARCH NOTES		
Search Notes	Date	Examiner
Inventorship search	3/29/2009	LP
Web search		
EAST search		
Consulted with SPE Ricky Ngo	9/8/2009	LP
Updated EAST search	9/12/2009	LP

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S101	11	S100 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/09 23:22
S100	27	(switch$1over or fail$1over) near10 restor$3 near5 backup	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/09 23:22
S102	14	restor$3 near10 layer near10 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/09 23:56
S103	6	S102 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/09 23:57
S106	935	restor$3 near10 (primary or active) near10 (secondary or standby)	US-PGPUB; USPAT	ADJ	ON	2009/09/12 15:16
S107	15	S106 with error	US-PGPUB; USPAT	ADJ	ON	2009/09/12 15:17
S111	3923	(restor$3 or recover$3) near10 (primary or active) near10 (secondary or standby)	US-PGPUB; USPAT	ADJ	ON	2009/09/12 15:22
S115	62	S113 or S114	US-PGPUB; USPAT	ADJ	ON	2009/09/12 15:24
S114	62	S111 with (consistent or inconsistent)	US-PGPUB; USPAT	ADJ	ON	2009/09/12 15:24
S113	62	S111 near20 (consistent or inconsistent)	US-PGPUB; USPAT	ADJ	ON	2009/09/12 15:24
S116	24	S115 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/12 15:25
S119	12	S115 same3 notif$8	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/12 15:28

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 399 of 622

L14	4216	L13 or L9 or L10 or L11 or L12	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:19
L13	1121	"370/242".CCLS.	US-PGPUB; USPAT	ADJ	ON	2009/09/13 03:19
L12	873	714/11.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:19
L11	741	714/10.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:19
L10	433	714/3.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:19
L9	1293	714/2.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:19
L16	14	14 and 15	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:20
L15	271	(switch$1over or fail$1over) near10 context	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:20
L22	12	21 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:22
L21	15	15 near10 (stack or layer or level)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/09/13 03:22

9/13/2009 3:25:13 AM
C:\Documents and Settings\lphung\My Documents\EAST\Workspaces\10536625.wsp

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 400 of 622

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2416

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/29/2009	09/13/2009							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
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	34	✓	✓							
	35	✓	✓							
	36	✓	✓							

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 401 of 622

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sebastien BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2416
Filed:	March 02, 2006	§	Examiner:	Luat Phung
For:	Improvements In or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

SUPPLEMENTAL RESPONSE TO
OFFICE ACTION DATED APRIL 2, 2009

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: June 11, 2009

Dear Sir:

Applicants submit a Supplemental Response to Office Action dated April 2, 2009. Applicant's attorney's signature has been added to page 16 of the Response filed earlier today (EFS ID 5500445).

Respectfully submitted,

/David M. Wilson/

David M. Wilson
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sebastien BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2416
Filed:	March 02, 2006	§	Examiner:	Luat Phung
For:	Improvements In or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

RESPONSE TO OFFICE ACTION DATED APRIL 2, 2009

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: June 11, 2009

AMENDMENT

Sir:

In response to the Office Action of April 2, 2009, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Amendments to the Drawings begin on page 9 of this paper and include both an attached replacement sheet and an annotated sheet showing changes.

Remarks/Arguments begin on page 10 of this paper.

An **Appendix** including amended drawing figures is attached following page 16 of this paper.

SAP - Exhibit 1102
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Amendments to the Drawings:

The attached sheets of drawings include changes to Fig. 5 and Fig. 6. Replacement sheet 3/4, which includes Figs. 4 and 5, replaces the original sheet including Figs. 4 and 5. In Figure 5, the outputs of block 502 have been labeled and the direction of the arrow between blocks 502 and 506 corrected.

Replacement sheet 4/4, which includes Figs. 6 and 7, replaces the original sheet including Figs. 6 and 7. In Figure 6, the outputs of blocks 602 and 606 have been labeled.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
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REMARKS/ARGUMENTS

Applicant has received the Office Action dated April 2, 2009, in which the Examiner: **1)** objected to Figures 5 and 6; **2)** objected to claims 1, 11, 12, ,18, 28, 35, and 36 for use of the word "should;" **3)** objected to claims 10 and 17[1] for use of the recitation "may be;" **4)** objected to "several claims, starting with claim 4" for use of the recitation "adapted for"; **5)** rejected claims 1, 2, 4-6, 10-14, 18, 19, 21,23, 27-31, 35, and 36 under 35 U.S.C. § 103 as being allegedly obvious over Iyer, et al. (U.S. Pat. Pub. 2004/0088418, hereinafter "Iyer"); and **6)** rejected claims 3, 7-9, 15-17, 20, 24-26, and 32-34 under 35 U.S.C. § 103 as being allegedly obvious over Iyer in view of Lau et al. (U.S. Pat. Pub. 2003/0046604, hereinafter "Lau") or Vasavada, et al. (U.S. Pat. Pub. 2004/0078619, hereinafter "Vasavada").

With this Response, Applicant has amended Figures 5-6 and claims 1-2, 4-6, 8-12, 15-19, 27-31 and 33-36. With these amendments and the arguments below Applicant respectfully submits that all claims are in condition for allowance.

I. OBJECTIONS TO THE DRAWINGS

Figures 5 and 6 have been amended. Figure 5 has been amended to add labeling to block 502, and the arrow between blocks 502 and 506 has been reversed. Figure 6 has been amended to add labeling to blocks 602 and 606. Applicant respectfully requests that the objection to Figures 5 and 6 be withdrawn.

II. OBJECTIONS TO THE CLAIMS

The recitation "should be" in claims 1, 11, 12, 18, 28, 35, and 36 has been changed to "is to be."

The recitation "may be" in claims 10 and 27 has been changed to "is potentially." Support for this amendment can be found at least at p. 12, lines 23-25.

---

[1] Applicant assumes the Examiner intended to reject claim 27 rather than claim 17 as claim 17 does not include the recitation "may be."

The recitation "adapted for" in claims 4-6, 8-9, 12, 15-17, 29-31, and 33-34 has been changed. In claims 4 and 15, the recitation "adapted for use" has been changed to "used." In claim 5, the recitation "is adapted for obtaining" has been changed to "obtains." In claims 6, 8, and 9, the recitation "is adapted for appending" has been changed to "appends." In claim 12, the recitation "is adapted for determining" has been changed to "determines." In claims 16 and 17, the recitation "is adapted for restoring" has been changed to "restores." In claims 29-31, and 33-34, the recitation "adapted for" has been changed to "configured for."

In light of these amendments, Applicant respectfully requests that the objections to the claims be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. § 103 OVER IYER

Independent claim 1 has been amended. In addition to the replacement of the term "should" explained above, amendments require the operations of the method be performed by a computing device, provision of "the outgoing message from an application to a layer of the protocol stack," and "the outgoing message is destined for an application on a destination node." Support for performance by a computing device can be found at least at p. 12, lines 32-34 of the specification. Support for "providing the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node" can be found at least at page 9, line 17, and p. 8, lines 22-25 of the specification.

Iyer fails to teach or even suggest an application provides a message to a layer of the protocol stack and the protocol stack layer adds layer context to the message. Instead, Iyer teaches an application sets socket options that instruct a socket to establish a redundant socket. (Iyer, ¶ [0044]). The socket layer 415 sends a message with the socket parameters to the standby socket layer 430 instructing it to create the socket. (Iyer, ¶ [0044]). The socket 415 does not add layer context to the outgoing message provided by the application because there is no outgoing message provided by the application.

Claim 1 also requires "such that a response to the message contains the context information." The Examiner admits that Iyer fails to teach these limitations (Office Action, p. 4). The Examiner cites Iyer ¶ [0045], [0072] as allegedly teaching "a response." However, Iyer teaches a response from the socket 415 to the application 405. Claim 1 has been amended to clarify that "the response is received from the destination node." Support for this amendment can be found at least at page 10, lines 1-3 of the specification. Moreover, the Iyer cookie only identifies the socket. (Iyer ¶ [0044]). Iyer fails to teach or even suggest that the cookie includes context information, and one skilled in the computer arts would not understand a cookie that identifies a socket to include layer context information. Furthermore, the Examiner alleges that it would have been obvious for one skilled in the art to include the cookie in the response in order to associate the active and standby sides. However, the response is from the socket layer 415 to the application 405 and the association is completed by the application 420 executing a set socket operation. (Iyer ¶ [0045]). Therefore including the cookie in the response cannot perform the association suggested by the Examiner.

For at least these reasons, Applicant respectfully submits that independent claim 1 and claims 2, 4-6, and 10, which depend from claim 1, are allowable over the cited art.

Claim 2 has been amended to recite "further comprising adding context information obtained from a different protocol stack layer to the outgoing message." Support for the amendment can be found at least in Figure 4 of the specification. Claim 19 has been amended to include similar limitations. None of the cited art teaches or even suggests adding context from multiple protocol stack layers to the message.

Claim 10 has been amended to require "adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete." Support for the amendment can be found at least at p. 12, lines 23-25 of the specification. The

Examiner cites Iyer ¶ [0065] as allegedly teaching these limitations. The cited location teaches actions taken when standby is removed, including marking sockets non-redundant and sending messages to the application. None of these is associated with the obtained context data or a determination of the obtained context data's potential inaccuracy. Moreover, there is no teaching or suggestion that any indication of potential inaccuracy is added to the message. Consequently, Iyer fails to teach or even suggest the limitations of claim 10. For at least these additional reasons, Applicant respectfully submits that claim 10 is allowable over the cited art.

Claim 18 has been amended to include limitations similar to those of claim 1. Accordingly, claim 18 is allowable over the cited art for the reasons given above with regard to claim 1.

Claims 19, 21-23, and 27 depend from claim 18 and are therefore also allowable for much the same reasons as claim 18.

Claim 27 includes limitations similar to those of claim 10, and is allowable for the additional reasons given with regard to claim 10.

Claim 35 has been amended to include the computing device limitations explained with regard to claim 1, and to recite, "a response to the message contains context information needed to restore a pre-switchover context of the layer." Support for the amendment can be found at least at page 10, line 30 to page 11, line 2 of the specification. Iyer fails to teach or even suggest a response containing such information." For at least this reason, and the reasons given with regard to the similar limitations of claim 1, Applicant respectfully submits that claim 35 is allowable over the cited art.

Independent claim 11 has been amended. Like claim 1, some amendments indicate the operations of the method are performed by a computing device. Claim 11 requires "receiving a message." The Examiner cites Iyer ¶ [0054] as teaching these limitations. However, as explained by the Examiner (Office Action, p. 5), the cited location teaches detection of a switchover. Such detection does not suggest "receiving a message" as required by claim 11.

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Claim 11 also requires "determining . . . whether the context information of the layer is to be restored." The Examiner cites Iyer ¶ [0051] as teaching these limitations. Iyer ¶ [0051] teaches application of the connect operation to the active and/or standby sides. The connect operation is not related to determining whether the context information of a layer should be restored. Iyer does not teach or suggest restoring context, but rather teaches switching to the standby side, which uses whatever context it has at switchover.

Claim 11 further requires "restoring the context of the layer." As explained above, Iyer does teach or even suggest "restoring the context of the layer," but rather teaches using a standby system in whatever state the system stands at switchover.

The Examiner admits Iyer[2] fails to teach "where it is so determined [that context should be restored], determining the presence of context information relevant to the layer within the message" and "restoring . . . using context information from the message." (Office Action, p. 6). The Examiner suggests the cookie and the association of the sockets make these limitations obvious. *Id.* However, an identifying cookie is not and in no way suggests context information relevant to the layer as required by claim 11 or using such information to restore the layer as required by claim 11. Thus, the context and restoration cannot be obvious based on the cookie and association. Moreover, the Examiner has not explained how "determining the presence" is based on "determining whether the context information of the layer is to be restored" as required by claim 11.

For at least these reasons, Applicant respectfully submits that claim 11, and claims 12-14 depending therefrom are allowable over the cited art.

---

[2] The Examiner stated "Lau does not explicitly disclose." (Office Action, p. 6) Applicant assumes the Examiner intended Iyer because the Examiner rejected claim 11 only over Iyer. (Office Action, p. 4).

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SAP v. Valtrus et al. - IPR2025-00419
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Claims 28 and 36 includes limitations similar to those of claim 11 and are allowable for the same reasons as claim 11. Claims 29-31 depend from claim 28 are therefore also allowable for much the same reasons as claim 28.

IV. REJECTIONS UNDER 35 U.S.C. § 103 OVER IYER AND LAU OR VASAVADA

Claims 3 and 7-19 depend from claim 1. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 3 and 7-19 depend from a non-obvious base claim and are allowable for much the same reasons as claim 1.

Claims 15-17 depend from claim 11. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 15-17 depend from a non-obvious base claim and are allowable for much the same reasons as claim 11.

Claims 20 and 24-26 depend from claim 18. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 20 and 24-26 depend from a non-obvious base claim and are allowable for much the same reasons as claim 18.

Claims 32-34 depend from claim 28. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 32-34 depend from a non-obvious base claim and are allowable for much the same reasons as claim 28.

V. CONCLUSION

In the course of the foregoing discussions, Applicant may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the cited art which have yet to be raised, but which may be raised in the future.

Applicant respectfully requests reconsideration and that a timely Notice of Allowance be issued in this case. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of

time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

/David M. Wilson/

David M. Wilson
PTO Reg. No. 56,790
CONLEY ROSE, P.C.
(713) 238-8000 (Phone)
(713) 238-8008 (Fax)
ATTORNEY FOR APPLICANT

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
Legal Dept., M/S 35
P.O. Box 272400
Fort Collins, CO 80527-2400

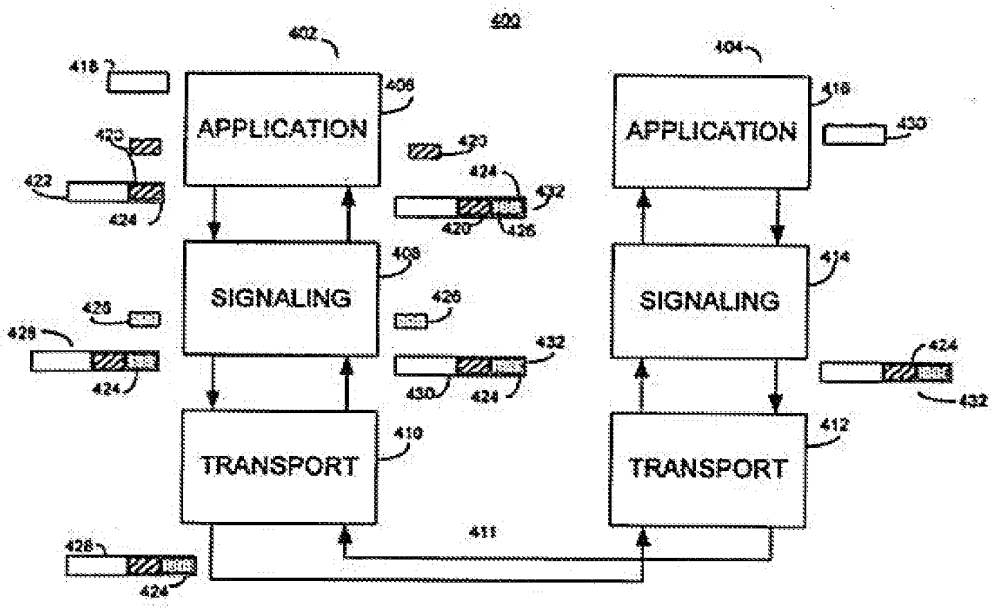


FIGURE 4

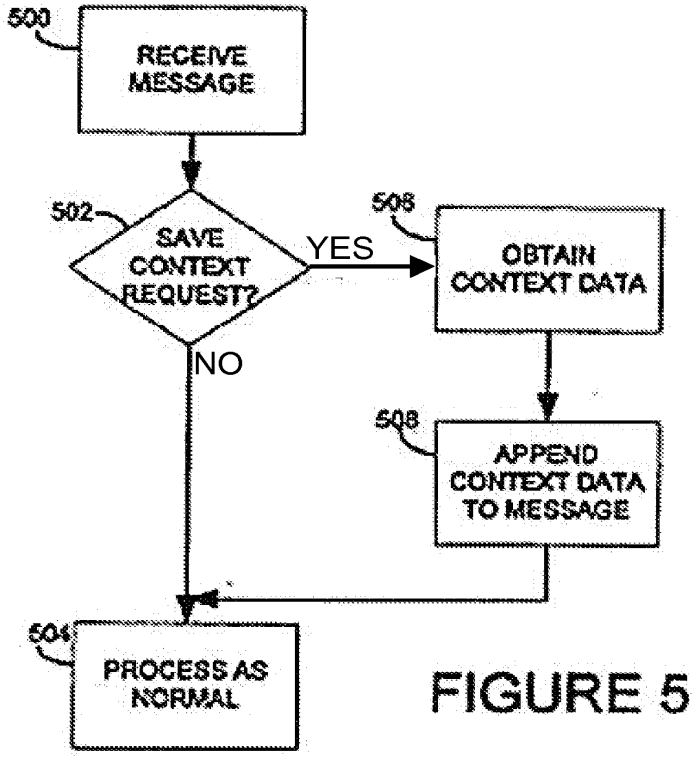


FIGURE 5

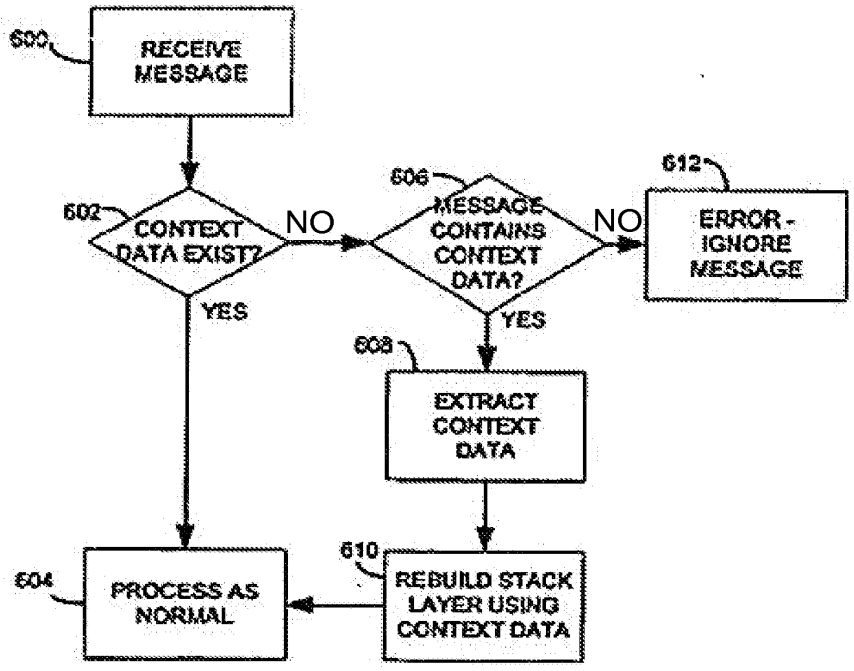


FIGURE 6

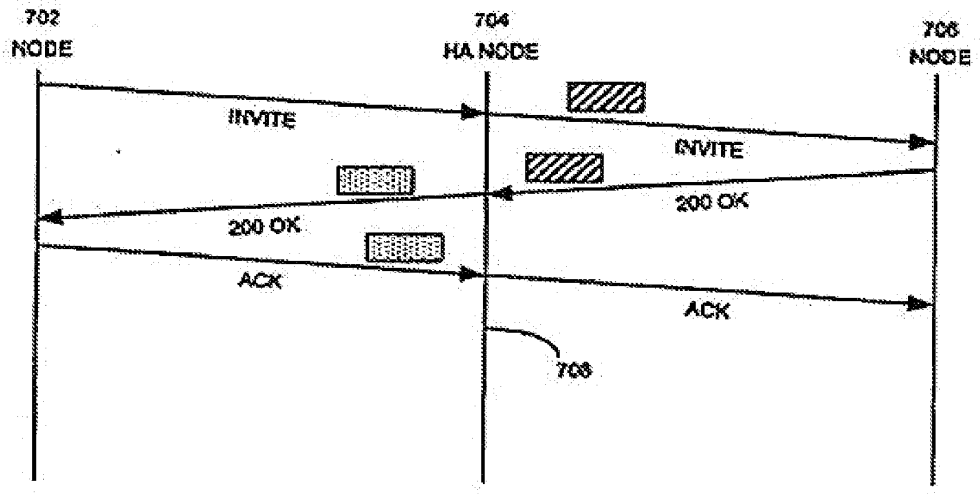


FIGURE 7

3/4

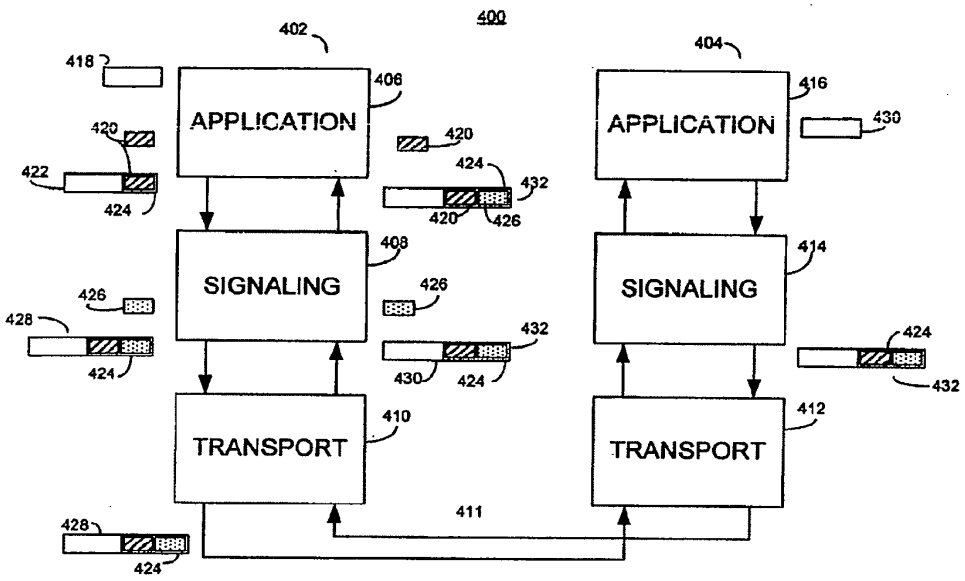


FIGURE 4

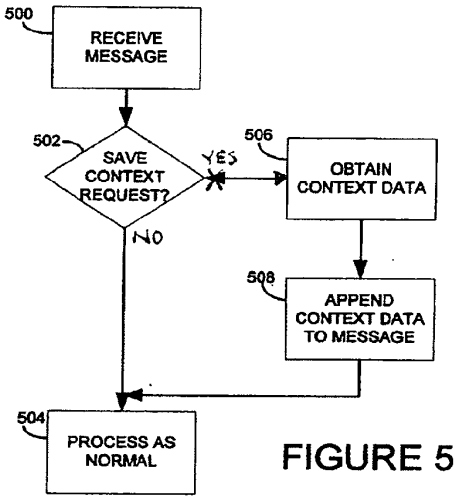


FIGURE 5

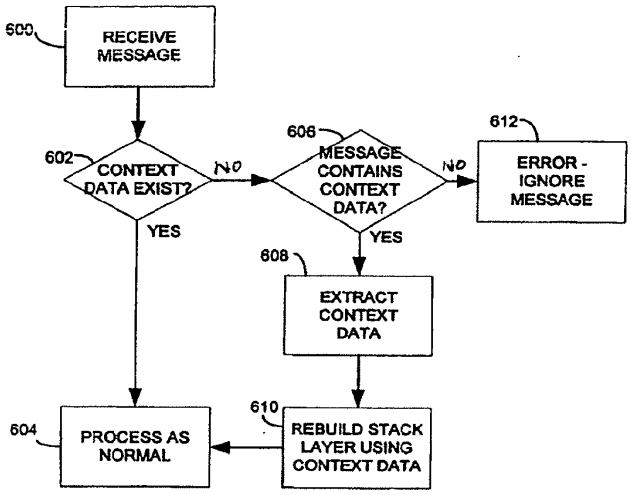


FIGURE 6

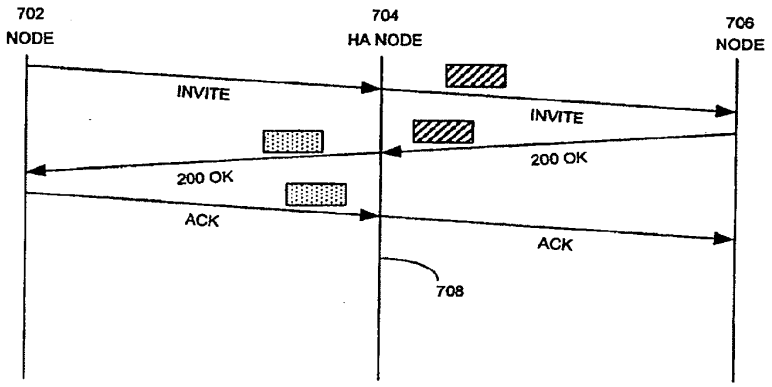


FIGURE 7

Electronic Acknowledgement Receipt

EFS ID:	5501116
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	Fault tolerant systems
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David M. Wilson/Colleen Brown
Filer Authorized By:	David M. Wilson
Attorney Docket Number:	B-5727PCT 622708-2
Receipt Date:	11-JUN-2009
Filing Date:	02-MAR-2006
Time Stamp:	17:04:50
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (PTO-875)	200309832-4_FEE_TRANS_ROA_040209.pdf	36553 81ada4b8aac509316677edf896f7acd6da34e42d	no	1

Warnings:	
Information:	

2	Supplemental Response or Supplemental Amendment	200309832-4_SUPP_AMEND_NONFINAL_REJ_040209.pdf	463233 fcaa7c6c14e752731668944 5a3f7132ee22544ae	no	21
Warnings:					
Information:					
			Total Files Size (in bytes):	499786	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-1

Inventor(s): Sebastien BOUAT

Application No.: 10/536,625

Filing Date: 03/02/2006

Confirmation No.: 2264

Examiner: Luat Phung

Group Art Unit: 2416

Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

Mail Stop Amendment
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Transmitted herewith is/are the following in the above-identified application:

- ☒ Response/Amendment
- ☐ New fee as calculated below
- ☒ No additional fee
- ☐ Other _____ Fee$_____
- ☐ Petition to extend time to respond
- ☐ Supplemental Declaration

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY

(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	36	MINUS	36	= 0	X $52	$ 0
INDEP. CLAIMS	6	MINUS	6	= 0	X $220	$ 0
☐ FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ $390	$ 0
EXTENSION FEE	☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730		$ 0
OTHER FEES						$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						$ 0

Charge $ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Sebastien BOUAT

By: /David M. Wilson/

David M. Wilson

Attorney/Agent for Applicant(s)

Reg No. : 56,790

Date : 06/11/2009

Telephone : (713) 238-8000

Rev 10/08 (E-TransAmd)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Sebastion BOUAT	§	Confirmation No.:	2264
Serial No.:	10/536,625	§	Group Art Unit:	2416
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For:	Improvements In or Relating To Fault Tolerant Systems	§	Docket No.:	200309832-4

RESPONSE TO OFFICE ACTION DATED APRIL 2, 2009

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: June 11, 2009

AMENDMENT

Sir:

In response to the Office Action of April 2, 2009, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims that begins on page 2 of this paper.

Amendments to the Drawings begin on page 9 of this paper and include both an attached replacement sheet and an annotated sheet showing changes.

Remarks/Arguments begin on page 10 of this paper.

An **Appendix** including amended drawing figures is attached following page 16 of this paper.

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Amendments to the Drawings:

The attached sheets of drawings include changes to Fig. 5 and Fig. 6. Replacement sheet 3/4, which includes Figs. 4 and 5, replaces the original sheet including Figs. 4 and 5. In Figure 5, the outputs of block 502 have been labeled and the direction of the arrow between blocks 502 and 506 corrected.

Replacement sheet 4/4, which includes Figs. 6 and 7, replaces the original sheet including Figs. 6 and 7. In Figure 6, the outputs of blocks 602 and 606 have been labeled.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

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REMARKS/ARGUMENTS

Applicant has received the Office Action dated April 2, 2009, in which the Examiner: **1)** objected to Figures 5 and 6; **2)** objected to claims 1, 11, 12, ,18, 28, 35, and 36 for use of the word "should;" **3)** objected to claims 10 and 17[1] for use of the recitation "may be;" **4)** objected to "several claims, starting with claim 4" for use of the recitation "adapted for"; **5)** rejected claims 1, 2, 4-6, 10-14, 18, 19, 21,23, 27-31, 35, and 36 under 35 U.S.C. § 103 as being allegedly obvious over Iyer, et al. (U.S. Pat. Pub. 2004/0088418, hereinafter "Iyer"); and **6)** rejected claims 3, 7-9, 15-17, 20, 24-26, and 32-34 under 35 U.S.C. § 103 as being allegedly obvious over Iyer in view of Lau et al. (U.S. Pat. Pub. 2003/0046604, hereinafter "Lau") or Vasavada, et al. (U.S. Pat. Pub. 2004/0078619, hereinafter "Vasavada").

With this Response, Applicant has amended Figures 5-6 and claims 1-2, 4-6, 8-12, 15-19, 27-31 and 33-36. With these amendments and the arguments below Applicant respectfully submits that all claims are in condition for allowance.

I. OBJECTIONS TO THE DRAWINGS

Figures 5 and 6 have been amended. Figure 5 has been amended to add labeling to block 502, and the arrow between blocks 502 and 506 has been reversed. Figure 6 has been amended to add labeling to blocks 602 and 606. Applicant respectfully requests that the objection to Figures 5 and 6 be withdrawn.

II. OBJECTIONS TO THE CLAIMS

The recitation "should be" in claims 1, 11, 12, 18, 28, 35, and 36 has been changed to "is to be."

The recitation "may be" in claims 10 and 27 has been changed to "is potentially." Support for this amendment can be found at least at p. 12, lines 23-25.

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[1] Applicant assumes the Examiner intended to reject claim 27 rather than claim 17 as claim 17 does not include the recitation "may be."

The recitation "adapted for" in claims 4-6, 8-9, 12, 15-17, 29-31, and 33-34 has been changed. In claims 4 and 15, the recitation "adapted for use" has been changed to "used." In claim 5, the recitation "is adapted for obtaining" has been changed to "obtains." In claims 6, 8, and 9, the recitation "is adapted for appending" has been changed to "appends." In claim 12, the recitation "is adapted for determining" has been changed to "determines." In claims 16 and 17, the recitation "is adapted for restoring" has been changed to "restores." In claims 29-31, and 33-34, the recitation "adapted for" has been changed to "configured for."

In light of these amendments, Applicant respectfully requests that the objections to the claims be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. § 103 OVER IYER

Independent claim 1 has been amended. In addition to the replacement of the term "should" explained above, amendments require the operations of the method be performed by a computing device, provision of "the outgoing message from an application to a layer of the protocol stack," and "the outgoing message is destined for an application on a destination node." Support for performance by a computing device can be found at least at p. 12, lines 32-34 of the specification. Support for "providing the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node" can be found at least at page 9, line 17, and p. 8, lines 22-25 of the specification.

Iyer fails to teach or even suggest an application provides a message to a layer of the protocol stack and the protocol stack layer adds layer context to the message. Instead, Iyer teaches an application sets socket options that instruct a socket to establish a redundant socket. (Iyer, ¶ [0044]). The socket layer 415 sends a message with the socket parameters to the standby socket layer 430 instructing it to create the socket. (Iyer, ¶ [0044]). The socket 415 does not add layer context to the outgoing message provided by the application because there is no outgoing message provided by the application.

Claim 1 also requires "such that a response to the message contains the context information." The Examiner admits that Iyer fails to teach these limitations (Office Action, p. 4). The Examiner cites Iyer ¶ [0045], [0072] as allegedly teaching "a response." However, Iyer teaches a response from the socket 415 to the application 405. Claim 1 has been amended to clarify that "the response is received from the destination node." Support for this amendment can be found at least at page 10, lines 1-3 of the specification. Moreover, the Iyer cookie only identifies the socket. (Iyer ¶ [0044]). Iyer fails to teach or even suggest that the cookie includes context information, and one skilled in the computer arts would not understand a cookie that identifies a socket to include layer context information. Furthermore, the Examiner alleges that it would have been obvious for one skilled in the art to include the cookie in the response in order to associate the active and standby sides. However, the response is from the socket layer 415 to the application 405 and the association is completed by the application 420 executing a set socket operation. (Iyer ¶ [0045]). Therefore including the cookie in the response cannot perform the association suggested by the Examiner.

For at least these reasons, Applicant respectfully submits that independent claim 1 and claims 2, 4-6, and 10, which depend from claim 1, are allowable over the cited art.

Claim 2 has been amended to recite "further comprising adding context information obtained from a different protocol stack layer to the outgoing message." Support for the amendment can be found at least in Figure 4 of the specification. Claim 19 has been amended to include similar limitations. None of the cited art teaches or even suggests adding context from multiple protocol stack layers to the message.

Claim 10 has been amended to require "adding, to the message, an indication associated with the obtained context data where it is determined that the context data is potentially inaccurate or incomplete." Support for the amendment can be found at least at p. 12, lines 23-25 of the specification. The

Examiner cites Iyer ¶ [0065] as allegedly teaching these limitations. The cited location teaches actions taken when standby is removed, including marking sockets non-redundant and sending messages to the application. None of these is associated with the obtained context data or a determination of the obtained context data's potential inaccuracy. Moreover, there is no teaching or suggestion that any indication of potential inaccuracy is added to the message. Consequently, Iyer fails to teach or even suggest the limitations of claim 10. For at least these additional reasons, Applicant respectfully submits that claim 10 is allowable over the cited art.

Claim 18 has been amended to include limitations similar to those of claim 1. Accordingly, claim 18 is allowable over the cited art for the reasons given above with regard to claim 1.

Claims 19, 21-23, and 27 depend from claim 18 and are therefore also allowable for much the same reasons as claim 18.

Claim 27 includes limitations similar to those of claim 10, and is allowable for the additional reasons given with regard to claim 10.

Claim 35 has been amended to include the computing device limitations explained with regard to claim 1, and to recite, "a response to the message contains context information needed to restore a pre-switchover context of the layer." Support for the amendment can be found at least at page 10, line 30 to page 11, line 2 of the specification. Iyer fails to teach or even suggest a response containing such information." For at least this reason, and the reasons given with regard to the similar limitations of claim 1, Applicant respectfully submits that claim 35 is allowable over the cited art.

Independent claim 11 has been amended. Like claim 1, some amendments indicate the operations of the method are performed by a computing device. Claim 11 requires "receiving a message." The Examiner cites Iyer ¶ [0054] as teaching these limitations. However, as explained by the Examiner (Office Action, p. 5), the cited location teaches detection of a switchover. Such detection does not suggest "receiving a message" as required by claim 11.

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Claim 11 also requires "determining . . . whether the context information of the layer is to be restored." The Examiner cites Iyer ¶ [0051] as teaching these limitations. Iyer ¶ [0051] teaches application of the connect operation to the active and/or standby sides. The connect operation is not related to determining whether the context information of a layer should be restored. Iyer does not teach or suggest restoring context, but rather teaches switching to the standby side, which uses whatever context it has at switchover.

Claim 11 further requires "restoring the context of the layer." As explained above, Iyer does teach or even suggest "restoring the context of the layer," but rather teaches using a standby system in whatever state the system stands at switchover.

The Examiner admits Iyer[2] fails to teach "where it is so determined [that context should be restored], determining the presence of context information relevant to the layer within the message" and "restoring . . . using context information from the message." (Office Action, p. 6). The Examiner suggests the cookie and the association of the sockets make these limitations obvious. *Id.* However, an identifying cookie is not and in no way suggests context information relevant to the layer as required by claim 11 or using such information to restore the layer as required by claim 11. Thus, the context and restoration cannot be obvious based on the cookie and association. Moreover, the Examiner has not explained how "determining the presence" is based on "determining whether the context information of the layer is to be restored" as required by claim 11.

For at least these reasons, Applicant respectfully submits that claim 11, and claims 12-14 depending therefrom are allowable over the cited art.

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[2] The Examiner stated "Lau does not explicitly disclose." (Office Action, p. 6) Applicant assumes the Examiner intended Iyer because the Examiner rejected claim 11 only over Iyer. (Office Action, p. 4).

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Claims 28 and 36 includes limitations similar to those of claim 11 and are allowable for the same reasons as claim 11. Claims 29-31 depend from claim 28 are therefore also allowable for much the same reasons as claim 28.

IV. REJECTIONS UNDER 35 U.S.C. § 103 OVER IYER AND LAU OR VASAVADA

Claims 3 and 7-19 depend from claim 1. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 3 and 7-19 depend from a non-obvious base claim and are allowable for much the same reasons as claim 1.

Claims 15-17 depend from claim 11. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 15-17 depend from a non-obvious base claim and are allowable for much the same reasons as claim 11.

Claims 20 and 24-26 depend from claim 18. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 20 and 24-26 depend from a non-obvious base claim and are allowable for much the same reasons as claim 18.

Claims 32-34 depend from claim 28. Neither Lau nor Vasavada satisfies the deficiencies of Iyer. Accordingly, claims 32-34 depend from a non-obvious base claim and are allowable for much the same reasons as claim 28.

V. CONCLUSION

In the course of the foregoing discussions, Applicant may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the cited art which have yet to be raised, but which may be raised in the future.

Applicant respectfully requests reconsideration and that a timely Notice of Allowance be issued in this case. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of

time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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ATTORNEY FOR APPLICANT

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Intellectual Property Administration
Legal Dept., M/S 35
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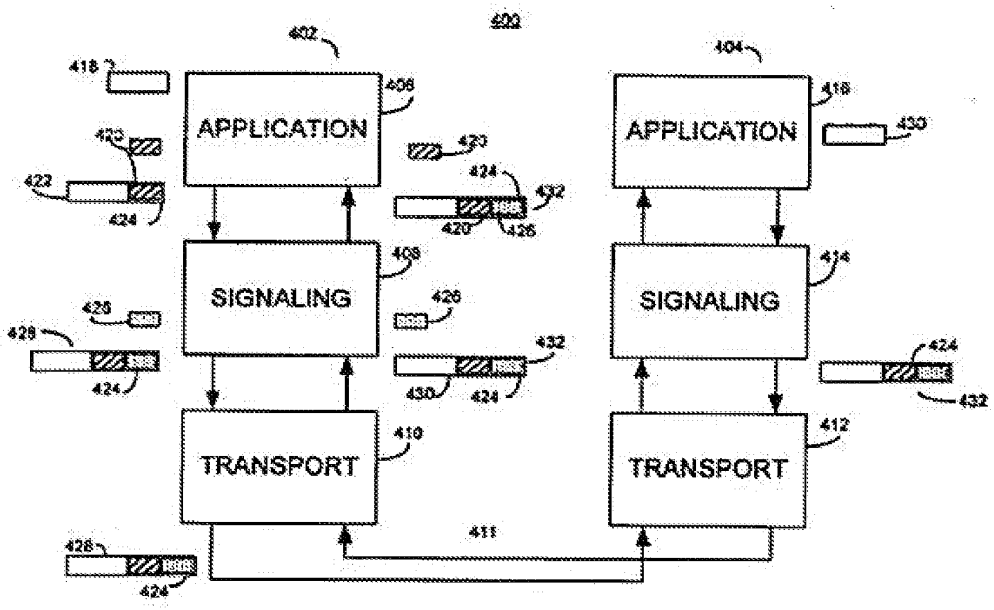


FIGURE 4

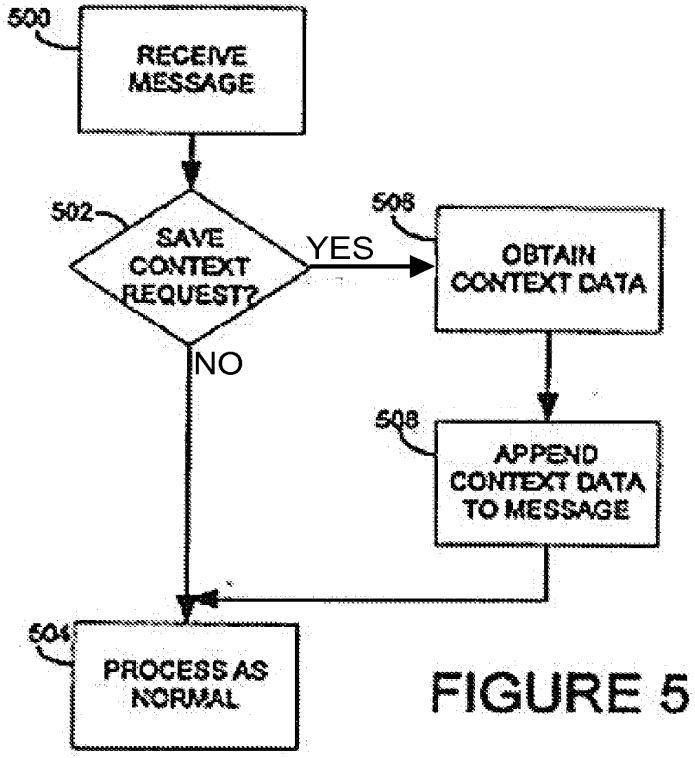


FIGURE 5

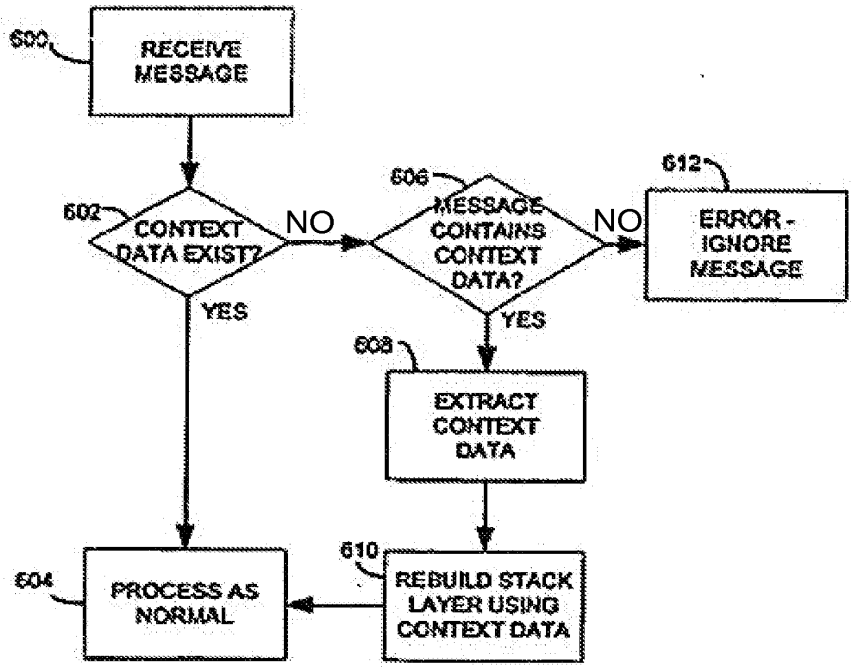


FIGURE 6

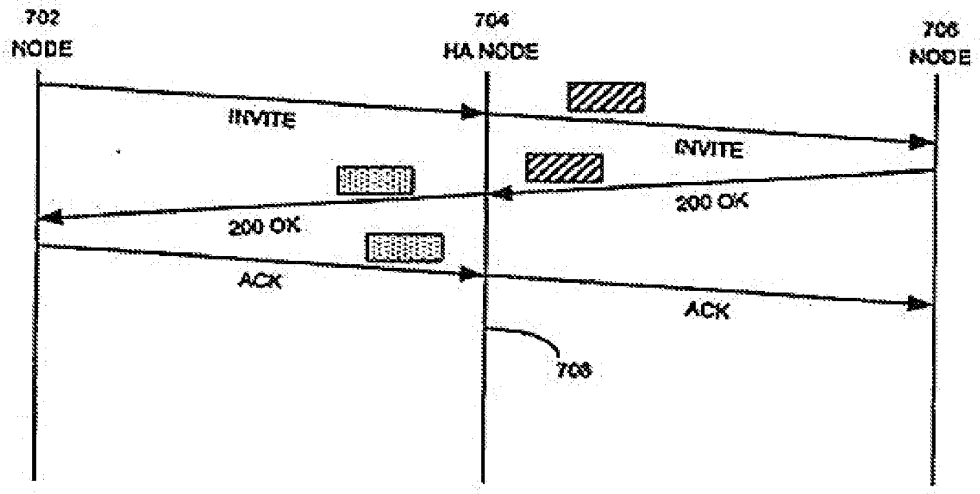


FIGURE 7

3/4

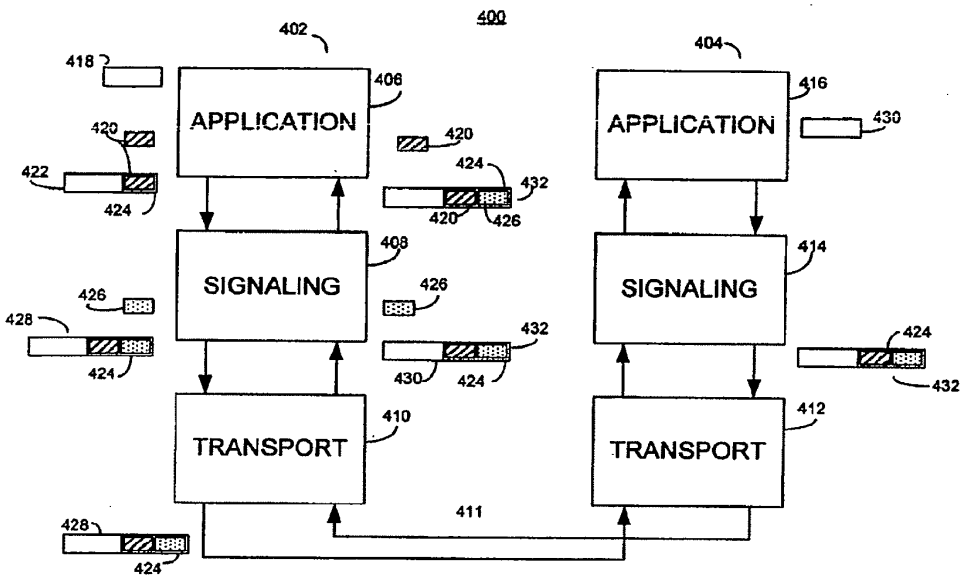


FIGURE 4

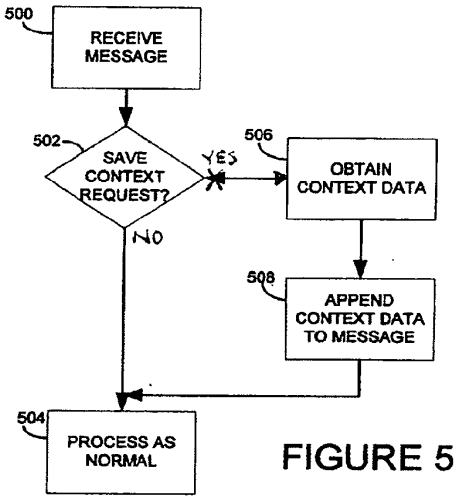


FIGURE 5

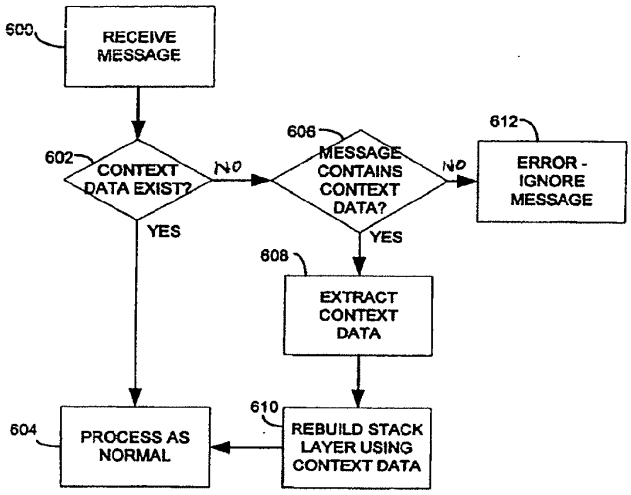


FIGURE 6

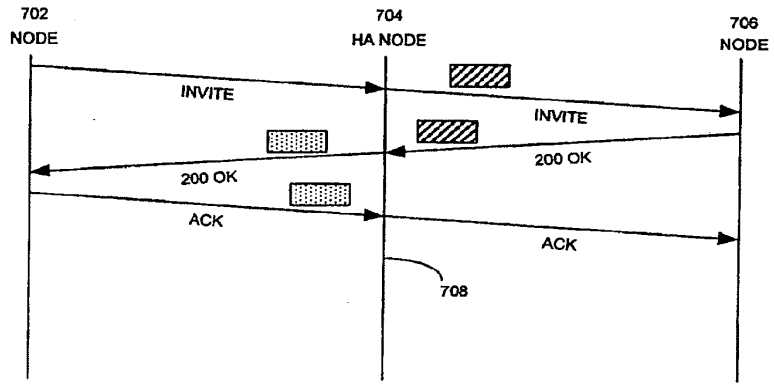


FIGURE 7

Electronic Acknowledgement Receipt

EFS ID:	5500445
Application Number:	10536625
International Application Number:	
Confirmation Number:	2264
Title of Invention:	Fault tolerant systems
First Named Inventor/Applicant Name:	Sebastien Bouat
Customer Number:	22879
Filer:	David M. Wilson/Colleen Brown
Filer Authorized By:	David M. Wilson
Attorney Docket Number:	B-5727PCT 622708-2
Receipt Date:	11-JUN-2009
Filing Date:	02-MAR-2006
Time Stamp:	16:28:10
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (PTO-875)	200309832-4_FEE_TRANS_ROA_040209.pdf	36553 81ada4b8aac509316677edf896f7acd6da34e42d	no	1

Warnings:	
Information:	

2		200309832-4_AMEND_NONFINAL_REJ_040209.pdf	619431 cf0826d162b6196acbaebb186726b01985196c98	yes	20

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	8
Drawings-other than black and white line drawings	9	9
Applicant Arguments/Remarks Made in an Amendment	10	16
Drawings-only black and white line drawings	17	20

Warnings:

Information:

Total Files Size (in bytes):	655984

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-1

Inventor(s): Sebastien BOUAT

Application No.: 10/536,625

Filing Date: 03/02/2006

Confirmation No.: 2264

Examiner: Luat Phung

Group Art Unit: 2416

Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

Mail Stop Amendment
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Transmitted herewith is/are the following in the above-identified application:

- ☒ Response/Amendment
- ☐ New fee as calculated below
- ☒ No additional fee
- ☐ Other _____ Fee$_____
- ☐ Petition to extend time to respond
- ☐ Supplemental Declaration

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY

(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	36	MINUS	36	= 0	X $52	$ 0
INDEP. CLAIMS	6	MINUS	6	= 0	X $220	$ 0
☐ FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ $390	$ 0
EXTENSION FEE	☐ 1st Month $130	☐ 2nd Month $490	☐ 3rd Month $1110	☐ 4th Month $1730		$ 0
OTHER FEES						$
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						$ 0

Charge $ 0 to Deposit Account 08-2025. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

Sebastien BOUAT

By: /David M. Wilson/

David M. Wilson

Attorney/Agent for Applicant(s)

Reg No. : 56,790

Date : 06/11/2009

Telephone : (713) 238-8000

Rev 10/08 (E-TransAmd)

DocCode - SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 10536625 Document Date: 6/11/2009 4:28:10 PM

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface using the Supplemental Content tab.
- Other USPTO employees can bookmark the current SCORE URL (http://es/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces using the Supplemental Content tab.

Form Revision Date: May 1, 2009

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of storing context information in an outgoing message sent from a node including a computing device using a protocol stack having at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node;

selectively indicating to **[[a]]** the layer of the protocol stack that context information ~~should~~ is to be obtained for that layer;

obtaining, by the computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the outgoing message such that a response to the message contains the context information, the response is received from the destination node.

2. (Currently amended) The method of claim 1, ~~wherein the node is arranged in a high-availability configuration~~further comprising adding context information obtained from a different protocol stack layer to the outgoing message.

3. (Previously presented) The method of claim 1, wherein the outgoing message is sent from the node is to a remote node across a network.

4. (Currently amended) The method of claim 1, ~~adapted for~~ used with a message-based communications system.

5. (Currently amended) The method of claim 1, wherein the step of obtaining context information ~~is adapted for obtaining~~ obtains context information related to the outgoing message.

6. (Currently amended) The method of claim 1, wherein the step of adding the obtained context information ~~is adapted for appending~~ appends the context information to a separate field of the message.

7. (Previously presented) The method of claim 1, for use with a session initiation protocol (SIP) network.

8. (Currently amended) The method of claim 7, wherein the step of adding the obtained context information ~~is adapted for appending~~ appends the context information to a SIP TAG field.

9. (Currently amended) The method of claim 7, wherein the step of adding the obtained context information ~~is adapted for appending~~ appends the context information to a SIP extension header.

10. (Currently amended) The method of claim 1, further comprising adding, to the message, an indication associated with the obtained context data where it is determined that the context data ~~may be~~ is potentially inaccurate or incomplete.

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11. (Currently amended) A method of restoring the context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer ~~should~~ is to be restored; and,

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; and

restoring, by the computing device, the context of the layer using context information from the message.

12. (Currently amended) The method of claim 11, wherein the step of determining ~~is adapted for determining~~ determines whether the context information of the layer ~~should~~ is to be restored based in part on the context information of the layer and in part on the received message.

13. (Previously presented) The method of claim 11, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. (Previously presented) The method of claim 11, wherein the step of determining further comprises checking whether the received message is an initial message.

15. (Currently amended) The method of claim 11, ~~adapted for~~ used with the session initiation protocol (SIP).

16. (Currently amended) The method of claim 15, wherein the step of restoring the context of the layer ~~is adapted for restoring~~ restores the context using context information stored in a SIP TAG.

17. (Currently amended) The method of claim 15, wherein the step of restoring the context of the layer ~~is adapted for restoring~~ restores the context using context information stored in a SIP extension header.

18. (Currently amended) A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:

a circuit for providing the outgoing message from an application to a layer of the protocol stack; the outgoing message is destined for an application on a destination node;

means for indicating to **[[a]]** the layer of the protocol stack that context information ~~should~~ is to be obtained for that layer;

a module for obtaining context information in accordance with the indication;

a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information, the response is received from the destination node.

19. (Currently amended) A system according to claim 18, wherein the node is configured to add context information obtained from a plurality of protocol stack layers to the outgoing message~~arranged in a high-availability configuration~~.

20. (Previously presented) A system according to claim 18, wherein the outgoing message is sent from the node to a remote node across a network.

21. (Previously presented) A system according to claim 18, for use with a message-based communications system.

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22. (Previously presented) A system according to claim 18, wherein the context information obtained is related to the outgoing message.

23. (Previously presented) A system according to claim 18, wherein the obtained context information is appended to a separate field of the message.

24. (Previously presented) A system according to claim 18, for use with a session initiation protocol (SIP).

25. (Original) A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

26. (Original) A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. (Currently amended) A system according to claim 18, wherein an indication associated with the obtained context data is added to the message where it is determined that the context data ~~may be~~ is potentially inaccurate or incomplete.

28. (Currently amended) A system of restoring the context information of a layer of a protocol stack of a node comprising:

receiving means for receiving a message;

logic for determining whether the context information of the layer ~~should~~ is to be restored;

a circuit for determining the presence of context information relevant to the layer within the message; and

restoration means for restoring the context of the layer using context information from the message.

29. (Currently amended) A system according to claim 28, wherein the logic for determining is ~~adapted~~ configured for determining based in part on the context information of the layer and in part on the received message.

30. (Currently amended) A system according to claim 28, wherein the logic for determining is ~~adapted~~ configured for checking the existence at the layer of context information associated with the received message.

31. (Currently amended) A system according to claim 30, wherein the logic for determining is ~~adapted~~ configured for checking whether the received message is an initial message.

32. (Previously presented) A system according to claim 28, for use with the session initiation protocol (SIP).

33. (Currently amended) A system according to claim 32, wherein the restoration means is ~~adapted~~ configured for restoring the context using context information stored in a SIP TAG.

34. (Currently amended) A system according to claim 32, wherein the restoration means is ~~adapted~~ configured for restoring the context using context information stored in a SIP TAG.

35. (Currently amended) A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:

indicating to a layer that context information ~~should~~ is to be obtained for that layer;

obtaining, by a computing device, context information in accordance with the indication; and

adding, by the computing device, the obtained context information to the message, such that a response to the message contains context information needed to restore a pre-switchover context of the layer.

36. (Currently amended) A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:

receiving a message by a computing device;

determining, by the computing device, whether the context information of the layer ~~should~~ is to be restored; and,

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; and

restoring, by the computing device, the context of the layer using context information from the message.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/536,625	Filing Date 03/02/2006	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/11/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 36	Minus	** 36	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARSHA R. RICHARDS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/536,625	03/02/2006	Sebastien Bouat	B-5727PCT 622708-2	2264

22879 7590 04/02/2009

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
PHUNG, LUAT	
ART UNIT	PAPER NUMBER
2416	

NOTIFICATION DATE	DELIVERY MODE
04/02/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
ipa.mail@hp.com
jessica.l.fusek@hp.com

Office Action Summary	Application No.	Applicant(s)	
	10/536,625	BOUAT, SEBASTIEN	
	Examiner	Art Unit	
	LUAT PHUNG	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 May 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following.

Fig. 5, arrow between elements 502 and 506 should be reversed. Also, conditional element 502 should be labeled with Yes and No.

Fig. 6, conditional elements 602 and 606 are missing the No labels.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1, 4, 10-12, 17, 18, 28, 35, 36, etc. are objected to because of the following informalities:

Regarding claims 1, 11, 12, 18, 28, 35 and 36, an objection is made to the use of the word "should". This word constitutes optional language that does not further limit this claim. Specifically, it is not known whether the limitations following this word are necessary or optional.

Regarding claims 10 and 17, an objection is made to the use of the word "may be". This phrase constitutes optional language that does not further limit this claim. Specifically, it is not known whether the limitations following this word are necessary or optional.

Regarding several claims, starting with claim 4, an objection is made to the use of the word "adapted for". This phrase constitutes optional language that does not further limit this claim. Specifically, it is not known whether the limitations following this word are necessary or optional.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 4-6, 10-14, 18, 19, 21-23, 27-31, 35 and 36 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al (US Pub. 2004/0088418).

Regarding claims 1, 18 and 35, Iyer discloses a method of, and a system (Fig. 3, element 340A; Fig. 4, element 402) for, storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:

selectively indicating to a layer of the protocol stack that context information should be obtained for that layer; (Fig. 4; para. 44; socket layer receiving instruction to establish a redundant socket)

obtaining context information in accordance with the indication; (Fig. 4; para. 44; socket layer including cookie in the message) and

adding the obtained context information to the outgoing message. (Fig. 4, 5; para. 44, 45, 72; socket layer sending message with cookie and socket parameters)

Iyer further discloses sending a response message (Fig. 5; para. 45, 72). Iyer discloses all of the subject matter except *such that a response to the message contains the context information*. However Iyer discloses the cookie being used to complete the associate between the socket layer on the active side with the socket on the standby

side. Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to include the cookie in the response in order to associate the active and standby sides.

Regarding claims 2 and 19, Iyer further discloses wherein the node is arranged in a high-availability configuration. (Fig. 4; para. 3)

Regarding claims 4 and 21, Iyer further discloses adapted for use with a message-based communications system. (para. 19, 27)

Regarding claims 5 and 22, Iyer further discloses wherein the step of obtaining context information is adapted for obtaining context information related to the outgoing message. (para. 44)

Regarding claims 6 and 23, Iyer further discloses wherein the step of adding the obtained context information is adapted for appending the context information to a separate field of the message. (para. 44)

Regarding claims 10 and 27, Iyer further discloses further comprising adding an indication associated with the obtained context data where it is determined that the context data may be inaccurate or incomplete. (para. 65)

Regarding claims 11, 28 and 36, Ilyer discloses a method, and a system, of restoring the context information of a layer of a protocol stack of a node comprising:

receiving a message; (para. 54; standby-turned-active side detects switchover)

determining whether the context information of the layer should be restored; (para. 51; determining if application layer on standby side should be invoked) and

restoring the context of the layer using context information. (para. 54, 59, 62, 63; application layer on standby side woken up and switchover performed seamlessly)

Lau does not explicitly disclose:

where it is so determined, determining the presence of context information relevant to the layer within the message; and

context information from the message.

However Iyer discloses cookie being included in the message to uniquely identify the socket and to associate the two sockets on the active side and the standby side (para. 44, 45, 58). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to identify the context information via presence of the cookie in the message, in order to effect seamless switchover.

Regarding claims 12 and 29, Iyer further discloses wherein the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message. (para. 44, 50-54)

Regarding claims 13 and 30, Iyer further discloses wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message. (para. 44, 50-54)

Regarding claims 14 and 31, Iyer further discloses wherein the step of determining further comprises checking whether the received message is an initial message. (para. 44-45)

6. Claims 3, 7-9, 15-17, 20, 24-26 and 32-34 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al in view of Lau, et al (US Pub. 2003/0046604) or Vasavada, et al (US Pub. 2004/0078619).

Regarding claims 3 and 20, Iyer discloses all of the subject matter as recited previously in this office action except *wherein the outgoing message is sent from the node to a remote node across a network*. However, redundant configuration including active and standby nodes across a network is well known in the art. In particular Lau from the same or similar fields of endeavor discloses an active control card communicates over a communication such as Ethernet with a standby control card. (Lau para. 24) Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to configure the standby and active nodes of Iyer's network in the remote arrangement suggested by Lau. The motivation for doing so would have been to improve switchover in the event of failure.

Regarding claims 7-9, 15-17, 24-26 and 32-34, Iyer discloses all of the subject matter as recited previously in this office action except:

for use with a session initiation protocol (SIP) network, as recited in claims 7, 15, 24 and 32;

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field, as recited in claims 8, 16, 25 and 33; and

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header, as recited in claims 9, 17, 26 and 34.

Lau or Vasavada from the same or similar fields of endeavor discloses implementing redundancy for MPLS and IS-IS protocols using the same base architecture (title, abstract). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to apply the redundancy system of Iyer, not only to TCP/UDP (Iyer, para. 10), but also for SIP by using the protocol-specific messaging to carry context information in order to facilitate high availability.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see form 892).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2416

/Ricky Ngo/

Supervisory Patent Examiner, Art Unit 2416

Notice of References Cited	Application/Control No. 10/536,625	Applicant(s)/Patent Under Reexamination BOUAT, SEBASTIEN	
	Examiner LUAT PHUNG	Art Unit 2616	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0005356 A1	01-2003	Franckowiak et al.	714/11
*	B	US-2003/0046604 A1	03-2003	Lau et al.	714/11
*	C	US-2004/0088418 A1	05-2004	Iyer et al.	709/227
*	D	US-2005/0265346 A1	12-2005	Ho et al.	370/392
*	E	US-7,155,632 B2	12-2006	Vasavada, Nishit	714/4
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2416

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/29/2009								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	34	✓								
	35	✓								
	36	✓								

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 456 of 622

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2416

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 457 of 622

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10536625	BOUAT, SEBASTIEN
	Examiner	Art Unit
	LUAT PHUNG	2416

SEARCHED			
Class	Subclass	Date	Examiner
370	342	3/29/2009	LP
714	2, 3, 10, 11		

SEARCH NOTES		
Search Notes	Date	Examiner
Inventorship search	3/29/2009	LP
Web search		
EAST search		

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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BIB DATA SHEET

CONFIRMATION NO. 2264

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/536,625	03/02/2006 RULE	714	2416	B-5727PCT 622708-2

APPLICANTS
Sebastien Bouat, St Martin d'Uriage, FRANCE;

**** CONTINUING DATA ***************************
This application is a 371 of PCT/EP04/51371 07/06/2004

**** FOREIGN APPLICATIONS **************************
EUROPEAN PATENT OFFICE (EPO) 03291852.6 07/25/2003

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

Foreign Priority claimed ☑ Yes ☐ No 35 USC 119(a-d) conditions met ☑ Yes ☐ No Verified and Acknowledged /LUAT PHUNG/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		FRANCE	4	36	6

ADDRESS

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400
UNITED STATES

TITLE

Fault tolerant systems

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
2430	No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1027	"370/242".CCLS.	US-PGPUB; USPAT	ADJ	ON	2009/03/28 12:09
S2	16	((SEBASTIEN) near2 (BOUAT)).INV.	US-PGPUB; USPAT	ADJ	ON	2009/03/28 12:09
S3	17	((SEBASTIEN) near2 (BOUAT)).INV.	EPO; JPO; DERWENT	ADJ	ON	2009/03/28 12:09
S7	1	polle near3 torsten.in.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 12:29
S8	86	active with standby with (protocol or layer) with redundan$2	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 14:00
S9	49	S8 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 14:01
S10	19	S8 with (current or updat$3 or sync$10)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 14:03
S11	17	S10 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 14:03
S12	2	"US 20060143494"	US-PGPUB; USPAT; USOCR; DERWENT	ADJ	ON	2009/03/28 15:52
S13	634	active with standby with messag$3	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:06
S14	136	S13 with (current or updat$3 or sync$10)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:06

SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
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S15	22	S13 with (current or updat$3 or sync$10).bsum.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:07
S16	9	S15 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:07
S17	95	S14 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:43
S18	86	S17 not S15	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:43
S19	2	"20070058533".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:47
S23	2	"ep 1309142"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:57
S24	4	"2004105341"	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 16:59
S26	1245	wieczorek.in.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:07
S27	20	wieczorek near3 philippe.in.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:08
S28	2	"20020107966".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:13
S29	6	("2002/0107966").URPN.	USPAT	ADJ	ON	2009/03/28 17:17

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S30	1	10/284050	USPAT	ADJ	ON	2009/03/28 17:18
S31	65	baudot.in.	USPAT	ADJ	ON	2009/03/28 17:19
S32	52	baudot near3 jacques.in.	USPAT	ADJ	ON	2009/03/28 17:19
S38	5	active near10 standby same (high availability near3 controller)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:22
S39	2	active near10 standby near20 (high adj2 availability near3 controller)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:24
S40	3840	active near10 standby near20 state	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:25
S41	2938	active near5 standby near10 state	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:25
S42	38	active near5 standby near10 call near3 state	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:25
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S48	69	((active near10 standby) or redundan$2) near10 (protocol or layer) near5 (copy$3 or copied or replicat$3 or duplicat$3 or transfer$4 or synchroni$6).ab.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 17:54
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S53	2	10/139065	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/28 18:31
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S55	1212	714/2.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:38
S56	402	714/3.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:38
S57	713	714/10.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:39

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S58	844	714/11.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:39
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S60	3968	S59 or S55 or S56 or S57 or S58	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:39
S61	17	S60 and (active with standby with (protocol or layer))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:40
S62	13	S61 and (@ad<"20030725" or @rlad<"20030725" or @prad<"20030725")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 10:40
S63	2	"20050265346".pn.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 15:37
S64	7	stateful switchover near10 (protocol or layer)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 16:08
S69	40	(switch$over or fail$over) near10 (protocol or layer) near10 (active and (standby or backup))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 16:15
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S72	1212	714/2.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 17:51
S73	402	714/3.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 17:51

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S74	713	714/10.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 17:51
S75	844	714/11.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 17:51
S76	1027	"370/242".CCLS.	US-PGPUB; USPAT	ADJ	ON	2009/03/29 17:51
S77	3968	S76 or S72 or S73 or S74 or S75	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 17:51
S78	3	S77 and S69	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/03/29 17:51

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U.S. PATENT & TRADEMARK OFFICE IAP43 APR 20 2006

Form PTO-1449 (Modified) Page 1 of 1	*ATTY DOCKET NO.* B-5727PCT 622708-2	*U.S. SERIAL NO.* 10/536,625
LIST OF PATENTS AND PUBLICATIONS STATEMENT	*APPLICANTS* Sebastian Bouat	
	FILING DATE March 2, 2006	*GROUP* not yet assigned

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	ISSUE DATE	NAME	CLASS	SUB-CLASS	FILING DATE or 102(e) DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO
	1 309 142 A	5/2003	EP			
	02/093863 A	11/2002	WO			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Chandranmenon, G.P., et al., "Trading Packet Headers fir Packet Processing", IEEE/ Acm Transactions on Networking, Vol. 4, No. 2, pp.141-152 (April 1996)
	Singh, H., "Distributed Fault-Tolerant/High-Availability Systems" Online Article, December 12, 2001. Retrieved from the internet URL:http://web.archive.org/web/2001121024354/http://www.trillium.com/news-events/white-papers/index.html>(January 7, 2004)

EXAMINER	*DATE CONSIDERED*
/Luat Phung/	03/28/2009

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.P./

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Fax Number: 571-273-8300

From: Mavis S. Gallenson, Esq. (Reg. No. 32,464)

Date: October 10, 2008

Total Number of Pages (Including This Page): 1

Remarks:

RE: Hewlett-Packard Development Company, L.P.
Patent Application in US
Application No: 10/536,625
"Improvements In and Relating to Fault Tolerant Systems"
Our Ref: B-5727 PCT 622708-2/RPB

It will be appreciated if you will inform us as to the status of the above-identified U.S. patent application. This inquiry is being initiated on the basis of the fact that the subject application was filed on March 2, 2006, and an official action dealing substantively with this application has not been received. Therefore, please inform us as to when we may expect to receive an official action for the above-identified application.

Thank you for your assistance with this matter.

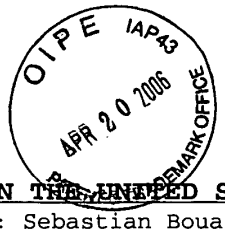
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Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Sebastian Bouat	Re: Information Disclosure Statement
Serial No.: 10/536,625	Group: not yet assigned
Filed: March 2, 2006	Examiner: not yet assigned
For: "IMPROVEMENTS IN AND RELATING TO..."	Our Ref: B-5727PCT 622708-2
	Date: April 17, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria VA, 22313-1450

Sir:

In accordance with the Applicants' duty to disclose information which may be material to the examination of this application, the undersigned respectfully requests that the Examiner consider on the merits the documents listed on the enclosed Form PTO-1449 (modified) before issuing the first Office Action on the merits. Copies of the foreign patent and non-patent documents listed are enclosed herewith.

The documents listed on Form PTO-1449 (modified) are those cited in the International Search Report dated December 15, 2005 for PCT Application No. PCT/EP2004/051371. A copy of the Search Report is enclosed herewith.

The filing of this Information Disclosure Statement (IDS) shall not be construed as a representation that a search has been made (37 C.F.R. 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The Applicants believe that this IDS is being submitted before the issuance of a first Office Action on the merits and before the issuance of a Final Rejection or Notice of Allowance. Therefore, no official fees should be due; and this IDS should be considered on the merits. If this IDS is being submitted after the issuance of the first Office Action on the merits and before the issuance of a Final Rejection or Notice of Allowance, please contact the undersigned to authorize a payment of $180.00 (or any other

required amount), which is the fee set forth in 37 C.F.R. § 1.97(c), if the Examiner believes that such a fee is due in order for this IDS to be considered on the merits.

The filing of this Information Disclosure Statement shall not be construed as an admission against interest in any manner. (Notice of January 9, 1992, 1135 O.G. 13-25, at 25.)

The person making this statement is the practitioner who signs below on the basis of information supplied by an individual associated with the filing and prosecution of this application (37 C.F.R. § 1.56(c)) and on the basis of information in the practitioner's file.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first-class mail in an envelope addressed to the "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450", on April 17, 2006 by Guillermo Gonzalez.

Respectfully submitted,

Robert Popa
Attorney for Applicant
Reg. No. 43,010

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Enclosures: Form PTO-1449 (modified) (1 page)
Copies of Foreign and Non-Patent documents listed on Form PTO-1449 (modified)
Copy of Search Report for PCT Application No. PCT/EP2004/051371

IAP43 APR 2006 PATENT & TRADEMARK OFFICE

Form PTO-1449 (Modified) Page 1 of 1	*ATTY DOCKET NO.* B-5727PCT 622708-2	*U.S. SERIAL NO.* 10/536,625
LIST OF PATENTS AND PUBLICATIONS STATEMENT	*APPLICANTS* Sebastian Bouat	
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EXAMINER	*DATE CONSIDERED*

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(19) Europäisches Patentamt
European Patent Office
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(11) EP 1 039 142 A2

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(54) Fan diffuser

(57) The invention relates to an arrangement in connection with a fan comprising a rotatable fan wheel (1) and a diffuser (2) arranged in connection with the fan wheel to convert kinetic energy generated by a high velocity of exhaust into static pressure. In order to eliminate a disturbing reflow, at least one of side plates (2a, 2b) of the diffuser (2) is arranged to overlap with the outer edge of the rim of the fan wheel (1).

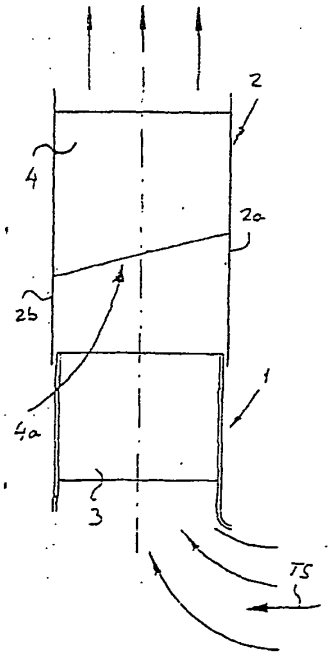


FIG. 5

EP 1 039 142 A2

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Description

[0001] The invention relates to an arrangement in connection with a fan comprising a rotatable fan wheel and a diffuser arranged in connection with the fan wheel to convert kinetic energy generated by a high velocity of exhaust into static pressure.

[0002] The above-mentioned arrangements are well-known today in connection with, for example, different fan applications used in air treatment. The purpose of a diffuser arranged after a fan wheel in the direction of flow is to convert the dynamic pressure generated by a high velocity of exhaust of the fan wheel into static pressure. This can be achieved by lowering the high velocity of exhaust after the fan wheel by the diffuser.

[0003] Dimensioning of a diffuser is a widely-studied subject. *Design and Operation of Centrifugal Axial-Flow and Cross-Flow Fans* by B. Eck, a well-known study in the field, provides an example of the dimensioning of blades and passages of a diffuser. Designing the diffuser optimally, however, usually results in a blade having the shape of a logarithmic spiral, which is difficult and expensive to manufacture from sheet metal; consequently, manufacturing costs easily become too high. In order to reduce the manufacturing costs, an attempt has been made to restrict the number of the blades to be smaller than the optimal one, in which case, however, flow-technical characteristics suffer and the result is not the best possible one.

[0004] It is also known in the field that the distance between a blade of the fan and the diffuser affects certain characteristics of the apparatus, noise in particular, such that when the distance is too short the noise level is high. The above-mentioned features are also disclosed in the study by B. Eck mentioned above. The distance also has a great effect on the disturbing reflow.

[0005] An object of the invention is to provide an arrangement to enable drawbacks of the prior art to be eliminated. This is achieved by an arrangement of the invention. The arrangement of the invention is characterized in that at least one of the side plates of the diffuser is arranged to overlap with the outer edge of the rim of the fan wheel.

[0006] An advantage of the arrangement of the invention is mainly that it enables all the above-mentioned drawbacks to be substantially efficiently affected and a preferable result to be achieved. A further advantage of the invention is its simplicity, which means that the invention is inexpensive to manufacture and use. A still further advantage of the invention is its flexibility in use, whereby an arrangement of the invention can be preferably applied to different fans.

[0007] In the following, the invention will be described by means of the examples shown in the accompanying drawings, in which

Figure 1 is a schematic view showing how a flow behaves in an apparatus of the prior art,

Figure 2 is a schematic side view of an arrangement of the invention,

Figure 3 is a schematic view of an embodiment of the arrangement of Figure 2 as seen from another direction,

Figure 4 shows a second embodiment of the arrangement of Figure 2,

Figure 5 shows a third embodiment of the arrangement of Figure 2,

Figure 6 is a schematic view of an embodiment of a basic principle of the invention, and

Figure 7 is a schematic view of a second embodiment of the basic principle of the invention.

[0008] Figure 1 schematically shows how a flow of a gaseous medium, such as air, behaves in a fan apparatus of the prior art. In Figure 1, reference number 1 refers to a fan wheel and reference number 2 to a diffuser by which, as stated above, kinetic energy generated by a high velocity of exhaust is converted into static pressure. The fan wheel is rotated by an appropriate motor, such as an electric motor. The motor is not shown in the figure. The flow of air is indicated in Figure 1 by means of arrows, whereby the above-mentioned disturbing reflow is also clearly apparent. In addition to the reflow, the solution of Figure 1 suffers from the disadvantages relating to the noise level, as stated above.

[0009] Figure 2 schematically shows an arrangement of the invention. In Figure 2, the same reference numbers have the same significance as in Figure 1. Furthermore, in Figure 2, the direction of rotation of the fan wheel 1 has been indicated by arrow N. Furthermore, high and low flow rates of air, which are used to describe the basis of operation of the diffuser, in other words the above-mentioned conversion of kinetic energy into static pressure, have also been denoted in Figure 2 by arrows NK and NM.

[0010] Figure 2 further clearly shows blades 3 of the fan wheel and blades 4 located in a diffuser of the present embodiment, the blades 4 of the diffuser being arranged between two side plates 2a, 2b located at a distance from each other, as can be seen from Figures 3 to 5.

[0011] In accordance with the basic idea of the invention, at least one of the side plates 2a, 2b of the diffuser is arranged to overlap with the outer edge of the rim of the fan wheel 1. The above-mentioned essential feature of the invention is clearly apparent in Figure 2 wherein the outer rim of the fan wheel 1 is indicated in a dotted line and the edge of the side plate of the diffuser is indicated in a continuous line. This can also be clearly seen in Figure 3 to 5. The above-mentioned essential feature of the invention also becomes apparent in Figures 6 and 7. In Figures 3 to 5 and 6 and 7, the flow of air is schematically indicated by means of arrows. The above-described structure enables the harmful reflow mentioned earlier to be avoided and the problems related to the noise level to be mitigated.

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[0012] The best result is achieved in such a manner that both side plates of the diffuser 2 are arranged to overlap with the outer edge of the rim of the fan wheel, as shown in Figures 3 to 6, for example. The invention can, however, also be applied such that only one of the sides of the diffuser overlaps with the rim of the fan wheel. Such an application is schematically shown in Figure 7 wherein only the side plate 2b of the diffuser is arranged to overlap with the outer edge of the rim of the fan wheel. The structure of Figure 7 yields a slightly poorer result than, for example, the arrangement of Figure 6, but the solution of Figure 7 is advantageous to installability since the diffuser can be a simple, uniform structure which can be installed in place from the side. The overlapping side plate can be either one of the side plates 2a, 2b in this application. In the case of Figure 6, the structure of the diffuser must be a structure which can be opened, for example.

[0013] The invention can be applied in connection with different diffuser solutions, as shown in Figures 2 to 5. Figure 2 shows the blades 4 located in the diffuser that are constructed from straight parts. The straightness of the blades 4 is apparent in Figure 2. The straight blades 4 are an advantage in the manufacturing process. The blades 4 of the diffuser can be shaped in many different ways, as shown in Figures 3 to 5. In the application of Figure 3, sides 4a of the blades 4 of the diffuser facing the fan wheel are straight. In the applications of Figures 4 and 5, the sides of the blades 4 facing the fan wheel are bevelled. In the application of Figure 5, the sides 4a are sloped seen in the direction of incoming air such that the edge of the diffuser facing the front side plate 2a is located at a greater distance from the fan wheel 1 than the edge facing the side plate 2b located further back. The term "seen in the direction of incoming air" refers to the direction of the rotation axis of the fan wheel 1 seen from the side of the fan wherefrom air flows to the fan wheel. This direction is marked with arrows TS in Figures 3 to 5. The flow of air is indicated by arrows. In the application of Figure 4, the blades 4 are bevelled in an inverted manner compared with the application of Figure 5. The most preferable result is achieved with the application of Figure 5.

[0014] The examples disclosed above are by no means meant to restrict the invention but it can be freely modified within the scope of the claims. It is thus obvious that an arrangement of the invention or the details thereof do not necessarily have to be identical to those shown in the figures, but other solutions are also possible. For example, the number of the blades of the diffuser may vary, the type of the fan may be different, etc. The invention can also be applied to a bladeless diffuser, etc.

Claims

1. An arrangement in connection with a fan comprising a rotatable fan wheel (1) and a diffuser (2) arranged in connection with the fan wheel to convert kinetic energy generated by a high velocity of exhaust into static pressure, **characterized** in that at least one of the side plates (2a, 2b) of the diffuser (2) is arranged to overlap with the outer edge of the rim of the fan wheel (1).

2. An arrangement as claimed in claim 1, **characterized** in that both side plates (2a, 2b) of the diffuser (2) are arranged to overlap with the outer edge of the rim of the fan wheel (1).

3. An arrangement as claimed in claim 1 or 2, **characterized** in that blades (4) of the diffuser (2) are made from straight parts.

4. An arrangement as claimed in claim 3, **characterized** in that the sides of the blades (4) of the diffuser (2) facing the fan wheel are bevelled.

5. An arrangement as claimed in claim 4, **characterized** in that the sides of the blades (4) of the diffuser (2) are bevelled, as seen in the direction of incoming air, such that the edge of the diffuser (2) facing the front side plate (2a) is located at a greater distance from the fan wheel (1) than the edge facing the side plate (2b) located further back.

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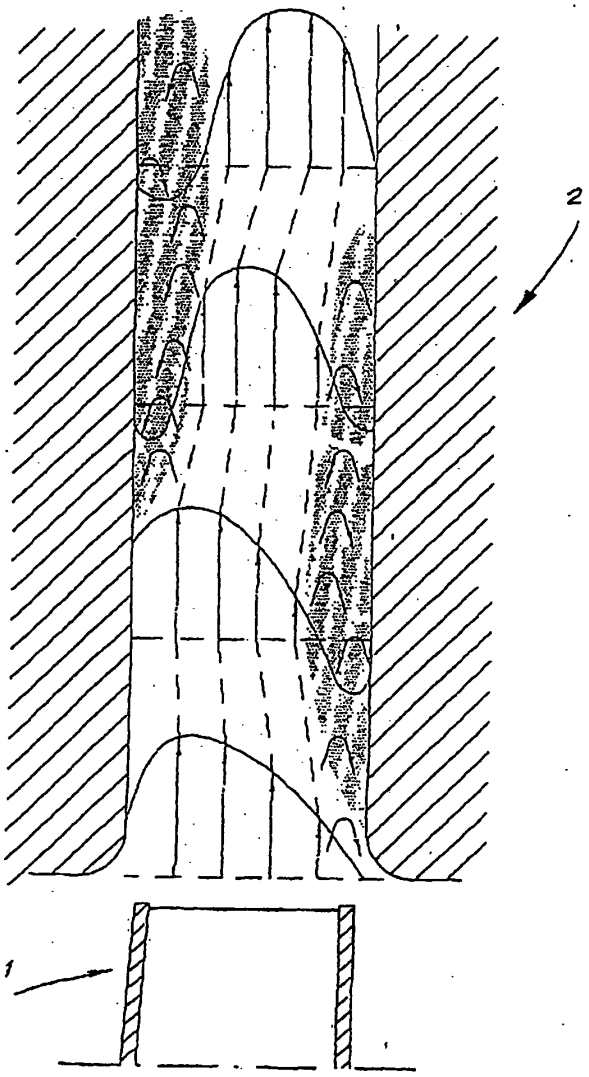


FIG. 1

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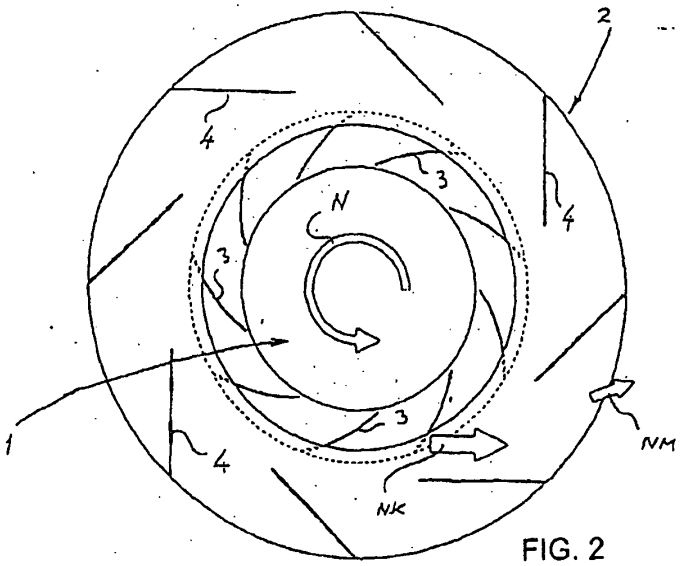


FIG. 2

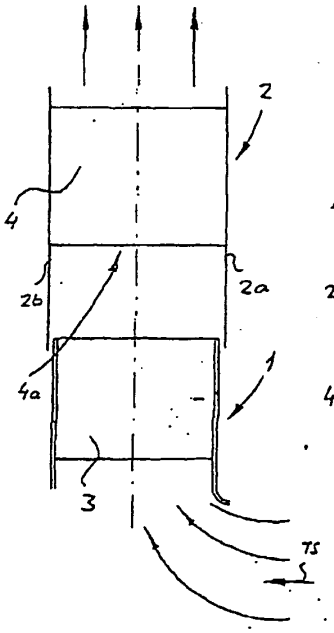


FIG. 3

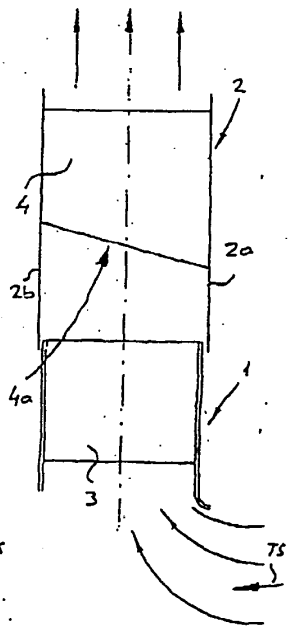


FIG. 4

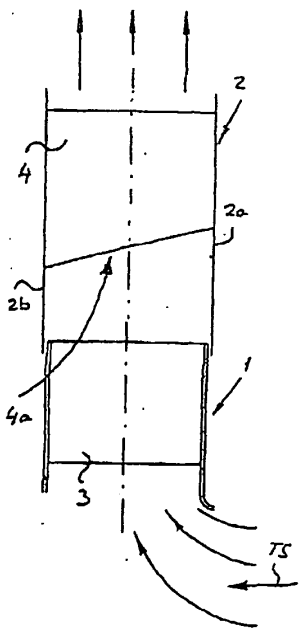


FIG. 5

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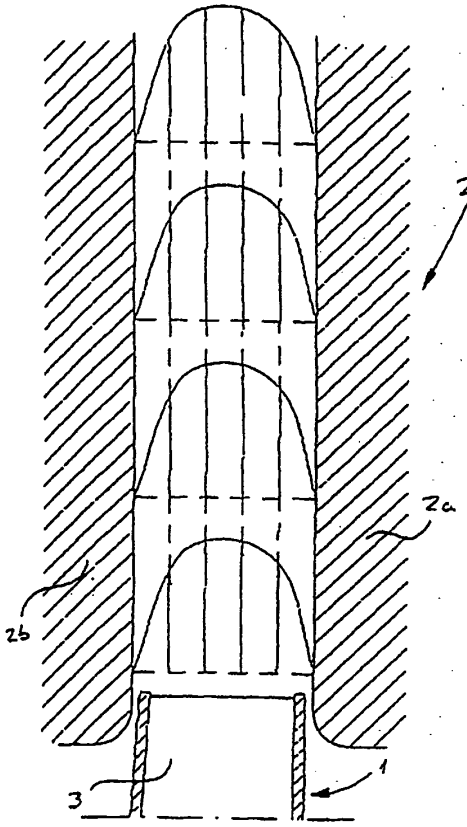


FIG. 6

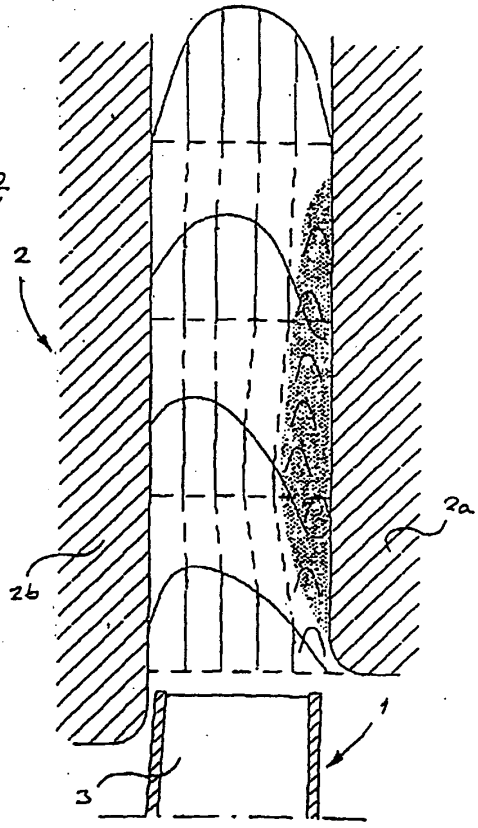


FIG. 7

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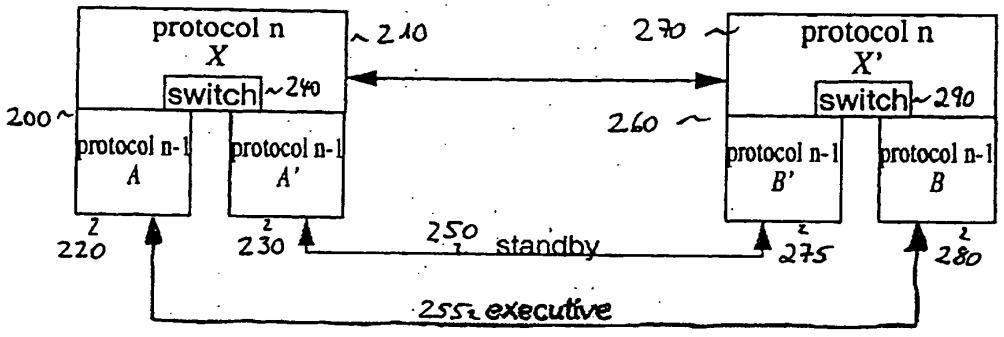
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Declaration under Rule 4.17:

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[Continued on next page]

(54) Title: APPLICATION TRANSPARENT REDUNDANCY IN A PROTOCOL STACK



(57) Abstract: The invention relates to a method in a communication network, wherein a first peer is provided for a communication with a second peer by means of a protocol stack comprising a first protocol layer and a second protocol layer provided at the first peer, said second protocol layer having a second layer instance, wherein the protocol layers are provided for communication with corresponding protocol layers of a further peer, and wherein the first protocol layer comprises an executive protocol instance assigned to a first protocol layer communication link and standby protocol instance assigned to a further first protocol layer communication link, wherein the executive protocol instance performs first protocol layer tasks, and wherein the standby protocol instance is kept in a standby mode for taking over the first protocol layer tasks form the executive protocol instance. The invention relates further to a protocol stack, network element and computer program.

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(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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Application transparent redundancy in a protocol stack

The invention addresses the field of protocol-based communication systems. It relates to a method provided for communication using a redundant protocol layer, a protocol stack, network element, communication system and computer program, in particular for use in a telecommunication network.

Background of the invention

When two peers of a communication system communicate with each other, they use a protocol, which defines the format and sequence of messages that are exchanged. Typically the protocol is based on a lower protocol, i.e. a protocol on a lower protocol layer. The definition of lower and higher protocol layers follows from the well-known ISO/OSI reference model. Fig. 1 shows an example of such known protocol stacks 100, 160. A higher layer protocol n 110, 160 is based on a lower layer protocol n-1 120, 150. A failure, either a hardware failure or a software failure, in the lower protocol layers 110, 160 will block the communication between the peers 100, 160 on the higher protocol layer 110, 160.

Therefore, it is an object of the invention to provide a method, a protocol stack, a network element, a communication system and a computer program that protect a layered protocol stack against hardware and / or software failures occurring in a protocol layer, in particular in one or more lower protocol layers.

Summary of the invention

This object is solved by the teaching of the independent claims.

The invention relates to a method in a communication network, wherein a first peer is provided for communication with at least a second peer by means of a protocol stack that is provided at the first peer, said protocol stack comprising a first protocol layer and a second protocol layer, said second protocol layer having a second protocol layer instance, wherein each of the protocol layers are provided for

communication with a corresponding protocol layer of at least one further peer. The first protocol layer comprises an executive protocol layer instance assigned to a first protocol layer communication link and at least one standby protocol layer instance assigned to a further first protocol layer communication link, wherein the executive protocol layer instance performs first protocol layer tasks required for the communication, and wherein the standby protocol layer instance is kept in a standby mode for taking over the first protocol layer tasks from the executive protocol layer instance.

In a further aspect relates the invention to a protocol stack comprising a first protocol layer and a second protocol layer, said second protocol layer having a second protocol layer instance, wherein the first protocol layer comprises an executive protocol layer instance adapted to perform first protocol layer tasks, and at least one standby protocol layer instance adapted to be kept in a standby mode for taking over the first protocol layer tasks from the executive protocol layer instance, and wherein the second protocol layer comprises a switching instance adapted to control which of the first protocol layer instances performs the first protocol layer tasks.

Preferably is the first protocol layer a so-called lower protocol layer, while the second protocol layer is a so-called higher protocol layer according to the ISO/OSI reference model.

Due to the provisioning of executive and standby protocol layer instances is a redundancy introduced into the protocol stack, which increases the reliability of communication nodes or systems using the corresponding protocol stacks. This is in particular useful for communication traffic having real-time requirements, e.g. in telecommunication systems, or being security-relevant, e.g. in control signalling networks of automated industrial production systems.

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Advantageously, an operator of a communications system applying the described method can configure in the system, which first layer protocol instance shall be the executive protocol layer instance, and, consequently, which one shall be the standby protocol layer instance. The operator might change the configuration in the event of a detected failure.

As a further advantage, the executive protocol layer instance and the standby protocol layer instance can use different physical communication media, can be hosted by different physical instances and can implement different protocols. Doing so, maximum protection against failures in the first protocol layer can be reached.

Advantageously can the invention be applied transparently, i.e. invisible, for communication parties or communication applications.

In a further aspect relates the invention to a network element of a communication network adapted to perform the method according to the invention. In another aspect relates the invention to a communications network comprising at least one corresponding network element. Such a network element can be, e.g., a network node of a mobile communication system, like a Mobile Switching Centre MSC, a Packet MSC, a Serving General Packet Radio Service Support Node SGSN or a Home Location Register HLR, a Base Station BS, a Base Station Controller BSC, a Radio Network Controller RNC or a Mobile Station MS, e.g. a mobile phone, a Personal Digital Assistant PDA or a laptop computer adapted to connect to the mobile communication network.

In a further aspect relates the invention to a computer program, loadable into an internal memory of a digital processing unit, comprising software code portions adapted to control the steps according to the inventive method, when the computer program is executed on the digital processing unit.

Further embodiments of the invention are described in the dependent claims.

In one embodiment of the method comprises the protocol stack a switching instance that controls which of the first protocol layer instances performs the first protocol layer tasks. Advantageously, the control instance is located close to the first protocol layer, thus minimising signalling effort and response times.

In a another embodiment monitors the switching instance whether communication data are received via the standby protocol layer instance, and the switching instance assigns the first protocol layer tasks to the standby protocol layer instance, if the monitoring indicates that communication data are received via the standby protocol layer instance. Advantageously, there is no separate signalling required as a trigger for switching to the standby instance. This embodiment can preferably be used in a protocol stack having a slave function with respect to the redundancy mechanism.

In a further embodiment is a switching request received by the first peer, preferably by the switching instance of said peer, and the switching instance assigns responsively the first protocol layer tasks to the standby protocol layer instance. This allows for a switching to the standby instance, even if the protocol stack processes currently no further communication traffic that could otherwise be used as a switching trigger.

In another embodiment performs the switching instance at least once a supervision of the executive protocol layer instance operation, in other words, the whole executive first protocol layer communication link, by initiating the sending of a supervision request via at least one of the first protocol layer instances, and by monitoring whether a corresponding supervision response is received, and assigns the first protocol layer tasks to the standby protocol layer instance if the supervision indicates a failure on the executive protocol layer instance. This embodiment is useful for a protocol stack acting as a master with respect to the set-up of the communication configuration. In particular a supervision of the first layer instances

operation in dedicated time periods allows for a reliable detection of first protocol layer failures.

In a further embodiment sends the switching instance a switching request at least to the second peer, if the supervision indicates a failure on the executive protocol layer instance, said switching request requesting the assignment of the first protocol layer tasks to the standby protocol layer instance. A protocol stack acting as a master in view of the executive/standby-configuration can therefore inform a slave protocol stack without delay about any failure in the first protocol layer. Advantageously, a slave protocol stack has no need to perform an own supervision, but can rely upon the master protocol stack.

In another embodiment is the switching instance located in the second protocol layer.

In one embodiment is the invention realised by software. In a further preferred embodiment is the computer program stored on a computer readable medium like a CD-ROM, a floppy disc, optical disc or hard disk. Therefore, a good physical portability of the software is provided, i.e. upgrades can be performed in an easy way.

Another embodiment of the invention addresses a protocol stack comprising redundant lower layers (executive and standby) and a common higher layer including detection means for detection a link failure and a switching means for switching from the executive lower layer to the standby lower layer. Further embodiments refer to a protocol stack having redundant lower layers, a corresponding network element, a corresponding communications network and a corresponding computer program.

In the following are the invention and its embodiments described in detail with reference to the figures, which show:

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Fig. 1 a known protocol layering,

Fig. 2 a protocol layering according to the invention,

Fig. 3 a redundant Intra-Network Packet Data Mobile Application Part PMAP,

Fig. 4 a message flow for a start-up sequence,

Fig. 5 a message flow for choosing the executive protocol layer instance,

Fig. 6 a message flow for a supervision sequence, and

Fig. 7 a message flow for a fail over sequence.

Detailed description of embodiments of the invention

In the embodiment described in the following uses the invention two lower layer protocol instances and builds a switch into a higher layer instance of a protocol stack. The terms 'lower layer' and 'higher layer' are to be understood in accordance to the ISO/OSI reference model. The higher layer instance chooses one of the lower layer instances as executive and one as standby instance. The actual communication is made over the executive lower layer instance.

As shown in Fig. 2, the higher protocol instances 210, 270 of both peers 200, 260 allocate two lower layer protocol instances 220, 230, 275, 280. Those lower layer instances of one peer do not have to use the same physical communication medium, do not have to be hosted by the same physical instance and do not have to implement the same protocol.

The pair of instances that consists of the two executive instances is called the executive link. The other pair is called the standby link.

If a connection-oriented protocol is used in the lower layer protocol, connections between the corresponding lower layer protocol are established. That is, protocol instance A 220 and A' 230 establish connections 255, 250 to protocol instances B 280 and B' 275, respectively.

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If a connectionless lower layer protocol is used, the protocol instances A 220, A' 230 and B 280, B' 275 have to be prepared to transfer data between the respective instance according to the requirements of the lower layer.

A switch component 240, 290 decides which of the lower layer instances acts as executive lower layer instance and which as standby lower layer instance. Both switch instances in the peers have to make the same decision. In order to achieve this unique decision, one of the higher layer protocol instance switches (X 200 or X' 260) becomes the master while the other peer switch becomes the slave. The master selects the executive link at its discretion, and notifies the slave, e.g. using the executive link.

In the event of a failure on the executive link, the standby link is activated and made the executive link. Failure detection can be achieved by using services provided by the lower layers themselves or by supervision from the higher layers.

The switch component transparently routes messages from/to the higher layer peers over the executive link.

In the following is with reference to Fig. 3 as an example an embodiment for use of the invention in a telecommunication system comprising two different nodes described. Corresponding message flows are described with reference to the figures 4 to 7, in which same entities are provided with same reference signs.

Intra-Network Packet Data Mobile Application Part PMAP is the protocol used to exchange control-signalling information between two different types of nodes V 360 and P 300. PMAP uses Transmission Control Protocol / Internet Protocol TCP/IP as lower layer protocol. Nodes of type V 360 have two physical devices that terminate TCP/IP connections over Ethernet. The invention allows exploiting this physical redundancy but still hiding the redundancy from the node applications.

When a node of type V 360 starts up, the node launches the PMAP protocol instance V 370; 425. The PMAP protocol instance V 370; 425 starts two TCP/IP protocol instances 375, 380; 415, 420 in server mode, i.e. instances that wait for incoming connection requests. Both instances B 380; 420 and B' 375; 415 are started each on a separate physical device. A corresponding message flow of the start-up sequence is shown in Fig. 4. The start of the server mode TCP/IP protocol instances 420, 415 is triggered by corresponding 'create' messages 430, 435.

When a node of type P 300 starts up, the node launches the PMAP protocol instance P 310; 400. The PMAP protocol instance P310; 400 starts two TCP/IP protocol instances 320, 330; 405, 410 in client mode, i.e. instances that try to connect to servers. Both instances A 320; 405 and A' 330; 410 are started on the same physical device.

Referring to the message flow of Fig. 4, the launching of the TCP/IP protocol instances 320, 330; 405, 410 is triggered by corresponding 'create' messages 440, 455 that indicate the destination servers 420; 415, which are targeted by a 'connect' message 445, 460 each. The servers 420, 415 notify the protocol instance V 425 about the successful start-up by means of 'established' messages 450, 465.

Referring to Fig. 3, the PMAP protocol instance P 310 acts as master while the PMAP protocol instance V 370 acts as slave. That is, the PMAP protocol instance P 310 notifies instance V 370 of its decision by sending a specific message over the chosen executive link. Since messages delivery and order is guaranteed by TCP/IP both PMAP protocol instances 310, 370 regard the same link as the executive link 355.

A message flow that illustrates the signalling of the choice of the master is shown in Fig. 5. PMAP protocol instance P 310; 400 transmits a 'send' message 510 to the client A 320; 405, which forwards the message further 520 to the server B 380; 420.

Both PMAP protocol instances 310, 370; 400, 425 notify their users 500, 505 of the successful establishment of a data 'logical' link.

Referring to Fig. 3, the master, i.e. PMAP protocol instance P 310, sends out supervision requests over both links at regular intervals. The slave, i.e. PMAP protocol instance V 370 has to answer those requests on the respective links within a certain period of time. If the master 310 fails to receive a supervision reply within a certain period of time, the master 310 considers the link as broken. If the link was the executive link 355 the master 310 tries to activate the standby link 350 as executive link. A corresponding message flow for a supervision without a detection of a failure is illustrated in Fig. 6, while Fig. 7 shows a scenario, wherein the supervision request times out 730, and therefore a change of the executive protocol instance is signalled 740, 750, 760 via the standby link 355.

Without being limited to, the invention can be used preferably in all communications systems as defined by 3GPP in the release 99 as well as in all future releases thereof. In particular, this includes Personal Digital Cellular PDC systems and Packet Personal Digital Cellular PPDC systems as well as Universal Mobile Telecommunication Service UMTS networks, core networks, Wireless Local Area Networks WLAN, GSM networks, Internet Protocol IP based data systems, as well as the corresponding user equipment.

Claims

1. Method in a communication network, wherein a first peer (200; 300) is provided for communication with at least a second peer (260; 360) by means of a protocol stack that is provided at the first peer (200; 300), said protocol stack comprising a first protocol layer and a second protocol layer, said second protocol layer having a second protocol layer instance (210; 310; 400), wherein each of the protocol layers is provided for communication with a corresponding protocol layer of at least one further peer,

characterised in that

the first protocol layer comprises an executive protocol layer instance (220; 320) assigned to a first protocol layer communication link (255; 355) and at least one standby protocol layer instance (230; 330) assigned to a further first protocol layer communication link (250; 350), wherein the executive protocol layer instance (220; 320) performs first protocol layer tasks required for the communication, and wherein the standby protocol layer instance (230; 330) is kept in a standby mode for taking over the first protocol layer tasks from the executive protocol layer instance (220; 320).

2. Method according to claim 1, wherein the protocol stack comprises a switching instance (240; 340) that controls which of the first protocol layer instances (220, 230; 320, 330) performs the first protocol layer tasks.

3. Method according to claim 2, wherein the switching instance (240; 340) monitors whether communication data are received via the standby protocol layer instance (230; 330), and wherein the switching instance (240; 340) assigns the first protocol layer tasks to the standby protocol layer instance (230; 330), if the monitoring indicates that communication data are received via the standby protocol layer instance (230; 330).

4. Method according to claim 2 or 3, wherein a switching request is received by the first peer (200; 300), and wherein the switching instance (240; 340) responsively

assigns the first protocol layer tasks to the standby protocol layer instance (230; 330).

5. Method according to any of the claims 2 to 4, wherein the switching instance (240; 340) performs at least once a supervision of the executive protocol layer instance operation by initiating the sending of a supervision request (600, 610; 700, 710) via at least one of the first protocol layer instances (220, 230; 320; 330), and by monitoring whether a corresponding supervision response (650) is received, and assigns the first protocol layer tasks to the standby protocol layer instance (330; 375) if the supervision indicates a failure (730) in the executive protocol layer instance operation.

6. Method according to claim 5, wherein the switching instance (240; 340) sends a switching request (740; 750) at least to the second peer, if the supervision indicates a failure (730) on the executive protocol layer instance operation, said switching request requesting the assignment of the first protocol layer tasks to the standby protocol layer instance (275; 375).

7. Method according to any of the claims 2 to 6, wherein the switching instance (240; 340) is located in the second protocol layer (210; 310).

8. Protocol stack comprising a first protocol layer and a second protocol layer, said second protocol layer having a second protocol layer instance (210; 310)
characterized in that
the first protocol layer comprises an executive protocol layer instance (220; 320) adapted to perform first protocol layer tasks, and at least one standby protocol layer instance (230; 330) adapted to be kept in a standby mode for taking over the first protocol layer tasks from the executive protocol layer instance (220; 320), and that the second protocol layer comprises a switching instance (240; 340) adapted to control which of the first protocol layer instances (220,230; 320, 330) performs the first protocol layer tasks.

9. Network element of a communication network adapted to perform the method according to any of the claims 1 to 7.

10. Communications network comprising at least one network element according to claim 9.

11. Computer program, loadable into an internal memory of a digital processing unit, comprising software code portions adapted to control the steps according to any of the claims 1 to 7, when the computer program is executed on the digital processing unit.

12. Computer program according to claim 11, wherein the computer program is stored on a computer-readable medium.

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Fig. 1 (Prior art)

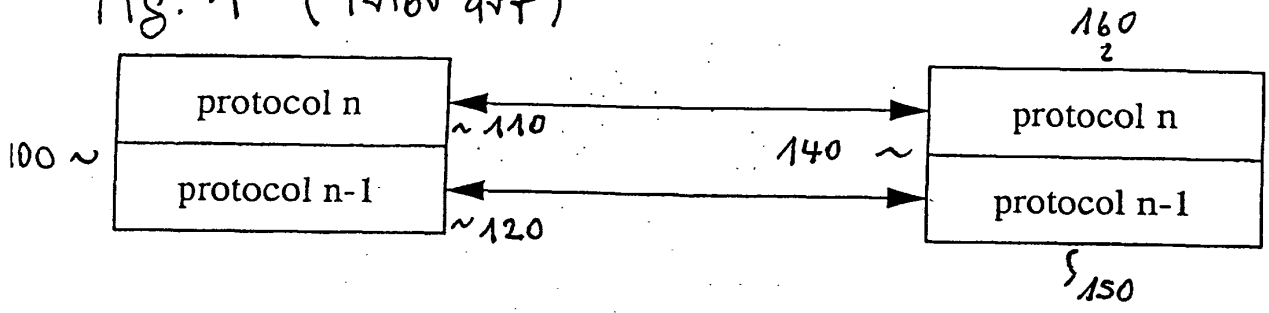


Fig. 2)

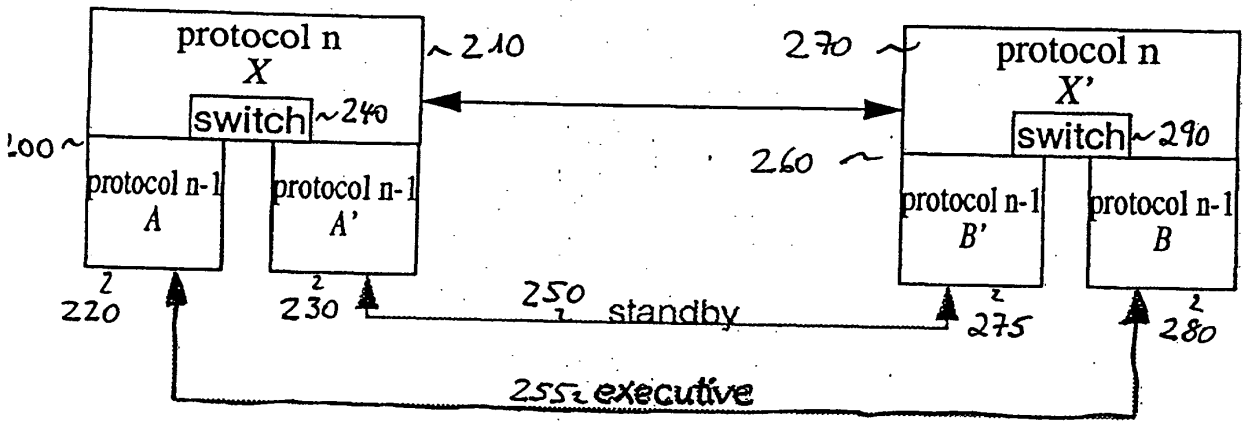
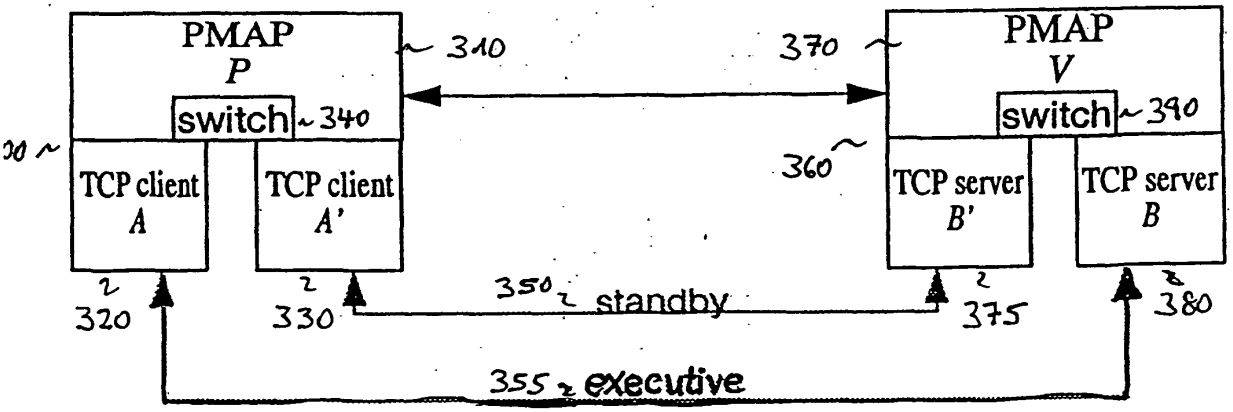
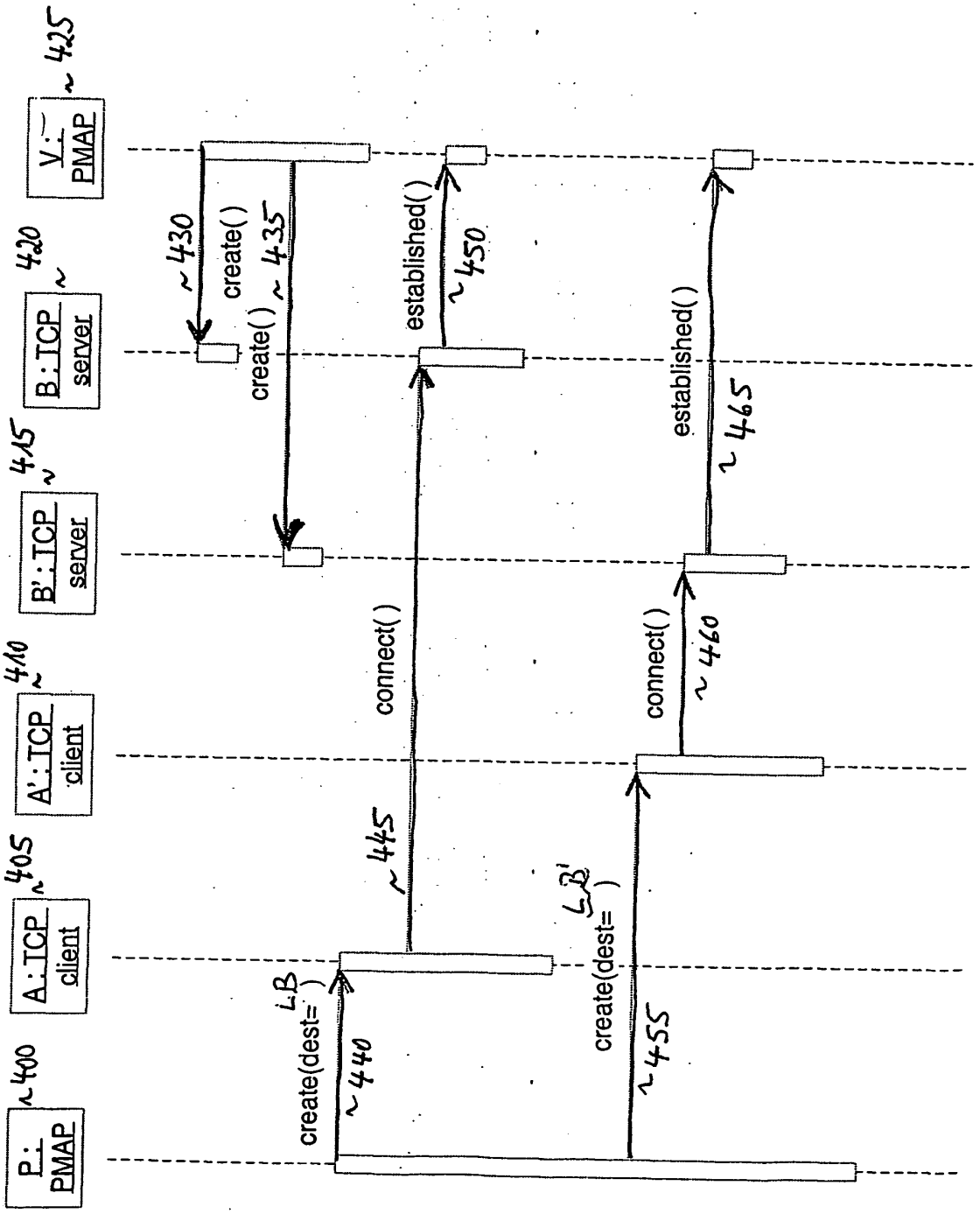


Fig. 3



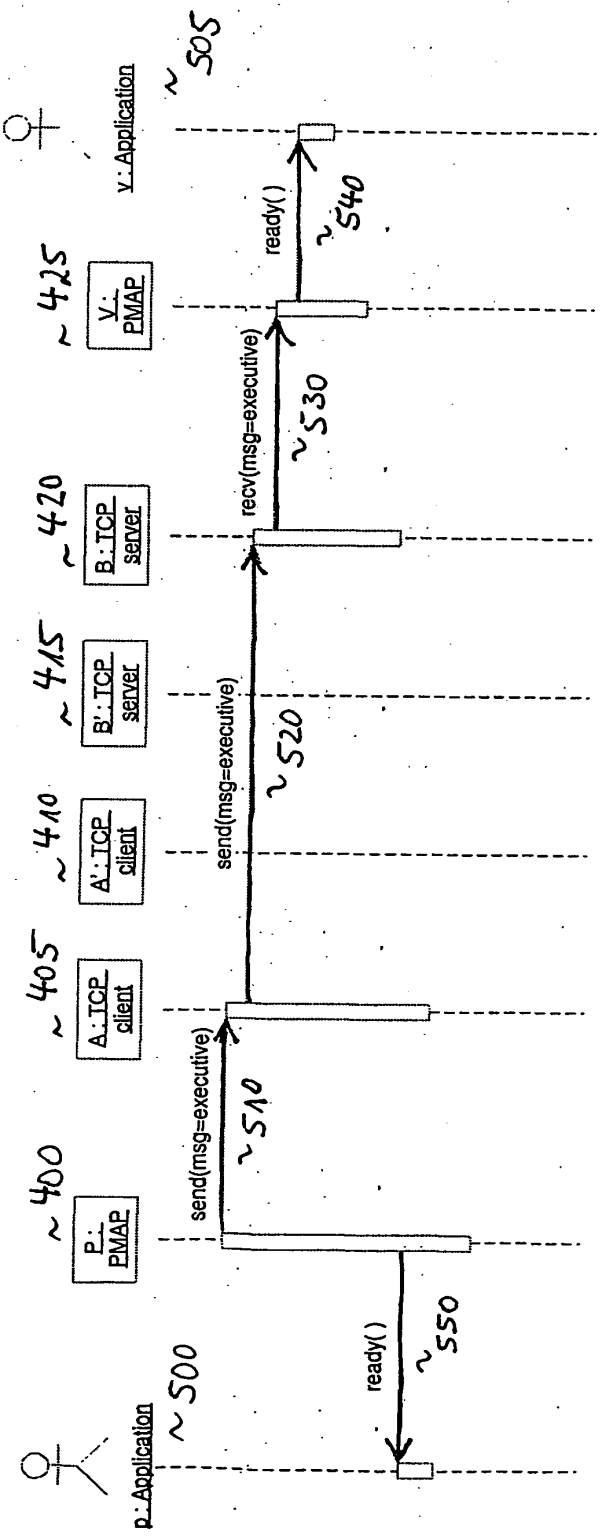
SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 492 of 622

Fig. 4



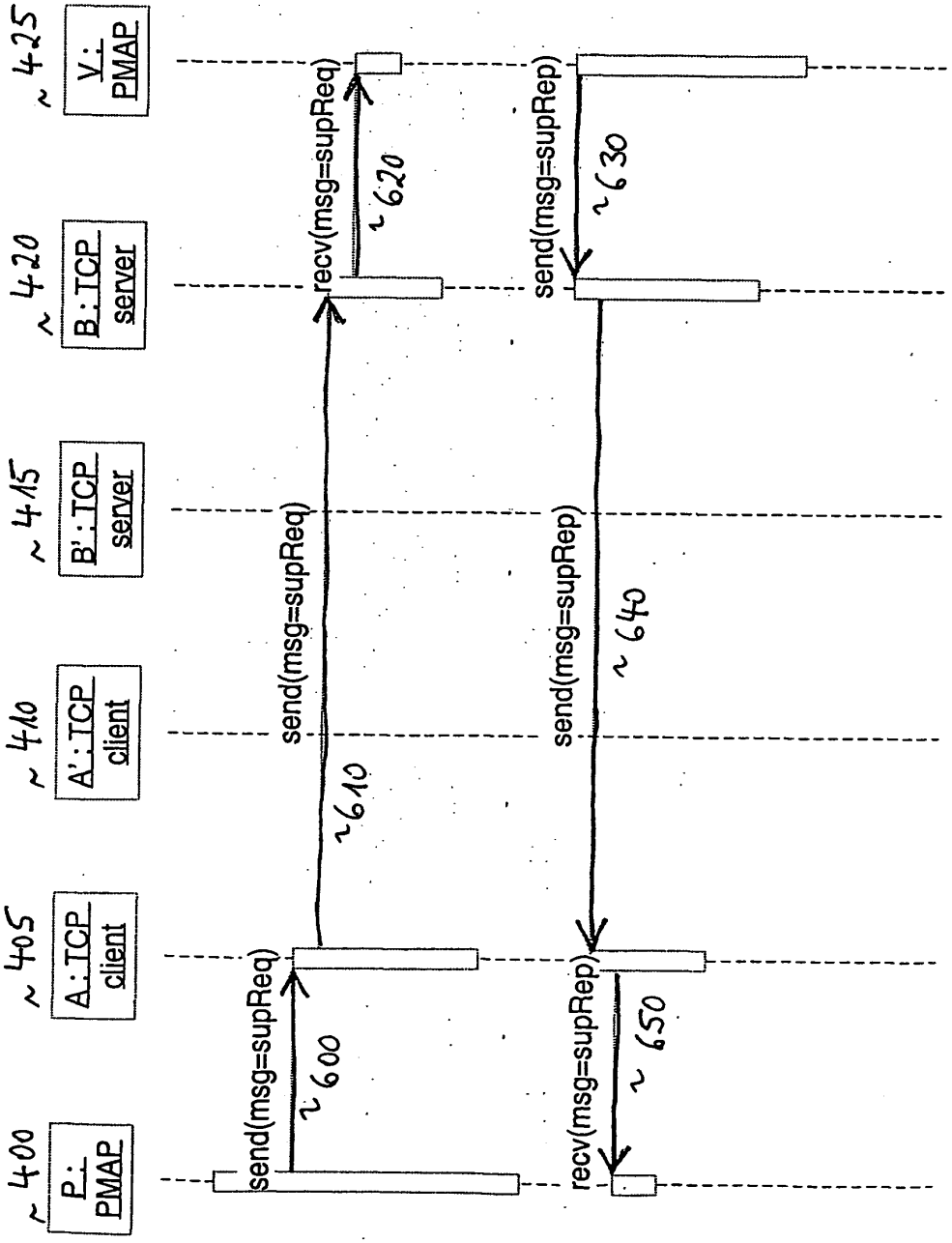
SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 493 of 622

Fig. 5



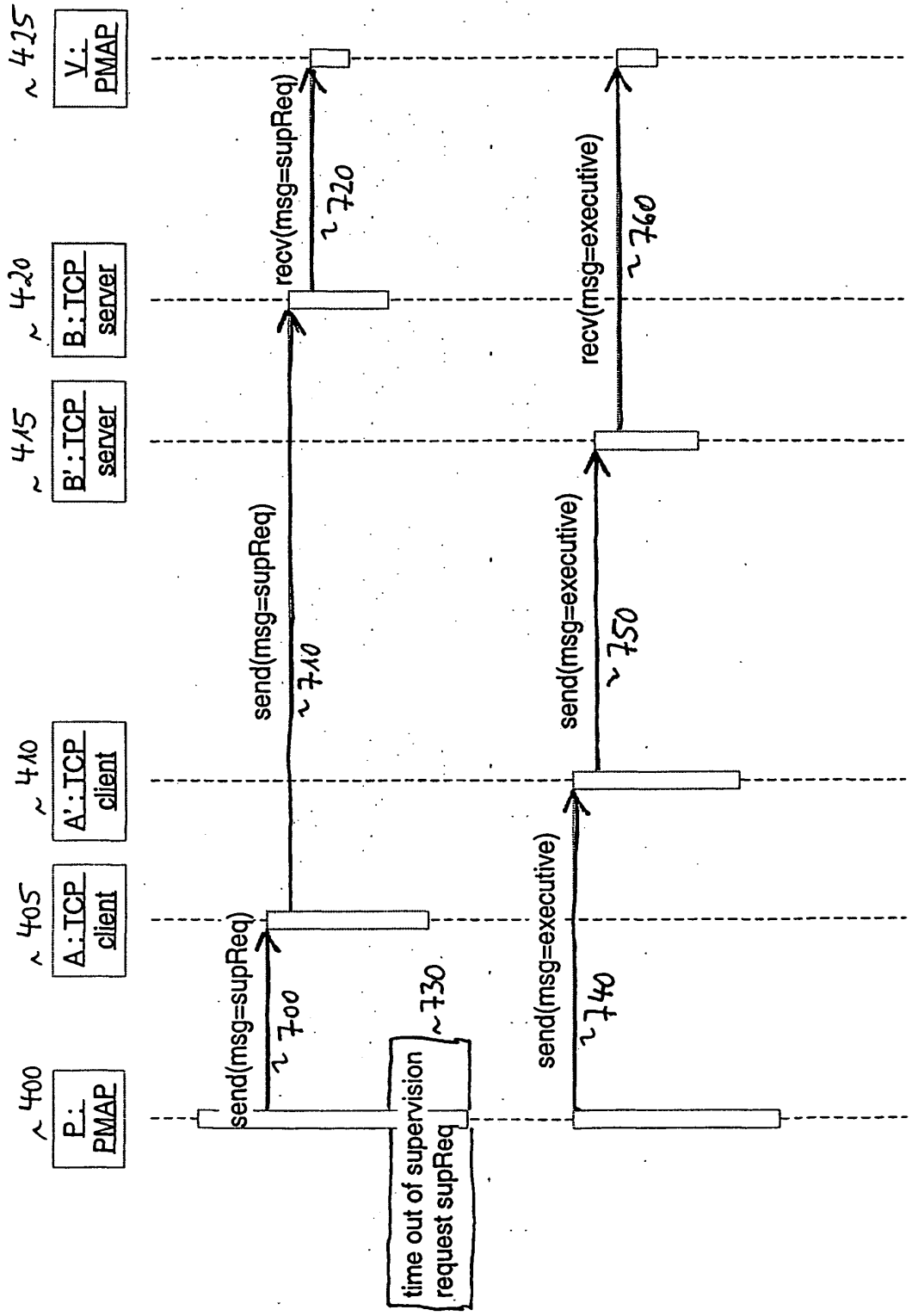
SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 494 of 622

Fig. 6



SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 495 of 622

Fig. 7



SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 496 of 622

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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/536,625	Sebastien Bouat	B-5727PCT 622708-2

INTERNATIONAL APPLICATION NO.	
PCT/EP04/51371	
I.A. FILING DATE	PRIORITY DATE
07/06/2004	07/25/2003

22879
HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

CONFIRMATION NO. 2264

371 ACCEPTANCE LETTER

OC000000018321248

Date Mailed: 03/22/2006

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

03/02/2006	03/02/2006
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS	DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** *The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363).* Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 05/26/2005
- Copy of the International Search Report filed on 05/26/2005
- Preliminary Amendments filed on 05/26/2005
- Oath or Declaration filed on 03/02/2006
- Request for Immediate Examination filed on 05/26/2005
- U.S. Basic National Fees filed on 05/26/2005
- Assignment filed on 03/02/2006
- Priority Documents filed on 05/26/2005
- Power of Attorney filed on 05/26/2005

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

BARBARA A CAMPBELL
Telephone: (703) 308-9140 EXT 217

PART 3 - OFFICE COPY

FORM PCT/DO/EO/903 (371 Acceptance Notice)

IAP3 Rec'd PCT/PTO 02 MAR 2006

Express Mail No. EV300746762US

#5

IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

Applicant(s): Sebastien BOUAT

U.S. Serial No.: 10/536,625

INTERNATIONAL APPLICATION NO.: PCT/EP2004/051371
INTERNATIONAL FILING DATE: 6 July 2004

For: "IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"

Re: RESPONSE TO NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

Group Art Unit: not yet assigned

Our Ref.: B-5727PCT 622708-2

MAIL STOP PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attn: U.S. National Stage Processing
PCT International Division

Dear Sir:

In response to the Notification of Missing Requirements Under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US) dated January 5, 2006 (copy enclosed), please find enclosed the following:

1. an original Declaration/Power signed by the inventor.

AUTHORIZATION TO CHARGE FEES

[X] The Commissioner is authorized to charge any additional fees which may be required or credit any overpayment to Account No. 08-2025, including the following:

[X] 37 CFR 1.16 (filing fees and presentation of extra claims)

[X] 37 CFR 1.17 (application processing fees)

[ ] 37 CFR 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR 1.311(b).

Respectfully submitted,

Robert Popa
Attorney for the Applicant
Registration No.: 43,010
LADAS & PARRY
5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036-5679
Telephone No.: (323) 934-2300
Facsimile No.: (323) 934-0202

SEE NEXT PAGE FOR CERTIFICATE OF MAILING ---->

Rec'd PCT/PTO 02 MAR 2006

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this paper and the documents referred to as enclosed therein are being deposited with the United States Postal Service in an Express Mail envelope with sufficient postage for Express Mailing on this date March 2, 2006 in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EV300746762US addressed to the:

MAIL STOP PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Suzanne Johnston

Date: **March 2, 2006**

03/20/2006 #CAMPBEL 00000009 080025 10536625
01 FC:1617 130.00 DA

ENTERED JAN 18 2006

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JAN 11 2006 200309832-4

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HP LEGAL
IPA

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/536,625	Sebastien Bouat	B-5727PCT 622708-2

INTERNATIONAL APPLICATION NO.	
PCT/EP04/51371	
I.A. FILING DATE	PRIORITY DATE
07/06/2004	07/25/2003

22879
HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

US ACTION
DUE DATE
Paper Dated
OA Final
Msg. Pt. X Dwgs
Appeal Issue Fee
Other

CONFIRMATION NO. 2264

371 FORMALITIES LETTER

OC000000017768508

Date Mailed: 01/05/2006

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Copy of the International Application filed on 05/26/2005
- Copy of the International Search Report filed on 05/26/2005
- Preliminary Amendments filed on 05/26/2005
- Oath or Declaration filed on 05/26/2005
- Request for Immediate Examination filed on 05/26/2005
- U.S. Basic National Fees filed on 05/26/2005
- Priority Documents filed on 05/26/2005
- Power of Attorney filed on 05/26/2005

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date. The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:
  - is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

BARBARA A CAMPBELL

Telephone: (703) 308-9140 EXT 217

PART 1 - ATTORNEY/APPLICANT COPY

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/536,625	PCT/EP04/51371	B-5727PCT 622708-2

FORM PCT/DO/EO/905 (371 Formalities Notice)

02 / MAR / 06

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

ATTORNEY DOCKET NO. 200309832-4

As a below named inventor, I hereby declare that:

My residence/post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

✓ **Improvements In Or Relating To Fault Tolerant Systems**

the specification of which is attached hereto unless the following box is checked:

(X) was filed on **May 26, 2005** as US Application No. or PCT International Application Number **10/536625** and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56.

Foreign Application(s) and/or Claim of Foreign Priority

I hereby claim foreign priority benefits under Title 35, United States Code Section 119 of any foreign application(s) for patent or inventor(s) certificate listed below and have also identified below any foreign application for patent or inventor(s) certificate having a filing date before that of the application on which priority is claimed:

COUNTRY	APPLICATION NUMBER	DATE FILED	PRIORITY CLAIMED UNDER 35 U.S.C. 119
PCT	PCT/EP2004/051371	July 6, 2004	YES: X NO:
			YES: NO:

Provisional Application

I hereby claim the benefit under Title 35, United States Code Section 119(e) of any United States provisional application(s) listed below:

APPLICATION NUMBER	FILING DATE

U. S. Priority Claim

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NUMBER	FILING DATE	STATUS (patented/pending/abandoned)

POWER OF ATTORNEY:

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Send Correspondence to:

Customer Number 022879

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

Direct Telephone Calls to:

Richard P Berg, reg no 28,145

(323) 934 2300

Even though the attorney is listed, please associate HP's Customer Number 022879 with this case.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00 **Full Name of Inventor:** Sebastien Bouat **Citizenship:** FR

Residence: St Martin d'Uriage, F 38410 FR FRX

Post Office Address: HP CCF 5 av. Raymond Chanas 38053 Grenoble Cedex 09 France

Inventor's Signature _____ **Date** 2005 / 06 / 27

Rev 10/04 (DecPwr) (Use Page Two For Additional Inventor(s) Signature(s)) Page 1 of 1

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DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION (continued)

ATTORNEY DOCKET NO. 200309832-4

Full Name of # 2 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

Full Name of # 3 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

Full Name of # 4 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

Full Name of # 5 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

Full Name of # 6 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

Full Name of # 7 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

Full Name of # 8 joint inventor: _____ Citizenship: _____

Residence: _____

Post Office Address: _____

Inventor's Signature _____ Date _____

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SAP - Exhibit 1102
SAP v. Valtrus et al. - IPR2025-00419
Page 505 of 622

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Alexandria, Virginia 22313-1450
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Bib Data Sheet

CONFIRMATION NO. 2264

SERIAL NUMBER	FILING OR 371(c) DATE / RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/536,625	03/02/2006	714	2113	B-5727PCT 622708-2

APPLICANTS

Sebastien Bouat, St Martin d'Uriage, FRANCE;

**** CONTINUING DATA ***************************

This application is a 371 of PCT/EP04/51371 07/06/2004

**** FOREIGN APPLICATIONS *********************

EUROPEAN PATENT OFFICE (EPO) 03291852.6 07/25/2003

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	FRANCE	4	36	6
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature Initials				

ADDRESS

22879

TITLE

Fault tolerant systems

FILING FEE RECEIVED		
2430	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/536,625	Sebastien Bouat	B-5727PCT 622708-2

INTERNATIONAL APPLICATION NO.	
PCT/EP04/51371	
I.A. FILING DATE	PRIORITY DATE
07/06/2004	07/25/2003

22879
HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

CONFIRMATION NO. 2264

371 FORMALITIES LETTER

OC000000017768508

Date Mailed: 01/05/2006

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Copy of the International Application filed on 05/26/2005
- Copy of the International Search Report filed on 05/26/2005
- Preliminary Amendments filed on 05/26/2005
- Oath or Declaration filed on 05/26/2005
- Request for Immediate Examination filed on 05/26/2005
- U.S. Basic National Fees filed on 05/26/2005
- Priority Documents filed on 05/26/2005
- Power of Attorney filed on 05/26/2005

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date. The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:
  - is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

BARBARA A CAMPBELL

Telephone: (703) 308-9140 EXT 217

PART 2 - OFFICE COPY

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/536,625	PCT/EP04/51371	B-5727PCT 622708-2

FORM PCT/DO/EO/905 (371 Formalities Notice)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/536,625		2113	50C0

Correspondence Address / Fee Address Change

The following fields have been set to Customer Number 22879 on 10/24/2005

- Correspondence Address

The address of record for Customer Number 22879 is:
HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS,CO 80527-2400

JC03 Rec'd PCT/PTO 26 MAY 2005
10/536625

EV336518339US
May 26, 2005

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

Docket No. B-5727PCT 622708-2

International Application No.: PCT/EP2004/051371

Applicant(s) for DO/EO/US:
(1) Sebastien BOUAT

International Filing Date: 6 July 2004

Title of Invention:
"IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"

Priority Date Claimed: 25 July 2003

U.S. Application No. (if known, see 37 CFR 1.5) NOT YET ASSIGNED

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. [X] This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.

4. [X] The U.S. Has been elected (Article 31).

5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [X] is attached hereto (required only if not communicated by the International Bureau).
   b. [ ] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).

6. [ ] An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [ ] is attached hereto.
   b. [ ] has been previously submitted under 35 U.S.C. 154(d)(4).

7. [X] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [X] have not been made and will not be made.

8. [ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. [ ] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).

10. [ ] An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. [ ] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

12. [ ] An assignment document for recording. A separate cover sheet with check for $40.00 in compliance with 37 CFR 3.28 and 3.31 is included.

13. [X] A preliminary amendment.

14. [ ] An Application Data Sheet under 37 CFR 1.76.

15. [ ] A substitute specification.

16. [ ] A power of attorney and/or change of address letter.

17. [ ] A computer-readable form of the sequence listing in accordance with PCT rule 13*ter*.2 and 37CFR 1.821 - 1.825.

18. [ ] A second copy of the published international application under 35 U.S.C. 154(d)(4).

19. [ ] A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).

20. [X] Other items or information: unsigned Declaration/Power of Attorney (4 pages)
    Claim to Priority (1 page)
    copy of International Search Report (3 pages)
    copy of PCT Request (4 pages)

BEST AVAILABLE COPY

The following fees are submitted:

21. [X] Basic national fee.....$ 300.00 = $ 300.00

22. [X] Examination fee
If International preliminary examination report prepared by USPTO
and all claims satisfy provisions of PCT Article 33(1)-(4) ..... $ 100.00
All other situations..... $ 200.00 = $ 200.00

23. [X] Search fee
Search fee (37 CFR 1.445(a)(2)) has been paid on the international
application to the USPTO as an International Searching Authority.... $ 100.00
International Search Report prepared and provided to the Office..... $ 400.00
All other situations..... $ 500.00 = $ 400.00

TOTAL OF 21, 22 and 23 = $ 900.00

[ ] Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing or computer program listing filed in an electronic medium). The fee is **$250** for each additional 50 sheets of paper or fraction thereof.

Total Sheets	**Extra sheets**	**# of each additional 50 or fraction thereof**	**RATE**	
____ - 100 =	_____/50 =	_____	x $250.00	$_____

Surcharge of **$130.00** for furnishing the oath or declaration later than 30 months from the earliest claimed priority date (37 CFR 1.492(e)). $_____

CLAIMS	**NUMBER FILED**	**NUMBER EXTRA**	**RATE**		
Total claims	36 - 20=	16	x $50.00	$ 800.00	_____
Independent claims	6 - 3 =	3	x $200.00	$ 600.00	_____
MULTIPLE DEPENDENT CLAIM(S) (if applicable)		+ $360.00		$ 0	_____

[ ] Amendment deleting multiple dependencies enclosed

TOTAL OF ABOVE CALCULATIONS = $2300.00 _____

[ ] Applicant claims small entity status. See 37 CFR 1.27.
The fees indicated above are reduced by 1/2. (50% of above) $_____ _____
SUBTOTAL = $_____ _____

Processing fee of **$130.00** for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(f)). $_____ _____

TOTAL NATIONAL FEE = $2300.00 _____

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property + $_____ _____

TOTAL FEES ENCLOSED = $2300.00 _____

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NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

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IN THE UNITED STATES DESIGNATED OFFICE DO/EO/US

REGARDING THE INTERNATIONAL APPLICATION OF:
(1) Graeme John PROUDLER

ENTITLED: **"IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"**

INTERNATIONAL APPLN. NO. **PCT/EP2004/051371**

Our Ref: **B-5727PCT 622708-2**

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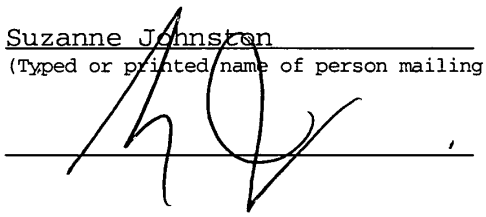
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- Unsigned Declaration/Power of Attorney (4 pages)
- Claim to Priority (1 page)
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TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

Docket No. B-5727PCT 622708-2

International Application No.: PCT/EP2004/051371

Applicant(s) for DO/EO/US:
(1) Sebastien BOUAT

International Filing Date: 6 July 2004

Title of Invention:
"IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"

Priority Date Claimed: 25 July 2003

U.S. Application No. (if known, see 37 CFR 1.5) NOT YET ASSIGNED

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. [X] This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.

4. [X] The U.S. Has been elected (Article 31).

5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [X] is attached hereto (required only if not communicated by the International Bureau).
   b. [ ] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).

6. [ ] An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [ ] is attached hereto.
   b. [ ] has been previously submitted under 35 U.S.C. 154(d)(4).

7. [X] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [X] have not been made and will not be made.

8. [ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. [ ] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).

10. [ ] An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. [ ] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

12. [ ] An assignment document for recording. A separate cover sheet with check for $40.00 in compliance with 37 CFR 3.28 and 3.31 is included.

13. [X] A preliminary amendment.

14. [ ] An Application Data Sheet under 37 CFR 1.76.

15. [ ] A substitute specification.

16. [ ] A power of attorney and/or change of address letter.

17. [ ] A computer-readable form of the sequence listing in accordance with PCT rule 13*ter*.2 and 37CFR 1.821 - 1.825.

18. [ ] A second copy of the published international application under 35 U.S.C. 154(d)(4).

19. [ ] A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).

20. [X] Other items or information: unsigned Declaration/Power of Attorney (4 pages)
Claim to Priority (1 page)
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The following fees are submitted:

21. [X] Basic national fee.....$ 300.00 = $ 300.00

22. [X] Examination fee
If International preliminary examination report prepared by USPTO
and all claims satisfy provisions of PCT Article 33(1)-(4) ..... $ 100.00
All other situations..... $ 200.00 = $ 200.00

23. [X] Search fee
Search fee (37 CFR 1.445(a)(2)) has been paid on the international
application to the USPTO as an International Searching Authority.... $ 100.00
International Search Report prepared and provided to the Office..... $ 400.00
All other situations..... $ 500.00 = $ 400.00

TOTAL OF 21, 22 and 23 = $ 900.00

[ ] Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing or computer program listing filed in an electronic medium). The fee is **$250** for each additional 50 sheets of paper or fraction thereof.

Total Sheets	**Extra sheets**	**# of each additional 50 or fraction thereof**	**RATE**	
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Surcharge of **$130.00** for furnishing the oath or declaration later than 30 months from the earliest claimed priority date (37 CFR 1.492(e)). $_____

CLAIMS	**NUMBER FILED**		**NUMBER EXTRA**	**RATE**		
Total claims	36	- 20=	16	x $50.00	$ 800.00	_____
Independent claims	6	- 3 =	3	x $200.00	$ 600.00	_____
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ $360.00		$ 0	_____

[ ] Amendment deleting multiple dependencies enclosed

TOTAL OF ABOVE CALCULATIONS = $2300.00 _____

[ ] Applicant claims small entity status. See 37 CFR 1.27.
The fees indicated above are reduced by 1/2. (50% of above) $_____ _____
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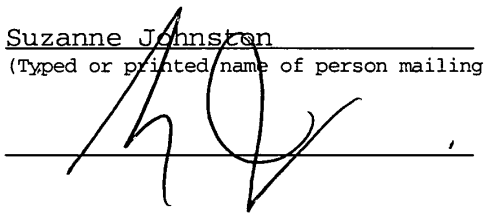
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41 PRTS
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IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

The present invention relates to the field of fault tolerant systems and relates to a method and system for providing fault tolerance in, for example, message-based communication systems.

Many critical systems, such as telecommunications networks, have essential elements which are required to function twenty-four hours a day, three hundred and sixty five days a year. For many such systems the amount of acceptable downtime is in the order of no more than a few minutes per year. To achieve this, critical systems are often designed to be fault tolerant, such that a fault or failure of a system or component of a system does not cause significant disruption to the services provided thereby. Such systems are often also referred to as high-availability (HA) systems.

A system may be arranged to be high-availability in a number of different ways, for example, through use of an active and standby system, or using a cluster of servers, as is well known in the art. With an active/standby system, in the event of a fault being detected in the active system, a switchover of the active and standby systems occurs such that the standby system becomes the active system, and vice versa. In this way, services which were available before the fault was detected should still be available, albeit, potentially, after a short delay, once the switchover has occurred.

Different levels of high-availability exist which may be split into two broad categories, referred to herein as 'service continuity' and 'task preservation'. Service continuity refers to the ability to continue to use the services provided by a system after a fault or switchover of a high-availability system, whereas task preservation, a higher level of high-availability, refers to the ability for tasks being processed when a fault or switchover occurs to be largely unaffected by the switchover.

For example, in a telephone network, a service may be the ability to establish calls between parties, and a task may be a call currently in progress. In this context, service continuity generally means that any calls in progress when a fault occurs will typically be dropped, whereas calls placed after the fault has occurred will be

established in the normal manner – in other words, the provision of the service is preserved, albeit after a short delay. In a task preservation system active calls will be maintained even during a switchover of an active/standby system.

In order to provide task preservation a common storage element is often provided in addition to a high-availability configuration. Context data relating to each task is stored in the common storage area, and may be used in the event of a switchover for reinitializing the new active system with the context of any tasks which were in progress when the switchover occurred.

In a telephony network, this context information may relate to the state of different protocol layers of a protocol stack as well as any application specific data related to individual calls. Upon a switchover to a standby system, the newly activated system can recover the stored context data from the common storage element and rebuild the protocol stack and application context for calls open at the time of the switchover. In this way, processing of calls open at the time of a switchover may continue on the new active system without significant interruption.

However, the requirement for a common storage area for storing context data adds to the complexity and cost of such systems.

Accordingly, one aim of the present invention is to overcome at least some of the above-mentioned problems.

According to a first aspect of the present invention, there is provided a method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer. The method comprises: selectively indicating to a layer of the protocol stack that context information should be obtained for that layer, obtaining context information in accordance with the indication, and adding the obtained context information to the outgoing message such that a response to the message contains the context information.

Suitably the node is arranged in a high-availability configuration.

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Suitably the outgoing message is sent from the node to a remote node across a network, for example using a message-based communications system.

Preferably the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

Preferably the obtained context information is appended to a separate field of the message.

The method may be used with a session initiation protocol (SIP) network, in which case the obtained context information may be appended to a SIP TAG field, or to a SIP extension header.

An indication associated with the obtained context data may be added where it is determined that the context data may be inaccurate or incomplete.

According to a second aspect of the present invention, there is provided a method of restoring the context information of a layer of a protocol stack of a node. The method comprises receiving a message, determining whether the context information of the layer should be restored, and, where it is so determined, determining the presence of context information relevant to the layer within the message, and restoring the context of the layer using context information from the message.

Preferably the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

The step of determining further comprises checking the existence at the layer of context information associated with the received message.

The step of determining further comprises checking whether the received message is an initial message.

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The method may be adapted for use with a session initiation protocol (SIP), in which case the step of restoring the context of the layer is adapted for restoring the context using context information stored either in a SIP TAG or in a SIP extension header.

According to a third aspect of the present invention, there is provided a system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer. The system comprises means for indicating to a layer of the protocol stack that context information should be obtained for that layer, a module for obtaining context information in accordance with the indication, and a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.

Suitably the node is arranged in a high-availability configuration.

Suitably the outgoing message is sent from the node to a remote node across a network, for example, using with a message-based communications system.

Preferably the context information obtained is related to the outgoing message.

Preferably the obtained context information is appended to a separate field of the message.

Suitably the obtained context information is appended to a SIP TAG field or to a SIP extension header.

An indication associated with the obtained context data may be added where it is determined that the context data may be inaccurate or incomplete.

According to a fourth aspect of the present invention, there is provided a system of restoring the context information of a layer of a protocol stack of a node which comprises: receiving means for receiving a message, logic for determining whether the context information of the layer should be restored, a circuit for determining the presence of context information relevant to the layer within the message, and

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restoration means for restoring the context of the layer using context information from the message.

Preferably the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

Preferably the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

Suitably the logic for determining is adapted for checking whether the received message is an initial message.

The system may be used, for example, with the session initiation protocol (SIP), in which case the restoration means is adapted for restoring the context using context information stored in a SIP TAG or a SIP extension header.

According to a fifth aspect of the present invention, there is provide a method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising: indicating to a layer that context information should be obtained for that layer, obtaining context information in accordance with the indication, and adding the obtained context information to the message, such that a response to the message contains the context information.

According to a sixth aspect of the present invention, there is provided a method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising: receiving a message, determining whether the context information of the layer should be restored, and, where it is so determined, determining the presence of context information relevant to the layer within the message, and restoring the context of the layer using context information from the message.

The invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a block diagram of a high-availability system according to the prior art;

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Figure 2 is a diagram of a pair of remote systems connected via a network according to the prior art;

Figure 3 is a block diagram of a basic SIP network according to the prior art;

Figure 4 is a block diagram of a system according to an embodiment of the present invention;

Figure 5 is a flow diagram outlining example processing steps taken when sending a message, according to an embodiment of the present invention;

Figure 6 is a flow diagram outlining example processing steps taken when receiving a message, according to an embodiment of the present invention; and

Figure 7 is a message flow diagram illustrating an example exchange of messages in accordance with an embodiment of the present invention.

Figure 1 is a block diagram of a fault tolerant or high-availability system 100 according to the prior art. A telephone switch 122 communicates with a high-availability network element 102 over a network 120 to provide value added services or to control access to a network resource. The network 120 may, for example, be an SS7 network, in which case the network element 102 may, for example, be a service control point (SCP).

The network element 102 comprises two similar peer systems 104 and 110 which are arranged in a known fault tolerant, or high-availability, configuration, in which one of the systems is arranged in an 'active' mode, whilst the other system is arranged in a 'standby' mode. In the event of a fault being detected in the current active system, a switchover will occur such that the current active system becomes the standby system, and vice-versa. Call processing may thus continue on the new active server. Switchover may also be initiated manually, for example to enable maintenance to be carried out on an active server.

Each of the peer systems 104 and 110 comprise numerous elements, such as an application (106 and 112 respectively) and a protocol stack (108 and 114 respectively). The systems 104 and 110 also have access to a common storage element, such as a database 118. As calls are processed on the active server the application 106 may decide to store context data in the storage element 118. The context data may relate, for each call, to both application context data and context

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data relating to one or more layers of the protocol stack 108. In the event of a switchover from the active server to the standby server, the stored context data may be retrieved by the application on the new active server, and be used to rebuild, for each call, the context of the application 112 and the protocol stack 114. This helps ensure that processing of calls open at the time of the fault is continued once the new active server has been initialized.

One of the problems of this kind of arrangement is the need to maintain a shared or common storage element, which adds additional complexity, and hence cost, to such a system.

Figure 2 shows a view of a pair of remote systems 202 and 204 connected via a network 212 in accordance with the prior art. Each system has a protocol stack comprising an application layer (206 and 218 respectively), a signaling layer (208 and 216 respectively), and a transport layer (210 and 214 respectively). Those skilled in the art will appreciate that a greater or lesser number of protocol layers may be used depending on particular requirements. According to normal convention, each layer of the protocol stack may communicate with the layer directly above and below the layer, where applicable.

For example, if an application (not shown) at application layer 206 needs to send a message across a network to an application at the application layer 218 of system 204, the message is passed to the signaling layer 208 where compliance with the signaling protocol is ensured. The signaling layer 208 passes the message to the transport layer 210 which ensures that the message is ready to be sent across the network 212. The transport layer 214, at the destination, receives the message, and passes the message to the signaling layer 210 which processes the message and finally passes the message to an application in the application layer 212. As will be appreciated by those skilled in the art, each layer of the protocol stack may process the message, add/remove additional headers and encapsulation etc. in dependence on the particular communications protocols used.

The systems 202 and 204 may be any kind of system or network nodes which communicate with one another using messages, across a network, using one or

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more layers of a protocol stack. For example, as shown in Figure 3, systems 202 and 204 may represent, respectively, a SIP user agent 300 and a SIP back-to-back user agent (B2BUA) 302 of a session initiation protocol (SIP) network

According to an embodiment of the present invention, the need for a high-availability system to store context data in a central data store is removed by appending context data to a message sent from a HA system, such that a message sent in response thereto contains the context data. In the event of a switchover, the context data received in a response message may be used to restore the context data of one or more layers of the protocol stack of the HA system, as will be described in greater detail below.

Referring now to Figure 4, there is shown a block diagram of an exemplary system 400 according to an embodiment of the present invention, in which a HA node 402 communicates with a network node 404 across a network 411. Each of the nodes 402 and 404 comprise a protocol stack each having an application layer (406 and 416 respectively), a signaling layer (408 and 414 respectively) and a transport layer (410 and 412 respectively). The operation of the system 400 will be described with additional reference to the flow diagrams of Figures 5 and 6 which outline example processing steps which may be taken by each layer of the protocol stack of the system 402.

An application (not shown) at the application layer 406 of HA node 402 sends an outgoing message 418 to an application at application layer 416 across the network 411. Additionally, the application indicates that context data should be stored to enable the context of one of more layers of the protocol stack of system 402 to be rebuilt in case of switchover the high-availability node 402. An application may indicate that it requests context data of the protocol stack to be stored in a number of different ways. For example, the application may add an additional field or flag when sending the message 418 via an API or function call used for sending messages. Alternatively, a flag may be set in the message sent from the application which indicates to each layer whether context data should be stored. It may also be desirable to automatically store context data for the protocol stack in every message sent from a HA node. In this case, it may not be required for the application to

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request that the context data should be stored, since this may be configured to occur automatically.

The amount of context data stored may differ depending on particular circumstances. For example, in a telecommunication system messages may be sent from a HA node to another node, with each message relating to a particular call. In this case, it may be desirable to only store context information relating to that call with the outgoing message. From a HA node point of view, a call may be viewed as comprising two call legs - one between the calling party and the HA node, the other between the HA node and the called party. In this case, the context data may include context data of both legs. Those skilled in the art, however, will appreciate that this is only one example of the type and amount of context data that may be stored. In a further embodiment, only a subset of the available context data is stored for each layer. Preferably the subset of context data stored is sufficient to enable processing of any open tasks to continue, albeit in a degraded manner.

The application layer 406 receives the message from the application (step 500) and, in response to the indication to store context data (step 502), obtains context data 420 (step 506) for the application layer 406. The application layer appends the context data 420 to the message 418 (step 508), forming a message 422 comprising the original message 418 and the context data 420. Preferably, a separate field 424 is used to store the context data 420. The message 422 is then passed to the underlying signaling layer 408.

The message 422, comprising the message 418 and the application layer context data 420 in the context field 424 is received by the signaling layer 408 (step 500) which, in response to the indication to store context data (step 502), obtains the relative context data 426 (step 506) from the signaling layer, and adds it to the context field 424 of the message (step 508), forming a message 428. The message 428 is then processed as normal, and is passed through the transport layer 410 to the transport layer 412 across the network 411, where the message passes up through the protocol stack of the system 404 in the normal manner.

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When the application at the application layer 416 sends a message in response to the received message, the signaling layer 414 appends the previously received context field 424 to the message, forming message 432. It should be noted that in a SIP implementation, the transport layer of the protocol stack is not required to store context data since the transport layer is 'connectionless' from the SIP point of view. Thus in SIP, only the application and signaling layers are required to store context data.

The way in which messages received by the HA node 402 are processed at each layer of the protocol stack is shown in Figure 6. When the response message 432 is received at the transport layer 410, the message is processed in the normal manner and is passed to the signaling layer 408.

If no switchover of the HA node 402 has occurred, the HA node 402 will already have context information, such as the call identification, relating to the message received from the system 404, providing that the message is not an initial message, such as a SIP INVITE message (step 602). In this case, the signaling layer processes the message as normal (step 604), ignoring the context field, and passes the message to the application layer 406.

If, however, a switchover of the HA node 402 has occurred, the HA node 402 will have no context information relating to the received message. This may also occur, however, if the message is an initial message, such as a SIP INVITE message. If it is determined that there is no context information available at the HA node 402 relating to the received message, and that the message is not an initial message, the message is analyzed to determined to whether the message 432 contains a context field 424 (step 606). If no context field 424 exists the received message is presumed to be erroneous and may, depending on requirements, be ignored or trigger an appropriate message transmission or other suitable action (step 612). If the message does contain the context field 424, the context data for the current protocol layer (context data 426) is extracted (step 608) and is used to reinitialize the context for that layer (step 610). The message 432 is then processed as normal (step 610), and the process repeated for the application layer 406. In this way, the response

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message contains sufficient context data to enable the context at the HA node to be restored, in the event of a failure or switchover.

In a further embodiment, a SIP extension header may be used to store the context field. Preferably the header used is such that once the context field is stored therein, all subsequent response messages include the context field. In this way, the context data does not need to be stored locally at the HA node since response messages will, where context data has previously been stored, include the context field containing context data to enable the protocol stack to be re-initialized in the event of a switchover.

Although the context data received in a response message may be slightly out-of-date or incomplete, there will generally be enough data to enable the protocol stack to be re-initialized after a switchover without the user being aware that a switchover occurred.

For example, the context data may include a destination address of a SIP call, which would enable SIP messages related to that call to be routed to the correct destination.

In a yet further embodiment for use with SIP, use may be made of the TAG feature as defined in the Request for Comments (RFC) 3261. The TAG feature is a field in a SIP message which, if used, must be set in the first outgoing message from a node, and thereafter, the TAG is included in all related messages and response messages. The SIP specifications define that the TAG must not be altered once set.

However, at the time the first INVITE message is sent, and depending on particular circumstances, the full context data may be unavailable, since the call is only established later in time, at point 708 as shown in Figure 7.

Figure 7 is a message flow diagram illustrating an example exchange of SIP messages between a calling party node 702 and a high-availability node 704, and between a called party node 706 and the high-availability node 704. The calling party node 702 sends an INVITE message to the HA node 704 to establish a connection

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with the called party node 706. The HA node 704 forwards the INVITE message to the called party node 706 but, in order to store the context data representing the state of the protocol stack of the HA node, the HA node is required to include the context data in the TAG field of the INVITE message since this is the first message sent from the HA node 704 to the called party 706.

One problem is that, at this stage, the call has not yet been established. For example, if the application running at the application layer of the HA node 704 is a billing application the context data stored in the TAG message may not accurately represent the actual data related to the call. For example, a billing application will generally be required to know the time a call is established and the time a call ended in order to generate a billing record. However, when the called party receives the INVITE message an indeterminable amount of time may exist between the time the phone starts ringing and the time the call is answered. Hence, by having to store context data relating to the start time of the call before the call is answered may lead to inaccurate context data being stored. In the event of a switchover occurring, and the protocol stack being re-initialized as described above, the restored billing information may be inaccurate, which could result in a user being overcharged.

Hence, preferably any billing record generated as a result of restored context data should be flagged as such, thereby allowing the service provider to either offer the call free of charge, or to reduce the cost of the call in question to take into account that the billing record generated thereby may be inaccurate. Alternatively, it may be preferable to flag the context data as being inaccurate, or at least potentially inaccurate, when adding the context data to the outgoing message.

It will be appreciated by those skilled in the art that the above-described embodiments are not limited for use with any particular protocol stack or HA system, and may be adapted for use with any message based communications or any communication system using a hierarchical structure of one or more discreet layers, where it is desirable to store context or backup data without requiring a central storage means. It will also be appreciated that the above-described functionality may be provided in a number of ways, such as through use a suitably programmed computing device, electronic circuitry or other logic.

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Although the above embodiments are described with reference to a switchover of a HA system, it will be appreciated that the inventive concepts presented herein equally apply in other situations where context data is lost or damaged.

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CLAIMS

1. A method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
selectively indicating to a layer of the protocol stack that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the outgoing message such that a response to the message contains the context information.

2. The method of claim 1, wherein the node is arranged in a high-availability configuration.

3. The method of claim 1 or 2, wherein the outgoing message is sent from the node to a remote node across a network.

4. The method of claims 1, 2 or 3, adapted for use with a message-based communications system.

5. The method of any preceding claim, wherein the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

6. The method of any preceding claim, wherein the step of adding the obtained context information is adapted for appending the context information to a separate field of the message.

7. The method of any preceding claim, for use with a session initiation protocol (SIP) network.

8. The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field.

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9. The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header.

10. The method of any preceding claim, further comprising adding an indication associated with the obtained context data where it is determined that the context data may be inaccurate or incomplete.

11 A method of restoring the context information of a layer of a protocol stack of a node:
comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

12. The method of claim 11, wherein the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

13. The method of claim 11 or 12, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. The method of claim 11, 12 or 13, wherein the step of determining further comprises checking whether the received message is an initial message.

15. The method of any of claims 11 to 14, adapted for use with the session initiation protocol (SIP).

16. The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP TAG.

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17. The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP extension header.

18. A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
means for indicating to a layer of the protocol stack that context information should be obtained for that layer;
a module for obtaining context information in accordance with the indication;
a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.

19. A system according to claim 18, wherein the node is arranged in a high-availability configuration.

20. A system according to claim 18 or 19, wherein the outgoing message is sent from the node to a remote node across a network.

21. A system according claims 18, 19 or 20, for use with a message-based communications system.

22. A system according to any of claims 18 to 21, wherein the context information obtained is related to the outgoing message.

23. A system according to any of claims 18 to 22, wherein the obtained context information is appended to a separate field of the message.

24. A system according to any of claims 18 to 23, for use with a session initiation protocol (SIP).

25. A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

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26. A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. A system according of any of claims 18 to 26, wherein an indication associated with the obtained context data is added where it is determined that the context data may be inaccurate or incomplete.

28. A system of restoring the context information of a layer of a protocol stack of a node:
comprising:
receiving means for receiving a message;
logic for determining whether the context information of the layer should be restored;
a circuit for determining the presence of context information relevant to the layer within the message; and
restoration means for restoring the context of the layer using context information from the message.

29. A system according to claim 28, wherein the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

30. A system according to claim 28 or 29, wherein the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

31. A system according to claim 30, wherein the logic for determining is adapted for checking whether the received message is an initial message.

32. A system according to any of claims 28 to 31, for use with the session initiation protocol (SIP).

33. A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

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34. A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

35. A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:
indicating to a layer that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the message, such that a response to the message contains the context information.

36. A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

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ABSTRACT

IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

According to one embodiment of the present invention, there is provided a method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising: selectively indicating to a layer of the protocol stack that context information should be obtained for that layer; obtaining context information in accordance with the indication; and adding the obtained context information to the outgoing message such that a response to the message contains the context information.

[FIGURE 3]

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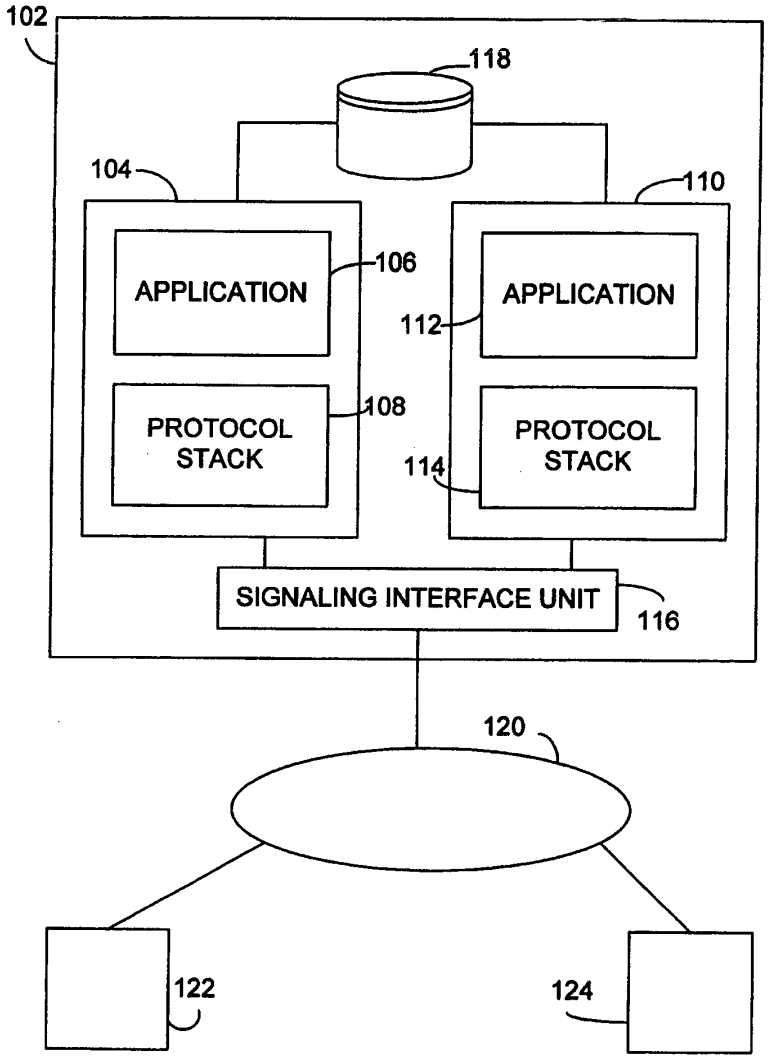


FIGURE 1

PRIOR ART

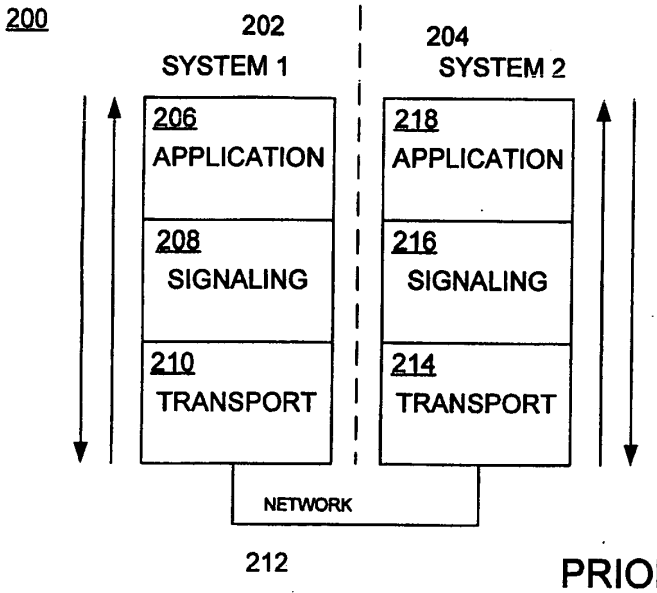


FIGURE 2

Shown as co located but in reality likely to be distributed over many machines/servers and locations

PRIOR ART

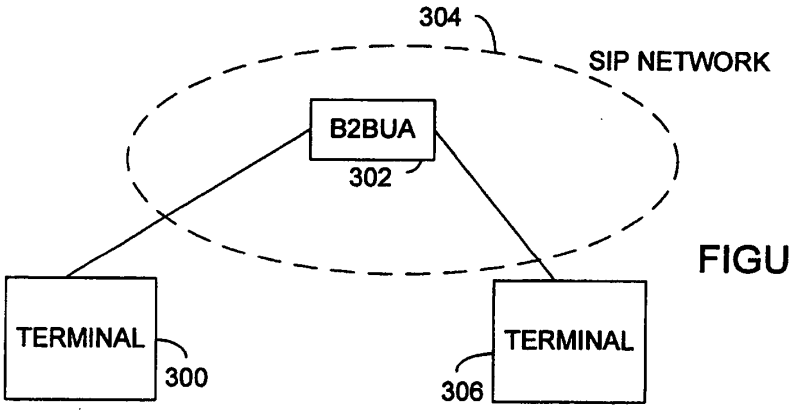


FIGURE 3

PRIOR ART

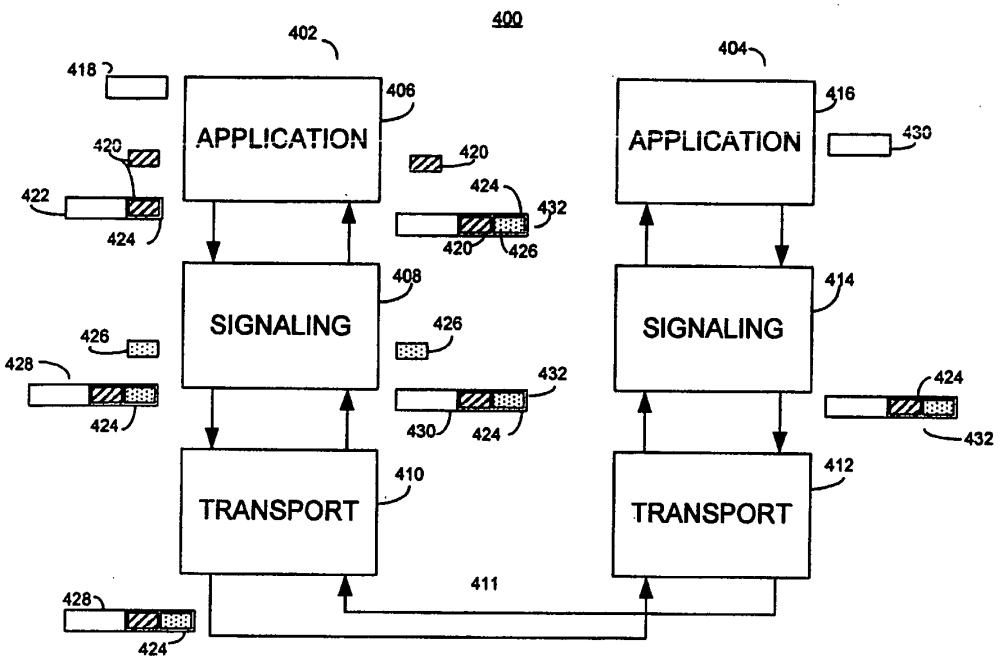


FIGURE 4

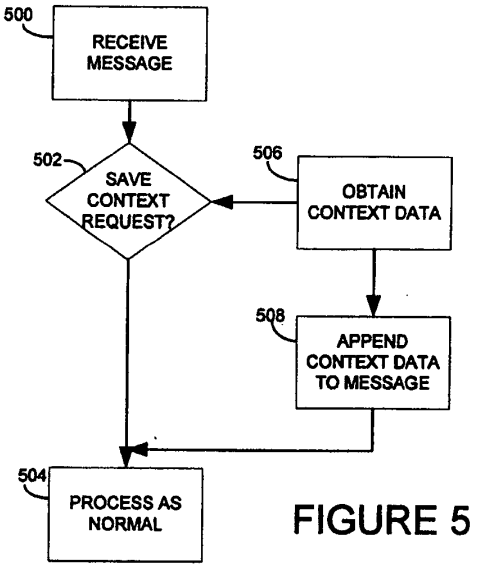


FIGURE 5

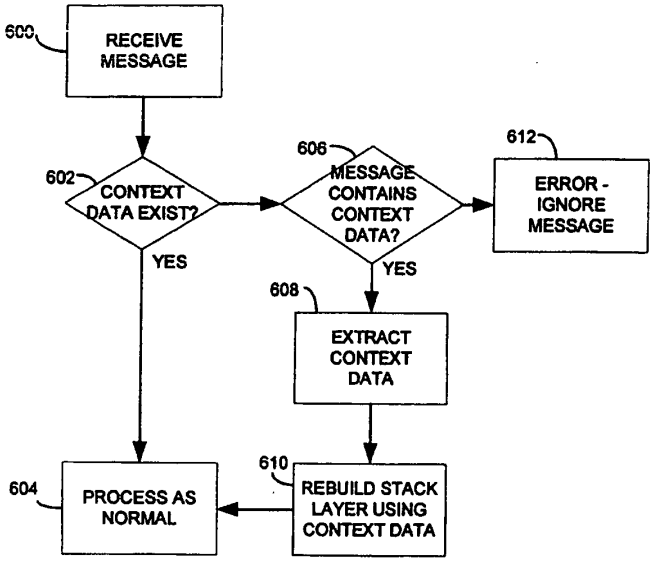


FIGURE 6

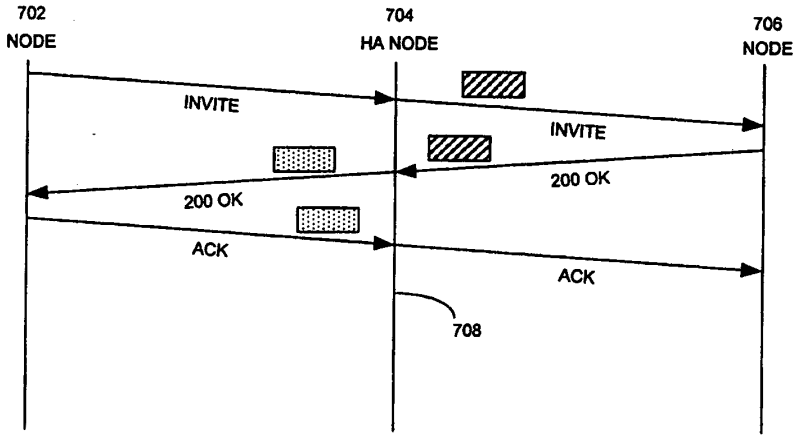


FIGURE 7

Rec'd PCT/PTO 26 MAY 2005
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PATENT

Attorney's Docket No. B-5727PCT 622708-2

10/536625

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL, CONTINUATION, OR CIP)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type: *(check one applicable item below)*

[ ] original
[ ] design
[ ] supplemental

NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.

[X] national stage of PCT

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION, OR CIP.

[ ] divisional
[ ] continuation
[ ] continuation-in-part (CIP)

INVENTORSHIP IDENTIFICATION

WARNING: If the inventors are each not the inventors of all the claims an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor *(if only one name is listed below)* or an original, first and joint inventor *(if plural names are listed below)* of the subject matter which is claimed and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

"IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"

SPECIFICATION IDENTIFICATION

the specification of which: *(complete (a), (b) or (c))*

(a) [ ] is attached hereto.

(b) [ ] was filed on _____ as [ ] Serial No.
or [ ] Express Mail No., *as Serial No. not yet known,* _____
and was amended on _____*(if applicable).*

NOTE: Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.

(c) [X] was described and claimed in PCT International Application No. PCT/EP2004/051371 filed on 6 July 2004 as amended under PCT Article 19 (1) on _____ *(if any).*

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ACKNOWLEDGMENT OF REVIEW OF PAPERS AND TY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code Federal Regulations § 1.56.

[ ] In compliance with this duty there is attached an information disclosure statement 37 CFR 1.97.

PRIORITY CLAIM

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign applications(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d) [ ] no such applications have been filed.
(e) [X] such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. claimed priority check item (e), enter the details below and make the priority claim.

EARLIEST FOREIGN APPLICATION(S), IF ANY, FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN(S)) PRIOR TO THIS U.S. APPLICATION

COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
EP	03291852.6	25 July 2003	[X] YES [ ] NO
			[ ] YES [ ] NO
			[ ] YES [ ] NO
			[ ] YES [ ] NO
			[ ] YES [ ] NO

ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN(S)) PRIOR TO THIS U.S. APPLICATION

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POWER OF ATTORNEY

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(List name and registration number)*

CUSTOMER NUMBER: 022879

(check the following item, if applicable)

[ ] Attached as part of this declaration and power of attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO:	DIRECT TELEPHONE CALLS TO: *(Name and telephone number)*
HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, Colorado 80527-2400	Richard P. Berg (323) 934-2300

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

1-00

Full name of **sole or first inventor** Sebastien BOUAT

Inventor's signature _____

Date _____ Country of Citizenship France

Residence 705 Rue Leo Lagrange, 38920 Crolles, France FRX

Post Office Address (same as residence)

Full name of **second inventor**, if any _____

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address (same as residence)

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CHECK PROPER BOX(ES) FOR ANY OF THE FOLLOWING ADDED PAGES(S) WHICH FORM A PART OF THIS DECLARATION

[ ] Signature for third and subsequent joint inventors. *Number of pages added* __

[ ] Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* ___

[ ] Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. *Number of pages added*

[ ] Added pages to combined declaration and power of attorney for divisional, continuation-in-part (CIP) application.
Number of pages added _____

* * *

[ ] Authorization of attorney(s) to accept and follow instructions from representative.

* * *

If no further pages form a part of this Declaration then end this Declaration with this page and check the following item.

[x]This declaration ends with this page.

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Box No. VIII (iii) DECLARATION: ENTITLEMENT TO CLAIM PRIORITY

The declaration must conform to the standardized wording provided for in Section 213; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iii). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51*bis*.1(a)(iii)):

in relation to this international application, Hewlett-Packard Development Company, L.P. is entitled to claim priority of earlier application No. EP03291852.6 by virtue of the following:

Hewlett-Packard Development Company, L.P. is entitled by an agreement between it and the employer of the inventor BOUAT Sebastien, HP Centre de Competences France, 53 Av. Raymond Chanas, 38053 Grenoble Cedex 09 France, dated February 1st, 2003.

This declaration is made for the purposes of all designations.

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iii)".

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Rec'd PCT/PTO 26 MAY 2005

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

(FOR USE WITH FORM PTO-875)

SERIAL NO. 10/536 625 | FILING DATE

APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1			1			
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TOTAL IND.			6			
TOTAL DEP.			30			
TOTAL CLAIMS			36			

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
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TOTAL IND.						
TOTAL DEP.						
TOTAL CLAIMS						

PTO - 1360 (REV. 11/04)

U.S. DEPARTMENT of COMMERCE
Patent and Trademark Office

Rec'd PCT/PTO 26 MAY 2005

PATENT APPLICATION FEE DETERMINATION RECORD
Effective December 8, 2004

Application or Docket Number
10/536 625

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
U.S. NATIONAL STAGE FEES		
BASIC FEE	SMALL ENT. = $ 150	LARGE ENT. = $ 300
EXAMINATION FEE	Satisfies PCT Article 33(1)-(4) = $ 50 / $ 100	All other situations = $ 100 / $ 200
SEARCH FEE	U.S. is ISA = $ 50 / $ 100 ALL other countries = $ 200 / $ 400	All other situations = $ 250 / $ 500
FEE FOR EXTRA SPEC. PGS.	minus 100 =	/ 50 =
TOTAL CHARGEABLE CLAIMS	36 minus 20 =	* 16
INDEPENDENT CLAIMS	6 minus 3 =	* 3
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☑	RATE	FEE	OR	OTHER THAN SMALL ENTITY	RATE	FEE
	BASIC FEE		OR		BASIC FEE	300
	EXAM. FEE				EXAM. FEE	200
	SEARCH FEE				SEARCH FEE	400
	X $ 125 =				X $ 250 =	—
	X $ 25 =		OR		X $ 50 =	800
	X $ 100 =		OR		X $ 200 =	600
	+ $ 180 =		OR		+ $ 360 =	—
	TOTAL		OR		TOTAL	2300

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 36	Minus	** 36	= 0
Independent	* 6	Minus	*** 6	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY	RATE	ADDI-TIONAL FEE	OR	OTHER THAN SMALL ENTITY	RATE	ADDI-TIONAL FEE
	X $ 25 =		OR		X $ 50 =	
	X $ 100 =		OR		X $ 200 =	
	+ $ 180 =		OR		+ $ 360 =	
	TOTAL ADDIT. FEE		OR		TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY	RATE	ADDI-TIONAL FEE	OR	OTHER THAN SMALL ENTITY	RATE	ADDI-TIONAL FEE
	X $ 25 =		OR		X $ 50 =	
	X $ 100 =		OR		X $ 200 =	
	+ $ 180 =		OR		+ $ 360 =	
	TOTAL ADDIT. FEE		OR		TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than '20', enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than '3', enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

06/02/2005 MKAYPAGH 00000130 082025 10536625

01 FC:1631	300.00	DA
02 FC:1642	400.00	DA
03 FC:1633	200.00	DA
04 FC:1615	800.00	DA
05 FC:1614	600.00	DA

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 489-267/69033

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BAC, Paralegal

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Sebastien BOUAT	Re: Preliminary Amendment
U.S. Appln. No.: not yet assigned	Group: not yet assigned
U.S. Filing Date: concurrently herewith	Examiner: not yet assigned
International Application No: PCT/EP2004/051371	
International Filing Date: 6 July 2004	Our Ref.: B-5727PCT 622708-2
For: "IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"	Date: May 26, 2005

MAIL STOP PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attn: United States Designated/Elected Office (DO/EO/US)

Sir:

Prior to examination of the above-identified U.S. patent application, please enter the following amendments and remarks into the prosecution history of the above-identified U.S. patent application without prejudice or disclaimer.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (original) A method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
selectively indicating to a layer of the protocol stack that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the outgoing message such that a response to the message contains the context information.

2. (original) The method of claim 1, wherein the node is arranged in a high-availability configuration.

3. (currently amended) The method of claim 1[[or 2]], wherein the outgoing message is sent from the node to a remote node across a network.

4. (currently amended) The method of ~~claims 1, 2 or 3~~ claim 1, adapted for use with a message-based communications system.

5. (currently amended) The method of ~~any preceding claim~~ claim 1, wherein the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

6. (currently amended) The method of ~~any preceding claim~~ claim 1, wherein the step of adding the obtained context information is adapted for appending the context information to a separate field of the message.

7. (currently amended) The method of ~~any preceding claim~~ claim 1, for use with a session initiation protocol (SIP) network.

8. (original) The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field.

9. (original) The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header.

10. (currently amended) The method of ~~any preceding claim~~ claim 1, further comprising adding an indication associated with the obtained context data where it is determined that the context data may be inaccurate or incomplete.

11. (currently amended) A method of restoring the context information of a layer of a protocol stack of a node[[:
]]comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

12. (original) The method of claim 11, wherein the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

13. (currently amended) The method of claim 11[[or 12]], wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. (currently amended) The method of claim 11~~, 12 or 13~~, wherein the step of determining further comprises checking whether the received message is an initial message.

15. (currently amended) The method of ~~any of claims 11 to 14~~ claim 11, adapted for use with the session initiation protocol (SIP).

16. (original) The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP TAG.

17. (original) The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP extension header.

18. (currently amended) A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
means for indicating to a layer of the protocol stack that context information should be obtained for that layer;
a module for obtaining context information in accordance with the indication; and
a circuit for adding the obtained context information to the outgoing message such that a response

to the message contains the context information.

19. (original) A system according to claim 18, wherein the node is arranged in a high-availability configuration.

20. (currently amended) A system according to claim 18[[or 19]], wherein the outgoing message is sent from the node to a remote node across a network.

21. (currently amended) A system according ~~claims 18, 19 or 20~~ to claim 18, for use with a message-based communications system.

22. (currently amended) A system according to ~~any of claims 18 to 21~~ claim 18, wherein the context information obtained is related to the outgoing message.

23. (currently amended) A system according to ~~any of claims 18 to 22~~ claim 18, wherein the obtained context information is appended to a separate field of the message.

24. (currently amended) A system according to ~~any of claims 18 to 23~~ claim 18, for use with a session initiation protocol (SIP).

25. (original) A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

26. (original) A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. (currently amended) A system according ~~of any of claims 18 to 26~~ to claim 18, wherein an indication associated with the obtained context data is added where it is determined that the context data may be inaccurate or incomplete.

28. (currently amended) A system of restoring the context information of a layer of a protocol stack of a node[[:
]]comprising:
receiving means for receiving a message;
logic for determining whether the context information of the layer should be restored; a circuit for determining the presence of context information relevant to the layer within the message; and
restoration means for restoring the context of the layer using context information from the message.

29. (original) A system according to claim 28, wherein the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

30. (currently amended) A system according to claim 28[[or 29]], wherein the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

31. (original) A system according to claim 30, wherein the logic for determining is adapted for checking whether the received message is an initial message.

32. (currently amended) A system according to ~~any of claims 28 to 31~~ claim 28, for use with the session initiation protocol (SIP).

33. (original) A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

34. (original) A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

35. (original) A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:
indicating to a layer that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the message, such that a response to the message contains the context information.

36. (original) A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

REMARKS

This Preliminary Amendment amends original claims 3-7, 10, 13-15, 20-24, 27, 30 and 32 so that these claims are no longer multiply dependent in order to reduce the official fees. The Applicants may elect to amend claims 3-7, 10, 13-15, 20-24, 27, 30 and 32 to make them again multiply dependent or to add additional claims to this application to provide coverage similar to, broader than, or narrower than the present claims at any time during the pendency of the above-identified U.S. application. Original claims 11, 18 and 28 have been amended for minor typographical errors. These amendments in no way limit or narrow the scopes of those claims.

Amendment of the subject application is respectfully requested.

Respectfully submitted,

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10/536625

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#2

EXPRESS MAIL NO. EV336518339US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Sebastien BOUAT	Re: Priority Claim
U.S. Appln. No.: not yet assigned	Group: not yet assigned
U.S. Filing Date: concurrently herewith	Examiner: not yet assigned
International Application No: PCT/EP2004/051371 International Filing Date: 6 July 2004	Our Ref.: B-5727PCT 622708-2
For: "IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS"	Date: May 26, 2005

35 U.S.C. 119 CLAIM TO PRIORITY

MAIL STOP PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attn: United States Designated/Elected Office (DO/EO/US)

Sir:

Prior PCT International Application No. PCT/EP2004/051371, designating the U.S., claims foreign priority as follows:

COUNTRY	FILING DATE	SERIAL NUMBER
EP	25 July 2003	03291852.6

The certified copy has been filed in prior PCT International Patent Application No. PCT/EP2004/051371.

Applicants hereby confirm that this claim for priority applies to the above-identified U.S. International stage application.

Respectfully submitted,

BEST AVAILABLE COPY

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10/536625
EP04/5[illegible]PCT/PTO 26 MAY 2005
#2

Europäisches Patentamt
European Patent Office
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Bescheinigung Certificate Attestation

REC'D 15 OCT 2004
WIPO PCT

Die angehefteten Unterlagen stimmen mit der ursprünglich eingereichten Fassung der auf dem nächsten Blatt bezeichneten europäischen Patentanmeldung überein.

The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

03291852.6

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk

PRIORITY DOCUMENT
SUBMITTED OR TRANSMITTED IN COMPLIANCE WITH RULE 17.1(a) OR (b)

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Application no.: 03291852.6
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Anmelder/Applicant(s)/Demandeur(s):

Hewlett-Packard Development Company, L.P.
20555 S.H. 249
Houston, TX 77070
ETATS-UNIS D'AMERIQUE

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

Improvements in or relating to fault tolerant systems

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s) revendiquée(s)
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IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

The present invention relates to the field of fault tolerant systems and relates to a method and system for providing fault tolerance in, for example, message-based communication systems.

Many critical systems, such as telecommunications networks, have essential elements which are required to function twenty-four hours a day, three hundred and sixty five days a year. For many such systems the amount of acceptable downtime is in the order of no more than a few minutes per year. To achieve this, critical systems are often designed to be fault tolerant, such that a fault or failure of a system or component of a system does not cause significant disruption to the services provided thereby. Such systems are often also referred to as high-availability (HA) systems.

A system may be arranged to be high-availability in a number of different ways, for example, through use of an active and standby system, or using a cluster of servers, as is well known in the art. With an active/standby system, in the event of a fault being detected in the active system, a switchover of the active and standby systems occurs such that the standby system becomes the active system, and vice versa. In this way, services which were available before the fault was detected should still be available, albeit, potentially, after a short delay, once the switchover has occurred.

Different levels of high-availability exist which may be split into two broad categories, referred to herein as 'service continuity' and 'task preservation'. Service continuity refers to the ability to continue to use the services provided by a system after a fault or switchover of a high-availability system, whereas task preservation, a higher level of high-availability, refers to the ability for tasks being processed when a fault or switchover occurs to be largely unaffected by the switchover.

For example, in a telephone network, a service may be the ability to establish calls between parties, and a task may be a call currently in progress. In this context, service continuity generally means that any calls in progress when a fault occurs will typically be dropped, whereas calls placed after the fault has occurred will be

established in the normal manner – in other words, the provision of the service is preserved, albeit after a short delay. In a task preservation system active calls will be maintained even during a switchover of an active/standby system.

In order to provide task preservation a common storage element is often provided in addition to a high-availability configuration. Context data relating to each task is stored in the common storage area, and may be used in the event of a switchover for reinitializing the new active system with the context of any tasks which were in progress when the switchover occurred.

In a telephony network, this context information may relate to the state of different protocol layers of a protocol stack as well as any application specific data related to individual calls. Upon a switchover to a standby system, the newly activated system can recover the stored context data from the common storage element and rebuild the protocol stack and application context for calls open at the time of the switchover. In this way, processing of calls open at the time of a switchover may continue on the new active system without significant interruption.

However, the requirement for a common storage area for storing context data adds to the complexity and cost of such systems.

Accordingly, one aim of the present invention is to overcome at least some of the above-mentioned problems.

According to a first aspect of the present invention, there is provided a method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer. The method comprises: selectively indicating to a layer of the protocol stack that context information should be obtained for that layer, obtaining context information in accordance with the indication, and adding the obtained context information to the outgoing message such that a response to the message contains the context information.

Suitably the node is arranged in a high-availability configuration.

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Suitably the outgoing message is sent from the node to a remote node across a network, for example using a message-based communications system.

Preferably the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

Preferably the obtained context information is appended to a separate field of the message.

The method may be used with a session initiation protocol (SIP) network, in which case the obtained context information may be appended to a SIP TAG field, or to a SIP extension header.

An indication associated with the obtained context data may be added where it is determined that the context data may be inaccurate or incomplete.

According to a second aspect of the present invention, there is provided a method of restoring the context information of a layer of a protocol stack of a node. The method comprises receiving a message, determining whether the context information of the layer should be restored, and, where it is so determined, determining the presence of context information relevant to the layer within the message, and restoring the context of the layer using context information from the message.

Preferably the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

The step of determining further comprises checking the existence at the layer of context information associated with the received message.

The step of determining further comprises checking whether the received message is an initial message.

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The method may be adapted for use with a session initiation protocol (SIP), in which case the step of restoring the context of the layer is adapted for restoring the context using context information stored either in a SIP TAG or in a SIP extension header.

According to a third aspect of the present invention, there is provided a system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer. The system comprises means for indicating to a layer of the protocol stack that context information should be obtained for that layer, a module for obtaining context information in accordance with the indication, and a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.

Suitably the node is arranged in a high-availability configuration.

Suitably the outgoing message is sent from the node to a remote node across a network, for example, using with a message-based communications system.

Preferably the context information obtained is related to the outgoing message.

Preferably the obtained context information is appended to a separate field of the message.

Suitably the obtained context information is appended to a SIP TAG field or to a SIP extension header.

An indication associated with the obtained context data may be added where it is determined that the context data may be inaccurate or incomplete.

According to a fourth aspect of the present invention, there is provided a system of restoring the context information of a layer of a protocol stack of a node which comprises: receiving means for receiving a message, logic for determining whether the context information of the layer should be restored, a circuit for determining the presence of context information relevant to the layer within the message, and

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restoration means for restoring the context of the layer using context information from the message.

Preferably the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

Preferably the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

Suitably the logic for determining is adapted for checking whether the received message is an initial message.

The system may be used, for example, with the session initiation protocol (SIP), in which case the restoration means is adapted for restoring the context using context information stored in a SIP TAG or a SIP extension header.

According to a fifth aspect of the present invention, there is provide a method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising: indicating to a layer that context information should be obtained for that layer, obtaining context information in accordance with the indication, and adding the obtained context information to the message, such that a response to the message contains the context information.

According to a sixth aspect of the present invention, there is provided a method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising: receiving a message, determining whether the context information of the layer should be restored, and, where it is so determined, determining the presence of context information relevant to the layer within the message, and restoring the context of the layer using context information from the message.

The invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a block diagram of a high-availability system according to the prior art;

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Figure 2 is a diagram of a pair of remote systems connected via a network according to the prior art;

Figure 3 is a block diagram of a basic SIP network according to the prior art;

Figure 4 is a block diagram of a system according to an embodiment of the present invention;

Figure 5 is a flow diagram outlining example processing steps taken when sending a message, according to an embodiment of the present invention;

Figure 6 is a flow diagram outlining example processing steps taken when receiving a message, according to an embodiment of the present invention; and

Figure 7 is a message flow diagram illustrating an example exchange of messages in accordance with an embodiment of the present invention.

Figure 1 is a block diagram of a fault tolerant or high-availability system 100 according to the prior art. A telephone switch 122 communicates with a high-availability network element 102 over a network 120 to provide value added services or to control access to a network resource. The network 120 may, for example, be an SS7 network, in which case the network element 102 may, for example, be a service control point (SCP).

The network element 102 comprises two similar peer systems 104 and 110 which are arranged in a known fault tolerant, or high-availability, configuration, in which one of the systems is arranged in an 'active' mode, whilst the other system is arranged in a 'standby' mode. In the event of a fault being detected in the current active system, a switchover will occur such that the current active system becomes the standby system, and vice-versa. Call processing may thus continue on the new active server. Switchover may also be initiated manually, for example to enable maintenance to be carried out on an active server.

Each of the peer systems 104 and 110 comprise numerous elements, such as an application (106 and 112 respectively) and a protocol stack (108 and 114 respectively). The systems 104 and 110 also have access to a common storage element, such as a database 118. As calls are processed on the active server the application 106 may decide to store context data in the storage element 118. The context data may relate, for each call, to both application context data and context

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data relating to one or more layers of the protocol stack 108. In the event of a switchover from the active server to the standby server, the stored context data may be retrieved by the application on the new active server, and be used to rebuild, for each call, the context of the application 112 and the protocol stack 114. This helps ensure that processing of calls open at the time of the fault is continued once the new active server has been initialized.

One of the problems of this kind of arrangement is the need to maintain a shared or common storage element, which adds additional complexity, and hence cost, to such a system.

Figure 2 shows a view of a pair of remote systems 202 and 204 connected via a network 212 in accordance with the prior art. Each system has a protocol stack comprising an application layer (206 and 218 respectively), a signaling layer (208 and 216 respectively), and a transport layer (210 and 214 respectively). Those skilled in the art will appreciate that a greater or lesser number of protocol layers may be used depending on particular requirements. According to normal convention, each layer of the protocol stack may communicate with the layer directly above and below the layer, where applicable.

For example, if an application (not shown) at application layer 206 needs to send a message across a network to an application at the application layer 218 of system 204, the message is passed to the signaling layer 208 where compliance with the signaling protocol is ensured. The signaling layer 208 passes the message to the transport layer 210 which ensures that the message is ready to be sent across the network 212. The transport layer 214, at the destination, receives the message, and passes the message to the signaling layer 210 which processes the message and finally passes the message to an application in the application layer 212. As will be appreciated by those skilled in the art, each layer of the protocol stack may process the message, add/remove additional headers and encapsulation etc. in dependence on the particular communications protocols used.

The systems 202 and 204 may be any kind of system or network nodes which communicate with one another using messages, across a network, using one or

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more layers of a protocol stack. For example, as shown in Figure 3, systems 202 and 204 may represent, respectively, a SIP user agent 300 and a SIP back-to-back user agent (B2BUA) 302 of a session initiation protocol (SIP) network

According to an embodiment of the present invention, the need for a high-availability system to store context data in a central data store is removed by appending context data to a message sent from a HA system, such that a message sent in response thereto contains the context data. In the event of a switchover, the context data received in a response message may be used to restore the context data of one or more layers of the protocol stack of the HA system, as will be described in greater detail below.

Referring now to Figure 4, there is shown a block diagram of an exemplary system 400 according to an embodiment of the present invention, in which a HA node 402 communicates with a network node 404 across a network 411. Each of the nodes 402 and 404 comprise a protocol stack each having an application layer (406 and 416 respectively), a signaling layer (408 and 414 respectively) and a transport layer (410 and 412 respectively). The operation of the system 400 will be described with additional reference to the flow diagrams of Figures 5 and 6 which outline example processing steps which may be taken by each layer of the protocol stack of the system 402.

An application (not shown) at the application layer 406 of HA node 402 sends an outgoing message 418 to an application at application layer 416 across the network 411. Additionally, the application indicates that context data should be stored to enable the context of one of more layers of the protocol stack of system 402 to be rebuilt in case of switchover the high-availability node 402. An application may indicate that it requests context data of the protocol stack to be stored in a number of different ways. For example, the application may add an additional field or flag when sending the message 418 via an API or function call used for sending messages. Alternatively, a flag may be set in the message sent from the application which indicates to each layer whether context data should be stored. It may also be desirable to automatically store context data for the protocol stack in every message sent from a HA node. In this case, it may not be required for the application to

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request that the context data should be stored, since this may be configured to occur automatically.

The amount of context data stored may differ depending on particular circumstances. For example, in a telecommunication system messages may be sent from a HA node to another node, with each message relating to a particular call. In this case, it may be desirable to only store context information relating to that call with the outgoing message. From a HA node point of view, a call may be viewed as comprising two call legs - one between the calling party and the HA node, the other between the HA node and the called party. In this case, the context data may include context data of both legs. Those skilled in the art, however, will appreciate that this is only one example of the type and amount of context data that may be stored. In a further embodiment, only a subset of the available context data is stored for each layer. Preferably the subset of context data stored is sufficient to enable processing of any open tasks to continue, albeit in a degraded manner.

The application layer 406 receives the message from the application (step 500) and, in response to the indication to store context data (step 502), obtains context data 420 (step 506) for the application layer 406. The application layer appends the context data 420 to the message 418 (step 508), forming a message 422 comprising the original message 418 and the context data 420. Preferably, a separate field 424 is used to store the context data 420. The message 422 is then passed to the underlying signaling layer 408.

The message 422, comprising the message 418 and the application layer context data 420 in the context field 424 is received by the signaling layer 408 (step 500) which, in response to the indication to store context data (step 502), obtains the relative context data 426 (step 506) from the signaling layer, and adds it to the context field 424 of the message (step 508), forming a message 428. The message 428 is then processed as normal, and is passed through the transport layer 410 to the transport layer 412 across the network 411, where the message passes up through the protocol stack of the system 404 in the normal manner.

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When the application at the application layer 416 sends a message in response to the received message, the signaling layer 414 appends the previously received context field 424 to the message, forming message 432. It should be noted that in a SIP implementation, the transport layer of the protocol stack is not required to store context data since the transport layer is 'connectionless' from the SIP point of view. Thus in SIP, only the application and signaling layers are required to store context data.

The way in which messages received by the HA node 402 are processed at each layer of the protocol stack is shown in Figure 6. When the response message 432 is received at the transport layer 410, the message is processed in the normal manner and is passed to the signaling layer 408.

If no switchover of the HA node 402 has occurred, the HA node 402 will already have context information, such as the call identification, relating to the message received from the system 404, providing that the message is not an initial message, such as a SIP INVITE message (step 602). In this case, the signaling layer processes the message as normal (step 604), ignoring the context field, and passes the message to the application layer 406.

If, however, a switchover of the HA node 402 has occurred, the HA node 402 will have no context information relating to the received message. This may also occur, however, if the message is an initial message, such as a SIP INVITE message. If it is determined that there is no context information available at the HA node 402 relating to the received message, and that the message is not an initial message, the message is analyzed to determined to whether the message 432 contains a context field 424 (step 606). If no context field 424 exists the received message is presumed to be erroneous and may, depending on requirements, be ignored or trigger an appropriate message transmission or other suitable action (step 612). If the message does contain the context field 424, the context data for the current protocol layer (context data 426) is extracted (step 608) and is used to reinitialize the context for that layer (step 610). The message 432 is then processed as normal (step 610), and the process repeated for the application layer 406. In this way, the response

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message contains sufficient context data to enable the context at the HA node to be restored, in the event of a failure or switchover.

In a further embodiment, a SIP extension header may be used to store the context field. Preferably the header used is such that once the context field is stored therein, all subsequent response messages include the context field. In this way, the context data does not need to be stored locally at the HA node since response messages will, where context data has previously been stored, include the context field containing context data to enable the protocol stack to be re-initialized in the event of a switchover.

Although the context data received in a response message may be slightly out-of-date or incomplete, there will generally be enough data to enable the protocol stack to be re-initialized after a switchover without the user being aware that a switchover occurred.

For example, the context data may include a destination address of a SIP call, which would enable SIP messages related to that call to be routed to the correct destination.

In a yet further embodiment for use with SIP, use may be made of the TAG feature as defined in the Request for Comments (RFC) 3261. The TAG feature is a field in a SIP message which, if used, must be set in the first outgoing message from a node, and thereafter, the TAG is included in all related messages and response messages. The SIP specifications define that the TAG must not be altered once set.

However, at the time the first INVITE message is sent, and depending on particular circumstances, the full context data may be unavailable, since the call is only established later in time, at point 708 as shown in Figure 7.

Figure 7 is a message flow diagram illustrating an example exchange of SIP messages between a calling party node 702 and a high-availability node 704, and between a called party node 706 and the high-availability node 704. The calling party node 702 sends an INVITE message to the HA node 704 to establish a connection

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with the called party node 706. The HA node 704 forwards the INVITE message to the called party node 706 but, in order to store the context data representing the state of the protocol stack of the HA node, the HA node is required to include the context data in the TAG field of the INVITE message since this is the first message sent from the HA node 704 to the called party 706.

One problem is that, at this stage, the call has not yet been established. For example, if the application running at the application layer of the HA node 704 is a billing application the context data stored in the TAG message may not accurately represent the actual data related to the call. For example, a billing application will generally be required to know the time a call is established and the time a call ended in order to generate a billing record. However, when the called party receives the INVITE message an indeterminable amount of time may exist between the time the phone starts ringing and the time the call is answered. Hence, by having to store context data relating to the start time of the call before the call is answered may lead to inaccurate context data being stored. In the event of a switchover occurring, and the protocol stack being re-initialized as described above, the restored billing information may be inaccurate, which could result in a user being overcharged.

Hence, preferably any billing record generated as a result of restored context data should be flagged as such, thereby allowing the service provider to either offer the call free of charge, or to reduce the cost of the call in question to take into account that the billing record generated thereby may be inaccurate. Alternatively, it may be preferable to flag the context data as being inaccurate, or at least potentially inaccurate, when adding the context data to the outgoing message.

It will be appreciated by those skilled in the art that the above-described embodiments are not limited for use with any particular protocol stack or HA system, and may be adapted for use with any message based communications or any communication system using a hierarchical structure of one or more discreet layers, where it is desirable to store context or backup data without requiring a central storage means. It will also be appreciated that the above-described functionality may be provided in a number of ways, such as through use a suitably programmed computing device, electronic circuitry or other logic.

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Although the above embodiments are described with reference to a switchover of a HA system, it will be appreciated that the inventive concepts presented herein equally apply in other situations where context data is lost or damaged.

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CLAIMS

1. A method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
selectively indicating to a layer of the protocol stack that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the outgoing message such that a response to the message contains the context information.

2. The method of claim 1, wherein the node is arranged in a high-availability configuration.

3. The method of claim 1 or 2, wherein the outgoing message is sent from the node to a remote node across a network.

4. The method of claims 1, 2 or 3, adapted for use with a message-based communications system.

5. The method of any preceding claim, wherein the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

6. The method of any preceding claim, wherein the step of adding the obtained context information is adapted for appending the context information to a separate field of the message.

7. The method of any preceding claim, for use with a session initiation protocol (SIP) network.

8. The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field.

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9. The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header.

10. The method of any preceding claim, further comprising adding an indication associated with the obtained context data where it is determined that the context data may be inaccurate or incomplete.

11 A method of restoring the context information of a layer of a protocol stack of a node:
comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

12. The method of claim 11, wherein the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

13. The method of claim 11 or 12, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. The method of claim 11, 12 or 13, wherein the step of determining further comprises checking whether the received message is an initial message.

15. The method of any of claims 11 to 14, adapted for use with the session initiation protocol (SIP).

16. The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP TAG.

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17. The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP extension header.

18. A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
means for indicating to a layer of the protocol stack that context information should be obtained for that layer;
a module for obtaining context information in accordance with the indication;
a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.

19. A system according to claim 18, wherein the node is arranged in a high-availability configuration.

20. A system according to claim 18 or 19, wherein the outgoing message is sent from the node to a remote node across a network.

21. A system according claims 18, 19 or 20, for use with a message-based communications system.

22. A system according to any of claims 18 to 21, wherein the context information obtained is related to the outgoing message.

23. A system according to any of claims 18 to 22, wherein the obtained context information is appended to a separate field of the message.

24. A system according to any of claims 18 to 23, for use with a session initiation protocol (SIP).

25. A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

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26. A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. A system according of any of claims 18 to 26, wherein an indication associated with the obtained context data is added where it is determined that the context data may be inaccurate or incomplete.

28. A system of restoring the context information of a layer of a protocol stack of a node:
comprising:
receiving means for receiving a message;
logic for determining whether the context information of the layer should be restored;
a circuit for determining the presence of context information relevant to the layer within the message; and
restoration means for restoring the context of the layer using context information from the message.

29. A system according to claim 28, wherein the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

30. A system according to claim 28 or 29, wherein the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

31. A system according to claim 30, wherein the logic for determining is adapted for checking whether the received message is an initial message.

32. A system according to any of claims 28 to 31, for use with the session initiation protocol (SIP).

33. A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

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34. A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

35. A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:
indicating to a layer that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the message, such that a response to the message contains the context information.

36. A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

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ABSTRACT

IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

According to one embodiment of the present invention, there is provided a method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising: selectively indicating to a layer of the protocol stack that context information should be obtained for that layer; obtaining context information in accordance with the indication; and adding the obtained context information to the outgoing message such that a response to the message contains the context information.

[FIGURE 3]

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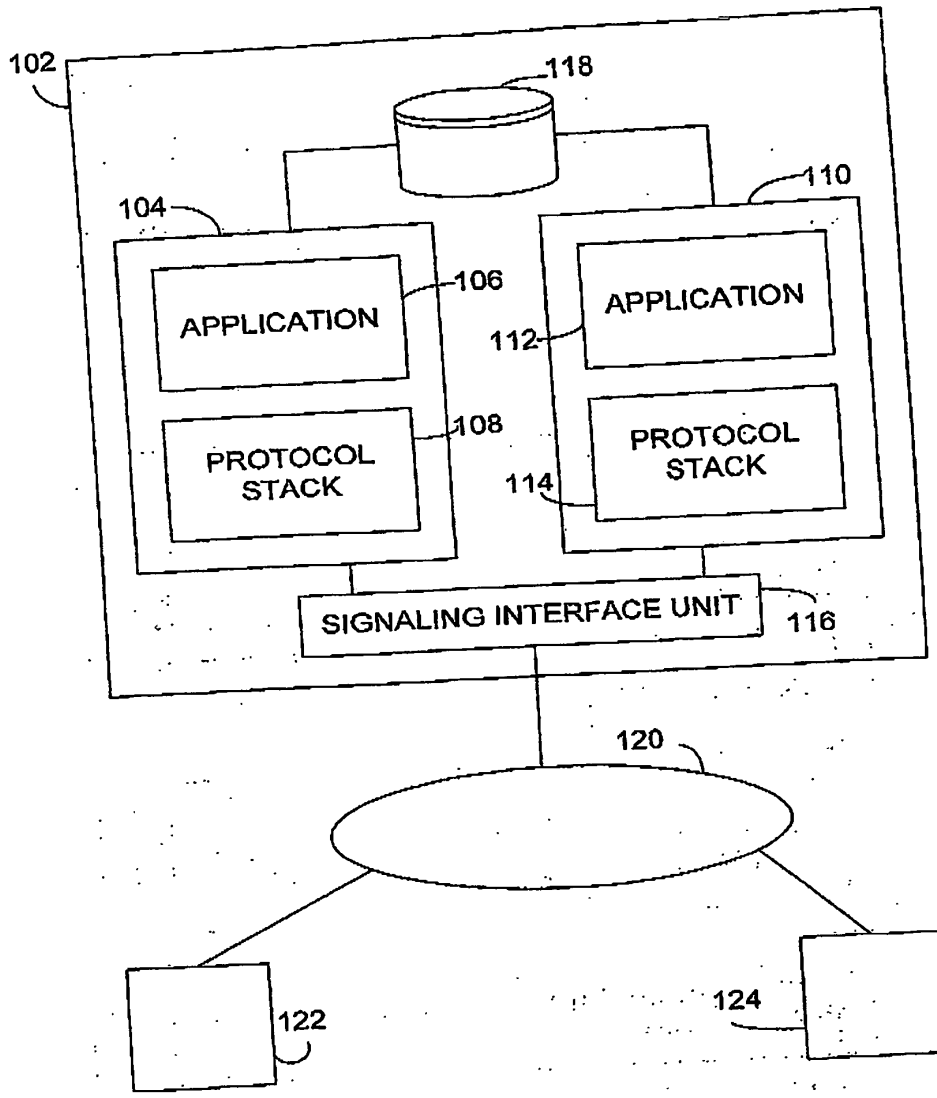


FIGURE 1

PRIOR ART

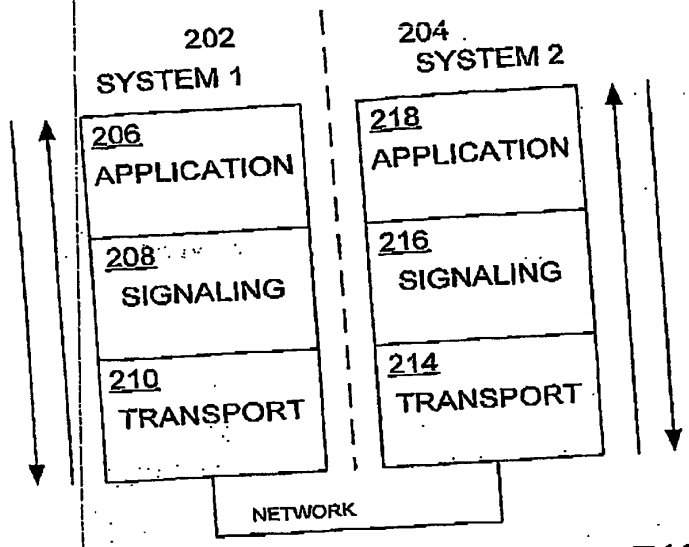


FIGURE 2

Shown as co located but in reality likely to be distributed over many machines/servers and locations

PRIOR ART

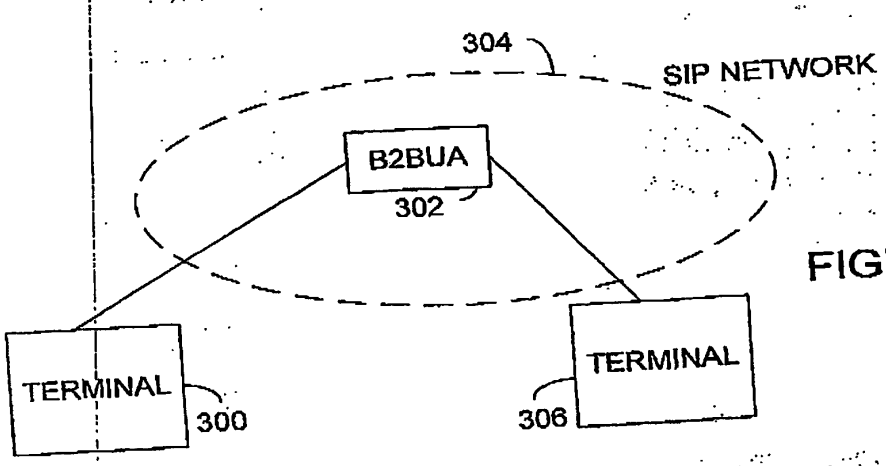


FIGURE 3

PRIOR ART

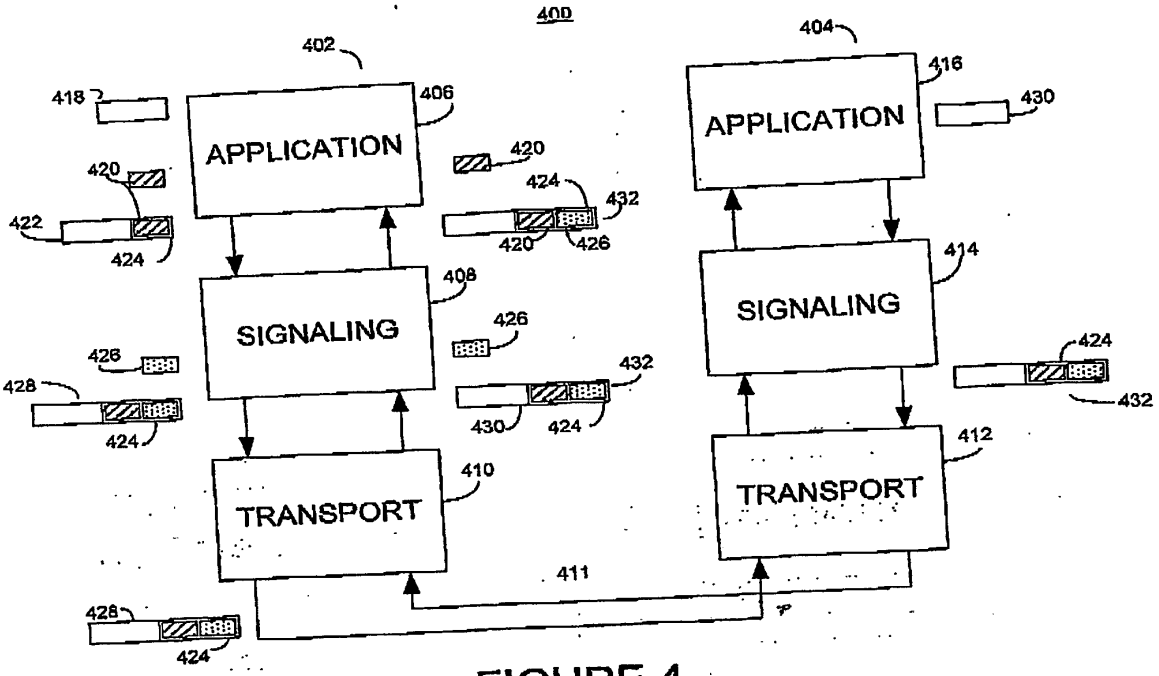


FIGURE 4

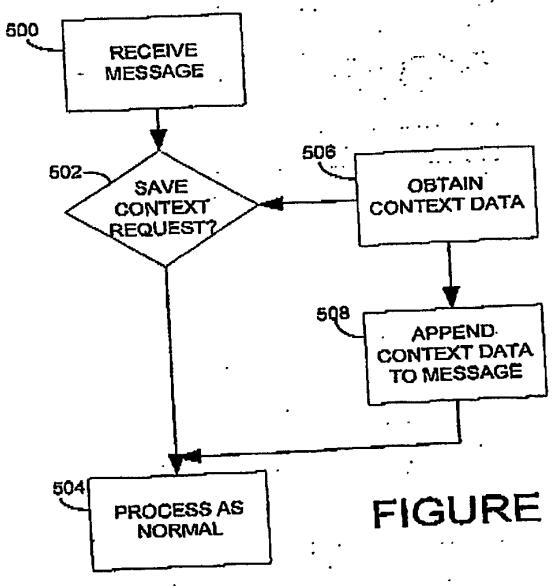


FIGURE 5

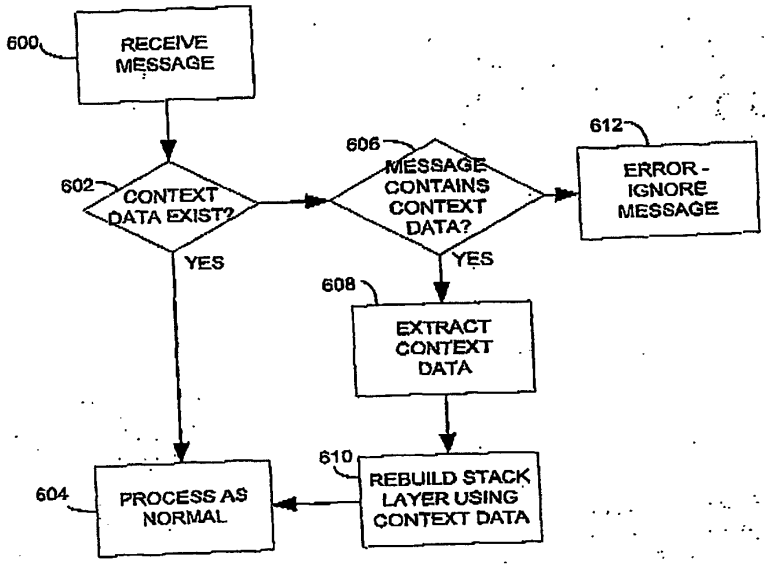


FIGURE 6

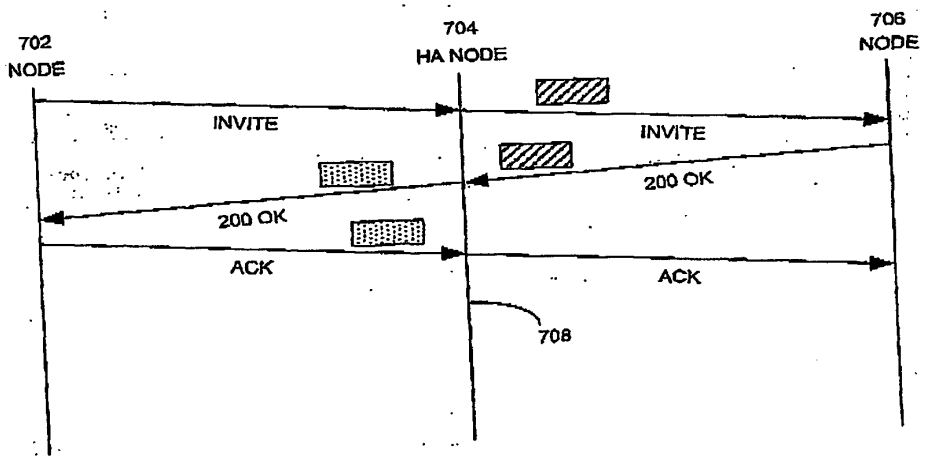


FIGURE 7

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/051371

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/08 H04L29/14

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 309 142 A (HEWLETT PACKARD CO) 7 May 2003 (2003-05-07) the whole document	1-36
Y	CHANDRANMENON G P ET AL: "TRADING PACKET HEADERS FOR PACKET PROCESSING" IEEE / ACM TRANSACTIONS ON NETWORKING, IEEE INC. NEW YORK, US, vol. 4, no. 2, 1 April 1996 (1996-04-01), pages 141-152, XP000582666 ISSN: 1063-6692 page 1, column 2, line 43 - page 2, column 1, line 10 page 10, paragraph V	1-36

-/--

[X] Further documents are listed in the continuation of box C.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
7 December 2004	15/12/2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Mannekens, J

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Page 583 of 622

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HARRY SINGH: "Distributed Fault-Tolerant/High-Availability Systems" TRILLIUM, 'Online! 12 December 2001 (2001-12-12), pages 1-22, XP002266230 Retrieved from the Internet: URL:http://web.archive.org/web/20011212024354/http://www.trillium.com/news-events/white-papers/index.html> 'retrieved on 2004-01-07! the whole document	1-36
A	WO 02/093863 A (POLLE TORSTEN ;MC AULEY JOHN (IE); ERICSSON TELEFON AB L M (SE); F) 21 November 2002 (2002-11-21) the whole document	1-36

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP2004/051371

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1309142 A	07-05-2003	EP 1309142 A1	07-05-2003
		US 2003101372 A1	29-05-2003
WO 02093863 A	21-11-2002	WO 02093863 A2	21-11-2002

Form PCT/ISA/210 (patent family annex) (January 2004)

200309832-2

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0-7	**Référence du dossier du déposant ou du mandataire**	200309832-2
I	**Titre de l'invention**	Improvements In Or Relating To Fault Tolerant Systems
II	**Déposant**	
II-1	Cette personne est :	Déposant seulement
II-2	Déposant pour	Tous les Etats désignés sauf US
II-4	Nom:	Hewlett-Packard Development Company, L.P.
II-5	Adresse:	Hewlett-Packard Development Company, L.P. 20555 S.H. 249 Houston, Texas 77070 États-Unis d'Amérique
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II-7	Domicile (nom de l'Etat)	US

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III-1-2	Déposant pour	US seulement
III-1-4	Nom (NOM DE FAMILLE, Prénom)	BOUAT, Sebastien
III-1-5	Adresse:	705 Rue Leo Lagrange 38920 Crolles France
III-1-6	Nationalité (nom de l'Etat)	FR
III-1-7	Domicile (nom de l'Etat)	FR
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	La personne nommée ci-dessous est/a été désignée pour agir au nom du ou des déposants auprès des autorités internationales compétentes, comme	Mandataire
IV-1-1	Nom (NOM DE FAMILLE, Prénom)	LLOYD, Richard Graham
IV-1-2	Adresse:	HP Centre de Competences France IP Section, Legal Dept 5 av. Raymond Chanas 38053 Grenoble Cedex 09 France
IV-1-3	No de téléphone	+33 4 76 14 48 97
IV-1-4	No de télécopieur:	+33 4 76 14 13 25
IV-1-5	Courrier électronique:	richard.lloyd@hp.com
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V-1	**Le dépôt de la présente requête vaut, selon la règle 4.9.a), désignation de tous les États contractants liés par le PCT à la date du dépôt international, aux fins de la délivrance de tout titre de protection disponible et, le cas échéant, aux fins de la délivrance à la fois de brevets régionaux et nationaux.**	
VI-1	**Revendication de priorité d'une demande régionale antérieure**	
VI-1-1	Date de dépôt	25 Juillet 2003 (25.07.2003)
VI-1-2	Numéro	03291852.6
VI-1-3	Office régional	EP
VII-1	**Administration chargée de la recherche internationale choisie**	Office européen des brevets (OEB) (ISA/EP)

REQUETE PCT

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VII-2	**Demand d'utilisation des résultats d'une recherche autérieure; référence à cette recherche**		
VII-2-1	Date	25 Juillet 2003 (25.07.2003)	
VII-2-2	Numéro	03291852.6	
VII-2-3	Pays (ou office régional)	EP	
VIII	**Déclarations**	Nombre de déclarations	
VIII-1	Déclaration relative à l'identité de l'inventeur	-	
VIII-2	Déclaration relative au droit du déposant, à la date du dépôt international, de demander et d'obtenir un brevet	-	
VIII-3	Déclaration relative au droit du déposant, à la date du dépôt international, de revendiquer la priorité de la demande antérieure	-	
VIII-4	Déclaration relative à la qualité d'inventeur (seulement aux fins de la désignation des États-Unis d'Amérique)	-	
VIII-5	Déclaration relative à des divulgations non opposables ou à des exceptions au défaut de nouveauté	-	
IX	**Bordereau**	Nombre de feuilles	Dossier(s) électronique(s) joint(s)
IX-1	Requête (y compris les feuilles pour déclaration)	7	✓
IX-2	Description	13	✓
IX-3	Revendications	5	✓
IX-4	Abrégé	1	✓
IX-5	Dessins	4	✓
IX-7	TOTAL	30	
	Eléments joints	Document(s) papier joint(s)	Dossier(s) électronique(s) joint(s)
IX-8	Feuille de calcul des taxes	-	✓
IX-17	support matériel PCT-SAFE	-	-
IX-19	**Figure des dessins qui doit accompagner l'abrégé**	3	
IX-20	**Langue de dépôt de la demande internationale**	anglais	
X-1	**Signature du déposant, du mandataire ou du représentant commun**		
X-1-1	Nom (NOM DE FAMILLE, Prénom)		
X-1-2	Nom du signataire		
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536,625
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PCT

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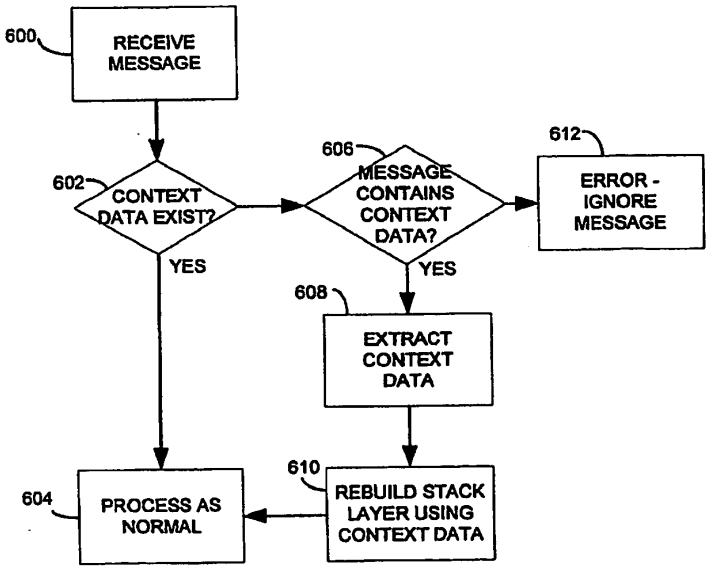
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[Continued on next page]

(54) Title: IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS



(57) Abstract: According to one embodiment of the present invention, there is provided a method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising: selectively indicating to a layer of the protocol stack that context information should be obtained for that layer; obtaining context information in accordance with the indication; and adding the obtained context information to the outgoing message such that a response to the message contains the context information.

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IMPROVEMENTS IN OR RELATING TO FAULT TOLERANT SYSTEMS

The present invention relates to the field of fault tolerant systems and relates to a method and system for providing fault tolerance in, for example, message-based communication systems.

Many critical systems, such as telecommunications networks, have essential elements which are required to function twenty-four hours a day, three hundred and sixty five days a year. For many such systems the amount of acceptable downtime is in the order of no more than a few minutes per year. To achieve this, critical systems are often designed to be fault tolerant, such that a fault or failure of a system or component of a system does not cause significant disruption to the services provided thereby. Such systems are often also referred to as high-availability (HA) systems.

A system may be arranged to be high-availability in a number of different ways, for example, through use of an active and standby system, or using a cluster of servers, as is well known in the art. With an active/standby system, in the event of a fault being detected in the active system, a switchover of the active and standby systems occurs such that the standby system becomes the active system, and vice versa. In this way, services which were available before the fault was detected should still be available, albeit, potentially, after a short delay, once the switchover has occurred.

Different levels of high-availability exist which may be split into two broad categories, referred to herein as 'service continuity' and 'task preservation'. Service continuity refers to the ability to continue to use the services provided by a system after a fault or switchover of a high-availability system, whereas task preservation, a higher level of high-availability, refers to the ability for tasks being processed when a fault or switchover occurs to be largely unaffected by the switchover.

For example, in a telephone network, a service may be the ability to establish calls between parties, and a task may be a call currently in progress. In this context, service continuity generally means that any calls in progress when a fault occurs will typically be dropped, whereas calls placed after the fault has occurred will be

established in the normal manner – in other words, the provision of the service is preserved, albeit after a short delay. In a task preservation system active calls will be maintained even during a switchover of an active/standby system.

In order to provide task preservation a common storage element is often provided in addition to a high-availability configuration. Context data relating to each task is stored in the common storage area, and may be used in the event of a switchover for reinitializing the new active system with the context of any tasks which were in progress when the switchover occurred.

In a telephony network, this context information may relate to the state of different protocol layers of a protocol stack as well as any application specific data related to individual calls. Upon a switchover to a standby system, the newly activated system can recover the stored context data from the common storage element and rebuild the protocol stack and application context for calls open at the time of the switchover. In this way, processing of calls open at the time of a switchover may continue on the new active system without significant interruption.

However, the requirement for a common storage area for storing context data adds to the complexity and cost of such systems.

Accordingly, one aim of the present invention is to overcome at least some of the above-mentioned problems.

According to a first aspect of the present invention, there is provided a method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer. The method comprises: selectively indicating to a layer of the protocol stack that context information should be obtained for that layer, obtaining context information in accordance with the indication, and adding the obtained context information to the outgoing message such that a response to the message contains the context information.

Suitably the node is arranged in a high-availability configuration.

Suitably the outgoing message is sent from the node to a remote node across a network, for example using a message-based communications system.

Preferably the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

Preferably the obtained context information is appended to a separate field of the message.

The method may be used with a session initiation protocol (SIP) network, in which case the obtained context information may be appended to a SIP TAG field, or to a SIP extension header.

An indication associated with the obtained context data may be added where it is determined that the context data may be inaccurate or incomplete.

According to a second aspect of the present invention, there is provided a method of restoring the context information of a layer of a protocol stack of a node. The method comprises receiving a message, determining whether the context information of the layer should be restored, and, where it is so determined, determining the presence of context information relevant to the layer within the message, and restoring the context of the layer using context information from the message.

Preferably the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

The step of determining further comprises checking the existence at the layer of context information associated with the received message.

The step of determining further comprises checking whether the received message is an initial message.

The method may be adapted for use with a session initiation protocol (SIP), in which case the step of restoring the context of the layer is adapted for restoring the context using context information stored either in a SIP TAG or in a SIP extension header.

According to a third aspect of the present invention, there is provided a system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer. The system comprises means for indicating to a layer of the protocol stack that context information should be obtained for that layer, a module for obtaining context information in accordance with the indication, and a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.

Suitably the node is arranged in a high-availability configuration.

Suitably the outgoing message is sent from the node to a remote node across a network, for example, using with a message-based communications system.

Preferably the context information obtained is related to the outgoing message.

Preferably the obtained context information is appended to a separate field of the message.

Suitably the obtained context information is appended to a SIP TAG field or to a SIP extension header.

An indication associated with the obtained context data may be added where it is determined that the context data may be inaccurate or incomplete.

According to a fourth aspect of the present invention, there is provided a system of restoring the context information of a layer of a protocol stack of a node which comprises: receiving means for receiving a message, logic for determining whether the context information of the layer should be restored, a circuit for determining the presence of context information relevant to the layer within the message, and

restoration means for restoring the context of the layer using context information from the message.

Preferably the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

Preferably the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

Suitably the logic for determining is adapted for checking whether the received message is an initial message.

The system may be used, for example, with the session initiation protocol (SIP), in which case the restoration means is adapted for restoring the context using context information stored in a SIP TAG or a SIP extension header.

According to a fifth aspect of the present invention, there is provide a method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising: indicating to a layer that context information should be obtained for that layer, obtaining context information in accordance with the indication, and adding the obtained context information to the message, such that a response to the message contains the context information.

According to a sixth aspect of the present invention, there is provided a method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising: receiving a message, determining whether the context information of the layer should be restored, and, where it is so determined, determining the presence of context information relevant to the layer within the message, and restoring the context of the layer using context information from the message.

The invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a block diagram of a high-availability system according to the prior art;

Figure 2 is a diagram of a pair of remote systems connected via a network according to the prior art;

Figure 3 is a block diagram of a basic SIP network according to the prior art;

Figure 4 is a block diagram of a system according to an embodiment of the present invention;

Figure 5 is a flow diagram outlining example processing steps taken when sending a message, according to an embodiment of the present invention;

Figure 6 is a flow diagram outlining example processing steps taken when receiving a message, according to an embodiment of the present invention; and

Figure 7 is a message flow diagram illustrating an example exchange of messages in accordance with an embodiment of the present invention.

Figure 1 is a block diagram of a fault tolerant or high-availability system 100 according to the prior art. A telephone switch 122 communicates with a high-availability network element 102 over a network 120 to provide value added services or to control access to a network resource. The network 120 may, for example, be an SS7 network, in which case the network element 102 may, for example, be a service control point (SCP).

The network element 102 comprises two similar peer systems 104 and 110 which are arranged in a known fault tolerant, or high-availability, configuration, in which one of the systems is arranged in an 'active' mode, whilst the other system is arranged in a 'standby' mode. In the event of a fault being detected in the current active system, a switchover will occur such that the current active system becomes the standby system, and vice-versa. Call processing may thus continue on the new active server. Switchover may also be initiated manually, for example to enable maintenance to be carried out on an active server.

Each of the peer systems 104 and 110 comprise numerous elements, such as an application (106 and 112 respectively) and a protocol stack (108 and 114 respectively). The systems 104 and 110 also have access to a common storage element, such as a database 118. As calls are processed on the active server the application 106 may decide to store context data in the storage element 118. The context data may relate, for each call, to both application context data and context

data relating to one or more layers of the protocol stack 108. In the event of a switchover from the active server to the standby server, the stored context data may be retrieved by the application on the new active server, and be used to rebuild, for each call, the context of the application 112 and the protocol stack 114. This helps ensure that processing of calls open at the time of the fault is continued once the new active server has been initialized.

One of the problems of this kind of arrangement is the need to maintain a shared or common storage element, which adds additional complexity, and hence cost, to such a system.

Figure 2 shows a view of a pair of remote systems 202 and 204 connected via a network 212 in accordance with the prior art. Each system has a protocol stack comprising an application layer (206 and 218 respectively), a signaling layer (208 and 216 respectively), and a transport layer (210 and 214 respectively). Those skilled in the art will appreciate that a greater or lesser number of protocol layers may be used depending on particular requirements. According to normal convention, each layer of the protocol stack may communicate with the layer directly above and below the layer, where applicable.

For example, if an application (not shown) at application layer 206 needs to send a message across a network to an application at the application layer 218 of system 204, the message is passed to the signaling layer 208 where compliance with the signaling protocol is ensured. The signaling layer 208 passes the message to the transport layer 210 which ensures that the message is ready to be sent across the network 212. The transport layer 214, at the destination, receives the message, and passes the message to the signaling layer 210 which processes the message and finally passes the message to an application in the application layer 212. As will be appreciated by those skilled in the art, each layer of the protocol stack may process the message, add/remove additional headers and encapsulation etc. in dependence on the particular communications protocols used.

The systems 202 and 204 may be any kind of system or network nodes which communicate with one another using messages, across a network, using one or

more layers of a protocol stack. For example, as shown in Figure 3, systems 202 and 204 may represent, respectively, a SIP user agent 300 and a SIP back-to-back user agent (B2BUA) 302 of a session initiation protocol (SIP) network

According to an embodiment of the present invention, the need for a high-availability system to store context data in a central data store is removed by appending context data to a message sent from a HA system, such that a message sent in response thereto contains the context data. In the event of a switchover, the context data received in a response message may be used to restore the context data of one or more layers of the protocol stack of the HA system, as will be described in greater detail below.

Referring now to Figure 4, there is shown a block diagram of an exemplary system 400 according to an embodiment of the present invention, in which a HA node 402 communicates with a network node 404 across a network 411. Each of the nodes 402 and 404 comprise a protocol stack each having an application layer (406 and 416 respectively), a signaling layer (408 and 414 respectively) and a transport layer (410 and 412 respectively). The operation of the system 400 will be described with additional reference to the flow diagrams of Figures 5 and 6 which outline example processing steps which may be taken by each layer of the protocol stack of the system 402.

An application (not shown) at the application layer 406 of HA node 402 sends an outgoing message 418 to an application at application layer 416 across the network 411. Additionally, the application indicates that context data should be stored to enable the context of one of more layers of the protocol stack of system 402 to be rebuilt in case of switchover the high-availability node 402. An application may indicate that it requests context data of the protocol stack to be stored in a number of different ways. For example, the application may add an additional field or flag when sending the message 418 via an API or function call used for sending messages. Alternatively, a flag may be set in the message sent from the application which indicates to each layer whether context data should be stored. It may also be desirable to automatically store context data for the protocol stack in every message sent from a HA node. In this case, it may not be required for the application to

request that the context data should be stored, since this may be configured to occur automatically.

The amount of context data stored may differ depending on particular circumstances. For example, in a telecommunication system messages may be sent from a HA node to another node, with each message relating to a particular call. In this case, it may be desirable to only store context information relating to that call with the outgoing message. From a HA node point of view, a call may be viewed as comprising two call legs - one between the calling party and the HA node, the other between the HA node and the called party. In this case, the context data may include context data of both legs. Those skilled in the art, however, will appreciate that this is only one example of the type and amount of context data that may be stored. In a further embodiment, only a subset of the available context data is stored for each layer. Preferably the subset of context data stored is sufficient to enable processing of any open tasks to continue, albeit in a degraded manner.

The application layer 406 receives the message from the application (step 500) and, in response to the indication to store context data (step 502), obtains context data 420 (step 506) for the application layer 406. The application layer appends the context data 420 to the message 418 (step 508), forming a message 422 comprising the original message 418 and the context data 420. Preferably, a separate field 424 is used to store the context data 420. The message 422 is then passed to the underlying signaling layer 408.

The message 422, comprising the message 418 and the application layer context data 420 in the context field 424 is received by the signaling layer 408 (step 500) which, in response to the indication to store context data (step 502), obtains the relative context data 426 (step 506) from the signaling layer, and adds it to the context field 424 of the message (step 508), forming a message 428. The message 428 is then processed as normal, and is passed through the transport layer 410 to the transport layer 412 across the network 411, where the message passes up through the protocol stack of the system 404 in the normal manner.

When the application at the application layer 416 sends a message in response to the received message, the signaling layer 414 appends the previously received context field 424 to the message, forming message 432. It should be noted that in a SIP implementation, the transport layer of the protocol stack is not required to store context data since the transport layer is 'connectionless' from the SIP point of view. Thus in SIP, only the application and signaling layers are required to store context data.

The way in which messages received by the HA node 402 are processed at each layer of the protocol stack is shown in Figure 6. When the response message 432 is received at the transport layer 410, the message is processed in the normal manner and is passed to the signaling layer 408.

If no switchover of the HA node 402 has occurred, the HA node 402 will already have context information, such as the call identification, relating to the message received from the system 404, providing that the message is not an initial message, such as a SIP INVITE message (step 602). In this case, the signaling layer processes the message as normal (step 604), ignoring the context field, and passes the message to the application layer 406.

If, however, a switchover of the HA node 402 has occurred, the HA node 402 will have no context information relating to the received message. This may also occur, however, if the message is an initial message, such as a SIP INVITE message. If it is determined that there is no context information available at the HA node 402 relating to the received message, and that the message is not an initial message, the message is analyzed to determined to whether the message 432 contains a context field 424 (step 606). If no context field 424 exists the received message is presumed to be erroneous and may, depending on requirements, be ignored or trigger an appropriate message transmission or other suitable action (step 612). If the message does contain the context field 424, the context data for the current protocol layer (context data 426) is extracted (step 608) and is used to reinitialize the context for that layer (step 610). The message 432 is then processed as normal (step 610), and the process repeated for the application layer 406. In this way, the response

message contains sufficient context data to enable the context at the HA node to be restored, in the event of a failure or switchover.

In a further embodiment, a SIP extension header may be used to store the context field. Preferably the header used is such that once the context field is stored therein, all subsequent response messages include the context field. In this way, the context data does not need to be stored locally at the HA node since response messages will, where context data has previously been stored, include the context field containing context data to enable the protocol stack to be re-initialized in the event of a switchover.

Although the context data received in a response message may be slightly out-of-date or incomplete, there will generally be enough data to enable the protocol stack to be re-initialized after a switchover without the user being aware that a switchover occurred.

For example, the context data may include a destination address of a SIP call, which would enable SIP messages related to that call to be routed to the correct destination.

In a yet further embodiment for use with SIP, use may be made of the TAG feature as defined in the Request for Comments (RFC) 3261. The TAG feature is a field in a SIP message which, if used, must be set in the first outgoing message from a node, and thereafter, the TAG is included in all related messages and response messages. The SIP specifications define that the TAG must not be altered once set.

However, at the time the first INVITE message is sent, and depending on particular circumstances, the full context data may be unavailable, since the call is only established later in time, at point 708 as shown in Figure 7.

Figure 7 is a message flow diagram illustrating an example exchange of SIP messages between a calling party node 702 and a high-availability node 704, and between a called party node 706 and the high-availability node 704. The calling party node 702 sends an INVITE message to the HA node 704 to establish a connection

with the called party node 706. The HA node 704 forwards the INVITE message to the called party node 706 but, in order to store the context data representing the state of the protocol stack of the HA node, the HA node is required to include the context data in the TAG field of the INVITE message since this is the first message sent from the HA node 704 to the called party 706.

One problem is that, at this stage, the call has not yet been established. For example, if the application running at the application layer of the HA node 704 is a billing application the context data stored in the TAG message may not accurately represent the actual data related to the call. For example, a billing application will generally be required to know the time a call is established and the time a call ended in order to generate a billing record. However, when the called party receives the INVITE message an indeterminable amount of time may exist between the time the phone starts ringing and the time the call is answered. Hence, by having to store context data relating to the start time of the call before the call is answered may lead to inaccurate context data being stored. In the event of a switchover occurring, and the protocol stack being re-initialized as described above, the restored billing information may be inaccurate, which could result in a user being overcharged.

Hence, preferably any billing record generated as a result of restored context data should be flagged as such, thereby allowing the service provider to either offer the call free of charge, or to reduce the cost of the call in question to take into account that the billing record generated thereby may be inaccurate. Alternatively, it may be preferable to flag the context data as being inaccurate, or at least potentially inaccurate, when adding the context data to the outgoing message.

It will be appreciated by those skilled in the art that the above-described embodiments are not limited for use with any particular protocol stack or HA system, and may be adapted for use with any message based communications or any communication system using a hierarchical structure of one or more discreet layers, where it is desirable to store context or backup data without requiring a central storage means. It will also be appreciated that the above-described functionality may be provided in a number of ways, such as through use a suitably programmed computing device, electronic circuitry or other logic.

Although the above embodiments are described with reference to a switchover of a HA system, it will be appreciated that the inventive concepts presented herein equally apply in other situations where context data is lost or damaged.

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CLAIMS

1. A method of storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
selectively indicating to a layer of the protocol stack that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the outgoing message such that a response to the message contains the context information.

2. The method of claim 1, wherein the node is arranged in a high-availability configuration.

3. The method of claim 1 or 2, wherein the outgoing message is sent from the node to a remote node across a network.

4. The method of claims 1, 2 or 3, adapted for use with a message-based communications system.

5. The method of any preceding claim, wherein the step of obtaining context information is adapted for obtaining context information related to the outgoing message.

6. The method of any preceding claim, wherein the step of adding the obtained context information is adapted for appending the context information to a separate field of the message.

7. The method of any preceding claim, for use with a session initiation protocol (SIP) network.

8. The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field.

9. The method of claim 7, wherein the step of adding the obtained context information is adapted for appending the context information to a SIP extension header.

10. The method of any preceding claim, further comprising adding an indication associated with the obtained context data where it is determined that the context data may be inaccurate or incomplete.

11 A method of restoring the context information of a layer of a protocol stack of a node:
comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

12. The method of claim 11, wherein the step of determining is adapted for determining whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message.

13. The method of claim 11 or 12, wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message.

14. The method of claim 11, 12 or 13, wherein the step of determining further comprises checking whether the received message is an initial message.

15. The method of any of claims 11 to 14, adapted for use with the session initiation protocol (SIP).

16. The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP TAG.

17. The method of claim 15, wherein the step of restoring the context of the layer is adapted for restoring the context using context information stored in a SIP extension header.

18. A system for storing context information in an outgoing message sent from a node using a protocol stack having at least one layer, comprising:
means for indicating to a layer of the protocol stack that context information should be obtained for that layer;
a module for obtaining context information in accordance with the indication;
a circuit for adding the obtained context information to the outgoing message such that a response to the message contains the context information.

19. A system according to claim 18, wherein the node is arranged in a high-availability configuration.

20. A system according to claim 18 or 19, wherein the outgoing message is sent from the node to a remote node across a network.

21. A system according claims 18, 19 or 20, for use with a message-based communications system.

22. A system according to any of claims 18 to 21, wherein the context information obtained is related to the outgoing message.

23. A system according to any of claims 18 to 22, wherein the obtained context information is appended to a separate field of the message.

24. A system according to any of claims 18 to 23, for use with a session initiation protocol (SIP).

25. A system according to claim 24, wherein the obtained context information is appended to a SIP TAG field.

26. A system according to claim 24, wherein the obtained context information is appended to a SIP extension header.

27. A system according of any of claims 18 to 26, wherein an indication associated with the obtained context data is added where it is determined that the context data may be inaccurate or incomplete.

28. A system of restoring the context information of a layer of a protocol stack of a node:
comprising:
receiving means for receiving a message;
logic for determining whether the context information of the layer should be restored;
a circuit for determining the presence of context information relevant to the layer within the message; and
restoration means for restoring the context of the layer using context information from the message.

29. A system according to claim 28, wherein the logic for determining is adapted for determining based in part on the context information of the layer and in part on the received message.

30. A system according to claim 28 or 29, wherein the logic for determining is adapted for checking the existence at the layer of context information associated with the received message.

31. A system according to claim 30, wherein the logic for determining is adapted for checking whether the received message is an initial message.

32. A system according to any of claims 28 to 31, for use with the session initiation protocol (SIP).

33. A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

34. A system according to claim 32, wherein the restoration means is adapted for restoring the context using context information stored in a SIP TAG.

35. A method of sending a message from a node through a hierarchical structure of one or more discreet layers comprising:
indicating to a layer that context information should be obtained for that layer;
obtaining context information in accordance with the indication; and
adding the obtained context information to the message, such that a response to the message contains the context information.

36. A method of restoring the context information of a layer of a hierarchical structure of discreet layers comprising:
receiving a message;
determining whether the context information of the layer should be restored; and, where it is so determined,
determining the presence of context information relevant to the layer within the message; and
restoring the context of the layer using context information from the message.

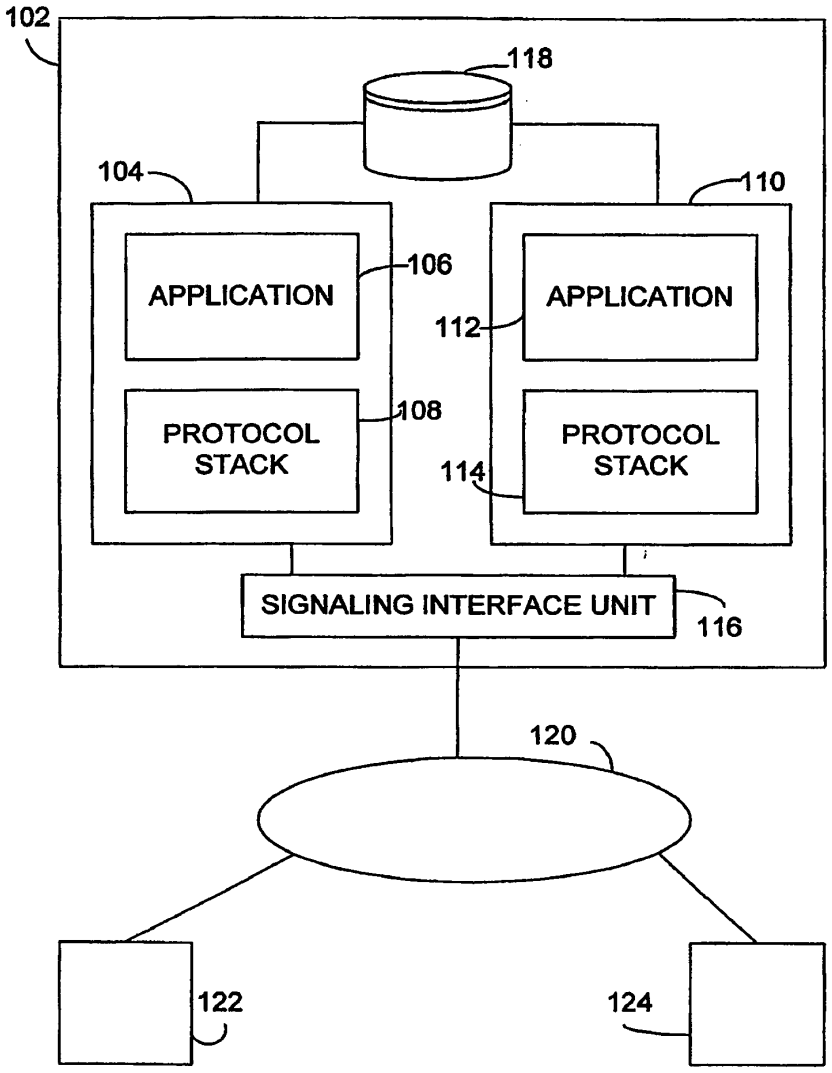


FIGURE 1

PRIOR ART

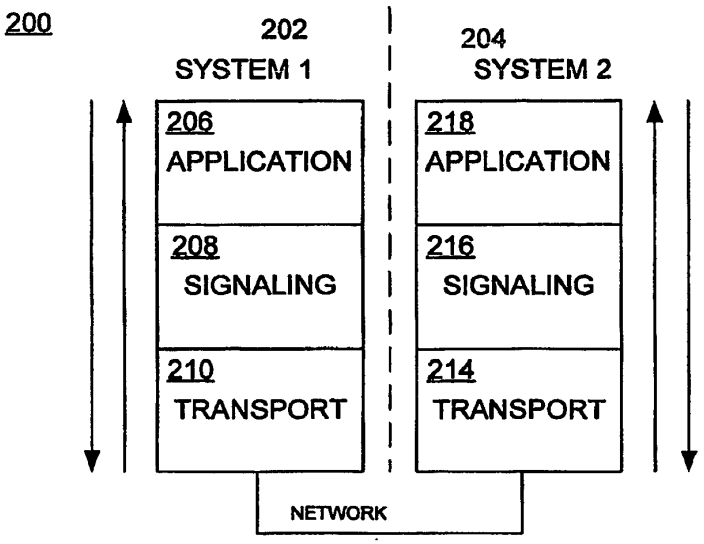


FIGURE 2

Shown as co located but in reality likely to be distributed over many machines/servers and locations

PRIOR ART

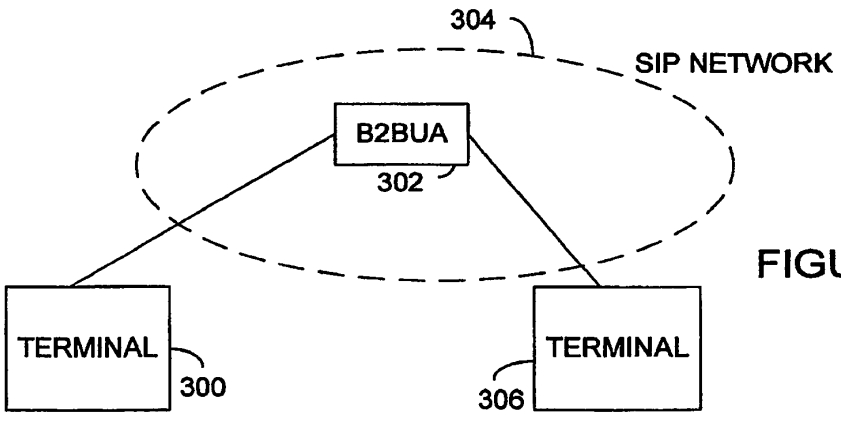


FIGURE 3

PRIOR ART

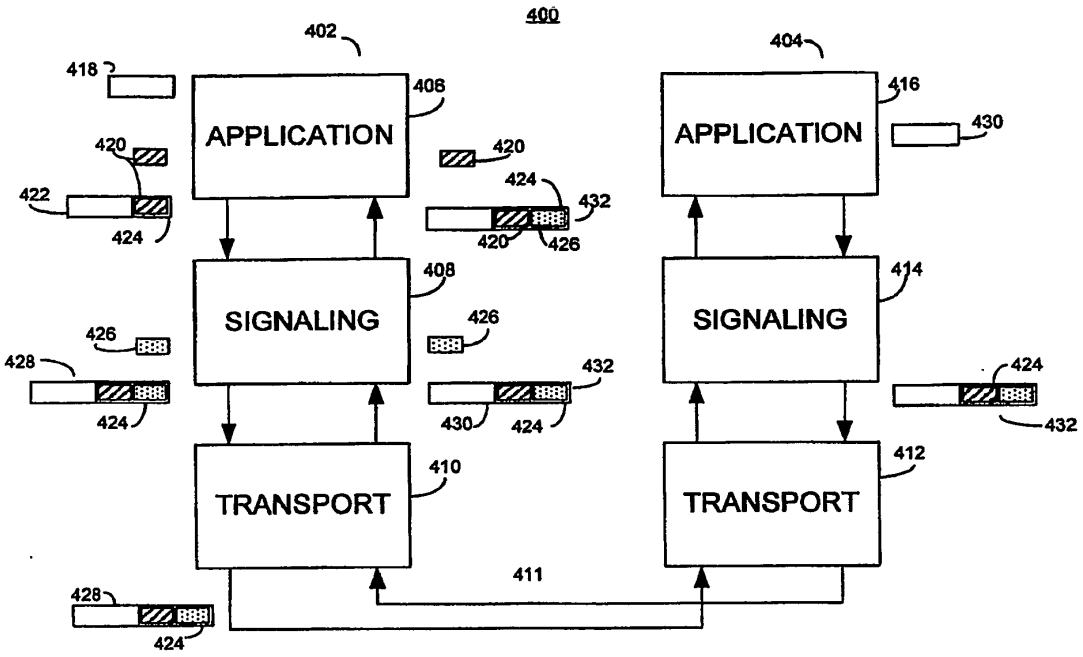


FIGURE 4

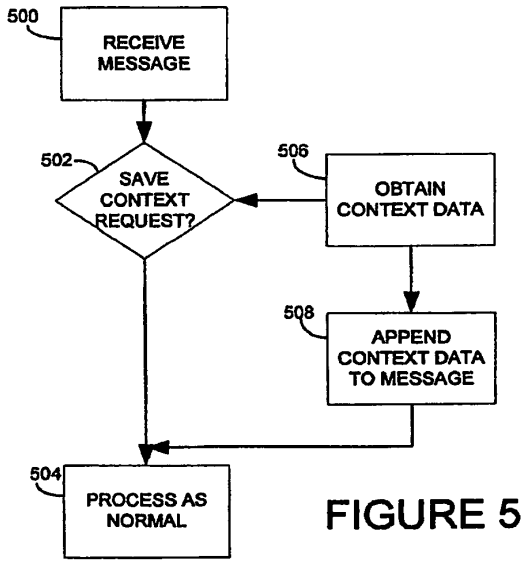


FIGURE 5

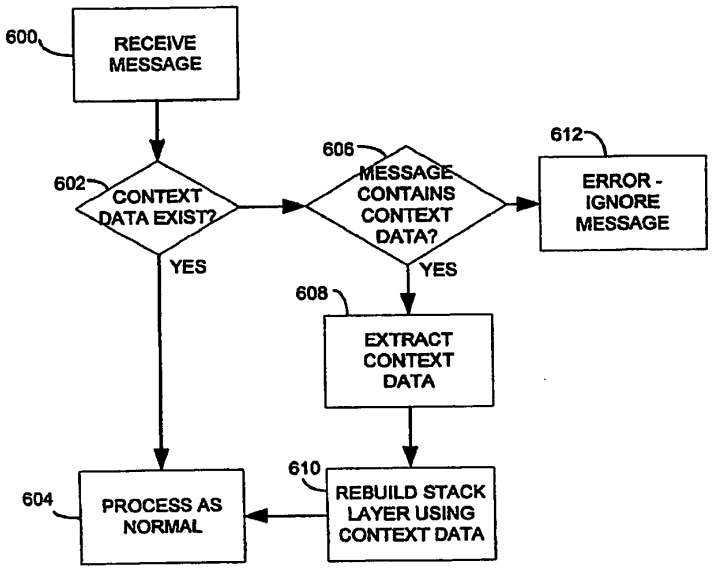


FIGURE 6

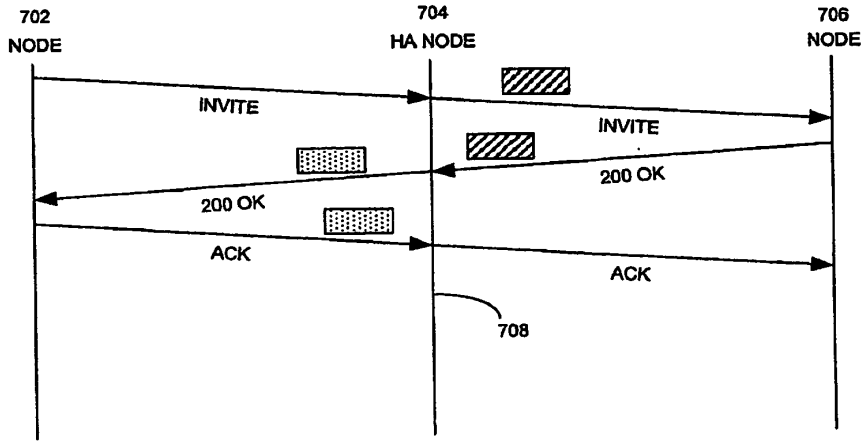


FIGURE 7

PATENT COOPERATION TREATY

REC'D 10 OCT 2005
WIPO PCT

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 200309832-2	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/EP2004/051371	International filing date *(day/month/year)* 06.07.2004	Priority date *(day/month/year)* 25.07.2003
International Patent Classification (IPC) or national classification and IPC H04L29/08, H04L29/14		
Applicant HEWLETT-PACKARD DEVELOPMENT COMPANY L.P.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 8 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *sent to the applicant and to the International Bureau)* a total of sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
24.05.2005	18.10.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Mannekens, J Telephone No. +31 70 340-

Form PCT/IPEA/409 (Cover Sheet) (January 2004)

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-13	as originally filed
Claims, Numbers	
1-36	as originally filed
Drawings, Sheets	
1/4-4/4	as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-36
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-36
Industrial applicability (IA)	Yes:	Claims	1-36
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

   D1: EP-A-1 309 142 (HEWLETT PACKARD CO) 7 May 2003 (2003-05-07)

   D2: CHANDRANMENON G P ET AL: 'TRADING PACKET HEADERS FOR PACKET PROCESSING' IEEE / ACM TRANSACTIONS ON NETWORKING, IEEE INC. NEW YORK, US, vol. 4, no. 2, 1 April 1996 (1996-04-01), pages 141-152, XP000582666 ISSN: 1063-6692

   D3: HARRY SINGH: 'Distributed Fault-Tolerant/High-Availabilty Systems' TRILLIUM, [Online] 12 December 2001 (2001-12-12), pages 1-22, XP002266230 Retrieved from the Internet: <URL:http://web.archive.org/web/2001121202 4354/http://www.trillium.com/news-events/w hite-papers/index.html> [retrieved on 2004-01-07]

2. The term "context information" used throughout the claims is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT). Especially in the context of message-flow through the layers of a protocol stack, the successive added header-portions can be seen as context information. It is for example well-known in the art to append direct or indirect request-id, flow-id, task-id references in headers while passing through the protocol stack.

3. Taking the objection of paragraph 2 into account, the present application does not meet the requirements of Article 33(1) PCT, because the subject-matter of independent claims 1, 11, 18, 28, 35, 36 is not new in the sense of Article 33(2) PCT.

   1. claim 1: Document D1, which is considered to represent the most relevant state of the art, discloses the use of fault tolerant network element in the context of voice over IP (D1, paragraph 2) using a protocol stack, having at least one layer (D1, Figure 3). Considering the objection of paragraph 2, it

appears that obtaining context information in a layer of the protocol stack and adding the obtained context information to the outgoing message such that a response message contains the context information, covers standard protocol stack functionality. Therefore, the subject-matter of claim 1 is not novel.

2. claim 11: The subject-matter of claim 11 corresponds with the subject-matter of claim 1 but defined for receiving a response message. Therefore the reasoning in paragraph 3.1 is also valid for claim 11.

3. claim 18: The subject-matter of claim 18 corresponds with the subject-matter of claim 1, but defined in system features. Therefore claim 18 is also considered not to be novel.

4. claim 28: The subject-matter of claim 28 corresponds with the subject-matter of claim 11, but defined in system features. Therefore claim 28 is also considered not to be novel.

5. claim 35: The subject-matter of claim 35 corresponds with the subject-matter of claim 1. Therefore claim 35 is also considered not to be novel.

6. claim 36: The subject-matter of claim 36 corresponds with the subject-matter of claim 11. Therefore claim 36 is also considered not to be novel.

4. The additional subject-matter of dependent claims 2-6 is covered by the reasoning for claim 1. Therefore, dependent claims 2-6 are also not new in the sense of Article 33(1) and (2) PCT.

5. When interpreting the term "context information" in a more narrow sense, not taking paragraph 2 into account, the present application does not meet the requirements of Article 33(1) PCT, because the subject-matter of independent claims 1, 11, 18, 28, 35, 36 does not involve an inventive step in the sense of Article 33(3) PCT. The reasoning in detail is only done for independent claim 1.

   1. Document D1, which is still considered to represent the most relevant state of the art, from which the subject-matter of claim 1 differs in that storing context information obtained for a layer of the protocol stack is added to the

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outgoing message such that a response to the message contains the context information.

The problem to be solved by the present invention may therefore be regarded as how can a protocol stack layer receiving a response message behave within the context where the outgoing message was sent out.

Document D2 discloses, in order to reduce data processing, the addition of a separate data manipulation header in an easy accessible portion of the outgoing packet (D2, page 1, col 2, line 43 - page 2, col 1, line 10) allowing compilation of information from several protocol layers, providing the same advantages as in the present application. The skilled person would therefore regard it as a normal design option to include this feature in a protocol stack in order to solve the problem posed.

Thus, the subject-matter of claim 1 does not involve an inventive step and does not satisfy the criterion set forth in Articles 33(1) and 33(3) PCT.

6. Dependent claims 7-10, 12-17, 19-27, 29-34 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to novelty and/or inventive step, the reasons being as follows:

   1. The additional subject-matter of claims 7-9 relates to a SIP environment. It is however generally known to the person skilled in the art that the SIP is an equivalent to H.323 as the VoIP protocol of document D1 and can be interchanged with that feature where circumstances make it desirable. Document D3 for example discloses in Figure 2 on page 8, H.323 and SIP together in the context of high-availability next-gen systems.

   2. In claim 10 a slight constructional change in the context information of claim 1 is suggested which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. Consequently, the subject-matter of claim 10 also appears to lack an inventive step.

   3. claims 12-17: The subject-matter of claims 12-17 corresponds with the subject-matter in dependent claims 2-10. Therefore, the subject-matter of

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claims 12-17 also appears to lack an inventive step.

4. claims 19-27: The subject-matter of claims 19-27 corresponds with the subject-matter in dependent claims 2-10, but defined in system features. Therefore, the subject-matter of claims 19-27 also appears to lack an inventive step.

5. claims 29-34: The subject-matter of claims 29-34 corresponds with the subject-matter in dependent claims 12-17, but defined in system features. Therefore, the subject-matter of claims 29-34 also appears to lack an inventive step.

7. The application does not meet the requirements of Article 6 PCT, because claims 1, 11,18, 28, 35, 36 are not clear.

1. It is clear from the description on page 2, lines 5-9, 19-20 and on page 7, lines 8-10 that the following feature is essential to the definition of the invention:

(1) The absence of a common storage area for storing context data in a high-availability configuration

Since none of the independent claims 1, 11, 18, 28, 35, 36 does contain this feature it does not meet the requirement following from Article 6 PCT taken in combination with Rules 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

2. Although claims 1 and 35 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

3. A similar objection as in paragraph 7.2 is applicable on claims 11 and 36.

Jan Mannekens

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Rec'd PCT/PTO 26 MAY 2005

PATENT APPLICATION FEE DETERMINATION RECORD
Effective December 8, 2004

Application or Docket Number
10/536 625

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY TYPE ☑		OR	OTHER THAN SMALL ENTITY	
			RATE	FEE		RATE	FEE
U.S. NATIONAL STAGE FEES							
BASIC FEE	SMALL ENT. = $ 150	LARGE ENT. = $ 300	BASIC FEE		OR	BASIC FEE	300
EXAMINATION FEE	Satisfies PCT Article 33(1)-(4) = $ 50 / $ 100	All other situations = $ 100 / $ 200	EXAM. FEE			EXAM. FEE	200
SEARCH FEE	U.S. is ISA = $ 50 / $ 100 ALL other countries = $ 200 / $ 400	All other situations = $ 250 / $ 500	SEARCH FEE			SEARCH FEE	400
FEE FOR EXTRA SPEC. PGS.	minus 100 =	/ 50 =	X $ 125 =			X $ 250 =	—
TOTAL CHARGEABLE CLAIMS	36 minus 20 = *	16	X $ 25 =		OR	X $ 50 =	800
INDEPENDENT CLAIMS	6 minus 3 = *	3	X $ 100 =		OR	X $ 200 =	600
MULTIPLE DEPENDENT CLAIM PRESENT		☐	+ $ 180 =		OR	+ $ 360 =	
* If the difference in column 1 is less than zero, enter "0" in column 2			TOTAL		OR	TOTAL	2300

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 36	Minus	** 36	= 0
Independent	* 6	Minus	*** 6	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X $ 25 =		OR	X $ 50 =	
X $ 100 =		OR	X $ 200 =	
+ $ 180 =		OR	+ $ 360 =	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 36	Minus	** 36	=
Independent	* 6	Minus	*** 6	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X $ 25 =		OR	X $ 50 =	
X $ 100 =		OR	X $ 200 =	
+ $ 180 =		OR	+ $ 360 =	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than "20", enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than "3", enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.