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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
61/422,572	12/13/2010		220	RALEP044+		

CONFIRMATION NO. 9520

21912
VAN PELT, YI & JAMES LLP
10050 N. FOOTHILL BLVD #200
CUPERTINO, CA 95014

FILING RECEIPT



OC000000045120819

Date Mailed: 12/28/2010

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Applicant(s)

Gregory G. Raleigh, Woodside, CA;

Power of Attorney:

Michael Schallopp--44319

If Required, Foreign Filing License Granted: 12/23/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 61/422,572**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No
Title

SYSTEM INTERFACES AND WORKFLOWS FOR DEVICE ASSISTED SERVICES

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international

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PROVISIONAL APPLICATION FOR
UNITED STATES PATENT

**SYSTEM INTERFACES AND WORKFLOWS FOR DEVICE
ASSISTED SERVICES**

By Inventors:

Gregory G. Raleigh
Woodside, CA
A Citizen of the United States

Assignee: Headwater Partners I LLC

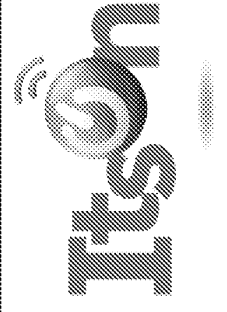
VAN PELT, YI & JAMES LLP
10050 N. Foothill Blvd., Suite 200
Cupertino, CA 95014
Telephone 408-973-2585

A grayscale photograph of a hand holding a pen, poised to write on a document. The image is slightly blurred, giving it a professional, yet approachable feel.

ItsOn System Interfaces and Key Workflows

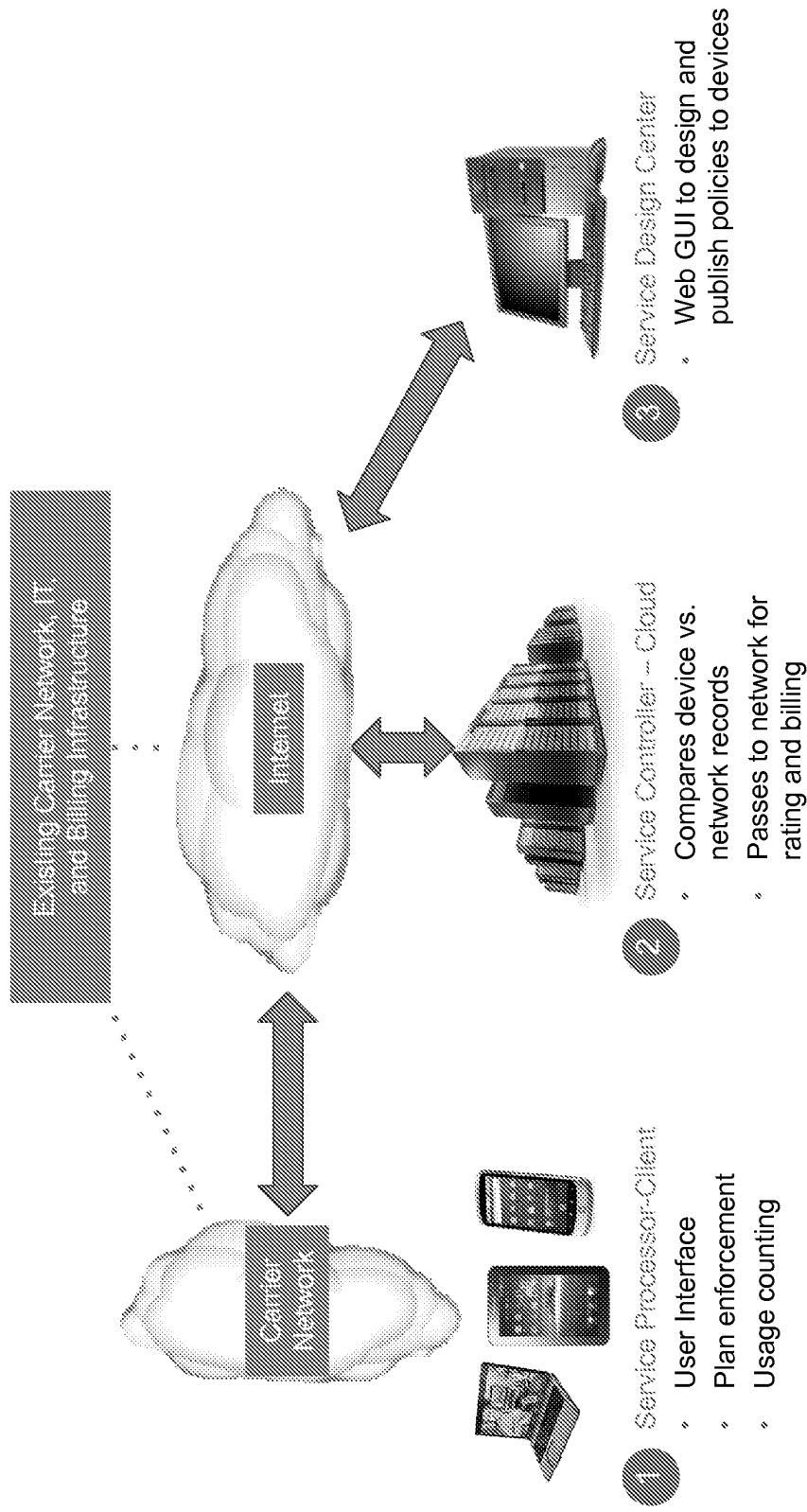
Revision 1.1

December 10, 2010





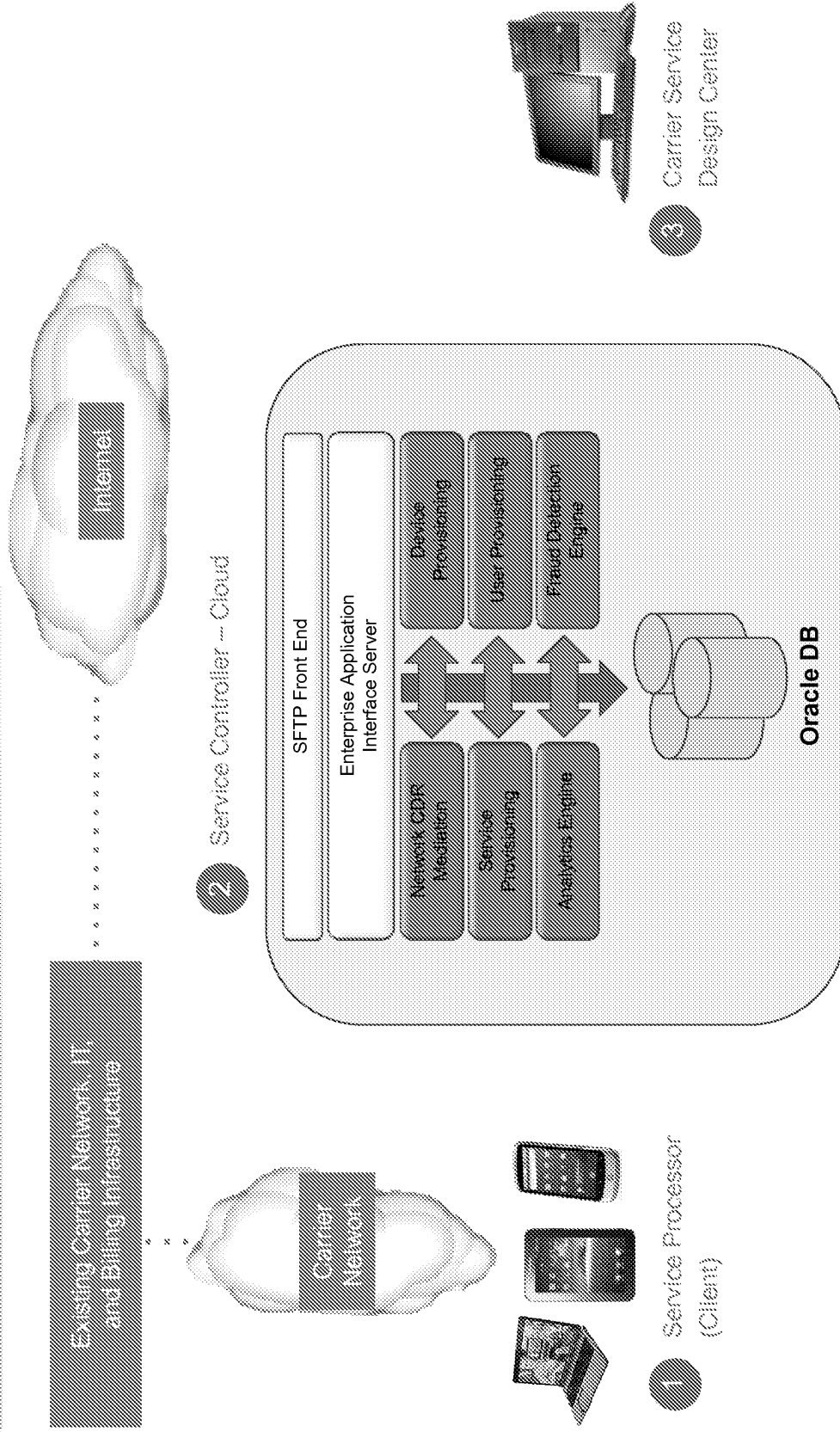
Platform Components



NO touching data path equipment and flows
NO heavy capex in centralized packet inspection solutions

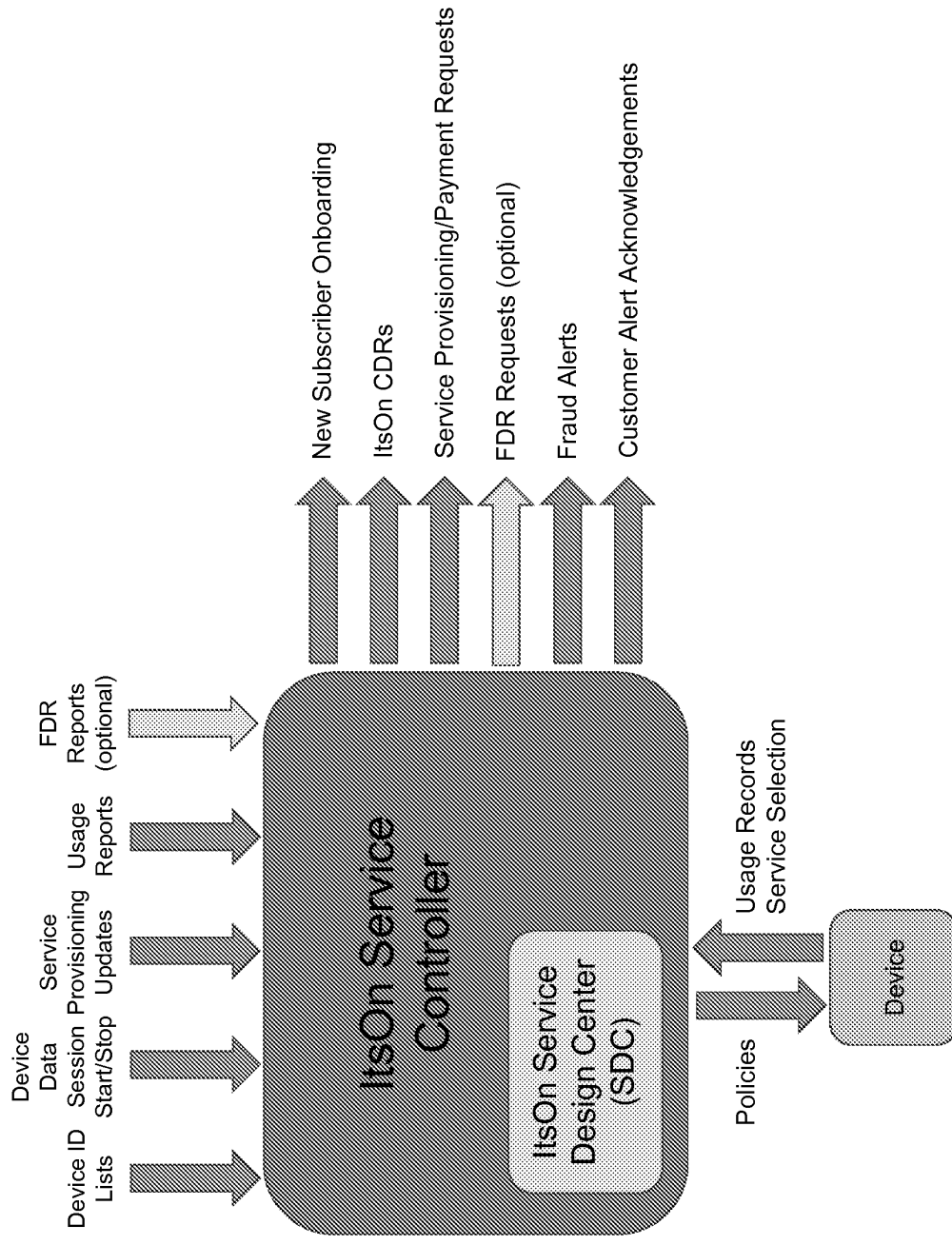


Service Controller - Operator Interface Elements





Service Controller Operator Interfaces





ItsOn System Interface Descriptions



Device List Interface (Inbound)

- Purpose: Provide ItsOn Service Controller with device ID and credentials of devices that are ItsOn-enabled. Devices are loaded to the ItsOn Service Controller and associated with the appropriate Device Group.
Devices must be loaded to the ItsOn Service Controller prior to the end-user attempting to use the ItsOn Service Processor/Client on the device.
- Preferred Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- Alternative Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- Data Elements:
 - IMSI/MSID
 - MDN/MSIDSN
 - MEID/IMEI
 - Device Group

Device Data Session Start/Stop Interface (Inbound)



- Purpose: Provide ItsOn Service Controller notification when a user data session starts and stops.
- Preferred Interface Strategy: Single Device
 - Protocol: Radius or Diameter (Note: Diameter could provide “interim accounting” updates)
 - Format: Fixed length records
- Alternative Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- Data Elements:
 - IMSI/MSID
 - MEID/IMEI
 - Status (Start/Stop/Interim)
 - Bytes MO (optional)
 - Bytes MT (optional)

Service Provisioning Update Interface (Inbound)



- Purpose: Provide ItsOn Service Controller with updated service plan selections for a device. Service Provisioning Updates are sent only for ItsOn-enabled devices.
- Interface is optional, depends on implementation
- Preferred Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- Data Elements:
 - IMSI/MSID
 - MDN/MSISDN
 - MEID/IMEI
 - Service plan selection information
 - Service plan/charging code(s)
 - Plan start/end date/time(s)



Network Usage Report Interface (Inbound)

- * Purpose: Provide ItsOn Service Controller with data usage information for a device. Network Usage Reports are sent only for ItsOn-enabled devices.
- * Preferred Interface Strategy: Single Device
 - Protocol : Web Services
 - Format: XML
- * Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Data Elements:
 - IMSI/MSID
 - MDN/MSISDN
 - MEID/IMEI
 - Usage report start time
 - Usage report end time
 - MO bytes used
 - MT bytes used
 - Service plan/charging code
 - Percentage of plan used



FDR Report Interface (Inbound)

- * Purpose: Provide ItsOn Service Controller with detailed data usage information for a device, based on a prior FDR Report request initiated by the ItsOn Service Controller
- * Interface is optional – depends on implementation
- * Preferred Interface Strategy: Single Device
 - Protocol1: Web Services
 - Format1: XML
- or
- Protocol2: GTP
- Format2: GTP'
- * Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Data Elements:
 - IMSI/MSID
 - MDN/MSISDN
 - MEID/IMEI
 - Usage report start time
 - Usage report end time
 - * Usage data []
 - * Remote IP address
 - * Remote port
 - * MO bytes used
 - * MT bytes used



New Subscriber Onboarding: Interface (Outbound)

- Purpose: Provide carrier systems with initial subscriber, billing, device and service selection information
- Preferred Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- Data Elements:
 - Device data (MEID, IMSI, etc.)
 - Subscriber data (name, address, etc.)
 - Billing data (credit card info, billing address, etc.)
 - Selected service plan(s)/charging code(s)
 - Acceptance of T&C



ItsOn CDR Delivery Interface (Outbound)

- * Purpose: Provide carrier systems with detailed device usage information
- * Preferred Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Alternative Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- * Data Elements:
 - MEID/IMEI
 - IMSI/MSID
 - MDN/MSISDN
 - Start Time
 - End Time
 - Usage Data[]
 - Service plan/charging code
 - MO bytes used
 - MT bytes used

Service Provisioning/Payment Request Interface (Outbound)



- * Purpose: Provide carrier systems with subscriber service selection information
- * Preferred Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- * Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Data Elements:
 - MEID/IMEI
 - IMSI/MSID
 - MDN/MSISDN
 - Selected service plan(s)/charging code(s)
 - T&C Acceptance
 - Payment Data
 - Type (e.g., credit card, debit card, prepaid voucher, charge card on file, etc.)



FDR Request Interface (Outbound)

- * Purpose: Request FDRs for a specific subscriber for a specific period of time
- * Interface is optional – depends on implementation
- * Preferred Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- * Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Data Elements:
 - MEID/IMEI
 - IMSI/MSID
 - MDN/MSISDN
 - Start time
 - End time



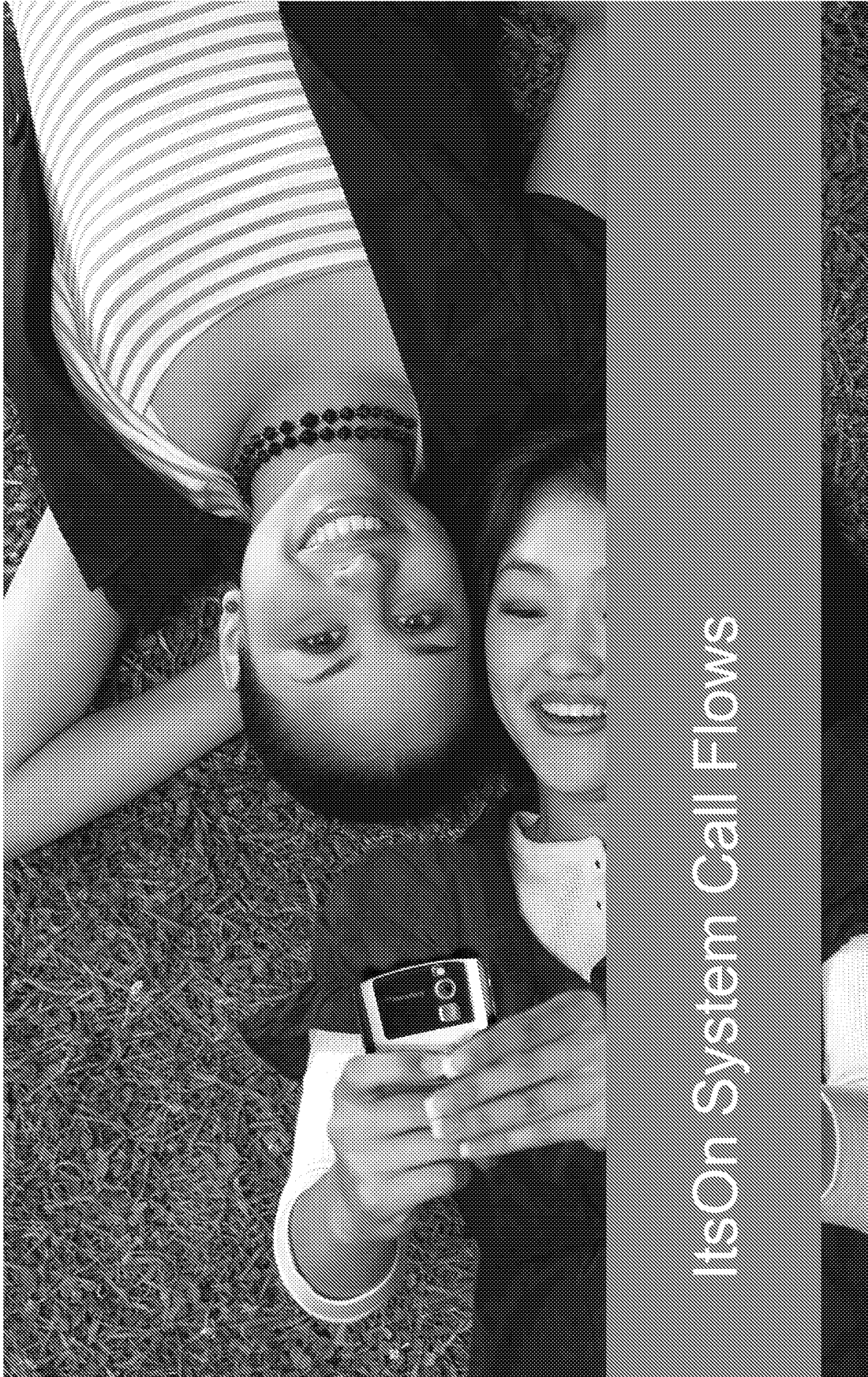
Fraud Alert Interface (Outbound)

- * Purpose: Notify carrier systems of potential fraud detection
- * Preferred Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- * Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Data Elements:
 - MEID/IMEI
 - IMSI/MSID
 - MDN/MSISDN
 - Fraud start time
 - Fraud end time
 - Affected service plan/charging code
 - Fraud Reason Code (e.g., no device report, count mismatch, etc.)

Customer Acknowledgement Interface (Outbound)



- * Purpose: Notify carrier systems of end-user selecting “Acknowledge” on notifications that have an “Acknowledge” option specified
- * Preferred Interface Strategy: Single Device
 - Protocol: Web Services
 - Format: XML
- * Alternative Interface Strategy: Batch
 - Protocol: FTP
 - Format: Fixed length records
- * Data Elements:
 - MEID/IMEI
 - IMSI/MSID
 - MDN/MSISDN
 - Acknowledge time
 - Acknowledge event (e.g., allow overage)
 - Acknowledge service plan/charging code(e.g., 50 MB browsing plan)



ItsOn System Call Flows

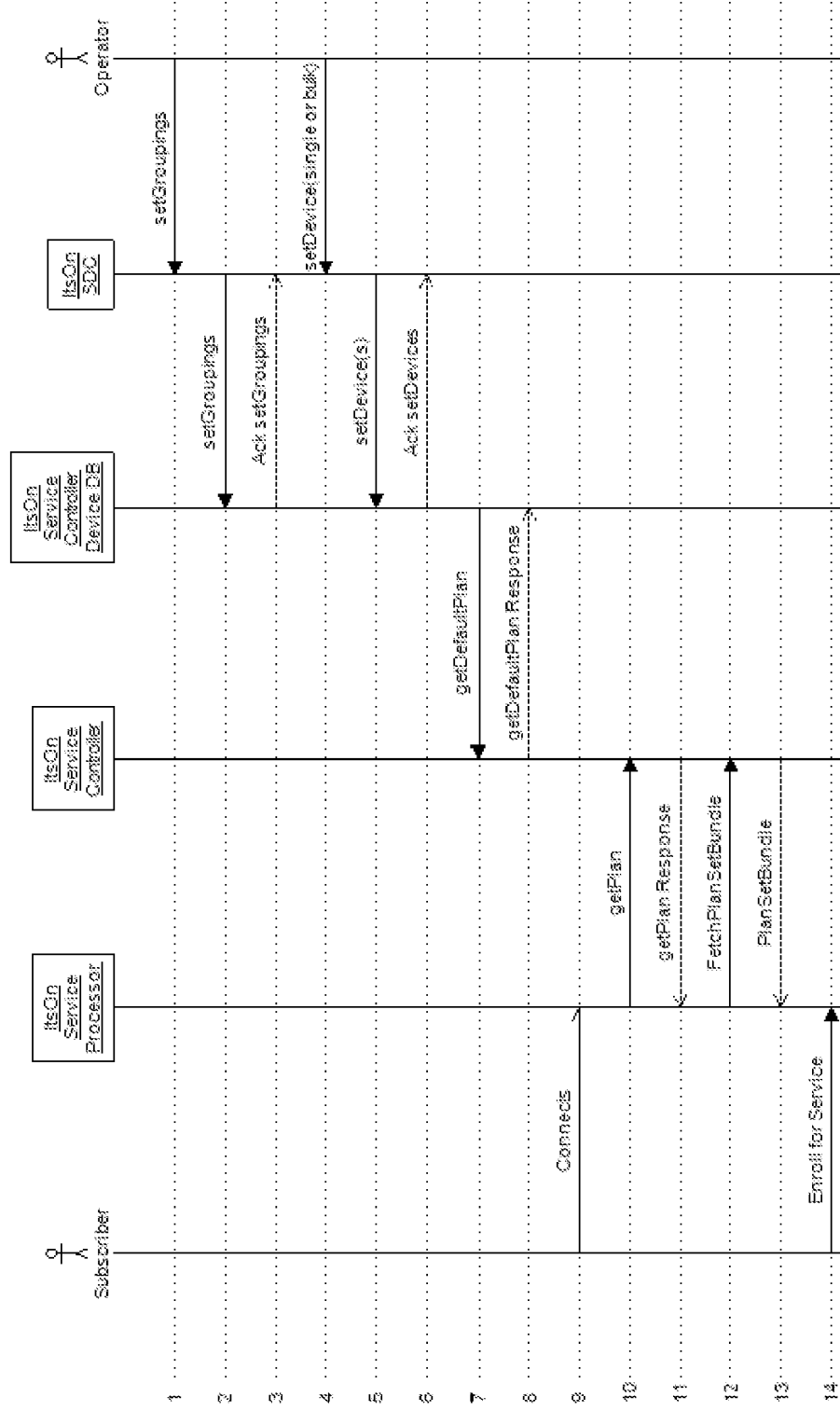


Introduction

- This document provides high-level call flows to describe the following workflows from the perspective of the ItsOn Service Controller
 - Device provisioning
 - Prepay and post pay plan purchasing
 - Prepay and post pay CDR processing
 - Fraud alerting
 - Subscriber notification acknowledgement processing
- Operator and network interfaces are made generic for the purposes of this document
- Details of processing and workflow behind the network and operator interfaces are not defined in this document
- This document will be used as a basis for defining exact workflows for the specific operator implementation of the ItsOn Service Controller

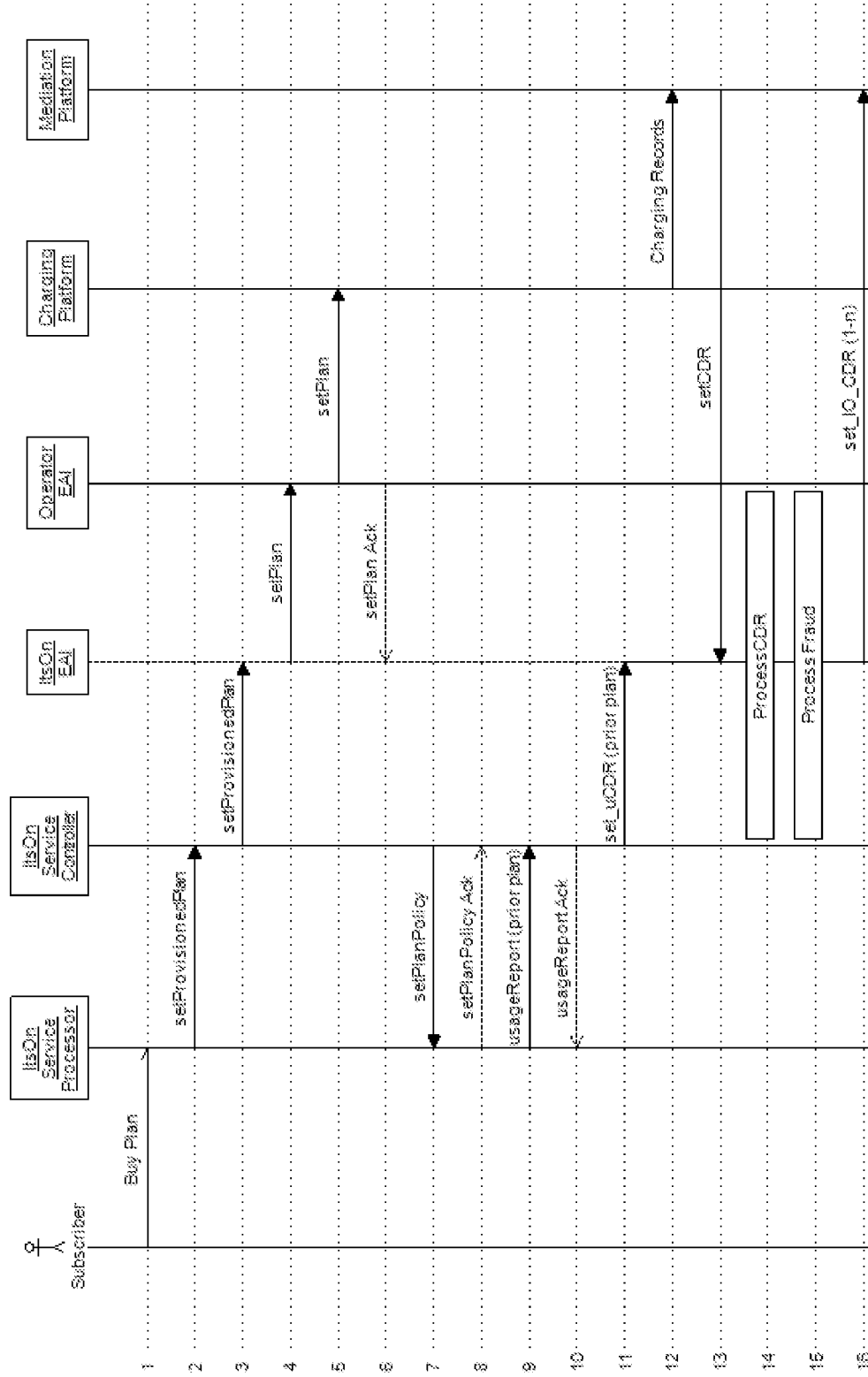


Device Provisioning Workflow



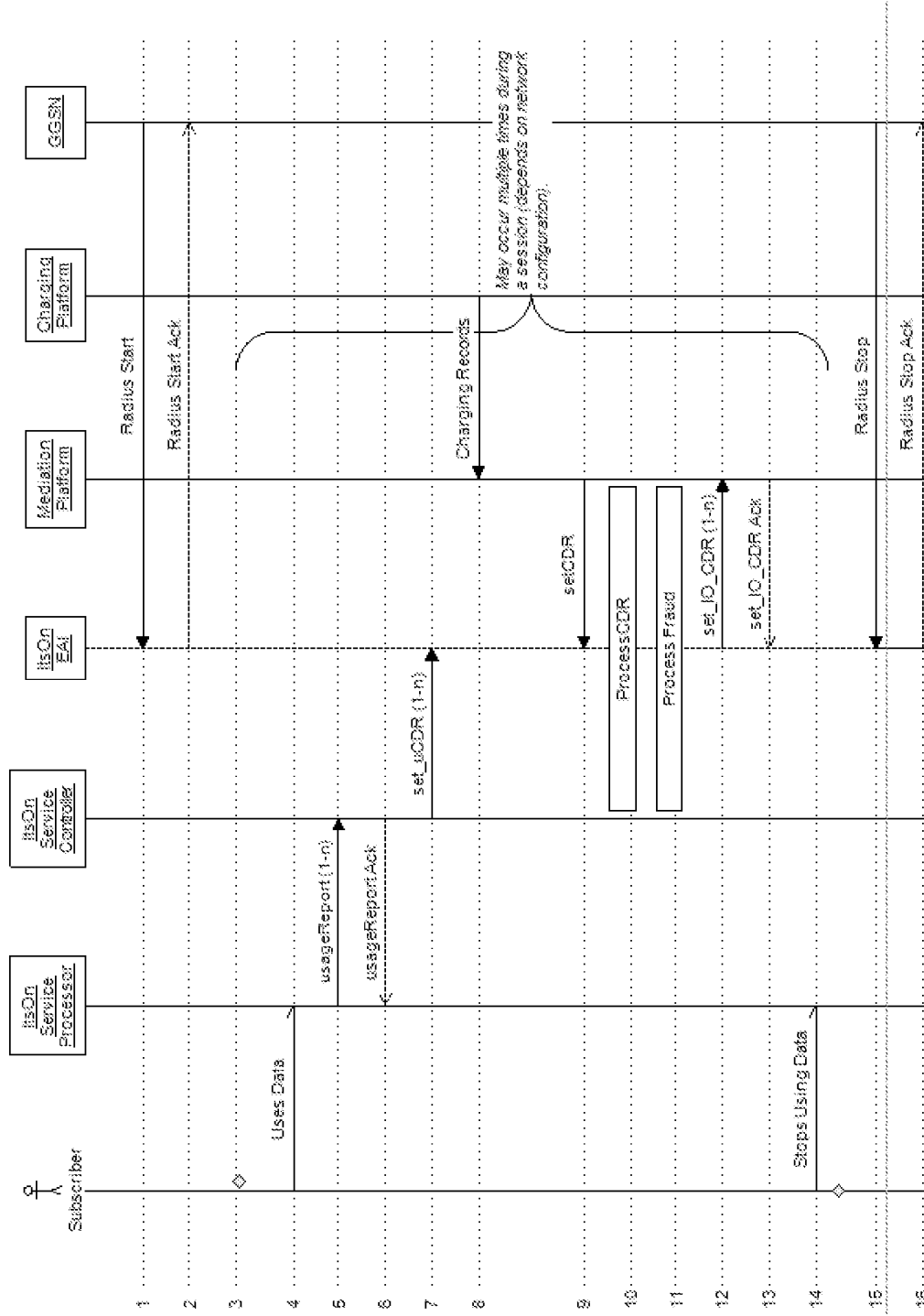


Post-pay Purchase Workflow



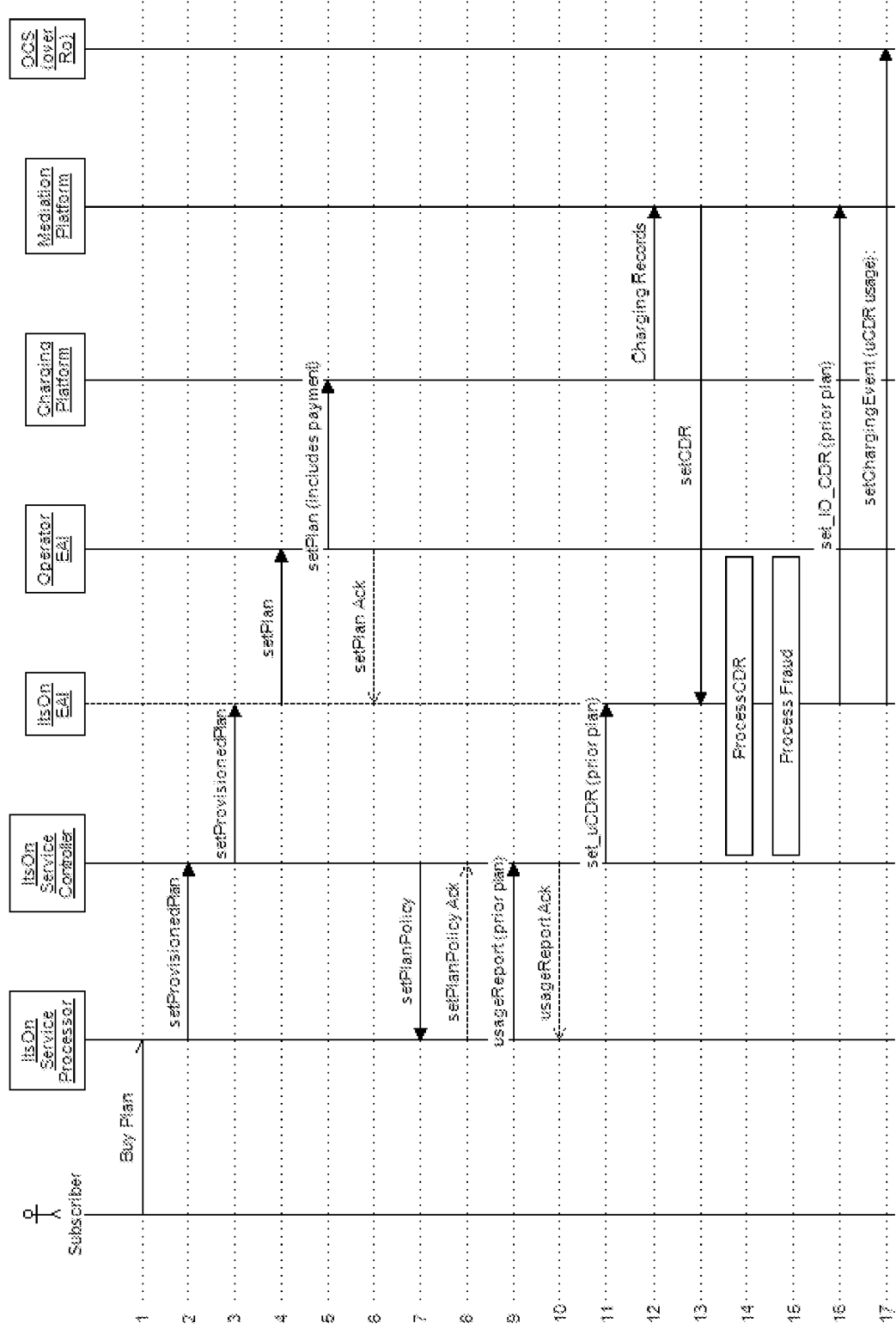


Post-pay CDR Processing Workflow



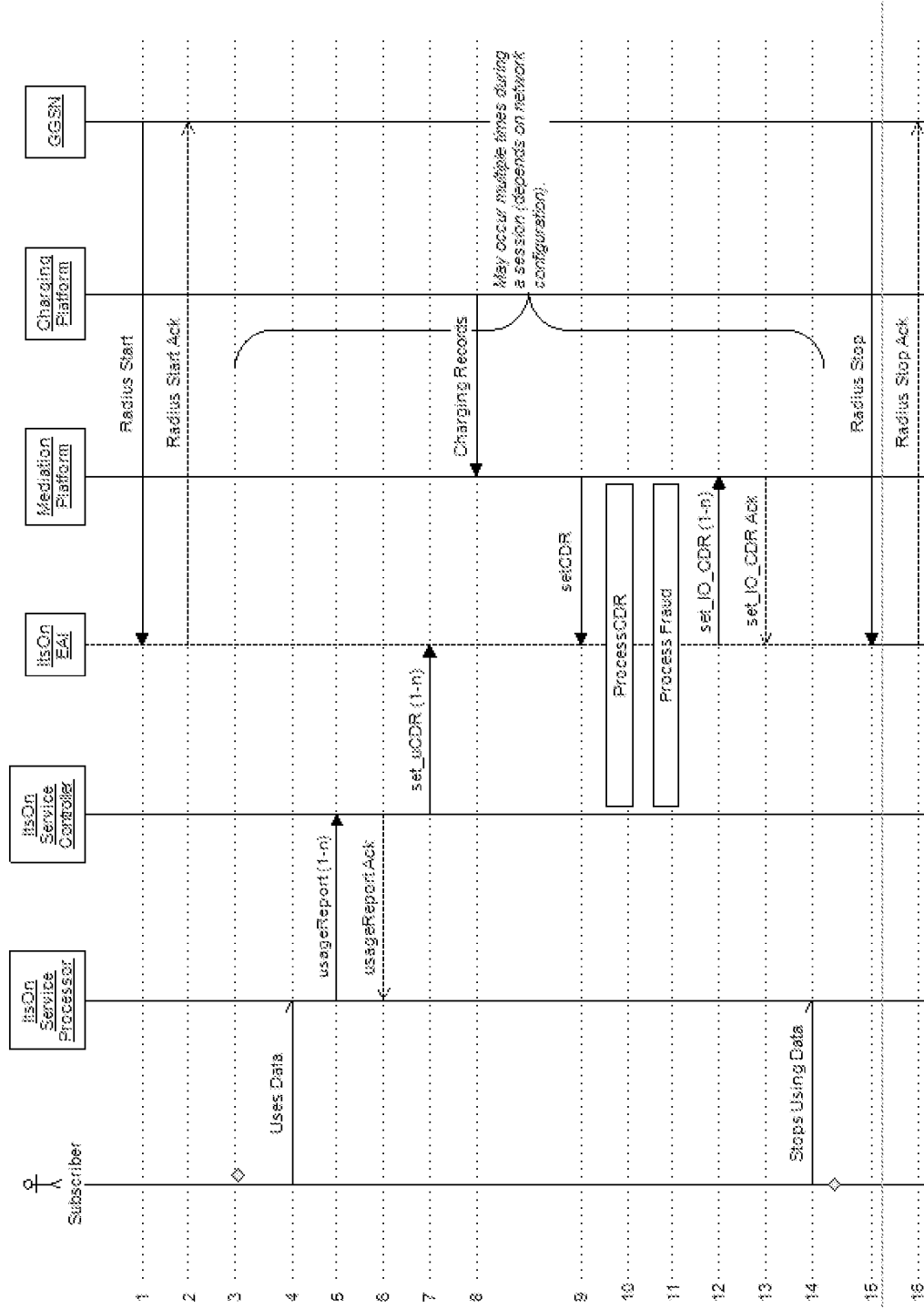


Prepay Purchase Workflow



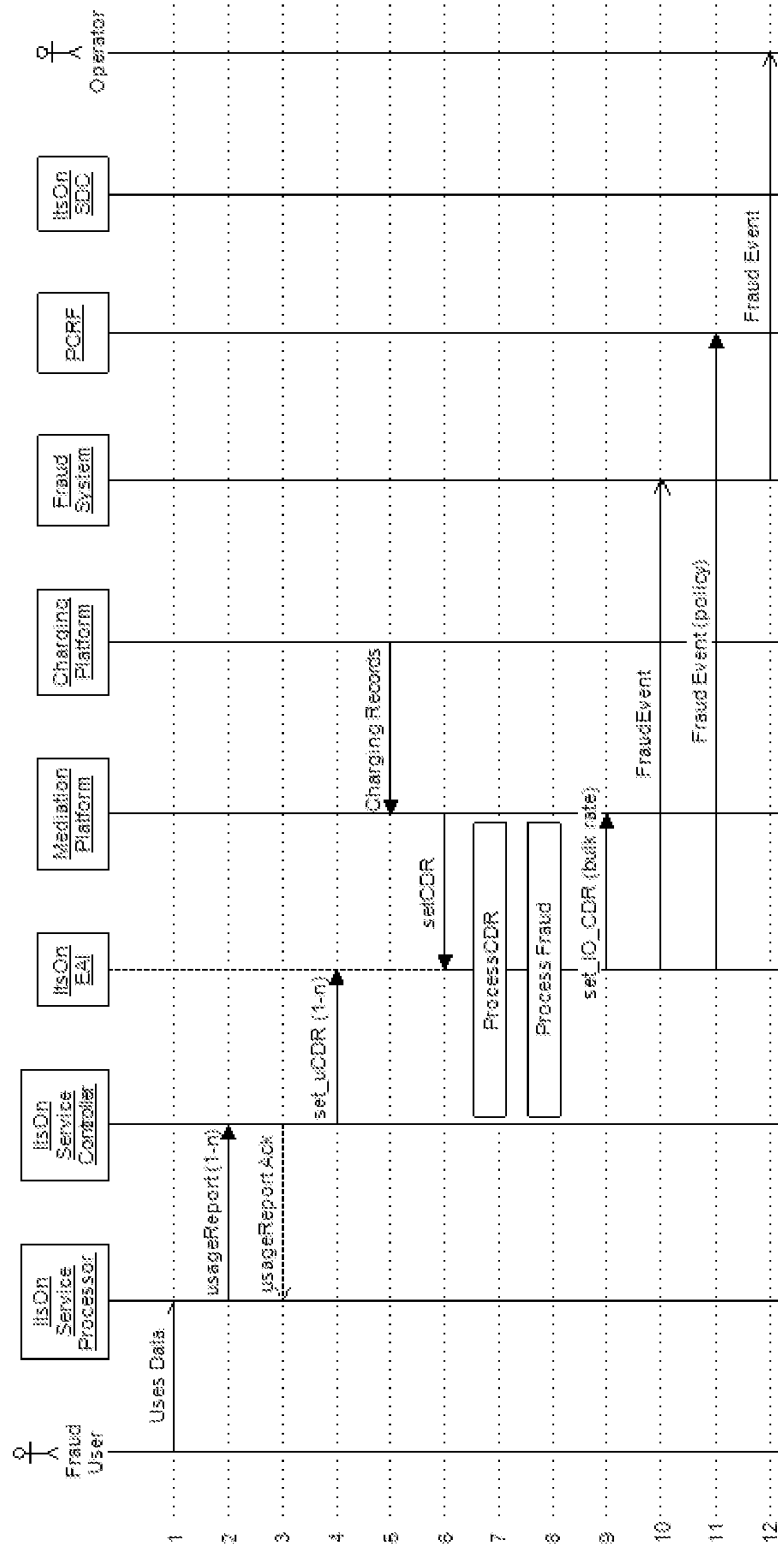


Prepay CDR Processing Workflow



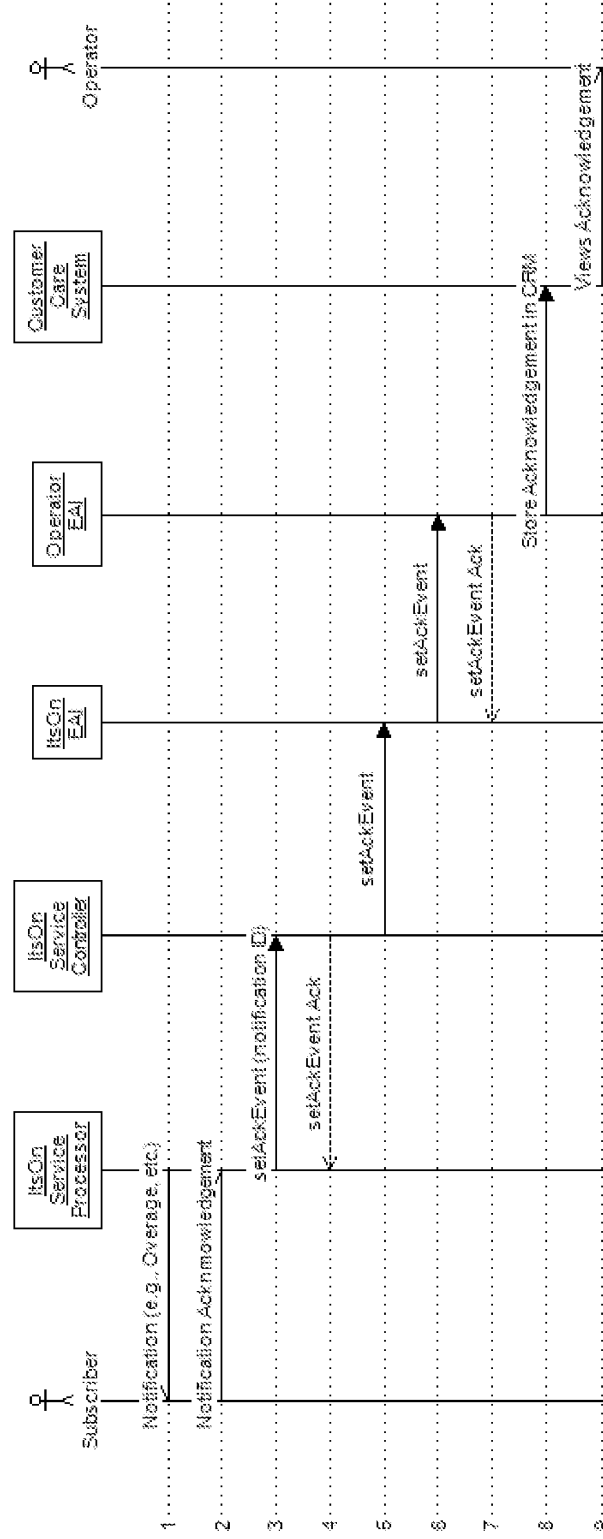


Fraud Alert Processing Workflow





Notification Acknowledgement Processing Workflow



Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		SYSTEM INTERFACES AND WORKFLOWS FOR DEVICE ASSISTED SERVICES		
First Named Inventor/Applicant Name:		Gregory G. Raleigh		
Filer:		Michael J. Schallop		
Attorney Docket Number:		RALEP044+		
Filed as Large Entity				
Provisional Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Provisional application filing	1005	1	220	220
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				220

Electronic Acknowledgement Receipt	
EFS ID:	9024304
Application Number:	61422572
International Application Number:	
Confirmation Number:	9520
Title of Invention:	SYSTEM INTERFACES AND WORKFLOWS FOR DEVICE ASSISTED SERVICES
First Named Inventor/Applicant Name:	Gregory G. Raleigh
Customer Number:	21912
Filer:	Michael J. Schallop/Veronica Pula
Filer Authorized By:	Michael J. Schallop
Attorney Docket Number:	RALEP044+
Receipt Date:	13-DEC-2010
Filing Date:	
Time Stamp:	18:45:15
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$220
RAM confirmation Number	6177
Deposit Account	500685
Authorized User	
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Provisional Cover Sheet (SB16)	RALEP044plus_Provisional_Application_Transmittal.pdf	1000006 3f9e321d03c18c6c644f181b742ccb7810177232	no	3
Warnings:					
Information:					
2		RALEP044plus_App.pdf	2508536 14809a27accaa03b1b7ccb1a8372b8bf1e4057	yes	26
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Transmittal of New Application	1	1		
	Specification	2	26		
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	29330 03c9bb12c27e780b27438b5375b537ae9bb2bb8	no	2
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Document Description: Provisional Cover Sheet (SB16)

PTO/SB/16 (04-07)

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Inventor(s)

Inventor 1

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Given Name	Middle Name	Family Name	City	State	Country i
Gregory	G.	Raleigh	Woodside	CA	US

All Inventors Must Be Listed – Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

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Title of Invention

SYSTEM INTERFACES AND WORKFLOWS FOR DEVICE ASSISTED SERVICES

Attorney Docket Number (if applicable)

RALEP044+

Correspondence Address

Direct all correspondence to (select one):

☒ The address corresponding to Customer Number ☐ Firm or Individual Name

Customer Number

21912

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

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Entity Status

Applicant claims small entity status under 37 CFR 1.27

- ☐ Yes, applicant qualifies for small entity status under 37 CFR 1.27
- ☒ No

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Signature	/Michael J. Schallop/			Date (YYYY-MM-DD)	2010-12-13
First Name	Michael	Last Name	Schallop	Registration Number (If appropriate)	44319

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.