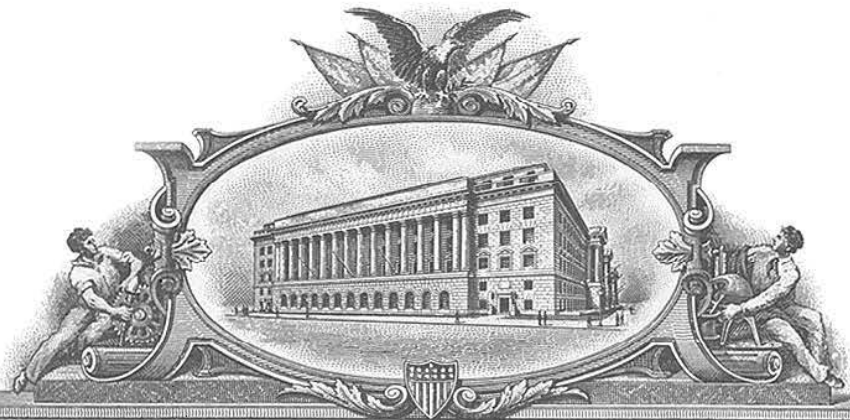


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METHOD AND APPARATUS  
FOR  
PROVIDING DYNAMIC STREAM PROCESSING OF  
DATA BASED ON STATIC ANALYTICS

**BACKGROUND**

**[0001]** Service providers and device manufacturers (e.g., wireless, cellular, etc.) are continually challenged to deliver value and convenience to consumers by, for example, providing compelling network services. One area of interest has been development of applications and services, which process and/or utilize various types of data in order to provide accurate, appropriate, and updated information. In particular, these applications and services can include processing and analyzing data utilized, for example, by social networking services, navigation services, search engines, content providers, and the like. Traditionally, data processing and analysis may be implemented via one or more servers (or nodes) and/or clusters of servers (or nodes) that provide, for instance, distributed computing and/or data storage to support the services. Moreover, such data processing and analysis historically have been segregated based on whether the data being processed is “slow moving” data (e.g., static or relatively static data that is collected over long periods of time such as user behavior data, service usage information, etc. processed by analytics systems) or whether the data is collected as data streams in real-time (e.g., social networking feeds, location tracking feeds, etc. processed by stream processing systems). Each different type of data (e.g., slow moving vs. real-time) has had different data processing architectures and techniques that traditionally have been used in isolation. As a result, service providers and device manufacturers face significant technical challenges to managing and/or integrating the data processing and analysis methods for slow moving data with the data processing and analysis methods for real-time data.

**SOME EXAMPLE EMBODIMENTS**

**[0002]** Therefore, there is a need for data processing methods to generate comprehensive results that combines the features of a slow moving data systems with real-time data systems.

**[0003]** According to one embodiment, a method comprises determining at least one processing element of at least one dynamic processing mechanism. The method also comprises causing, at least in part, a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism.

**[0004]** According to another embodiment, an apparatus comprises at least one processor, and at least one memory including computer program code for one or more computer programs, the at least one memory and the computer program code configured to, with the at least one processor, cause, at least in part, the apparatus to determine at least one processing element of at least one dynamic processing mechanism. The apparatus is further caused to cause, at least in part, a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism.

**[0005]** According to another embodiment, a computer-readable storage medium carrying one or more sequences of one or more instructions which, when executed by one or more processors, cause, at least in part, an apparatus to determine at least one processing element of at least one dynamic processing mechanism. The apparatus is further caused to cause, at least in part, a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism.

**[0006]** According to another embodiment, an apparatus comprises means for determining at least one processing element of at least one dynamic processing mechanism. The apparatus further comprises means for causing, at least in part, a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism.

**[0007]** In addition, for various example embodiments of the invention, the following is applicable: a method comprising facilitating a processing of and/or processing (1) data and/or (2) information and/or (3) at least one signal, the (1) data and/or (2) information and/or (3) at least one signal based, at least in part, on (including derived at least in part from) any one or any combination of methods (or processes) disclosed in this application as relevant to any embodiment of the invention.

**[0008]** For various example embodiments of the invention, the following is also applicable: a method comprising facilitating access to at least one interface configured to allow access to at least one service, the at least one service configured to perform any one or any combination of network or service provider methods (or processes) disclosed in this application.

**[0009]** For various example embodiments of the invention, the following is also applicable: a method comprising facilitating creating and/or facilitating modifying (1) at least one device user interface element and/or (2) at least one device user interface functionality, the (1) at least one device user interface element and/or (2) at least one device user interface functionality based, at least in part, on data and/or information resulting from one or any combination of methods or processes disclosed in this application as relevant to any embodiment of the invention, and/or at least one signal resulting from one or any combination of methods (or processes) disclosed in this application as relevant to any embodiment of the invention.

**[0010]** For various example embodiments of the invention, the following is also applicable: a method comprising creating and/or modifying (1) at least one device user interface element and/or (2) at least one device user interface functionality, the (1) at least one device user interface element and/or (2) at least one device user interface functionality based at least in part on data and/or information resulting from one or any combination of methods (or processes) disclosed in this application as relevant to any embodiment of the invention, and/or at least one signal resulting from one or any combination of methods (or processes) disclosed in this application as relevant to any embodiment of the invention.

**[0011]** In various example embodiments, the methods (or processes) can be accomplished on the service provider side (e.g., via the computer system of FIG. 9) or on the mobile device side (e.g., via the mobile device of FIG. 11) or in any shared way between service provider and mobile device with actions being performed on both sides.

**[0012]** For various example embodiments, the following is applicable: An apparatus comprising means for performing the method of any of originally filed claims 1-10, 21-30, and 46-48.

**[0013]** Still other aspects, features, and advantages of the invention are readily apparent from the following detailed description, simply by illustrating a number of particular embodiments

and implementations, including the best mode contemplated for carrying out the invention. The invention is also capable of other and different embodiments, and its several details can be modified in various obvious respects, all without departing from the spirit and scope of the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature, and not as restrictive.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0014]** The embodiments of the invention are illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings:

**[0015]** FIG. 1 is a diagram of a system capable of providing a framework for smart data processing platform, according to one embodiment;

**[0016]** FIG. 2 is a diagram of components of a smart data processing platform, according to an embodiment;

**[0017]** FIG. 3 is a flowchart of a process for, at least, determining and encapsulating a processing element, according to an embodiment;

**[0018]** FIG. 4 is a flowchart of a process for, at least, determining a computational chain and related parameters associated with a processing element, according to an embodiment;

**[0019]** FIG. 5 is a diagram of a smart data processing architecture, according to an embodiment;

**[0020]** FIGs. 6 and 7 are diagrams of processing platforms including adaptive and user context awareness, according to various embodiments;

**[0021]** FIG. 8 is a diagram of a processing platform including context-aware adaptive real-time data interface, according to an embodiment;

**[0022]** FIG. 9 is a diagram of hardware that can be used to implement an embodiment of the invention;

**[0023]** FIG. 10 is a diagram of a chip set that can be used to implement an embodiment of the invention; and

[0024] FIG. 11 is a diagram of a mobile device that can be used to implement an embodiment of the invention.

#### DESCRIPTION OF SOME EMBODIMENTS

[0025] Examples of a method, apparatus, and computer program for smart data processing methods for more accurate and comprehensive results. In the following description, for the purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the embodiments of the invention. It is apparent, however, to one skilled in the art that the embodiments of the invention may be practiced without these specific details or with an equivalent arrangement. In other instances, well-known structures and devices are shown in block diagram form in order to avoid unnecessarily obscuring the embodiments of the invention.

[0026] FIG. 1 is a diagram of a system capable of providing services via a backend capable of data processing methods for more accurate and comprehensive results, according to an embodiment. With an ever increasing amount of data; for example, from users (e.g., user profile), sensor data (e.g., accelerometer, gyroscope, geomagnetic, orientation, atmospheric pressure, humidity, temperature, etc.), service providers (e.g., social networking services, content providers, search engines, data mining, etc.), there is a need to properly process the data in order to harness most accurate and valuable information from available data. Traditional data processing approaches include utilization of static and/or dynamic methods to analyze the data via various network resources (e.g., computer systems, servers, distributed computing, etc.) In the static processing method, as the database sizes may reach multiple gigabytes and terabytes, the data is processed according to one or more predetermined schedules (e.g., daily/weekly batch jobs), wherein the data may be considered to be slow-moving data and available from various sources (e.g., data stores.) In the other hand, in the dynamic processing (e.g., stream processing), the data may be processed near real-time, wherein the data may be considered to be fast-moving (e.g., near real-time) and from various sources, for example, data feeds, users, service providers (e.g., Twitter®), search engines, content providers, etc. However, since the two processing methods treat the data as either static data or as data stream, in separate flows, the resulting analytics of either method do not include impact/advantages of both the static data (e.g., historical data) and the dynamic data (e.g., newer data), wherein additional value may be

captured if there were feedback mechanisms between the two processes and analysis. For example, a service provider may be able to provide a more accurate recommendation service for a particular movie (e.g., based on ratings of a particular movie and a user profile) if historical data (e.g., over the last two weeks) as well as current data associated with the movie (e.g., from other current users) are considered in an analysis for the recommendation service. Therefore, service providers face significant challenges to efficiently process historical and current data for determining valuable information in any given data sets.

**[0027]** To address, at least, these problems, a system 100 of FIG. 1 introduces the capability for utilization of static and dynamic data analytics in various data processing mechanisms (e.g., distributed and/or local analytics engines). More specifically, the system 100 uses the static data of analytics engines with encapsulated computational chains (e.g., by marshalling the encapsulated computations as data objects that are associated with and travel with the static data content). In one embodiment, the encapsulated computational chains form the processing elements (PEs) of stream processing mechanisms. Because, the encapsulated computational chains are marshalled as data, these chains can be shaped by the analytics engines and then returned to the stream processing systems as PEs for processing real-time data, where marshalling may be considered as a process for transforming memory representation of an object to a data format (e.g., similar to serialization) suitable for storage and/or transmission of the data to different components of a process and/or from one process to another process. In some embodiments, the real-time processing systems may detect changes or trends in real-time data streams and feed this information back to the analytics engines which can then update the marshalled computational chains of the PEs of the stream processing systems. Therefore, the system 100 provides a complete lifecycle of slow moving data analytics and fast moving data analytics.

**[0028]** In general, users and service providers require various data features from various data processing and analysis mechanism, which are capable of granular and scalable data features extraction, attribute selection, dataset fusion and lifting, and the like. For initial stages of data processing, one or more processes may need to detect and validate valuable features in a data set. Further, features may be detected and extracted with entropy minimization approach when a stable state may indicate that a phase shift occurred (e.g. binary data has been tagged; meta-data

is created in order to represent binary, etc.) Furthermore, granular and scalable data features extraction may be achieved by defining assumptions as to what is the abstraction level of data – e.g., digital signals from sensors, types of data models implied onto a sensory input, binary data as second level above the signal data, structured and semi-structured data as third level, and knowledge at fourth level. Additionally, attributes may be selected by determining importance weights based and domain specific rules. Moreover, dataset fusions and lifting may be accomplished by abstraction levels normalization, levels fusion and lifting (e.g., step functions).

**[0029]** In various embodiments of the system 100, the data processing mechanisms (e.g., engines, pipelines, etc.) may include a dynamic stream processing (e.g., real-time or a near real-time) and a static processing (e.g., map-reduce batch jobs) where the dynamic stream process may operate on one or more data feeds from various sources (e.g., users, service providers, sensors, etc.) and the static process may operate on data from one or more databases (e.g., historical data). The data feeds are sequences of objects mapped to contextual information (e.g., geotag, motion, movement, time, etc.), where the information may change over time, and the historical data may include large volumes of contextual data collected from various sources over time (e.g., hours, days, weeks, etc.) In various embodiments, one or more service providers may utilize analytics from both processing mechanisms to further process and/or utilize in providing various services to users and/or to other service providers. In one embodiment, a PE interface may analyze historical data in the static process and update (e.g., correlate) dataset and structure utilized in the dynamic stream process for a more comprehensive result. For example, analytics based on a static process may determine and/or indicate one or more trends (e.g., location based, event based, etc.) in a data feed, wherein the data feed alone may not depict a complete status of the one or more trends. In one embodiment, dynamic processing mechanism may process realtime data as well as historical data (e.g., input as a stream replay). In one instance, one or more data sets may be processed by the ETL according to various scripts which are shaping the map-reduce mechanism.

**[0030]** As shown in FIG. 1, in one embodiment, the system 100 includes user equipment (UE) 101a-101n (also collectively referred to as UE 101 and/or UEs 101), which may be utilized to execute one or more applications 103a-103n (also collectively referred to as applications 103) client applications, including games, social networking, web browser, media application, user

interface (UI), map application, web client, etc. to communicate with other UEs 101, one or more service providers 105a-105n (also collectively referred to as service providers 105), one or more processing platforms 107a-107n (also collectively referred to as processing platform 107), one or more GPS satellites 109, and/or with other components of the system 100 directly and/or via communication network 111. In one embodiment, the processing platform 107 is a computer system (e.g., a server) as described with respect to the FIG. 9 below.

**[0031]** In one embodiment, the service providers 105 may include and/or have access to one or more database 113a-113n (also collectively referred to as database 113), which may include various user information, content items, user profiles, user preferences, one or more profiles of one or more user devices (e.g., device configuration, sensors information, etc.), service provider information, other service provider information, and the like. In one embodiment, the service providers 105 may include one or more service providers offering one or more services, for example, messaging (e.g., instant messaging (IM), online chatting, etc.), online shopping, social networking services (e.g., blogging), media upload, media download, media streaming, account management services, or a combination thereof. Further, the service providers 105 may conduct a search for content, media, information, and the like associated with one or more users and/or one or more products.

**[0032]** In one embodiment, the processing platform 107 may include and/or have access to one or more database 115a-115n (also collectively referred to as database 115), which may store, include, and/or have access to various data, for example, from different sources and/or different time periods associated with location information, user information, device information, points of interest (POIs), service provider information, and the like. Further, the processing platform 107 may include various processing platforms utilizing various processing mechanisms, for example, direct processing, distributed processing (e.g., server farms), static processing, dynamic processing, and the like. Furthermore, the processing platform 107 and/or the database 115 may be partially or completely implemented within one or more service providers, one or more modules, one or more architectures, and the like. In one embodiment, the processing platform 107 is a computer system as described with respect to the FIG. 9 below.

**[0033]** In various embodiments, the processing platform 107 may sort, manage, store, and/or make the data available based on various parameters, for example, location information (e.g., of a user, of a service provider, of a requestor, etc.), sequential order, data type, date/time of data creation and/or submission, date/time of a data request, and the like. In certain embodiments, the collaboration module 115 implemented as a collection of one or more hardware, software, algorithms, firmware, or combinations thereof that can be integrated for use with the service providers 105 and/or with the processing platform 107. In various embodiments, the processing platform 107 may be maintained on a network server, while operating in connection with the service providers 105 as an extensible feature, a web-service, an applet, a script, an object-oriented application, or the like to enable searching for and/or processing of the social networking information. Further, the processing platform 107 and/or the service providers 105 may utilize one or more service application programming interfaces (APIs)/integrated interface, through which communication, data, and the like may be exchanged, shared, accessed, and/or processed.

**[0034]** In one embodiment, the UE 101 includes a location module/sensor that can determine the UE 101 location (e.g., a user's location). The UE 101 location can be determined by a triangulation system such as a GPS, assisted GPS (A-GPS), Cell of Origin, wireless local area network triangulation, or other location extrapolation technologies. Standard GPS and A-GPS systems can use the one or more satellites 109 to pinpoint the location (e.g., longitude, latitude, and altitude) of the UE 101. A Cell of Origin system can be used to determine the cellular tower that a cellular UE 101 is synchronized with. This information provides a coarse location of the UE 101 because the cellular tower can have a unique cellular identifier (cell-ID) that can be geographically mapped. The location module/sensor may also utilize multiple technologies to detect the location of the UE 101. GPS coordinates can provide finer detail as to the location of the UE 101. In another embodiment, the UE 101 may utilize a local area network (e.g., WLAN) connection to determine the UE 101 location information, for example, from an Internet source (e.g., a service provider).

**[0035]** In one embodiment, the system 100 determines at least one PE of at least one dynamic processing mechanism (e.g., engine). In one embodiment, a processing platform 107 may include a dynamic process (e.g., stream process), which may operate on real-time or near

real-time data stream to determine and/or process one or more PEs. For example, a PE may include computational code and/or data, which may be associated with one or more information items from a user and/or a service provider (e.g., a Twitter® feed, location based information, etc.), wherein the PEs may indicate a most common topic, location, hash-tag, and the like. In another example, a PE may include data as well as executing code where one or more functions of a process may be defined (e.g., process a counter, determine occurrence of certain data patterns or popularity of a certain topic, traffic analysis, route planning, reverse geocoding (RGC), etc.) In one embodiment, the processing platform 107 may include a static process, which may determine and/or process the one or more PEs. For example, the static process may preform one or more processes associated the one or more PEs, one or more dynamic processes, one or more distributed processes, or a combination thereof. In one embodiment, one or more other elements (e.g., servers, processors, etc.) of the system 100 may determine and/or process the one or more PEs instead of and/or in conjunction with the, processing platform, the dynamic process, and/or the static process.

**[0036]** In one embodiment, the system 100 causes, at least in part, a marshalling of the at least one PE as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism. In one embodiment, marshalling is a process of encoding an object for sharing, sending, and/or communicating the object to one or more component, processes, and the like of a computer and/or a network (e.g., from a client to a server). In one embodiment, the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one PE, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency. In one embodiment, the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one PE, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

**[0037]** In one embodiment, the PE may include an executable code (e.g., binary code), which may be executing in the stream process, wherein the data object may include information on the current process state, execution steps (e.g., snap shot of the state of the process), values of

variables, and the like where the data object may continue to be processed at a different time and/or in a different process (e.g., static process).

**[0038]** In one embodiment, the system 100 processes and/or facilitates a processing of at least substantially real-time data via the at least one PE to determine one or more triggering events. In one embodiment, the dynamic processor evaluates, processes, analyzes real-time and/or near real-time data (e.g., from users) to determine one or more triggering events, wherein the triggering events may be predetermined and/or determined based on one or more criteria. For example, the triggering event may be based on a location, an event type, a user profile, a service provider, and the like. In one embodiment, the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level. For example, a threshold value may include a number of users, a particular geographical location, a certain communication topic, and the like.

**[0039]** In one embodiment, the system 100 causes, at least in part, a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events. In one embodiment, one or more triggering events (e.g., an event at a certain geographical location) may cause a PE interface to transfer one or more data objects to one or more static processing mechanisms (e.g., batch jobs) for utilization in one or more processes, wherein the processing may be based, at least in part, on the information encapsulated in the data object and historical data available to the static processor.

**[0040]** In one embodiment, the system 100 causes, at least in part, an unmarshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by the at least one static processing mechanism. In one embodiment, and unmarshalling process is to decode the object that was marshalled. For example, in a distributed computing environment, an object is marshalled (e.g., encoded, serialized) for sending the object from a client to a server side or from one process to another, and an unmarshalling is a process to decode (e.g., de-serialize) the encoded object at the receiving side.

**[0041]** In one embodiment, the system 100 processes and/or facilitates a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering

events, the one or more contextual trends, or a combination thereof. In one embodiment, the PE interface may determine one or more updates based on a triggering event (e.g., geo-tag information, sensor information, user information, user behavior, service provider information, etc.) and/or based on a contextual trend associated with, for example, one or more users, locations, events, topics, and the like, wherein the data object may be updated with information determined from the triggering event and/or the contextual trend. In one embodiment, the triggering event and/or the contextual trend may be determined from database (e.g., historic data) available to the static processing mechanism. For example, a trend may indicate a movement of a plurality of users toward a particular location and/or event, wherein the data object may be updated to monitor and track the one or more trends based on one or more trends determined from, for example, historical data.

**[0042]** In one embodiment, the system 100 determines one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one PE, wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof. In one embodiment, encapsulated computational chains form PEs of stream processing mechanisms. In one embodiment, the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof. For example, the shaping process may pass the PE as a data object to the static processing where it may update parameters, computations, and/or re-encode (e.g., marshalling) the updated computations, parameters, etc. back into data object for transmission to the dynamic process. In one embodiment, shaping is determining which computational chains may be selected for the processing, wherein one or more chains may be combined and encapsulated into one or more PEs for processing.

**[0043]** In one embodiment, the system 100 processes and/or facilitates a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism. In one embodiment, one or more new relationships and/or trends may be determined from a data object for utilization in updating data and/or one or

more processes of the static process mechanism. In one instance, one or more trends and/or analytics from a data object may be utilized to cause an update to a static process, for example, to begin a process cycle outside of a predetermined schedule so to effectuate historical data and/or process parameters for updated analytics.

**[0044]** In one embodiment, the system 100 causes, at least in part, an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism. In one embodiment, the PE interface aggregates output of the static process and the dynamic process. In one embodiment, the PE interface may request a first output from a first processing mechanism (e.g., the static process) and then provide the first output to a second processing mechanism (e.g., dynamic process), wherein the second processing mechanism may aggregate the first output with an output from the second process.

**[0045]** In one embodiment, the system 100 determines one or more outputs of at least one processing job based, at least in part, on the aggregation. In one embodiment, a processing mechanism (e.g., a dynamic process, a static process) and/or a PE interface may determine one or more outputs to one or more entities based, at least in part, on one or more aggregation of one or more outputs from one or more processing mechanisms. For example, a processing mechanism element (e.g., a server) and/or a service provider may utilize an aggregated output to provide an output to another element and/or another service provider.

**[0046]** In one embodiment, the processing platform 107, the service providers 105, and/or the UEs 101 may interact according to a client-server model. It is noted that the client-server model of computer process interaction is widely known and used. According to the client-server model, a client process sends a message including a request to a server process, and the server process responds by providing a service. The server process may also return a message with a response to the client process. Often the client process and server process execute on different computer devices, called hosts, and communicate via a network using one or more protocols for network communications. The term “server” is conventionally used to refer to the process that provides the service, or the host computer on which the process operates. Similarly, the term “client” is conventionally used to refer to the process that makes the request, or the host

computer on which the process operates. As used herein, the terms “client” and “server” refer to the processes, rather than the host computers, unless otherwise clear from the context. In addition, the process performed by a server can be broken up to run as multiple processes on multiple hosts (sometimes called tiers) for reasons that include reliability, scalability, and redundancy, among others.

**[0047]** By way of example, the communication network 111 of system 100 includes one or more networks such as a data network, a wireless network, a telephony network, or any combination thereof. It is contemplated that the data network may be any local area network (LAN), metropolitan area network (MAN), wide area network (WAN), a public data network (e.g., the Internet), short range wireless network, or any other suitable packet-switched network, such as a commercially owned, proprietary packet-switched network, e.g., a proprietary cable or fiber-optic network, and the like, or any combination thereof. In addition, the wireless network may be, for example, a cellular network and may employ various technologies including enhanced data rates for global evolution (EDGE), general packet radio service (GPRS), global system for mobile communications (GSM), Internet protocol multimedia subsystem (IMS), universal mobile telecommunications system (UMTS), etc., as well as any other suitable wireless medium, e.g., worldwide interoperability for microwave access (WiMAX), Long Term Evolution (LTE) networks, code division multiple access (CDMA), wideband code division multiple access (WCDMA), wireless fidelity (WiFi), wireless LAN (WLAN), Bluetooth®, Internet Protocol (IP) data casting, satellite, mobile ad-hoc network (MANET), and the like, or any combination thereof.

**[0048]** The UEs 101 may be any type of mobile terminal, fixed terminal, or portable terminal including a mobile device, phone, station, unit, device, healthcare diagnostic and testing devices, product testing devices, multimedia computer, multimedia tablet, Internet node, communicator, desktop computer, laptop computer, notebook computer, netbook computer, tablet computer, personal communication system (PCS) device, personal navigation device, personal digital assistants (PDAs), audio/video player, digital camera/camcorder, positioning device, television receiver, radio broadcast receiver, electronic book device, game device, or any combination thereof, including the accessories and peripherals of these devices, or any combination thereof. It is noted that, in the various embodiments, described herein the term mobile device is used

synonymously with UE 101, mobile terminal, mobile phone, and/or any other mobile device listed above. It is also contemplated that the UEs 101 can support any type of interface to the user (such as “wearable” circuitry, etc.) Further, the UEs 101 may include various sensors for collecting data associated with a user, a user’s environment, and/or with a UE 101, for example, the sensors may determine and/or capture audio, video, images, atmospheric conditions, device location, user mood, ambient lighting, user physiological information, device movement speed and direction, and the like. In one embodiment, the UE 101 is a mobile device (e.g., a handset, a mobile phone, etc.) as described with respect to FIG. 11 below.

**[0049]** By way of example, processing platform 107, the service providers 105, and/or the UEs 101 may communicate with each other and other components of the communication network 111 using well known, new or still developing protocols. In this context, a protocol includes a set of rules defining how the network nodes within the communication network 111 interact with each other based on information sent over the communication links. The protocols are effective at different layers of operation within each node, from generating and receiving physical signals of various types, to selecting a link for transferring those signals, to the format of information indicated by those signals, to identifying which software application executing on a computer system sends or receives the information. The conceptually different layers of protocols for exchanging information over a network are described in the Open Systems Interconnection (OSI) Reference Model.

**[0050]** Communications between the network nodes are typically effected by exchanging discrete packets of data. Each packet typically comprises (1) header information associated with a particular protocol, and (2) payload information that follows the header information and contains information that may be processed independently of that particular protocol. In some protocols, the packet includes (3) trailer information following the payload and indicating the end of the payload information. The header includes information such as the source of the packet, its destination, the length of the payload, and other properties used by the protocol. Often, the data in the payload for the particular protocol includes a header and payload for a different protocol associated with a different, higher layer of the OSI Reference Model. The header for a particular protocol typically indicates a type for the next protocol contained in its payload. The higher layer protocol is said to be encapsulated in the lower layer protocol. The

headers included in a packet traversing multiple heterogeneous networks, such as the Internet, typically include a physical (layer 1) header, a data-link (layer 2) header, an internetwork (layer 3) header and a transport (layer 4) header, and various application (layer 5, layer 6 and layer 7) headers as defined by the OSI Reference Model.

**[0051]** FIG. 2 is a diagram of components of a processing platform, according to an embodiment. By way of example, the processing platform 107 may include one or more static processes 201 and one or more dynamic processes 203 wherein the static process 201 may utilize a map-reduce process 205 (e.g., batch job) and the dynamic process 203 may utilize a stream process 207. In a map-reduce process/job, one or more input data sets are split (mapped) into independent clusters (e.g., by a master process component) which are processed by one or more map processes (e.g., slave process components) in a parallel manner, and later, the process sorts outputs of the map processes which are then input to one or more reduce tasks for combining results of the one or more map processes and generating one or more integrated resultants.

**[0052]** In one embodiment, the static process may utilize computational and data closures 209a-209n with an input point at 211 and an output point at 213. The term “computational closure” refers to a particular data retrieval and computation procedure together with relations and communications among various processes including passing arguments, sharing process results, flow of data and process results, etc. The computation closures (e.g., a granular reflective set of instructions, data, and/or related execution context or state) provide the capability of slicing of computations and data for processes and transmitting the slices between devices, infrastructures, and processes.

**[0053]** In one embodiment, the computation closures are marshalled as one or more data objects to facilitate transfer and processing among processing platforms 107 (e.g., static or slow moving data systems such as analytics engines, and real-time stream processing systems such as S4 systems). In one embodiment, the closure marshalling may be generated and stored using Resource Description Framework (RDF) format. RDF is a family of World Wide Web Consortium (W3C) specifications originally designed as a metadata data model. It has come to be used as a general method for conceptual description or modeling of information that is implemented in web resources; using a variety of syntax formats. The underlying structure of

any expression in RDF is a collection of triples, each consisting of three disjoint sets of nodes including a subject, a predicate and an object. A subject is an RDF URI reference (U) or a Blank Node (B), a predicate is an RDF URI reference (U), and an object is an RDF URI reference (U), a literal (L) or a Blank Node (B). A set of such triples is called an RDF graph. Table 1 shows an example RDF graph structure.

| Subject                           | Predicate                    | Object           |
|-----------------------------------|------------------------------|------------------|
| uri://...../rule#CD-introduction, | rdf:type,                    | uri://...../Rule |
| uri://...../rule#CD-introduction, | uri://...../rule#assumption, | "c"              |

**Table 1**

**[0054]** The granularity may be achieved by the basic format of operation (e.g. RDF) within the specific computation environment. Furthermore, the reflectivity of processes (i.e. the capability of processes to provide a representation of their own behavior to be used for inspection and/or adaptation) may be achieved by encoding the behavior of the computation in RDF format. Additionally, the context may be assumed to be partly predetermined and stored as RDF in the information space and partly be extracted from the execution environment. It is noted that the RDF structures can be seen as subgraphs, RDF molecules (i.e., the building block of RDF graphs) or named graphs in the semantic information brokers (SIBs) of information spaces.

**[0055]** In certain embodiments marshalling the closures associated with a certain execution context enables the closures to be freely distributed among multiple components of the system 100, including remote processors associated with the UEs 101 and the processing platforms 107 via the communication network 105. The processes of closure assigning and migration to run-time environments may be performed based on a cost function which accepts as input variables for a cost determination algorithm those environmental or procedural factors that impact optimal processing capability from the perspective of the multiple UEs 101, remote processors (e.g., PEs 221, processing platforms 107, etc.) associated therewith, information space capacity, etc. Such factors may include, but are not limited to, the required processing power for each process, system load, capabilities of the available run-time environments, processing required to be performed, load balancing considerations, security considerations, latency, service availability,

etc. As such, the cost function is, at least in part, an algorithmic or procedural execution for evaluating, weighing or determining the requisite operational gains achieved and/or cost expended as a result of the differing closure assignment and migration possibilities. In one embodiment, the assignment and migration process is performed in light of that which presents the least cost relative to environmental or functional conditions.

**[0056]** Further, the map-reduce process 205 may utilize a process including extraction 215 (E), transformation 217 (T), and loading 219 (L); wherein the extraction process includes extracting data from various data sources and the transformation stage includes series of rules or functions applied to the extracted data from the various sources in order to derive data for the loading stage, wherein the data is loaded into an end target (e.g., data warehouse, service provider, intermediate application, etc.). In one embodiment, the one or more PEs 221 may be extracted from the dynamic processing engine 203 and sent to the static processing 201 (e.g., extract, transform, and load (ETL) process) as data objects for processing, shaping (e.g., creation of hierarchical or nested sets of record-sets), changing, and/or adjusting, and after the processes, the PEs are sent back to the dynamic process 203, where the real-time PEs may be correlated with the static (e.g., historical) data. For example, the shaping process may pass the PEs as a data object to the static processing 201 where it may update parameters, computations, and/or re-encode (e.g., marshalling) the updated computations, parameters, etc. back into data object for transmission to the dynamic process 203. In various embodiments, the output 213 of the static process 201 is input to batch-jobs-results pool 223, and output 225 of the dynamic process 203 is input to real-time-results pool 227, wherein the results in the batch-jobs-results pool 223 and in the real-time-results pool 227 may be aggregated by one or more elements of the system 100 and provided as an output 229 to one or more elements (e.g., service providers, users, intermediary applications, etc.) of the system 100.

**[0057]** FIG. 3 is a flowchart of a process for, at least, determining and encapsulating a PE, according to an embodiment. In one embodiment, the processing platform 107 and/or the service providers 105 may perform all or a portion of the process 300 and are implemented in, for instance, a chip set including a processor and a memory as shown in FIG. 10. As such, the processing platform 107 and/or the service providers 105 can provide means for accomplishing various parts of the process 300 as well as means for accomplishing other processes in

conjunction with other components of the system 100. Throughout this process, the processing platform 107 is referred to as completing various portions of the process 300, however, it is understood that other components of the system 100 can perform some of and/or all of the process steps. Further, in various embodiments, the processing platform 107 may be implemented in one or more entities of the system 100.

**[0058]** In step 301, the processing platform 107 determines at least one PE of at least one dynamic processing mechanism (e.g., engine). In one embodiment, a processing platform 107 may include a dynamic process (e.g., stream process), which may operate on real-time or near real-time data stream to determine and/or process one or more PEs. For example, a PE may include computational code and/or data, which may be associated with one or more information items from a user and/or a service provider (e.g., a Twitter® feed, location based information, etc.), wherein the PEs may indicate a most common topic, location, hash-tag, and the like. In another example, a PE may include data as well as executing code where one or more functions of a process may be defined (e.g., process a counter, determine occurrence of certain data patterns or popularity of a certain topic, traffic analysis, route planning, reverse geocoding (RGC), etc.) In one embodiment, the processing platform 107 may include a static process, which may determine and/or process the one or more PEs. For example, the static process may preform one or more processes associated the one or more PEs, one or more dynamic processes, one or more distributed processes, or a combination thereof. In one embodiment, one or more other elements (e.g., servers, processors, etc.) of the system 100 may determine and/or process the one or more PEs instead of and/or in conjunction with the, processing platform, the dynamic process, and/or the static process.

**[0059]** In step 303, the processing platform 107 causes, at least in part, a marshalling of the at least one PE as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism. In one embodiment, the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one PE, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency. In one embodiment, the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and

wherein the at least one dynamic processing mechanism, the at least one PE, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

**[0060]** In step 305, the processing platform 107 processes and/or facilitates a processing of at least substantially real-time data via the at least one PE to determine one or more triggering events. In one embodiment, the dynamic processor evaluates, processes, analyzes real-time and/or near real-time data (e.g., from users) to determine one or more triggering events, wherein the triggering events may be predetermined and/or determined based on one or more criteria. For example, the triggering event may be based on a location, an event type, a user profile, a service provider, and the like. In one embodiment, the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level. For example, a threshold value may include a number of users, a particular geographical location, a certain communication topic, and the like.

**[0061]** In step 307, the processing platform 107 causes, at least in part, a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events. In one embodiment, one or more triggering events (e.g., an event at a certain geographical location) may cause a PE interface to transfer one or more data objects to one or more static processing mechanisms (e.g., batch jobs) for utilization in one or more processes, wherein the processing may be based, at least in part, on the information encapsulated in the data object and historical data available to the static processor.

**[0062]** In step 309, the processing platform 107 causes at least in part, an unmarshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by the at least one static processing mechanism. In one embodiment, and unmarshalling process is to decode the object that was marshalled. For example, in a distributed computing environment, an object is marshalled (e.g., encoded, serialized) for sending the object from a client to a server side or from one process to another, and an unmarshalling is a process to decode (e.g., de-serialize) the encoded object at the receiving side.

**[0063]** In step 311, the processing platform 107 processes and/or facilitates a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more

triggering events, the one or more contextual trends, or a combination thereof. In one embodiment, the PE interface may determine one or more updates based on a triggering event (e.g., geo-tag information, sensor information, user information, user behavior, service provider information, etc.) and/or based on a contextual trend associated with, for example, one or more users, locations, events, topics, and the like, wherein the data object may be updated with information determined from the triggering event and/or the contextual trend. In one embodiment, the triggering event and/or the contextual trend may be determined from database (e.g., historic data) available to the static processing mechanism. For example, a trend may indicate a movement of a plurality of users toward a particular location and/or event, wherein the data object may be updated to monitor and track the one or more trends based on one or more trends determined from, for example, historical data.

**[0064]** FIG. 4 is a flowchart of a process for, at least, determining a computational chain and related parameters associated with a PE, according to an embodiment. In one embodiment, the processing platform 107 and/or the service providers 105 may perform all or a portion of the process 400 and are implemented in, for instance, a chip set including a processor and a memory as shown in FIG. 10. As such, the processing platform 107 and/or the service providers 105 can provide means for accomplishing various parts of the process 400 as well as means for accomplishing other processes in conjunction with other components of the system 100. Throughout this process, the processing platform 107 is referred to as completing various portions of the process 400, however, it is understood that other components of the system 100 can perform some of and/or all of the process steps. Further, in various embodiments, the processing platform 107 may be implemented in one or more entities of the system 100.

**[0065]** In step 401, the processing platform 107 determines one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one PE, wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof. In one embodiment, encapsulated computational chains form PEs of stream processing mechanisms. In one embodiment, the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at

least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof. For example, the shaping process may pass the PE as a data object to the static processing where it may update parameters, computations, and/or re-encode (e.g., marshalling) the updated computations, parameters, etc. back into data object for transmission to the dynamic process. In one embodiment, shaping is determining which computational chains may be selected for the processing, wherein one or more chains may be combined and encapsulated into one or more PEs for processing.

**[0066]** In step 403, the processing platform 107 processes and/or facilitates a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism. In one embodiment, one or more new relationships and/or trends may be determined from a data object for utilization in updating data and/or one or more processes of the static process mechanism. In one instance, one or more trends and/or analytics from a data object may be utilized to cause an update to a static process, for example, to begin a process cycle outside of a predetermined schedule so to effectuate historical data and/or process parameters for updated analytics.

**[0067]** In step 405, the processing platform 107 cause, at least in part, an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism. In one embodiment, the PE interface aggregates output of the static process and the dynamic process. In one embodiment, the PE interface may request a first output from a first processing mechanism (e.g., the static process) and then provide the first output to a second processing mechanism (e.g., dynamic process), wherein the second processing mechanism may aggregate the first output with an output from the second process.

**[0068]** In step 407, the processing platform 107 determining one or more outputs of at least one processing job based, at least in part, on the aggregation. In one embodiment, a processing mechanism (e.g., a dynamic process, a static process) and/or a PE interface may determine one or more outputs to one or more entities based, at least in part, on one or more aggregation of one or more outputs from one or more processing mechanisms. For example, a processing mechanism element (e.g., a server such as the computer system described with respect to FIG. 9

below) and/or a service provider may utilize an aggregated output to provide an output to another element and/or another service provider.

**[0069]** FIG. 5 is a diagram of a data-processing architecture, according to an embodiment. In one embodiment, the architecture 500 includes Datafeed “A” 501 and Datafeed “B” 503, for example, from various service providers (e.g., Twitter®, Wikipedia, etc.), wherein the Datafeed “A” may utilize a system backend “A” 505 and the Datafeed “B” may utilize a system backend “B” 507 for communicating and/or processing various datafeeds, programming interface, service requests, and the like. In various embodiments, the system backends “A” 505 and “B” 507 may include various components, for example, a convenience API module 509 including a Java API, a Java script (JS) API, and one or more third party services, wherein the convenience APIs may be utilized for communication and/or programming interface with a processing platform 511. In various embodiments, the processing platform 511 includes a convenience API module 513, which may include various APIs (e.g., Java, JS, PHP, etc.), back-end APIs, server APIs, simple scalable stream processing system (SP, e.g., S4 or Storm or the like) adapter, and the like, wherein the SP adapter (e.g., a client) allows third-party clients to send and receive events from an SP cluster/engine. In one embodiment, the processing platform 511 includes an stream processing cluster 515 (e.g., dynamic process) which may further include an S4 engine and various PEs with access to one or more data stores 517, which may store various data (e.g., user data, sensor data, historical data, etc.) In general, the stream processing cluster is a general-purpose distributed platform that allows for development of applications for processing continuous unbounded streams of data. Further, the processing platform 511 may include a configurations store including various configurations (e.g., service provider, processing, etc.) and a recycling and marshalling module whereby one or more processes may be utilized to transform memory representation of an object to a data format suitable for storage or transmission whereby the data may need to be moved between different parts of one or more processes. In one embodiment, the architecture 500 includes a system front-end 519 comprising web server and database management and configuration applications 521, which may include MySQL, Apache, Tomcat, and the like web servers and server software. Further, the system front-end 519 includes a static processing module 523 which may include one or more data stores, one or more distributed data systems (e.g., information spaces), and distributed processing and management

module 525 (Map-Reduce, MR for batch jobs, e.g. Hadoop), which may utilize a map-reduce process including extract, transform, and load (ETL) processes on static data 527 and/or data sets 529 and 531 (e.g., SP-MR containers) from the stream processing cluster 515. In one embodiment, one or more PEs are transferred between the stream processing cluster 515 and the static process 525 via the SP-MR containers including data, code, configuration, etc. It is noted that various elements of the architecture 500 may be implemented in one or more modules, for example, the stream processing cluster 515 (e.g., dynamic process) and the static processing module 523 may be implemented in one or more modules for achieving substantially same functionality.

**[0070]** FIGs. 6 and 7 are diagrams of processing platforms including adaptive and user context awareness, according to various embodiments. FIG. 6 shows processing platform 600 including a dynamic processing mechanism 601 (e.g., stream processing) and a static processing mechanism 603 (e.g., batch job). In one embodiment, the dynamic processing mechanism 601 receives real-time and/or near real-time data from one or more data feeds 605 (e.g., one or more data and/or service providers), where the data is processed by a stream processing engine 607 (e.g., stream processing framework, context mapping algorithms and data-structures, etc.), wherein processing results may be kept (e.g., stored at an intermediate component such as database 115) and/or output in real-time (e.g., stream) to one or more applications. In one embodiment, the static processing mechanism 603 utilizes a map-reduce engine 609 to manage and process data from one or more data logs 611 and data 613 (e.g., Hadoop Distributed File System (HDFS)). In one embodiment, a container 615 is utilized as a process and/or as an interface between the dynamic process 601 and the static process 603 to extract one or more PEs from the stream processing engine 607, treat/shape the PEs as various data objects, and input them into the static process 603 (e.g., HDFS) for processing (e.g., parse, analyze, etc.) according to map-reduce engine 609. In one example, the shaping process may encapsulate the one or more PEs as at least one data object, pass the PE as a data object to the static processing where it may update parameters, computations, and/or re-encode (e.g., marshall) the updated computations, parameters, etc. back into data object for transmission to the dynamic process. Further, a PE may include computational code and/or data, which may be associated with data from a user and/or a service provider (e.g., a Twitter® feed, location based information, etc.)

[0071] In various embodiments, the stream processing engine 607 and the map-reduce engine 609 may utilize one or more applications, algorithm, software, and the like for performing one or more tasks for one or more processes. In one embodiment, the static processing mechanism 603 operates in a batch-mode with a predetermined batch frequency, for example, daily, weekly, etc., and the dynamic processing mechanism 601 operates in substantially real-time or at a frequency greater than the predetermined batch frequency. In one embodiment, processing results from the static processing mechanism 603 are transferred back to the dynamic processing mechanism 601 as updated PEs (e.g., including updated parameters, computational codes, etc.), wherein one or more configurations of the dynamic processing mechanism 601 may be updated according to the updated PEs (e.g., one or more trends, additional data, updated codes, etc.) In one embodiment, the processing platform 600 includes an applications server module 617, which may include various applications and servers, for example, MySQL database, where inputs from the dynamic process 601 and the static process 603 may be aggregated and presented to one or more users 619 and/or one or more service providers (e.g., search engines, data mining services, etc.)

[0072] As shown in FIG. 7, along with the real-time data feed 605, contextual user data feed 701 may also be input to the dynamic process 601. For example, one or more user data/information-items may be determined (e.g., user location, user profile, user applications, user device, etc.) from a user 619 and may be utilized/shared according to one or more user and/or service provider privacy policies.

[0073] FIG. 8 is a diagram of a processing platform including context-aware adaptive real-time data interface, according to an embodiment. As shown in processing platform 850, data feeds 605a and 605b are sequences of objects mapped to various context, for example, (Object -> {Geotag, Motion, Movement, Time}). However, a challenge is to map the context such that an application may perceive it as collections of relevant objects that change over time, wherein context may be any information that can be used to characterize a situation of entities (e.g., a person, place, object, etc.), which are considered relevant to the interaction between a user and an application. In one embodiment, context mapper 851 may utilize an algorithm running in a stream processing framework where objects (tweets, persons, places, etc.) are mapped to various context (place, address, etc.), for example, mapping tweets (e.g., from Twitter®) and places to

places or addresses. Further, the container 615 may include one or more processes for updating dataset and structure used by the context mapper 851 in the background based on perceived trends in the datafeeds 605a and 605b. Furthermore, context index 853 may contain an index of objects keyed to relevant context, wherein application server 855 may contain various components for context-aware applications to process the context.

**[0074]** The processes described herein for smart data processing methods for more accurate and comprehensive results may be advantageously implemented via software, hardware, firmware or a combination of software and/or firmware and/or hardware. For example, the processes described herein, may be advantageously implemented via processor(s), Digital Signal Processing (DSP) chip, an Application Specific Integrated Circuit (ASIC), Field Programmable Gate Arrays (FPGAs), etc. Such exemplary hardware for performing the described functions is detailed below.

**[0075]** FIG. 9 illustrates a computer system 900 upon which an embodiment of the invention may be implemented. Although computer system 900 is depicted with respect to a particular device or equipment, it is contemplated that other devices or equipment (e.g., network elements, servers, etc.) within FIG. 9 can deploy the illustrated hardware and components of system 900. Computer system 900 is programmed (e.g., via computer program code or instructions) for smart data processing for more accurate and comprehensive results as described herein and includes a communication mechanism such as a bus 910 for passing information between other internal and external components of the computer system 900. Information (also called data) is represented as a physical expression of a measurable phenomenon, typically electric voltages, but including, in other embodiments, such phenomena as magnetic, electromagnetic, pressure, chemical, biological, molecular, atomic, sub-atomic and quantum interactions. For example, north and south magnetic fields, or a zero and non-zero electric voltage, represent two states (0, 1) of a binary digit (bit). Other phenomena can represent digits of a higher base. A superposition of multiple simultaneous quantum states before measurement represents a quantum bit (qubit). A sequence of one or more digits constitutes digital data that is used to represent a number or code for a character. In some embodiments, information called analog data is represented by a near continuum of measurable values within a particular range. Computer system 900, or a portion

thereof, constitutes a means for performing one or more steps of smart data processing for more accurate and comprehensive results.

**[0076]** A bus 910 includes one or more parallel conductors of information so that information is transferred quickly among devices coupled to the bus 910. One or more processors 902 for processing information are coupled with the bus 910.

**[0077]** A processor (or multiple processors) 902 performs a set of operations on information as specified by computer program code related to smart data processing for more accurate and comprehensive results. The computer program code is a set of instructions or statements providing instructions for the operation of the processor and/or the computer system to perform specified functions. The code, for example, may be written in a computer programming language that is compiled into a native instruction set of the processor. The code may also be written directly using the native instruction set (e.g., machine language). The set of operations include bringing information in from the bus 910 and placing information on the bus 910. The set of operations also typically include comparing two or more units of information, shifting positions of units of information, and combining two or more units of information, such as by addition or multiplication or logical operations like OR, exclusive OR (XOR), and AND. Each operation of the set of operations that can be performed by the processor is represented to the processor by information called instructions, such as an operation code of one or more digits. A sequence of operations to be executed by the processor 902, such as a sequence of operation codes, constitute processor instructions, also called computer system instructions or, simply, computer instructions. Processors may be implemented as mechanical, electrical, magnetic, optical, chemical or quantum components, among others, alone or in combination.

**[0078]** Computer system 900 also includes a memory 904 coupled to bus 910. The memory 904, such as a random access memory (RAM) or any other dynamic storage device, stores information including processor instructions for smart data processing for more accurate and comprehensive results. Dynamic memory allows information stored therein to be changed by the computer system 900. RAM allows a unit of information stored at a location called a memory address to be stored and retrieved independently of information at neighboring addresses. The memory 904 is also used by the processor 902 to store temporary values during execution of

processor instructions. The computer system 900 also includes a read only memory (ROM) 906 or any other static storage device coupled to the bus 910 for storing static information, including instructions, that is not changed by the computer system 900. Some memory is composed of volatile storage that loses the information stored thereon when power is lost. Also coupled to bus 910 is a non-volatile (persistent) storage device 908, such as a magnetic disk, optical disk or flash card, for storing information, including instructions, that persists even when the computer system 900 is turned off or otherwise loses power.

**[0079]** Information, including instructions for smart data processing for more accurate and comprehensive results, is provided to the bus 910 for use by the processor from an external input device 912, such as a keyboard containing alphanumeric keys operated by a human user, or a sensor. A sensor detects conditions in its vicinity and transforms those detections into physical expression compatible with the measurable phenomenon used to represent information in computer system 900. Other external devices coupled to bus 910, used primarily for interacting with humans, include a display device 914, such as a cathode ray tube (CRT), a liquid crystal display (LCD), a light emitting diode (LED) display, an organic LED (OLED) display, a plasma screen, or a printer for presenting text or images, and a pointing device 916, such as a mouse, a trackball, cursor direction keys, or a motion sensor, for controlling a position of a small cursor image presented on the display 914 and issuing commands associated with graphical elements presented on the display 914. In some embodiments, for example, in embodiments in which the computer system 900 performs all functions automatically without human input, one or more of external input device 912, display device 914 and pointing device 916 is omitted.

**[0080]** In the illustrated embodiment, special purpose hardware, such as an application specific integrated circuit (ASIC) 920, is coupled to bus 910. The special purpose hardware is configured to perform operations not performed by processor 902 quickly enough for special purposes. Examples of ASICs include graphics accelerator cards for generating images for display 914, cryptographic boards for encrypting and decrypting messages sent over a network, speech recognition, and interfaces to special external devices, such as robotic arms and medical scanning equipment that repeatedly perform some complex sequence of operations that are more efficiently implemented in hardware.

**[0081]** Computer system 900 also includes one or more instances of a communications interface 970 coupled to bus 910. Communication interface 970 provides a one-way or two-way communication coupling to a variety of external devices that operate with their own processors, such as printers, scanners and external disks. In general the coupling is with a network link 978 that is connected to a local network 980 to which a variety of external devices with their own processors are connected. For example, communication interface 970 may be a parallel port or a serial port or a universal serial bus (USB) port on a personal computer. In some embodiments, communications interface 970 is an integrated services digital network (ISDN) card or a digital subscriber line (DSL) card or a telephone modem that provides an information communication connection to a corresponding type of telephone line. In some embodiments, a communication interface 970 is a cable modem that converts signals on bus 910 into signals for a communication connection over a coaxial cable or into optical signals for a communication connection over a fiber optic cable. As another example, communications interface 970 may be a local area network (LAN) card to provide a data communication connection to a compatible LAN, such as Ethernet. Wireless links may also be implemented. For wireless links, the communications interface 970 sends or receives or both sends and receives electrical, acoustic or electromagnetic signals, including infrared and optical signals that carry information streams, such as digital data. For example, in wireless handheld devices, such as mobile telephones like cell phones, the communications interface 970 includes a radio band electromagnetic transmitter and receiver called a radio transceiver. In certain embodiments, the communications interface 970 enables connection to the communication network 111 for smart data processing for more accurate and comprehensive results.

**[0082]** The term “computer-readable medium” as used herein refers to any medium that participates in providing information to processor 902, including instructions for execution. Such a medium may take many forms, including, but not limited to computer-readable storage medium (e.g., non-volatile media, volatile media), and transmission media. Non-transitory media, such as non-volatile media, include, for example, optical or magnetic disks, such as storage device 908. Volatile media include, for example, dynamic memory 904. Transmission media include, for example, twisted pair cables, coaxial cables, copper wire, fiber optic cables, and carrier waves that travel through space without wires or cables, such as acoustic waves and

electromagnetic waves, including radio, optical and infrared waves. Signals include man-made transient variations in amplitude, frequency, phase, polarization or other physical properties transmitted through the transmission media. Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, any other magnetic medium, a CD-ROM, CDRW, DVD, any other optical medium, punch cards, paper tape, optical mark sheets, any other physical medium with patterns of holes or other optically recognizable indicia, a RAM, a PROM, an EPROM, a FLASH-EPROM, an EEPROM, a flash memory, any other memory chip or cartridge, a carrier wave, or any other medium from which a computer can read. The term computer-readable storage medium is used herein to refer to any computer-readable medium except transmission media.

**[0083]** Logic encoded in one or more tangible media includes one or both of processor instructions on a computer-readable storage media and special purpose hardware, such as ASIC 920.

**[0084]** Network link 978 typically provides information communication using transmission media through one or more networks to other devices that use or process the information. For example, network link 978 may provide a connection through local network 980 to a host computer 982 or to equipment 984 operated by an Internet Service Provider (ISP). ISP equipment 984 in turn provides data communication services through the public, world-wide packet-switching communication network of networks now commonly referred to as the Internet 990.

**[0085]** A computer called a server host 992 connected to the Internet hosts a process that provides a service in response to information received over the Internet. For example, server host 992 hosts a process that provides information representing video data for presentation at display 914. It is contemplated that the components of system 900 can be deployed in various configurations within other computer systems, e.g., host 982 and server 992.

**[0086]** At least some embodiments of the invention are related to the use of computer system 900 for implementing some or all of the techniques described herein. According to one embodiment of the invention, those techniques are performed by computer system 900 in response to processor 902 executing one or more sequences of one or more processor

instructions contained in memory 904. Such instructions, also called computer instructions, software and program code, may be read into memory 904 from another computer-readable medium such as storage device 908 or network link 978. Execution of the sequences of instructions contained in memory 904 causes processor 902 to perform one or more of the method steps described herein. In alternative embodiments, hardware, such as ASIC 920, may be used in place of or in combination with software to implement the invention. Thus, embodiments of the invention are not limited to any specific combination of hardware and software, unless otherwise explicitly stated herein.

[0087] The signals transmitted over network link 978 and other networks through communications interface 970, carry information to and from computer system 900. Computer system 900 can send and receive information, including program code, through the networks 980, 990 among others, through network link 978 and communications interface 970. In an example using the Internet 990, a server host 992 transmits program code for a particular application, requested by a message sent from computer 900, through Internet 990, ISP equipment 984, local network 980 and communications interface 970. The received code may be executed by processor 902 as it is received, or may be stored in memory 904 or in storage device 908 or any other non-volatile storage for later execution, or both. In this manner, computer system 900 may obtain application program code in the form of signals on a carrier wave.

[0088] Various forms of computer readable media may be involved in carrying one or more sequence of instructions or data or both to processor 902 for execution. For example, instructions and data may initially be carried on a magnetic disk of a remote computer such as host 982. The remote computer loads the instructions and data into its dynamic memory and sends the instructions and data over a telephone line using a modem. A modem local to the computer system 900 receives the instructions and data on a telephone line and uses an infra-red transmitter to convert the instructions and data to a signal on an infra-red carrier wave serving as the network link 978. An infrared detector serving as communications interface 970 receives the instructions and data carried in the infrared signal and places information representing the instructions and data onto bus 910. Bus 910 carries the information to memory 904 from which processor 902 retrieves and executes the instructions using some of the data sent with the

instructions. The instructions and data received in memory 904 may optionally be stored on storage device 908, either before or after execution by the processor 902.

**[0089]** FIG. 10 illustrates a chip set or chip 1000 upon which an embodiment of the invention may be implemented. Chip set 1000 is programmed for smart data processing for more accurate and comprehensive results as described herein and includes, for instance, the processor and memory components described with respect to FIG. 9 incorporated in one or more physical packages (e.g., chips). By way of example, a physical package includes an arrangement of one or more materials, components, and/or wires on a structural assembly (e.g., a baseboard) to provide one or more characteristics such as physical strength, conservation of size, and/or limitation of electrical interaction. It is contemplated that in certain embodiments the chip set 1000 can be implemented in a single chip. It is further contemplated that in certain embodiments the chip set or chip 1000 can be implemented as a single “system on a chip.” It is further contemplated that in certain embodiments a separate ASIC would not be used, for example, and that all relevant functions as disclosed herein would be performed by a processor or processors. Chip set or chip 1000, or a portion thereof, constitutes a means for performing one or more steps of providing user interface navigation information associated with the availability of functions. Chip set or chip 1000, or a portion thereof, constitutes a means for performing one or more steps of smart data processing for more accurate and comprehensive results.

**[0090]** In one embodiment, the chip set or chip 1000 includes a communication mechanism such as a bus 1001 for passing information among the components of the chip set 1000. A processor 1003 has connectivity to the bus 1001 to execute instructions and process information stored in, for example, a memory 1005. The processor 1003 may include one or more processing cores with each core configured to perform independently. A multi-core processor enables multiprocessing within a single physical package. Examples of a multi-core processor include two, four, eight, or greater numbers of processing cores. Alternatively or in addition, the processor 1003 may include one or more microprocessors configured in tandem via the bus 1001 to enable independent execution of instructions, pipelining, and multithreading. The processor 1003 may also be accompanied with one or more specialized components to perform certain processing functions and tasks such as one or more digital signal processors (DSP) 1007, or one or more application-specific integrated circuits (ASIC) 1009. A DSP 1007 typically is

configured to process real-world signals (e.g., sound) in real time independently of the processor 1003. Similarly, an ASIC 1009 can be configured to performed specialized functions not easily performed by a more general purpose processor. Other specialized components to aid in performing the inventive functions described herein may include one or more field programmable gate arrays (FPGA), one or more controllers, or one or more other special-purpose computer chips.

**[0091]** In one embodiment, the chip set or chip 1000 includes merely one or more processors and some software and/or firmware supporting and/or relating to and/or for the one or more processors.

**[0092]** The processor 1003 and accompanying components have connectivity to the memory 1005 via the bus 1001. The memory 1005 includes both dynamic memory (e.g., RAM, magnetic disk, writable optical disk, etc.) and static memory (e.g., ROM, CD-ROM, etc.) for storing executable instructions that when executed perform the inventive steps described herein for smart data processing for more accurate and comprehensive results. The memory 1005 also stores the data associated with or generated by the execution of the inventive steps.

**[0093]** FIG. 11 is a diagram of exemplary components of a mobile device (e.g., mobile terminal, mobile phone, handset, etc.) for communications, which is capable of operating in the system of FIG. 1, according to one embodiment. In some embodiments, mobile terminal 1101, or a portion thereof, constitutes a means for performing one or more steps of smart data processing for more accurate and comprehensive results. Generally, a radio receiver is often defined in terms of front-end and back-end characteristics. The front-end of the receiver encompasses all of the Radio Frequency (RF) circuitry whereas the back-end encompasses all of the base-band processing circuitry. As used in this application, the term “circuitry” refers to both: (1) hardware-only implementations (such as implementations in only analog and/or digital circuitry), and (2) to combinations of circuitry and software (and/or firmware) (such as, if applicable to the particular context, to a combination of processor(s), including digital signal processor(s), software, and memory(ies) that work together to cause an apparatus, such as a mobile phone or server, to perform various functions). This definition of “circuitry” applies to all uses of this term in this application, including in any claims. As a further example, as used in this

application and if applicable to the particular context, the term “circuitry” would also cover an implementation of merely a processor (or multiple processors) and its (or their) accompanying software/or firmware. The term “circuitry” would also cover if applicable to the particular context, for example, a baseband integrated circuit or applications processor integrated circuit in a mobile phone or a similar integrated circuit in a cellular network device or other network devices.

**[0094]** Pertinent internal components of the telephone include a Main Control Unit (MCU) 1103, a Digital Signal Processor (DSP) 1105, and a receiver/transmitter unit including a microphone gain control unit and a speaker gain control unit. A main display unit 1107 provides a display to the user in support of various applications and mobile terminal functions that perform or support the steps of smart data processing for more accurate and comprehensive results. The display 1107 includes display circuitry configured to display at least a portion of a user interface of the mobile terminal (e.g., mobile telephone). Additionally, the display 1107 and display circuitry are configured to facilitate user control of at least some functions of the mobile terminal. An audio function circuitry 1109 includes a microphone 1111 and microphone amplifier that amplifies the speech signal output from the microphone 1111. The amplified speech signal output from the microphone 1111 is fed to a coder/decoder (CODEC) 1113.

**[0095]** A radio section 1115 amplifies power and converts frequency in order to communicate with a base station, which is included in a mobile communication system, via antenna 1117. The power amplifier (PA) 1119 and the transmitter/modulation circuitry are operationally responsive to the MCU 1103, with an output from the PA 1119 coupled to the duplexer 1121 or circulator or antenna switch, as known in the art. The PA 1119 also couples to a battery interface and power control unit 1120.

**[0096]** In use, a user of mobile terminal 1101 speaks into the microphone 1111 and his or her voice along with any detected background noise is converted into an analog voltage. The analog voltage is then converted into a digital signal through the Analog to Digital Converter (ADC) 1123. The control unit 1103 routes the digital signal into the DSP 1105 for processing therein, such as speech encoding, channel encoding, encrypting, and interleaving. In one embodiment, the processed voice signals are encoded, by units not separately shown, using a cellular

transmission protocol such as enhanced data rates for global evolution (EDGE), general packet radio service (GPRS), global system for mobile communications (GSM), Internet protocol multimedia subsystem (IMS), universal mobile telecommunications system (UMTS), etc., as well as any other suitable wireless medium, e.g., microwave access (WiMAX), Long Term Evolution (LTE) networks, code division multiple access (CDMA), wideband code division multiple access (WCDMA), wireless fidelity (WiFi), satellite, and the like, or any combination thereof.

[0097] The encoded signals are then routed to an equalizer 1125 for compensation of any frequency-dependent impairments that occur during transmission through the air such as phase and amplitude distortion. After equalizing the bit stream, the modulator 1127 combines the signal with a RF signal generated in the RF interface 1129. The modulator 1127 generates a sine wave by way of frequency or phase modulation. In order to prepare the signal for transmission, an up-converter 1131 combines the sine wave output from the modulator 1127 with another sine wave generated by a synthesizer 1133 to achieve the desired frequency of transmission. The signal is then sent through a PA 1119 to increase the signal to an appropriate power level. In practical systems, the PA 1119 acts as a variable gain amplifier whose gain is controlled by the DSP 1105 from information received from a network base station. The signal is then filtered within the duplexer 1121 and optionally sent to an antenna coupler 1135 to match impedances to provide maximum power transfer. Finally, the signal is transmitted via antenna 1117 to a local base station. An automatic gain control (AGC) can be supplied to control the gain of the final stages of the receiver. The signals may be forwarded from there to a remote telephone which may be another cellular telephone, any other mobile phone or a land-line connected to a Public Switched Telephone Network (PSTN), or other telephony networks.

[0098] Voice signals transmitted to the mobile terminal 1101 are received via antenna 1117 and immediately amplified by a low noise amplifier (LNA) 1137. A down-converter 1139 lowers the carrier frequency while the demodulator 1141 strips away the RF leaving only a digital bit stream. The signal then goes through the equalizer 1125 and is processed by the DSP 1105. A Digital to Analog Converter (DAC) 1143 converts the signal and the resulting output is transmitted to the user through the speaker 1145, all under control of a Main Control Unit (MCU) 1103 which can be implemented as a Central Processing Unit (CPU).

**[0099]** The MCU 1103 receives various signals including input signals from the keyboard 1147. The keyboard 1147 and/or the MCU 1103 in combination with other user input components (e.g., the microphone 1111) comprise a user interface circuitry for managing user input. The MCU 1103 runs a user interface software to facilitate user control of at least some functions of the mobile terminal 1101 for smart data processing for more accurate and comprehensive results. The MCU 1103 also delivers a display command and a switch command to the display 1107 and to the speech output switching controller, respectively. Further, the MCU 1103 exchanges information with the DSP 1105 and can access an optionally incorporated SIM card 1149 and a memory 1151. In addition, the MCU 1103 executes various control functions required of the terminal. The DSP 1105 may, depending upon the implementation, perform any of a variety of conventional digital processing functions on the voice signals. Additionally, DSP 1105 determines the background noise level of the local environment from the signals detected by microphone 1111 and sets the gain of microphone 1111 to a level selected to compensate for the natural tendency of the user of the mobile terminal 1101.

**[0100]** The CODEC 1113 includes the ADC 1123 and DAC 1143. The memory 1151 stores various data including call incoming tone data and is capable of storing other data including music data received via, e.g., the global Internet. The software module could reside in RAM memory, flash memory, registers, or any other form of writable storage medium known in the art. The memory device 1151 may be, but not limited to, a single memory, CD, DVD, ROM, RAM, EEPROM, optical storage, magnetic disk storage, flash memory storage, or any other non-volatile storage medium capable of storing digital data.

**[0101]** An optionally incorporated SIM card 1149 carries, for instance, important information, such as the cellular phone number, the carrier supplying service, subscription details, and security information. The SIM card 1149 serves primarily to identify the mobile terminal 1101 on a radio network. The card 1149 also contains a memory for storing a personal telephone number registry, text messages, and user specific mobile terminal settings.

**[0102]** Additionally, sensors module 1153 may include various sensors, for instance, a location sensor, a speed sensor, an audio sensor, an image sensor, a brightness sensor, a biometrics sensor, various physiological sensors, a directional sensor, and the like, for capturing

various data associated with the mobile terminal 1101 (e.g., a mobile phone), a user of the mobile terminal 1101, an environment of the mobile terminal 1101 and/or the user, or a combination thereof, wherein the data may be collected, processed, stored, and/or shared with one or more components and/or modules of the mobile terminal 1101 and/or with one or more entities external to the mobile terminal 1101.

**[0103]** While the invention has been described in connection with a number of embodiments and implementations, the invention is not so limited but covers various obvious modifications and equivalent arrangements, which fall within the purview of the appended claims. Although features of the invention are expressed in certain combinations among the claims, it is contemplated that these features can be arranged in any combination and order.

## CLAIMS

### WHAT IS CLAIMED IS:

1. A method comprising facilitating a processing of and/or processing (1) data and/or (2) information and/or (3) at least one signal, the (1) data and/or (2) information and/or (3) at least one signal based, at least in part, on the following:

- at least one determination of at least one processing element of at least one dynamic processing mechanism; and
- a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism.

2. A method of claim 1, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

- a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events; and
- a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events, wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

3. A method of claim 2, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

- an unmarshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by the at least one static processing mechanism.

4. A method of claim 2, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

5. A method of claim 4, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

at least one determination of one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element,

wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

6. A method of claim 5, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

7. A method of claim 1, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism.

8. A method of claim 1, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and

at least one determination of one or more outputs of at least one processing job based, at least in part, on the aggregation.

9. A method of claim 1, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

10. A method of claim 1, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

11. An apparatus comprising:  
at least one processor; and  
at least one memory including computer program code for one or more programs,  
the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to perform at least the following,  
determine at least one processing element of at least one dynamic processing mechanism;  
and  
cause, at least in part, a marshalling of the at least one processing element as at least one data object,  
wherein the at least one data object is processable by at least one static processing mechanism.

12. An apparatus of claim 11, wherein the apparatus is further caused to:  
process and/or facilitate a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events; and

cause, at least in part, a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events, wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

13. An apparatus of claim 12, wherein the apparatus is further caused to: cause, at least in part, an unmarshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by the at least one static processing mechanism.

14. An apparatus of claim 12, wherein the apparatus is further caused to: process and/or facilitate a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

15. An apparatus of claim 14, wherein the apparatus is further caused to: determine one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element, wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

16. An apparatus of claim 15, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

17. An apparatus of claim 11, wherein the apparatus is further caused to:  
process and/or facilitate a processing of the at least one data object to cause, at least in part,  
an updating of one or more components of the at least one static processing mechanism.

18. An apparatus of claim 11, wherein the apparatus is further caused to:  
cause, at least in part, an aggregation of one or more outputs of the at least one dynamic  
processing mechanism and the one or more other outputs of the at least one static  
processing mechanism; and  
determining one or more outputs of at least one processing job based, at least in part, on the  
aggregation.

19. An apparatus of claim 11, wherein the at least one static processing mechanism operates,  
at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least  
one dynamic processing mechanism, the at least one processing element, or a combination  
thereof operate, at least in part, in substantially real-time or at a frequency greater than the  
predetermined batch frequency.

20. An apparatus of claim 11, wherein the at least one static processing mechanism is  
associated with performing, at least in part, slow moving data analytics; and wherein the at least  
one dynamic processing mechanism, the at least one processing element, or a combination  
thereof are associated with performing, at least in part, fast moving data analytics.

21. A method comprising:  
determining at least one processing element of at least one dynamic processing mechanism;  
and  
causing, at least in part, a marshalling of the at least one processing element as at least one  
data object,  
wherein the at least one data object is processable by at least one static processing  
mechanism.

22. A method of claim 21, further comprising:  
processing and/or facilitating a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events; and  
causing, at least in part, a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events, wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.
23. A method of claim 22, further comprising:  
causing, at least in part, an unmarshalling of the at least one processing element as at least one data object,  
wherein the at least one data object is processable by the at least one static processing mechanism.
24. A method of any of claims 22 and 23, further comprising:  
processing and/or facilitating a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.
25. A method of claim 24, further comprising:  
determining one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element, wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

26. A method of claim 25, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

27. A method of any of claims 21-26, further comprising:  
processing and/or facilitating a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism.

28. A method of any of claims 21-27, further comprising:  
causing, at least in part, an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and  
determining one or more outputs of at least one processing job based, at least in part, on the aggregation.

29. A method of any of claims 21-28, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

30. A method of any of claims 21-29, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

31. An apparatus comprising:  
at least one processor; and  
at least one memory including computer program code for one or more programs,

the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to perform at least the following,  
determine at least one processing element of at least one dynamic processing mechanism;  
and  
cause, at least in part, a marshalling of the at least one processing element as at least one data object,  
wherein the at least one data object is processable by at least one static processing mechanism.

32. An apparatus of claim 31, wherein the apparatus is further caused to:  
process and/or facilitate a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events; and  
cause, at least in part, a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events,  
wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

33. An apparatus of claim 32, wherein the apparatus is further caused to:  
cause, at least in part, an unmarshalling of the at least one processing element as at least one data object,  
wherein the at least one data object is processable by the at least one static processing mechanism.

34. An apparatus of any of claims 32 and 33, wherein the apparatus is further caused to:  
process and/or facilitate a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

35. An apparatus of claim 34, wherein the apparatus is further caused to:

determine one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element, wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

36. An apparatus of claim 35, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

37. An apparatus of any of claims 31-36, wherein the apparatus is further caused to: process and/or facilitate a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism.

38. An apparatus of any of claims 31-37, wherein the apparatus is further caused to: cause, at least in part, an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and determining one or more outputs of at least one processing job based, at least in part, on the aggregation.

39. An apparatus of any of claims 31-38, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

40. An apparatus of any of claims 31-39, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

41. An apparatus of any of claims 31-40, wherein the apparatus is a computer system comprising one or more distributed storage devices, one or more distributed processing elements, one or more substantially real-time processing elements, one or more static processing elements, or a combination thereof.

42. A computer-readable storage medium carrying one or more sequences of one or more instructions which, when executed by one or more processors, cause an apparatus to perform at least a method of any of claims 1-10 and 21-30.

43. An apparatus comprising means for performing at least a method of any of claims 1-10 and 21-30.

44. An apparatus of claim 43, wherein the apparatus is a mobile phone further comprising:  
user interface circuitry and user interface software configured to facilitate user control of at least some functions of the mobile phone through use of a display and configured to respond to user input; and  
a display and display circuitry configured to display at least a portion of a user interface of the mobile phone, the display and display circuitry configured to facilitate user control of at least some functions of the mobile phone.

45. A computer program product including one or more sequences of one or more instructions which, when executed by one or more processors, cause an apparatus to at least perform the steps of at least a method of any of claims 1-10 and 21-30.

46. A method comprising facilitating access to at least one interface configured to allow access to at least one service, the at least one service configured to perform at least a method of any of claims 1-10 and 21-30.

47. A method comprising facilitating a processing of and/or processing (1) data and/or (2) information and/or (3) at least one signal, the (1) data and/or (2) information and/or (3) at least one signal based, at least in part, on at least a method of any of claims 1-10 and 21-30.

48. A method comprising facilitating creating and/or facilitating modifying (1) at least one device user interface element and/or (2) at least one device user interface functionality, the (1) at least one device user interface element and/or (2) at least one device user interface functionality based, at least in part, on at least a method of any of claims 1-10 and 21-30.

#### ABSTRACT OF THE DISCLOSURE

An approach is provided for integrating various data processing methods for more accurate and comprehensive results. A data processing mechanism determines at least one processing element of at least one dynamic processing mechanism. Further, the data processing mechanism causes a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism.

FIG. 1

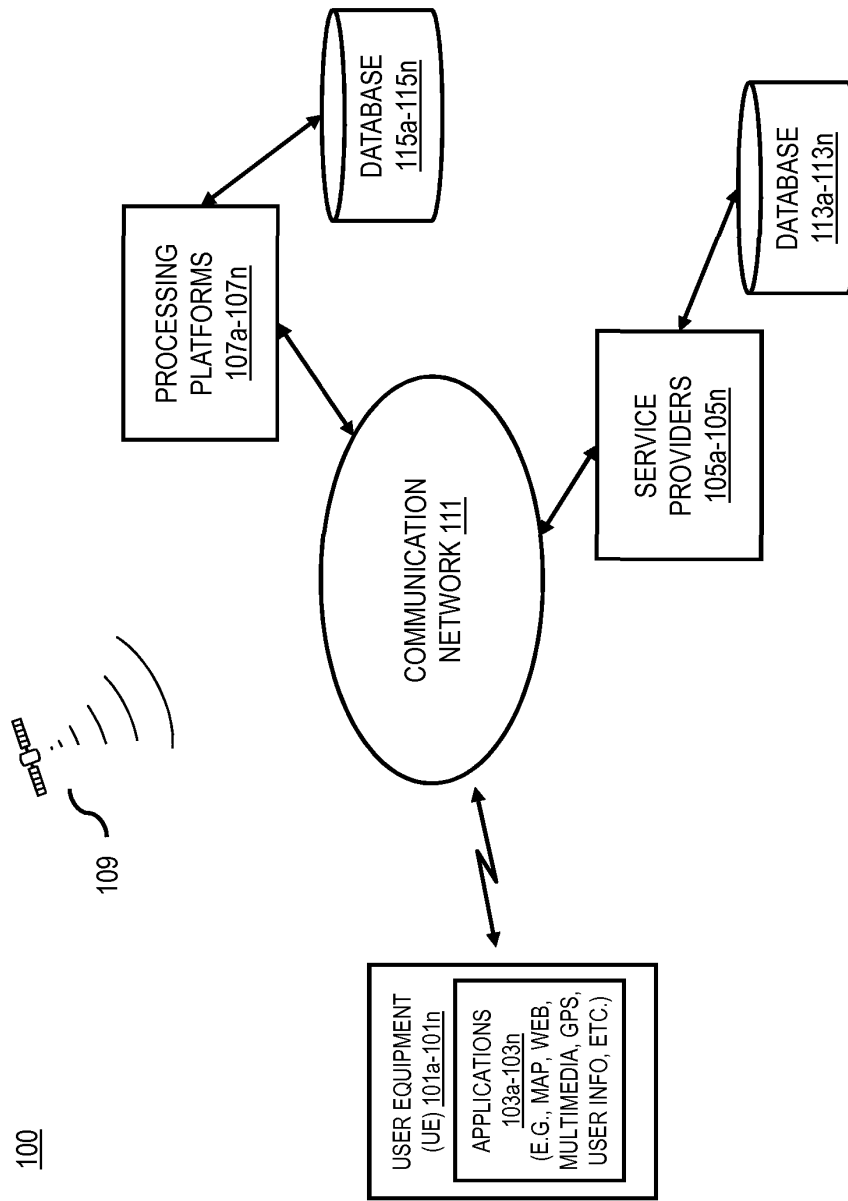


FIG. 2

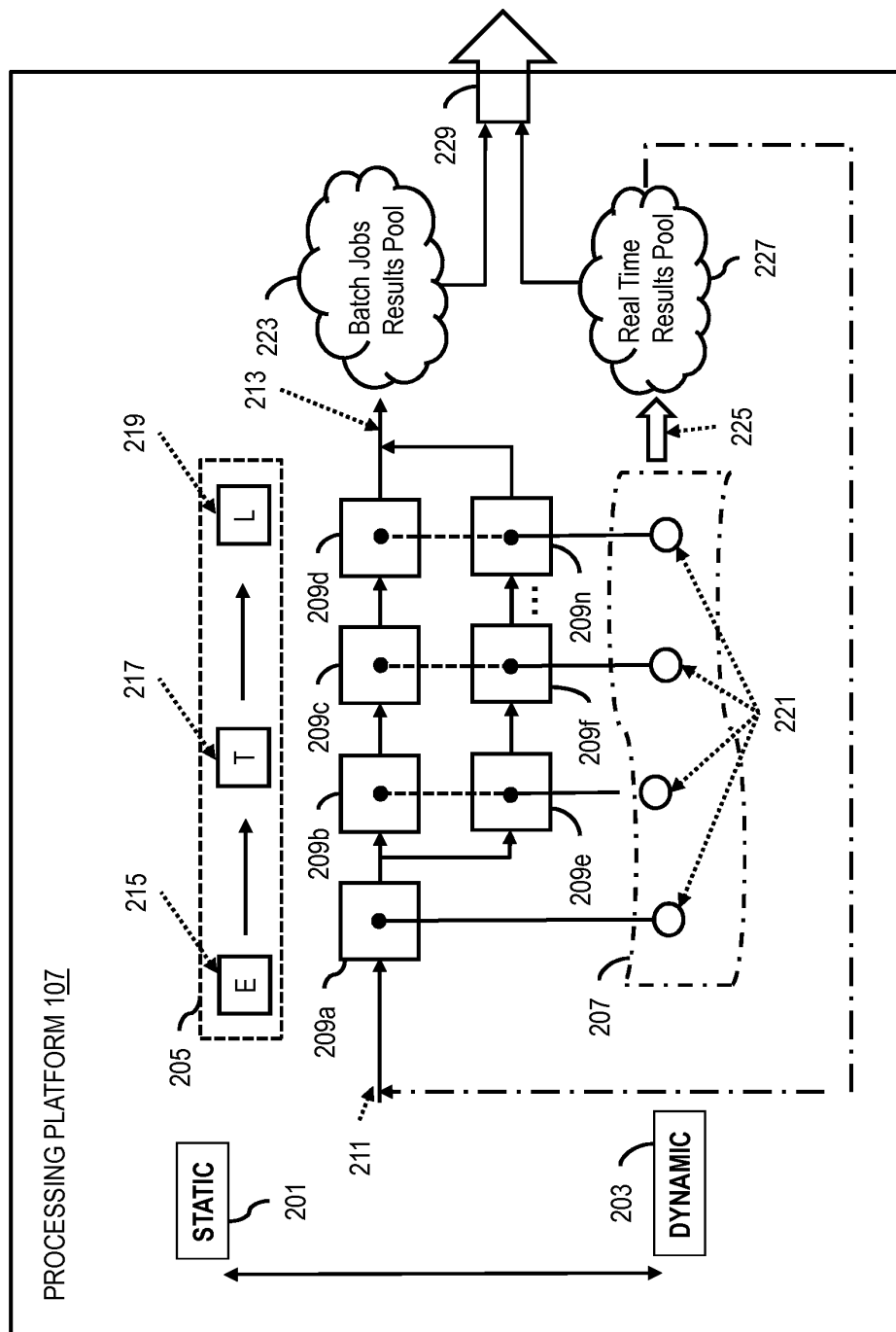


FIG. 3

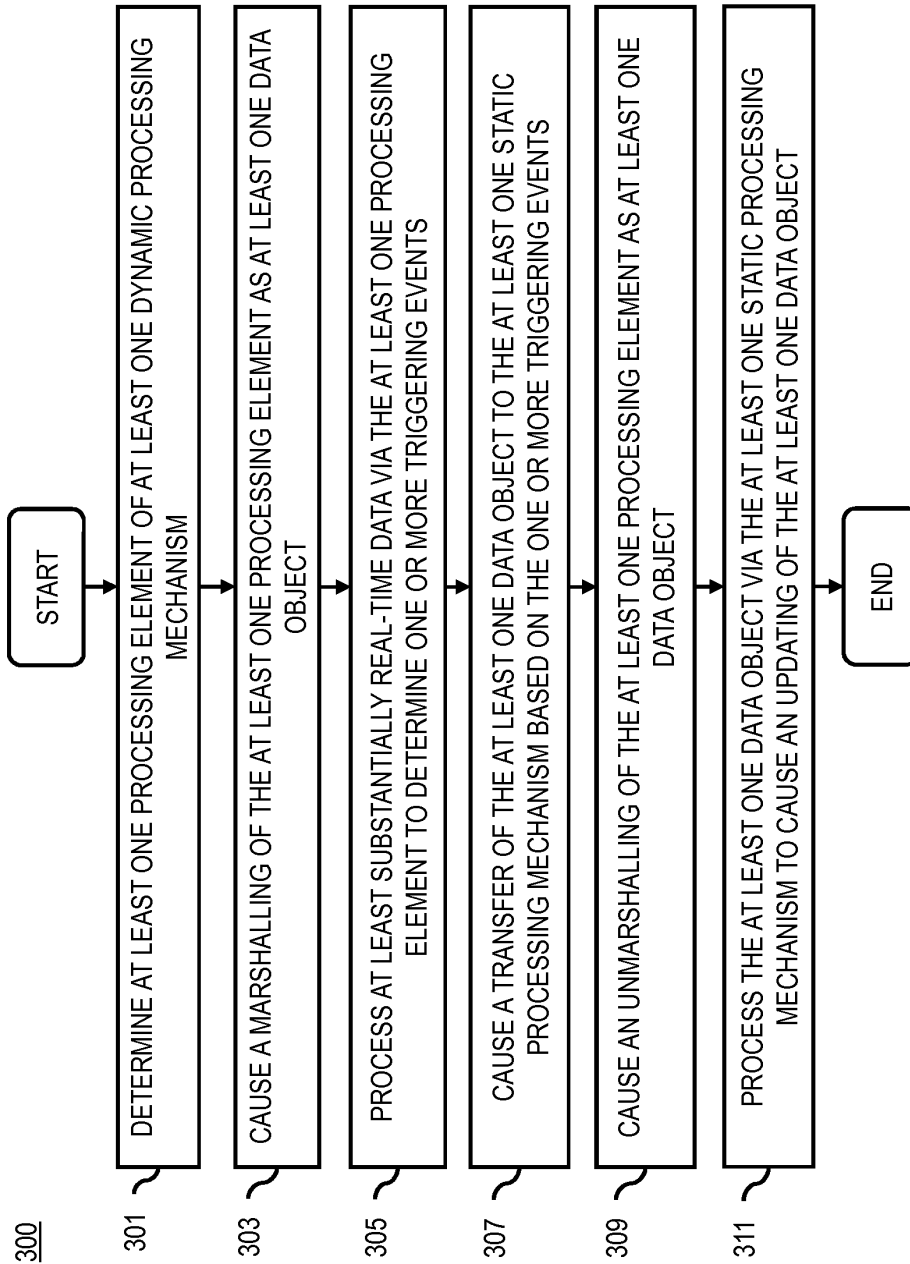


FIG. 4

400

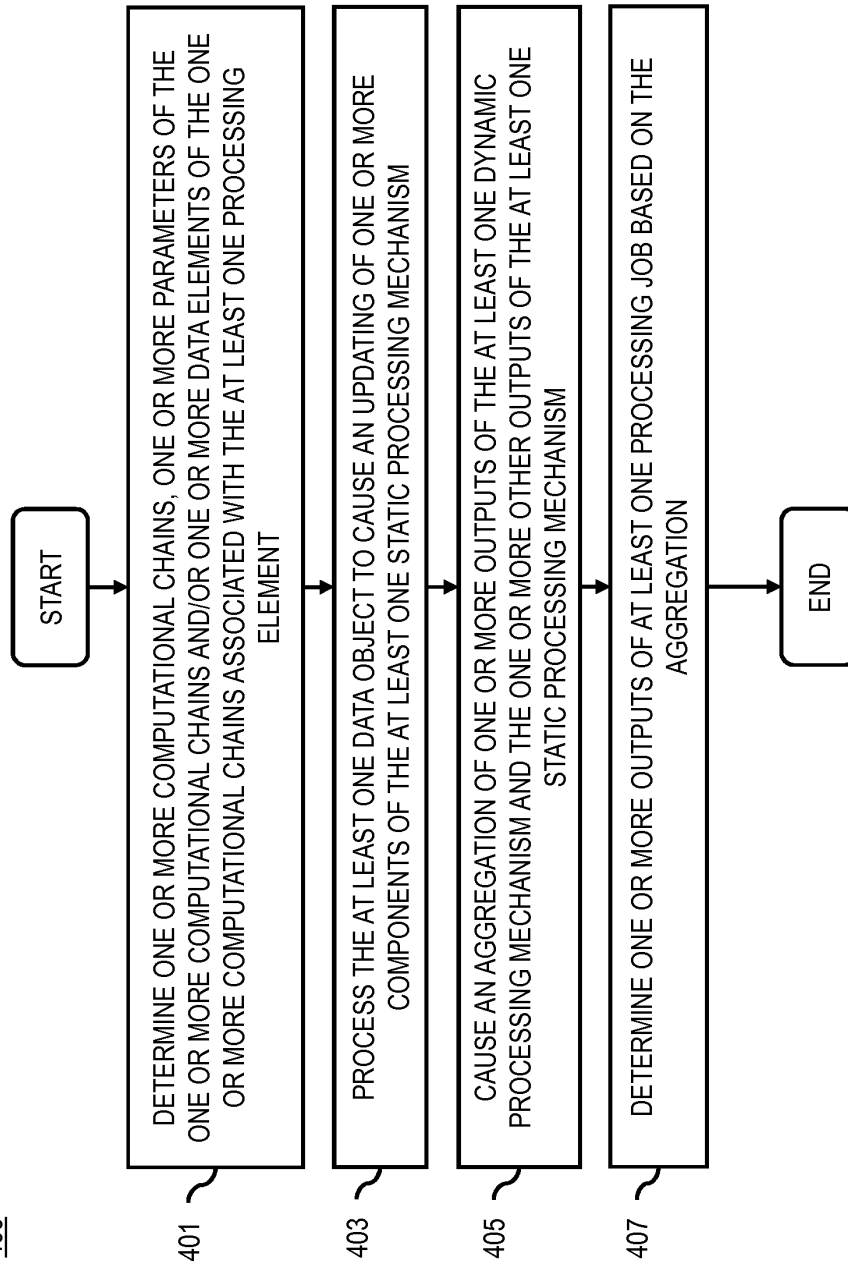


FIG. 5

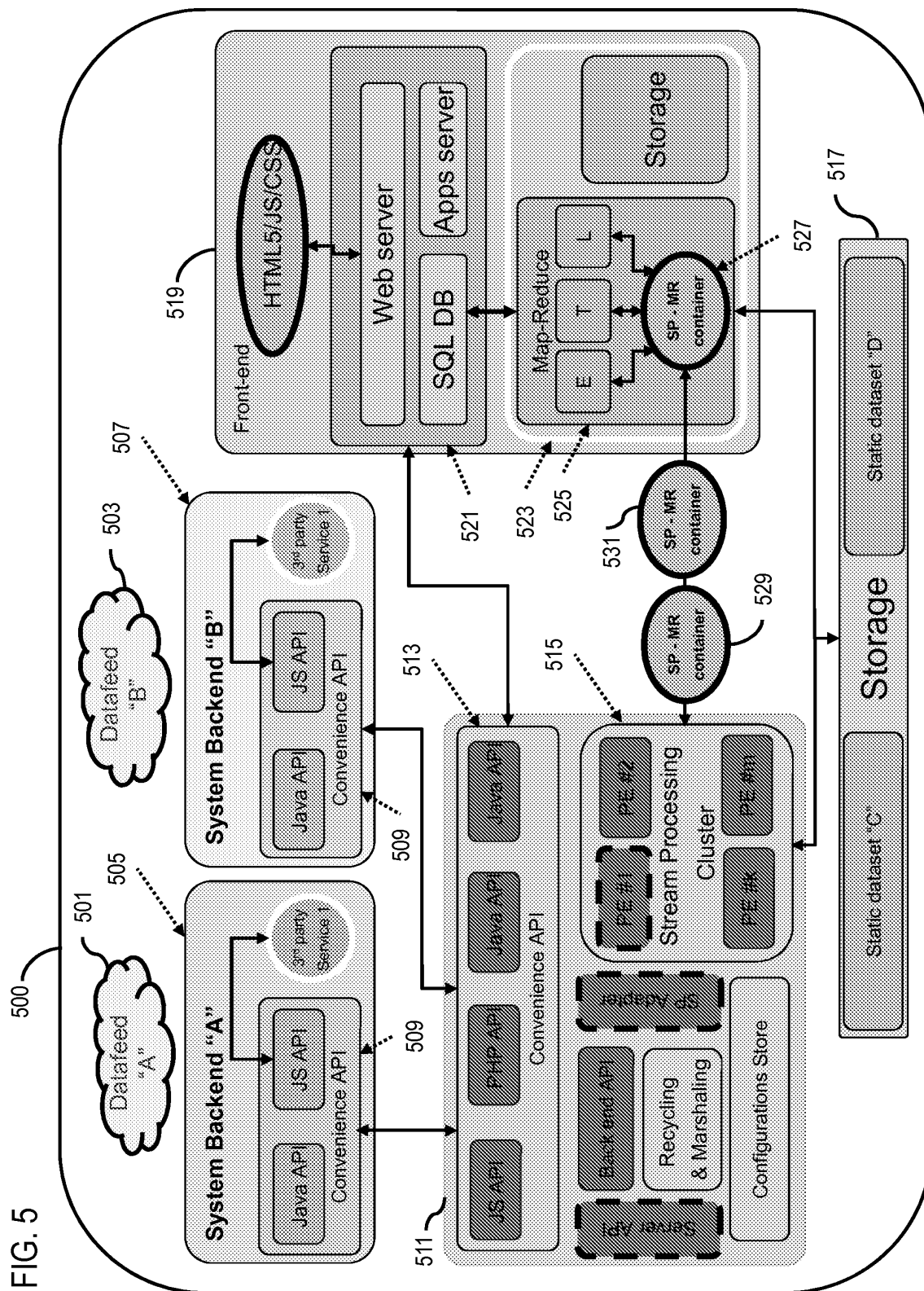


FIG. 6

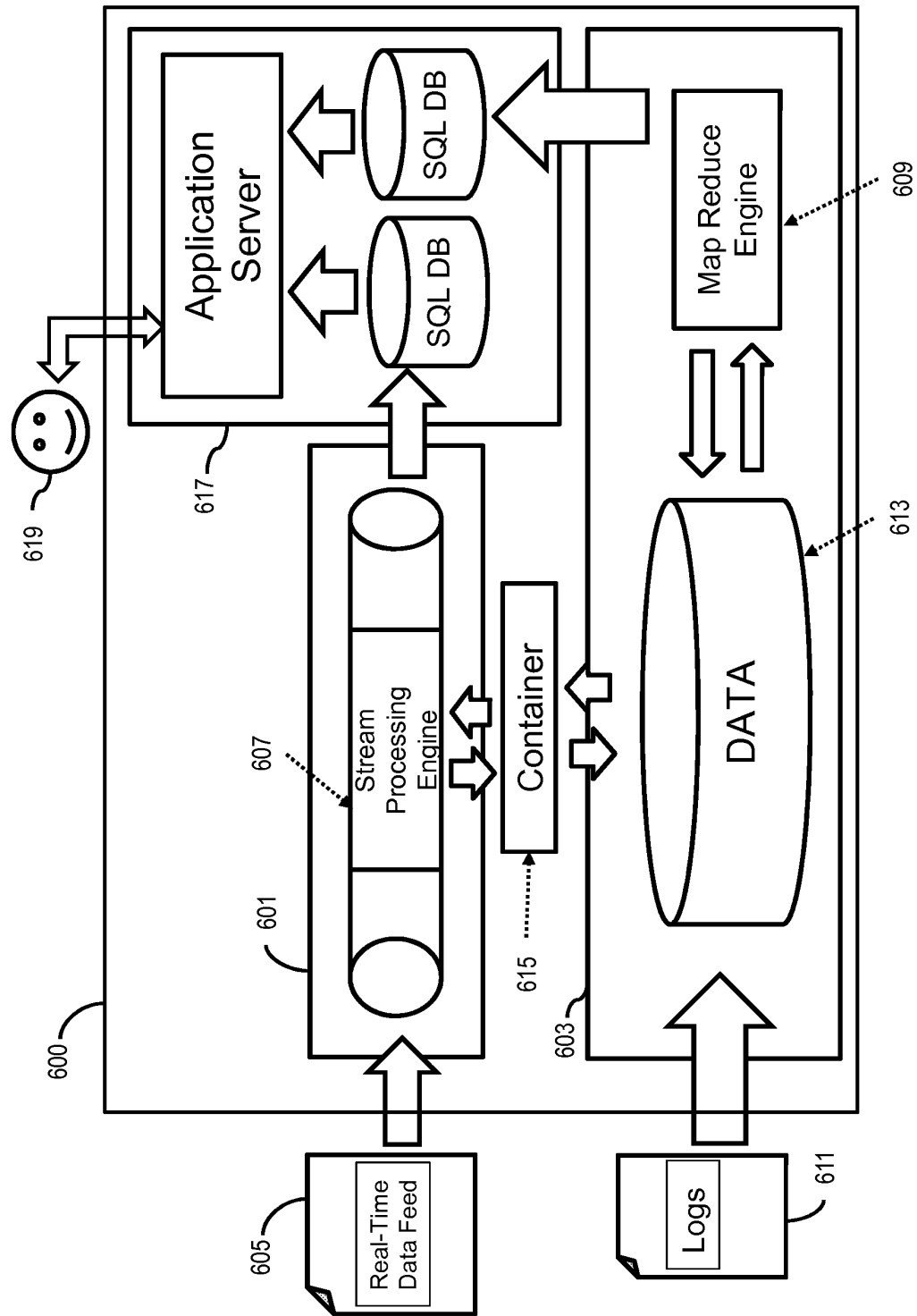


FIG. 7

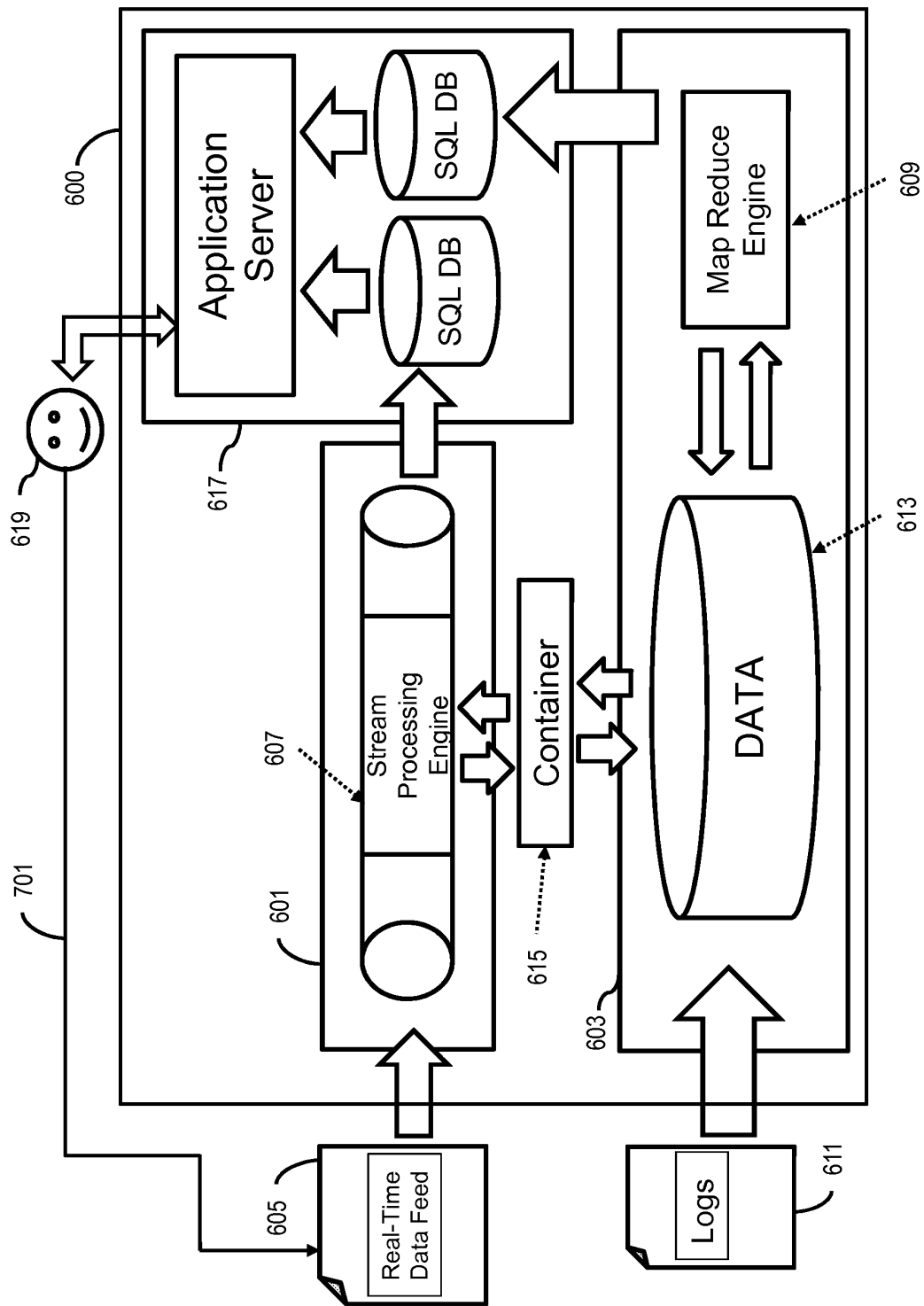


FIG. 8

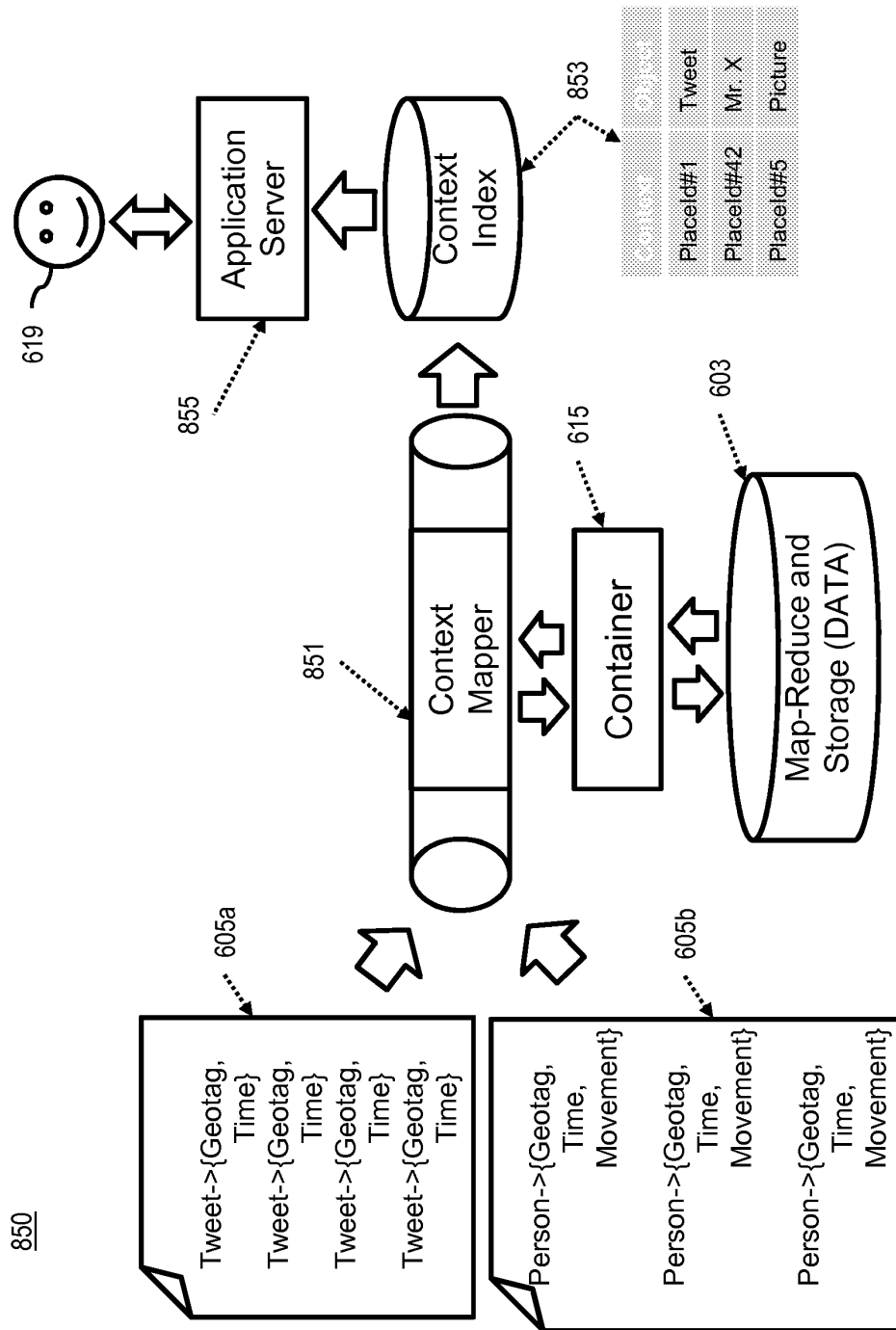


FIG. 9

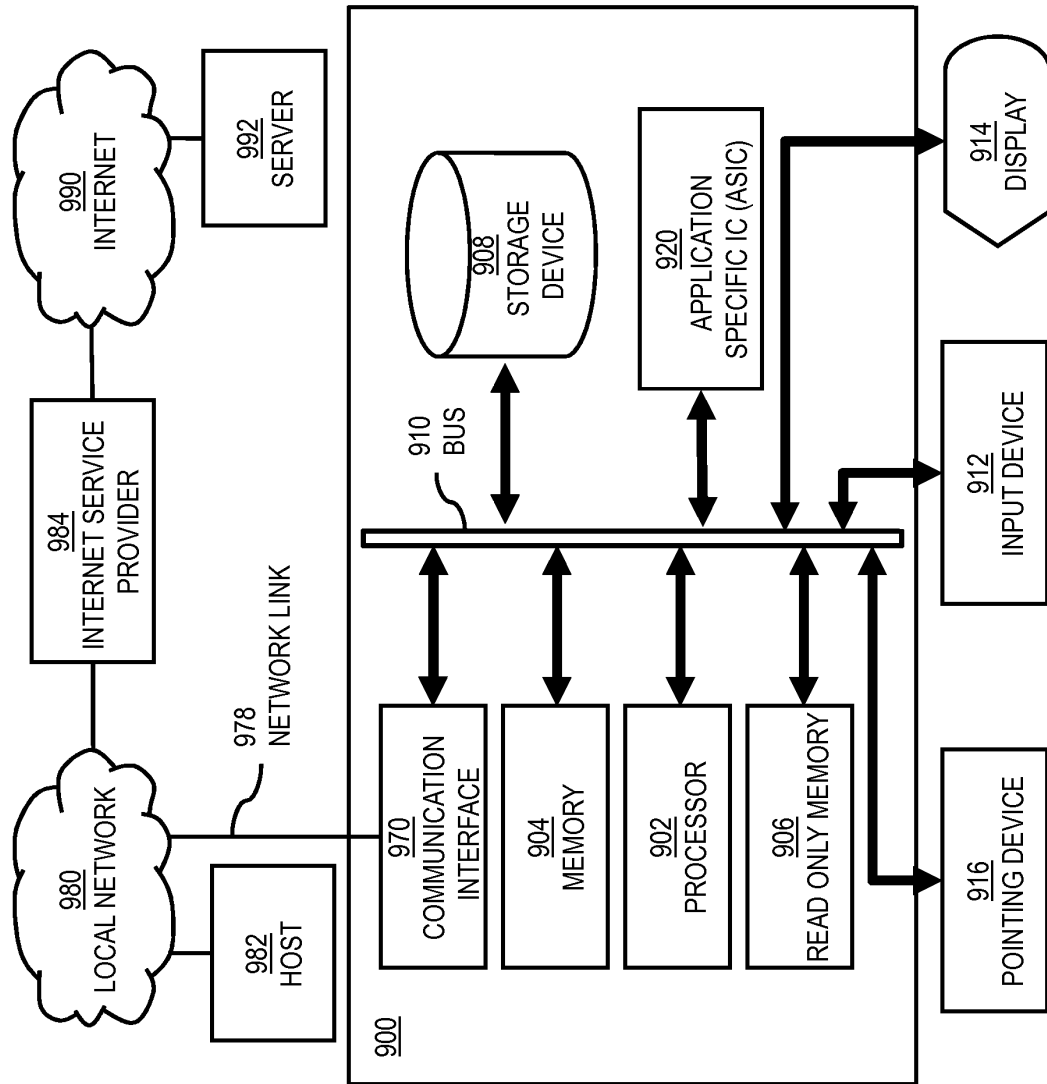
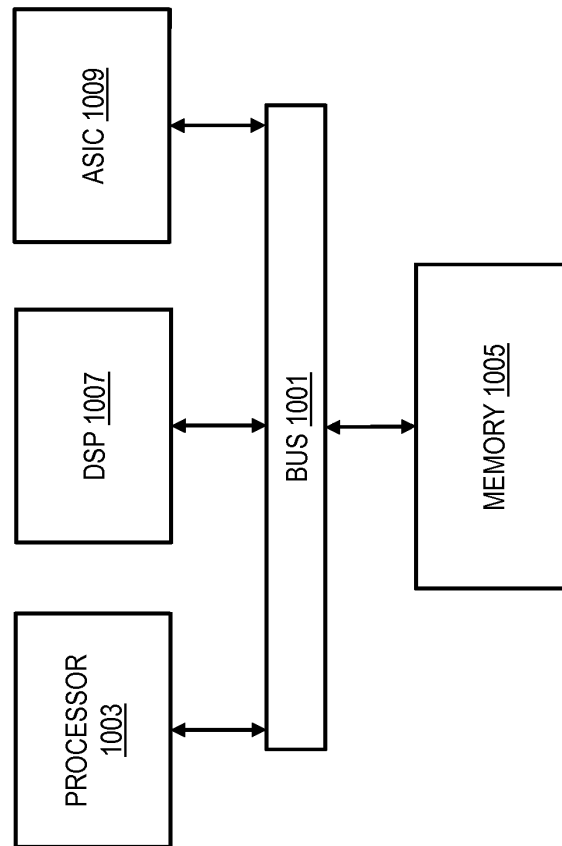


FIG. 10

1000



The block diagram illustrates the internal architecture of a mobile device 1101. The device is divided into several functional blocks and interfaces:

- Audio and Baseband Section (1109):** This section, enclosed in a dashed box, includes an **AUDIO INTERFACE** (1113) connected to a **CODEC** (1143). The CODEC contains an **ADC** (1123) and a **DAC** (1143). It is connected to a **MEMORY** block (1151) and an **ASIC BACKPLANE**. The baseband part includes a **Demodulator** (1141), a **Modulator** (1127), a **Down-Converter** (1139), an **Up-Converter** (1131), a **Synthesizer** (1133), an **LNA** (1137), and a **PA** (1119). These are connected to an **RF Interface** (1129) and a **Duplexer** (1121).
- Processing and Control Section:** The **DSP** (1105) and **MCU** (1103) are central processing units. The DSP is connected to the **ASIC BACKPLANE**, **MEMORY**, and the **Equalizer** (1125). The MCU is connected to the **ASIC BACKPLANE**, **MEMORY**, and the **Battery Interface & Power Control** (1120).
- User Interface and External Components:** The **Keyboard** (1147) and **Display** (1107) are connected to the MCU. A **SIM Card** (1149) is also connected to the MCU. The **Battery Interface & Power Control** (1120) is connected to the **PA** (1119) and the **Battery** (1117).

## APPLICATION DATA SHEET

### Application Information

Application Type:: Regular  
Subject Matter:: Utility  
Title:: METHOD AND APPARATUS FOR  
PROVIDING DYNAMIC STREAM  
PROCESSING OF DATA BASED ON STATIC  
ANALYTICS  
Attorney Docket Number:: P6383US00  
Total Drawing Sheets:: 11  
Small Entity?: No

### Inventor Information

Inventor One Authority Type:: Inventor  
Primary Citizenship Country:: Russia  
Status:: Full Capacity  
Given Name:: Sergey  
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Country of Residence:: Finland  
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Postal or Zip Code:: FIN-01150

Inventor Two Authority Type:: Inventor  
Primary Citizenship Country:: Finland  
Status:: Full Capacity  
Given Name:: Lauri  
Middle Name:: Aarno Olavi

Family Name:: TARKKALA  
City of Residence:: Berlin  
Country of Residence:: Germany  
Street:: Kollwitzstr. 51  
City:: Berlin  
Country:: Germany  
Postal or Zip Code:: 10405

**Correspondence Information**

Correspondence Customer Number:: 11764

**Representative Information**

Representative Customer Number:: 11764

**Domestic Priority Information**

Application:: Continuity Type:: Parent Application:: Parent Filing Date::

**Foreign Priority Information**

Country:: Application Number:: Filing Date:: Priority Claimed::

**Assignee Information**

Assignee Name:: Nokia Corporation  
Street:: Keilalahdentie 4  
City:: Espoo  
Country:: Finland  
Postal or Zip Code:: FIN-02150

**Signature:**

Signature /Phouphanomketh Ditthavong/\_\_\_\_\_ Date (YYYY-MM-DD) 2012-09-17

First Name: Phouphanomketh Last Name: Ditthavong

Registration Number: 44658

| Electronic Acknowledgement Receipt   |                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------|
| EFS ID:                              | 13766022                                                                                       |
| Application Number:                  | 13621511                                                                                       |
| International Application Number:    |                                                                                                |
| Confirmation Number:                 | 1067                                                                                           |
| Title of Invention:                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| First Named Inventor/Applicant Name: | SERGEY BOLDYREV                                                                                |
| Customer Number:                     | 11764                                                                                          |
| Filer:                               | Phouphanomketh Ditthavong/Vilavanh Ditthavong                                                  |
| Filer Authorized By:                 | Phouphanomketh Ditthavong                                                                      |
| Attorney Docket Number:              | P6383US00                                                                                      |
| Receipt Date:                        | 17-SEP-2012                                                                                    |
| Filing Date:                         |                                                                                                |
| Time Stamp:                          | 16:20:21                                                                                       |
| Application Type:                    | Utility under 35 USC 111(a)                                                                    |

### 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               |                      | NC78280US_P6383US00_Specification.pdf | 294278<br>c8ef5d27895577dc658bc4837709f5f29d8f9921 | yes              | 49               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                            |                                  |                                                    |            |    |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------|----------------------------------------------------|------------|----|--|--|--|--|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Multipart Description/PDF files in .zip description</b> |                                  |                                                    |            |    |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Document Description</b>                                |                                  | <b>Start</b>                                       | <b>End</b> |    |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Specification                                              |                                  | 1                                                  | 37         |    |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Claims                                                     |                                  | 38                                                 | 48         |    |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Abstract                                                   |                                  | 49                                                 | 49         |    |  |  |  |  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                            |                                  |                                                    |            |    |  |  |  |  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                            |                                  |                                                    |            |    |  |  |  |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Drawings-only black and white line drawings                | NC78280US_P6383US00_Drawings.pdf | 462787<br>25390b60270aa4612f8397f063ee3aa6fd675169 | no         | 11 |  |  |  |  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                            |                                  |                                                    |            |    |  |  |  |  |
| The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                            |                                  |                                                    |            |    |  |  |  |  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                            |                                  |                                                    |            |    |  |  |  |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Application Data Sheet                                     | NC78280US_P6383US00_ADS.pdf      | 74862<br>1de74c0dae598845a51b9115d2d821831783ce29  | no         | 2  |  |  |  |  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                            |                                  |                                                    |            |    |  |  |  |  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                            |                                  |                                                    |            |    |  |  |  |  |
| This is not an USPTO supplied ADS fillable form                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                            |                                  |                                                    |            |    |  |  |  |  |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                            |                                  | 831927                                             |            |    |  |  |  |  |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>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.</p> |                                                            |                                  |                                                    |            |    |  |  |  |  |

## **SCORE Placeholder Sheet for IFW Content**

Application Number: 13621511

Document Date: 09/17/2012

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 – Other than Black and White Line 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.
- 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.

Form Revision Date: February 8, 2006

| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                  |          |                                    |               | Application or Docket Number<br>13/621,511 |                    |                               |                    |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------|------------------------------------|---------------|--------------------------------------------|--------------------|-------------------------------|--------------------|--------------------|
| <b>APPLICATION AS FILED - PART I</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | SMALL ENTITY                       |               | OR<br>OTHER THAN SMALL ENTITY              |                    |                               |                    |                    |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                        | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     | RATE(\$) | FEE(\$)                            |               | RATE(\$)                                   | FEE(\$)            |                               |                    |                    |
| BASIC FEE<br><small>(37 CFR 1.16(a), (b), or (c))</small>                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                           | N/A                              | N/A      |                                    |               | N/A                                        | 390                |                               |                    |                    |
| SEARCH FEE<br><small>(37 CFR 1.16(k), (l), or (m))</small>                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                              | N/A      |                                    |               | N/A                                        | 620                |                               |                    |                    |
| EXAMINATION FEE<br><small>(37 CFR 1.16(o), (p), or (q))</small>                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                           | N/A                              | N/A      |                                    |               | N/A                                        | 250                |                               |                    |                    |
| TOTAL CLAIMS<br><small>(37 CFR 1.16(j))</small>                                                                                                                                                                                                                                                                                                                                                            | 54                                                                                                                                                                                                                            | minus 20 =<br>* 34               |          |                                    |               | x 62 =                                     | 2108               |                               |                    |                    |
| INDEPENDENT CLAIMS<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                                                                                                                                                                                      | 4                                                                                                                                                                                                                             | minus 3 =<br>* 1                 |          |                                    |               | x 250 =                                    | 250                |                               |                    |                    |
| APPLICATION SIZE FEE<br><small>(37 CFR 1.16(s))</small>                                                                                                                                                                                                                                                                                                                                                    | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 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). |                                  |          |                                    |               |                                            | 0.00               |                               |                    |                    |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            | 460                |                               |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  | TOTAL    |                                    |               | TOTAL                                      | 4078               |                               |                    |                    |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
| <b>APPLICATION AS AMENDED - PART II</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | (Column 3)                         |               | SMALL ENTITY                               |                    | OR<br>OTHER THAN SMALL ENTITY |                    |                    |
| AMENDMENT A                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |          | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)                                   | ADDITIONAL FEE(\$) |                               | RATE(\$)           | ADDITIONAL FEE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br><small>(37 CFR 1.16(i))</small>                                                                                                                                                                                      | *                                | Minus    | **                                 | =             | x                                          | =                  |                               | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                | *                                | Minus    | ***                                | =             | x                                          | =                  |                               | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |          |                                    |               | TOTAL<br>ADD'L FEE                         |                    |                               | TOTAL<br>ADD'L FEE |                    |
| AMENDMENT B                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |          | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)                                   | ADDITIONAL FEE(\$) |                               | RATE(\$)           | ADDITIONAL FEE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br><small>(37 CFR 1.16(i))</small>                                                                                                                                                                                      | *                                | Minus    | **                                 | =             | x                                          | =                  |                               | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                | *                                | Minus    | ***                                | =             | x                                          | =                  |                               | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |          |                                    |               | TOTAL<br>ADD'L FEE                         |                    |                               | TOTAL<br>ADD'L FEE |                    |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1. |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |



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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 13/621,511         | 09/17/2012            | Sergey BOLDYREV       | P6383US00              |

CONFIRMATION NO. 1067

FORMALITIES LETTER



\*OC000000057076927\*

11764

Ditthavong Mori & Steiner, P.C.  
918 Prince Street  
Alexandria, VA 22314

Date Mailed: 10/17/2012

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

*Filing Date Granted*

**Items Required To Avoid Abandonment:**

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.  
*Applicant must submit \$390 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of \$ **2818** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- A surcharge (for late submission of the basic filing fee, search fee, examination fee or inventor's oath or declaration) as set forth in 37 CFR 1.16(f) of \$ **130** for a non-small entity, must be submitted.

**SUMMARY OF FEES DUE:**

Total fee(s) required within **TWO MONTHS** from the date of this Notice is \$ **4208** for a non-small entity

- \$ **390** Statutory basic filing fee.
- \$ **130** Surcharge.
- The application search fee has not been paid. Applicant must submit \$ **620** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit \$ **250** to complete the examination fee for a non-small entity.
- Total additional claim fee(s) for this application is \$ **2818**
  - \$ **250** for 1 independent claims over 3.
  - \$ **2108** for 34 total claims over 20.
  - \$ **460** for multiple dependent claim surcharge.

**Items Required To Avoid Processing Delays:**

page 1 of 2

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):  
Sergey BOLDYREV & Lauri Aarno Olavi TARKKALA  
Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

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| APPLICATION<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY. DOCKET NO | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|-----------------|------------|------------|
| 13/621,511            | 09/17/2012               | 1629            | 0.00          | P6383US00       | 48         | 4          |

CONFIRMATION NO. 1067

11764

Ditthavong Mori & Steiner, P.C.

918 Prince Street

Alexandria, VA 22314

## FILING RECEIPT



\*OC000000057076926\*

Date Mailed: 10/17/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

### Inventor(s)

Sergey BOLDYREV, Soderkulla, FINLAND;  
Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;

### Applicant(s)

Sergey BOLDYREV, Soderkulla, FINLAND;  
Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;

### Assignment For Published Patent Application

Nokia Corporation, Espoo, FINLAND

Power of Attorney: None

### Domestic Priority data as claimed by applicant

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**If Required, Foreign Filing License Granted:** 10/15/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/621,511**

**Projected Publication Date:** To Be Determined - pending completion of Missing Parts

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA  
BASED ON STATIC ANALYTICS

**Preliminary Class**

514

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**Title 37, Code of Federal Regulations, 5.11 & 5.15**

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| <b>MULTIPLE DEPENDENT CLAIM<br/>FEE CALCULATION SHEET</b><br><br>Substitute for Form PTO-1360<br>(For use with Form PTO/SB/06) |          |        |                       |        |                        |        | Application Number<br><b>13621511</b>             |       | Filing Date |       |        |
|--------------------------------------------------------------------------------------------------------------------------------|----------|--------|-----------------------|--------|------------------------|--------|---------------------------------------------------|-------|-------------|-------|--------|
|                                                                                                                                |          |        |                       |        |                        |        | Applicant(s) <b>Sergey BOLDYREV</b>               |       |             |       |        |
|                                                                                                                                |          |        |                       |        |                        |        | * May be used for additional claims or amendments |       |             |       |        |
| CLAIMS                                                                                                                         | AS FILED |        | AFTER FIRST AMENDMENT |        | AFTER SECOND AMENDMENT |        |                                                   | *     |             | *     |        |
|                                                                                                                                | Indep    | Depend | Indep                 | Depend | Indep                  | Depend |                                                   | Indep | Depend      | Indep | Depend |
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| 37                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 38                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 39                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
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| 42                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 43                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 44                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 45                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 46                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 47                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 48                                                                                                                             |          | (1)    |                       |        |                        |        |                                                   |       |             |       |        |
| 49                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 50                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| Total Indep                                                                                                                    | 4        |        | 0                     |        | 0                      |        |                                                   |       |             |       |        |
| Total Depend                                                                                                                   | 50       |        | 0                     |        | 0                      |        |                                                   |       |             |       |        |
| Total Claims                                                                                                                   | 54       |        | 0                     |        | 0                      |        |                                                   |       |             |       |        |
| 51                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 52                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
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| 57                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 58                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 59                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
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| 62                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 63                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 64                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 65                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 66                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 67                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 68                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 69                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 70                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 71                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 72                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 73                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 74                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 75                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 76                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 77                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 78                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 79                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 80                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 81                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 82                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 83                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 84                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 85                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 86                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 87                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 88                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 89                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 90                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 91                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 92                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 93                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 94                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 95                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 96                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 97                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 98                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 99                                                                                                                             |          |        |                       |        |                        |        |                                                   |       |             |       |        |
| 100                                                                                                                            |          |        |                       |        |                        |        |                                                   |       |             |       |        |

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**From:** PAIR\_eOfficeAction@uspto.gov  
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Oct 17, 2012 05:24:02 AM

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Alexandria, VA 22314  
UNITED STATES

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| Application | Document     | Mailroom Date | Attorney Docket No. |
|-------------|--------------|---------------|---------------------|
| 13621511    | NTC.MISS.PRT | 10/17/2012    | P6383US00           |
|             | APP.FILE.REC | 10/17/2012    | P6383US00           |

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|                       |                               |                   |                  |
|-----------------------|-------------------------------|-------------------|------------------|
| In re Application of: | Sergey Boldyrev <i>et al.</i> | Confirmation No.: | 1067             |
| Application No.:      | 13/621,511                    | Examiner:         | Not yet assigned |
| Filed:                | September 17, 2012            | Group Art Unit:   | 1629             |

For: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM  
PROCESSING OF DATA BASED ON STATIC ANALYTICS

Commissioner for Patents  
Alexandria, VA 22313-1450

**PRELIMINARY AMENDMENT**

Dear Commissioner:

Prior to consideration of the above-identified application, please amend the application  
based on the following.

|                                           |   |
|-------------------------------------------|---|
| AMENDMENT AND PRESENTATION OF CLAIMS..... | 2 |
| REMARKS .....                             | 8 |

**AMENDMENT AND PRESENTATION OF CLAIMS**

Please replace all prior claims in the present application with the following claims.

1. (Original) A method comprising facilitating a processing of and/or processing (1) data and/or (2) information and/or (3) at least one signal, the (1) data and/or (2) information and/or (3) at least one signal based, at least in part, on the following:

at least one determination of at least one processing element of at least one dynamic processing mechanism; and

a marshalling of the at least one processing element as at least one data object,

wherein the at least one data object is processable by at least one static processing mechanism.

2. (Original) A method of claim 1, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events; and

a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events,

wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

3. (Original) A method of claim 2, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

an unmarshalling of the at least one processing element as at least one data object,

wherein the at least one data object is processable by the at least one static processing mechanism.

4. (Original) A method of claim 2, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

5. (Original) A method of claim 4, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

at least one determination of one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element,

wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

6. (Original) A method of claim 5, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

7. (Original) A method of claim 1, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism.

8. (Original) A method of claim 1, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and at least one determination of one or more outputs of at least one processing job based, at least in part, on the aggregation.

9. (Original) A method of claim 1, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

10. (Original) A method of claim 1, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

11. (Original) An apparatus comprising:

at least one processor; and

at least one memory including computer program code for one or more programs,

the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to perform at least the following,

determine at least one processing element of at least one dynamic processing mechanism;

and

cause, at least in part, a marshalling of the at least one processing element as at least one data object,

wherein the at least one data object is processable by at least one static processing mechanism.

12. (Original) An apparatus of claim 11, wherein the apparatus is further caused to:

process and/or facilitate a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events; and

cause, at least in part, a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events,

wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

13. (Original) An apparatus of claim 12, wherein the apparatus is further caused to:

cause, at least in part, an unmarshalling of the at least one processing element as at least one data object,

wherein the at least one data object is processable by the at least one static processing mechanism.

14. (Original) An apparatus of claim 12, wherein the apparatus is further caused to:  
process and/or facilitate a processing of the at least one data object via the at least one static  
processing mechanism to cause, at least in part, an updating of the at least one data object  
based, at least in part, on the one or more triggering events, the one or more contextual  
trends, or a combination thereof.
15. (Original) An apparatus of claim 14, wherein the apparatus is further caused to:  
determine one or more computational chains, one or more parameters of the one or more  
computational chains, one or more data elements of the one or more computational  
chains, or a combination thereof associated with the at least one processing element,  
wherein at least one data object includes, at least in part, the one or more computational  
chains, the one or more parameters, the one or more data elements, or a combination  
thereof.
16. (Original) An apparatus of claim 15, wherein the updating of the at least one data  
object comprises, at least in part, causing a shaping of the one or more computational chains  
based, at least in part, on the one or more triggering events, the one or more contextual trends, or  
a combination thereof.
17. (Original) An apparatus of claim 11, wherein the apparatus is further caused to:  
process and/or facilitate a processing of the at least one data object to cause, at least in part,  
an updating of one or more components of the at least one static processing mechanism.
18. (Original) An apparatus of claim 11, wherein the apparatus is further caused to:

cause, at least in part, an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and

determining one or more outputs of at least one processing job based, at least in part, on the aggregation.

19. (Original) An apparatus of claim 11, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

20. (Original) An apparatus of claim 11, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

21 – 48. (Canceled)

**REMARKS**

By this amendment, claims 1-20 are pending, in which claims 21-48 are canceled without prejudice or disclaimer. No new matter is introduced.

Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 519-9951 so that such issues may be resolved as expeditiously as possible.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 504213 and please credit any excess fees to such deposit account.

Respectfully Submitted,

DITTHAVONG MORI & STEINER, P.C.

December 17, 2012  
Date

/Phouphanomketh Ditthavong/  
Phouphanomketh Ditthavong  
Attorney/Agent for Applicant(s)  
Reg. No. 44658

918 Prince Street  
Alexandria, VA 22314  
Tel. (703) 519-9951  
Fax (703) 519-9958

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                                                     |                            |
|-----------------------------------------------------|----------------------------|
| In re Application of: Sergey Boldyrev <i>et al.</i> | Confirmation No.: 1067     |
| Application No.: 13/621,511                         | Examiner: Not yet assigned |
| Filed: September 17, 2012                           | Group Art Unit: 1629       |

For: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM  
PROCESSING OF DATA BASED ON STATIC ANALYTICS

Commissioner for Patents  
Alexandria, VA 22313-1450

**RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION**

Dear Commissioner:

This is in response to a Notice to File Missing Parts of Application under 37 C.F.R. § 1.53(b) dated October 17, 2012. Enclosed is a copy of the following documents and fees to complete the filing requirements of the above-identified application.

\_\_\_\_ Executed Declaration and Power of Attorney. The above-identified application is the same application which the inventor executed by signing the enclosed declaration.

  X   Statutory basic filing fee, search fee, examination fee for   X   Utility \_\_\_\_ Design

\_\_\_\_ Additional claim fees = \$ \_\_\_\_

  X   Missing Parts Surcharge = \$130.00

\_\_\_\_ A Petition for Extension of Time for reply to Notice of Missing Parts is attached.

\_\_\_\_ One month = \$150.00      \_\_\_\_ Four months = \$2,010.00

\_\_\_\_ Two months = \$570.00      \_\_\_\_ Five months = \$2,730.00

\_\_\_\_ Three months = \$1,290.00

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 504213 and please credit any excess fees to such deposit account.

Respectfully submitted,

DITTHAVONG MORI & STEINER, P.C.

December 17, 2012  
Date

/Phouphanomketh Ditthavong/  
Phouphanomketh Ditthavong  
Attorney/Agent for Applicant(s)  
Reg. No. 44658

| Electronic Patent Application Fee Transmittal  |                 |                                                                                                |               |                             |
|------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                     |                 | 13621511                                                                                       |               |                             |
| <b>Filing Date:</b>                            |                 | 17-Sep-2012                                                                                    |               |                             |
| <b>Title of Invention:</b>                     |                 | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |               |                             |
| <b>First Named Inventor/Applicant Name:</b>    |                 | Sergey BOLDYREV                                                                                |               |                             |
| <b>Filer:</b>                                  |                 | Phouphanomketh Ditthavong/Kimberly Armradit                                                    |               |                             |
| <b>Attorney Docket Number:</b>                 |                 | P6383US00                                                                                      |               |                             |
| Filed as Large Entity                          |                 |                                                                                                |               |                             |
| <b>Utility under 35 USC 111(a) Filing Fees</b> |                 |                                                                                                |               |                             |
| <b>Description</b>                             | <b>Fee Code</b> | <b>Quantity</b>                                                                                | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                           |                 |                                                                                                |               |                             |
| Utility application filing                     | 1011            | 1                                                                                              | 390           | 390                         |
| Utility Search Fee                             | 1111            | 1                                                                                              | 620           | 620                         |
| Utility Examination Fee                        | 1311            | 1                                                                                              | 250           | 250                         |
| <b>Pages:</b>                                  |                 |                                                                                                |               |                             |
| <b>Claims:</b>                                 |                 |                                                                                                |               |                             |
| <b>Miscellaneous-Filing:</b>                   |                 |                                                                                                |               |                             |
| Late filing fee for oath or declaration        | 1051            | 1                                                                                              | 130           | 130                         |
| <b>Petition:</b>                               |                 |                                                                                                |               |                             |

| Description                       | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|-----------------------------------|----------|----------|--------|----------------------|
| Patent-Appeals-and-Interference:  |          |          |        |                      |
| Post-Allowance-and-Post-Issuance: |          |          |        |                      |
| Extension-of-Time:                |          |          |        |                      |
| Miscellaneous:                    |          |          |        |                      |
| Total in USD (\$)                 |          |          |        | 1390                 |

| <b>Electronic Acknowledgement Receipt</b>   |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 14472616                                                                                       |
| <b>Application Number:</b>                  | 13621511                                                                                       |
| <b>International Application Number:</b>    |                                                                                                |
| <b>Confirmation Number:</b>                 | 1067                                                                                           |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| <b>First Named Inventor/Applicant Name:</b> | Sergey BOLDYREV                                                                                |
| <b>Customer Number:</b>                     | 11764                                                                                          |
| <b>Filer:</b>                               | Phouphanomketh Ditthavong/Kimberly Armradit                                                    |
| <b>Filer Authorized By:</b>                 | Phouphanomketh Ditthavong                                                                      |
| <b>Attorney Docket Number:</b>              | P6383US00                                                                                      |
| <b>Receipt Date:</b>                        | 17-DEC-2012                                                                                    |
| <b>Filing Date:</b>                         | 17-SEP-2012                                                                                    |
| <b>Time Stamp:</b>                          | 16:22:16                                                                                       |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                    |

### **Payment information:**

|                                                                                                                                                                                                                                                                                                                                                                                          |                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Submitted with Payment                                                                                                                                                                                                                                                                                                                                                                   | yes                        |
| Payment Type                                                                                                                                                                                                                                                                                                                                                                             | Credit Card                |
| Payment was successfully received in RAM                                                                                                                                                                                                                                                                                                                                                 | \$1390                     |
| RAM confirmation Number                                                                                                                                                                                                                                                                                                                                                                  | 3984                       |
| Deposit Account                                                                                                                                                                                                                                                                                                                                                                          | 504213                     |
| Authorized User                                                                                                                                                                                                                                                                                                                                                                          | DITTHAVONG, PHOUPHANOMKETH |
| <p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p> |                            |

| Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                   |                                                           |                                          |                  |                  |
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| Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |                                                           |                                          |                  |                  |
| Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |                                                           |                                          |                  |                  |
| <b>File Listing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                   |                                                           |                                          |                  |                  |
| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Document Description                              | File Name                                                 | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Preliminary Amendment                             | NC78280US_P6383US00_PreliminaryAmendment.pdf              | 116414                                   | no               | 8                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                   |                                                           | 3b846e2078b51629ef9c54a27b1ce78d7d873b5e |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |                                                           |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |                                                           |                                          |                  |                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Applicant Response to Pre-Exam Formalities Notice | NC78280US_P6383US00_Response to NTFPMP filed 12-17-12.pdf | 104537                                   | no               | 1                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                   |                                                           | 10ad2395e79248f843e2239ae111bcae04458e8b |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |                                                           |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |                                                           |                                          |                  |                  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fee Worksheet (SB06)                              | fee-info.pdf                                              | 37210                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                   |                                                           | 09ec9c0aef444706524721fe98d45e9d99f8e73  |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |                                                           |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |                                                           |                                          |                  |                  |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |                                                           | 258161                                   |                  |                  |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                                                   |                                                           |                                          |                  |                  |

DITTHAVONG MORI & STEINER, P.C.

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+1-703-519-9951  
+1-703-519-9958 FACSIMILE

Attorney Docket No.: P6383US00

*Patent*

**COMBINED DECLARATION AND ASSIGNMENT**  
**FOR PATENT APPLICATION**

Title of Invention: METHOD AND APPARATUS FOR PROVIDING DYNAMIC  
STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

As the below named inventor, I hereby declare that this declaration is directed to:

- ☐ The attached application, or  
☒ United States application or PCT international application filed on September 17,  
2012 and assigned Serial No. 13/621,511

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention  
in the application.

I hereby state that I have reviewed and understand the contents of the above-identified  
specification, including the claim(s), as amended by any amendment made on \_\_\_\_ (if applicable).

I acknowledge the duty to disclose all information known to me to be material to patentability as  
defined in Title 37, Code of Federal Regulations, Section 1.56.

In consideration of good and valuable consideration, the receipt of which is hereby  
acknowledged, I the undersigned hereby sell, assign, and transfer to Nokia Corporation, a  
corporation of Keilalahdentie 4, Espoo, FIN-02150, Finland, having a principal place of business  
at Finland ("Assignee"), and its successors, assigns, and legal representatives, the entire right,  
title, and interest for the United States and all foreign countries, in and to any and all  
improvements that are disclosed in the above-identified application for the United States patent,  
which:

and in and to said application and all divisional, continuing, substitute, renewal, reissue,  
and all other patent applications that have been or shall be filed in the United States and all  
foreign countries on any of said improvements; and in and to all original and reissued patents that  
have been or shall be issued in the United States and all foreign countries on said improvements;  
and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said  
improvements in its own name; and that, when requested, without charge to, but at the expense  
of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the  
intent and purpose of this Assignment, the undersigned will execute all divisional, continuing,  
substitute, renewal, reissue, and all other patent applications on any and all said improvements;  
execute all assignments and powers of attorney; communicate to said Assignee, its successors,

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Attorney Docket No.: P6383US00

*Patent*

assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Full Name of First or Sole Inventor (Given name, FAMILY NAME):

Sergey BOLDYREV

Inventor's Signature



Date

Oct 25 2012

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.

Use an additional form for each inventor.

DITTHAVONG MORI & STEINER, P.C.

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Attorney Docket No.: P6383US00

*Patent*

**COMBINED DECLARATION AND ASSIGNMENT  
FOR PATENT APPLICATION**

Title of Invention: METHOD AND APPARATUS FOR PROVIDING DYNAMIC  
STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

As the below named inventor, I hereby declare that this declaration is directed to:

- ☐ The attached application, or  
☒ United States application or PCT international application filed on September 17,  
2012 and assigned Serial No. 13/621,511

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention  
in the application.

I hereby state that I have reviewed and understand the contents of the above-identified  
specification, including the claim(s), as amended by any amendment made on \_\_\_\_ (if applicable).

I acknowledge the duty to disclose all information known to me to be material to patentability as  
defined in Title 37, Code of Federal Regulations, Section 1.56.

In consideration of good and valuable consideration, the receipt of which is hereby  
acknowledged, I the undersigned hereby sell, assign, and transfer to Nokia Corporation, a  
corporation of Keilalahdentie 4, Espoo, FIN-02150, Finland, having a principal place of business  
at Finland ("Assignee"), and its successors, assigns, and legal representatives, the entire right,  
title, and interest for the United States and all foreign countries, in and to any and all  
improvements that are disclosed in the above-identified application for the United States patent,  
which:

and in and to said application and all divisional, continuing, substitute, renewal, reissue,  
and all other patent applications that have been or shall be filed in the United States and all  
foreign countries on any of said improvements; and in and to all original and reissued patents that  
have been or shall be issued in the United States and all foreign countries on said improvements;  
and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said  
improvements in its own name; and that, when requested, without charge to, but at the expense  
of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the  
intent and purpose of this Assignment, the undersigned will execute all divisional, continuing,  
substitute, renewal, reissue, and all other patent applications on any and all said improvements;  
execute all assignments and powers of attorney; communicate to said Assignee, its successors,

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Attorney Docket No.: P6383US00

*Patent*

assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Full Name of First or Sole Inventor (Given name, FAMILY NAME):

Lauri Aarno Olavi TARKKALA

Inventor's Signature



Date

2022-10-26

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.

Use an additional form for each inventor.

| Electronic Acknowledgement Receipt   |                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------|
| EFS ID:                              | 14489650                                                                                       |
| Application Number:                  | 13621511                                                                                       |
| International Application Number:    |                                                                                                |
| Confirmation Number:                 | 1067                                                                                           |
| Title of Invention:                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| First Named Inventor/Applicant Name: | Sergey BOLDYREV                                                                                |
| Customer Number:                     | 11764                                                                                          |
| Filer:                               | Phouphanomketh Ditthavong/Kimberly Armradit                                                    |
| Filer Authorized By:                 | Phouphanomketh Ditthavong                                                                      |
| Attorney Docket Number:              | P6383US00                                                                                      |
| Receipt Date:                        | 17-DEC-2012                                                                                    |
| Filing Date:                         | 17-SEP-2012                                                                                    |
| Time Stamp:                          | 16:29:53                                                                                       |
| Application Type:                    | Utility under 35 USC 111(a)                                                                    |

### 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               | Oath or Declaration filed | NC78280US_P6383US00_CombinedFormalDocs.pdf | 144413<br>baa301d56fca8ab8c21918b2dcf2d0c5d41998c8 | no               | 4                |

### Warnings:

### Information:

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.



# UNITED STATES PATENT AND TRADEMARK OFFICE

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| APPLICATION<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY. DOCKET NO | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|-----------------|------------|------------|
| 13/621,511            | 09/17/2012               | 1629            | 1390          | P6383US00       | 20         | 2          |

CONFIRMATION NO. 1067

## UPDATED FILING RECEIPT



OC000000058256242

11764  
Ditthavong Mori & Steiner, P.C.  
44 Canal Center Plaza  
Suite 322  
Alexandria, VA 22314

Date Mailed: 12/28/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

### Inventor(s)

Sergey BOLDYREV, Soderkulla, FINLAND;  
Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;

### Applicant(s)

Sergey BOLDYREV, Soderkulla, FINLAND;  
Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;

### Assignment For Published Patent Application

Nokia Corporation, Espoo, FINLAND

Power of Attorney: None

### Domestic Applications for which benefit is claimed - None.

*A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.*

**Foreign Applications** for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

*Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.*

**If Required, Foreign Filing License Granted:** 10/15/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/621,511**

**Projected Publication Date:** 03/20/2014

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA  
BASED ON STATIC ANALYTICS

**Preliminary Class**

514

**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

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 patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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**Title 35, United States Code, Section 184**

**Title 37, Code of Federal Regulations, 5.11 & 5.15**

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No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

---

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage, facilitate, and accelerate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit [SelectUSA.gov](http://SelectUSA.gov).

| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                  |          |                                    |               | Application or Docket Number<br>13/621,511 |                    |                               |                 |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------|------------------------------------|---------------|--------------------------------------------|--------------------|-------------------------------|-----------------|--------------------|
| <b>APPLICATION AS FILED - PART I</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                 |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | SMALL ENTITY                       |               | OR<br>OTHER THAN SMALL ENTITY              |                    |                               |                 |                    |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                        | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     | RATE(\$) | FEE(\$)                            |               | RATE(\$)                                   | FEE(\$)            |                               |                 |                    |
| BASIC FEE<br><small>(37 CFR 1.16(a), (b), or (c))</small>                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                           | N/A                              | N/A      |                                    |               | N/A                                        | 390                |                               |                 |                    |
| SEARCH FEE<br><small>(37 CFR 1.16(k), (l), or (m))</small>                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                              | N/A      |                                    |               | N/A                                        | 620                |                               |                 |                    |
| EXAMINATION FEE<br><small>(37 CFR 1.16(o), (p), or (q))</small>                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                           | N/A                              | N/A      |                                    |               | N/A                                        | 250                |                               |                 |                    |
| TOTAL CLAIMS<br><small>(37 CFR 1.16(i))</small>                                                                                                                                                                                                                                                                                                                                                            | 20                                                                                                                                                                                                                            | minus 20 = *                     |          |                                    | OR            | x 62 =                                     | 0.00               |                               |                 |                    |
| INDEPENDENT CLAIMS<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                                                                                                                                                                                      | 2                                                                                                                                                                                                                             | minus 3 = *                      |          |                                    |               | x 250 =                                    | 0.00               |                               |                 |                    |
| APPLICATION SIZE FEE<br><small>(37 CFR 1.16(s))</small>                                                                                                                                                                                                                                                                                                                                                    | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 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). |                                  |          |                                    |               |                                            | 0.00               |                               |                 |                    |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            | 0.00               |                               |                 |                    |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |                                  |          | TOTAL                              |               | TOTAL                                      | 1260               |                               |                 |                    |
| <b>APPLICATION AS AMENDED - PART II</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                 |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | (Column 3)                         |               | SMALL ENTITY                               |                    | OR<br>OTHER THAN SMALL ENTITY |                 |                    |
| AMENDMENT A                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |          | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)                                   | ADDITIONAL FEE(\$) |                               | RATE(\$)        | ADDITIONAL FEE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br><small>(37 CFR 1.16(i))</small>                                                                                                                                                                                      | *                                | Minus    | **                                 | =             | x                                          | =                  | OR                            | x               | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                | *                                | Minus    | ***                                | =             | x                                          | =                  | OR                            | x               | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                  |          |                                    |               |                                            |                    | OR                            |                 |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                  |          |                                    |               |                                            |                    | OR                            |                 |                    |
| TOTAL ADD'L FEE                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    | OR                            | TOTAL ADD'L FEE |                    |
| AMENDMENT B                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |          | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)                                   | ADDITIONAL FEE(\$) |                               | RATE(\$)        | ADDITIONAL FEE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br><small>(37 CFR 1.16(i))</small>                                                                                                                                                                                      | *                                | Minus    | **                                 | =             | x                                          | =                  | OR                            | x               | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br><small>(37 CFR 1.16(h))</small>                                                                                                                                                                                | *                                | Minus    | ***                                | =             | x                                          | =                  | OR                            | x               | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                  |          |                                    |               |                                            |                    | OR                            |                 |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            | 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.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1. |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                 |                    |

**To:** docket@dcpatent.com,ipadmin@dcpatent.com,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 11764

Dec 28, 2012 05:23:24 AM

Dear PAIR Customer:

Ditthavong Mori & Steiner, P.C.  
44 Canal Center Plaza  
Suite 322  
Alexandria, VA 22314  
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 11764 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

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| Application | Document     | Mailroom Date | Attorney Docket No. |
|-------------|--------------|---------------|---------------------|
| 13621511    | APP.FILE.REC | 12/28/2012    | P6383US00           |

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Monday - Friday 6:00 a.m. to 12:00 a.m.

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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

DITTHAVONG MORI & STEINER, P.C.

918 PRINCE STREET  
ALEXANDRIA, VIRGINIA 22314 USA  
+1-703-519-9951  
+1-703-519-9958 FACSIMILE

Attorney Docket No.: P6383US00

*Patent*

**COMBINED DECLARATION AND ASSIGNMENT**  
**FOR PATENT APPLICATION**

Title of Invention: METHOD AND APPARATUS FOR PROVIDING DYNAMIC  
STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

As the below named inventor, I hereby declare that this declaration is directed to:

- ☐ The attached application, or  
☒ United States application or PCT international application filed on September 17,  
2012 and assigned Serial No. 13/621,511

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention  
in the application.

I hereby state that I have reviewed and understand the contents of the above-identified  
specification, including the claim(s), as amended by any amendment made on \_\_\_\_ (if applicable).

I acknowledge the duty to disclose all information known to me to be material to patentability as  
defined in Title 37, Code of Federal Regulations, Section 1.56.

In consideration of good and valuable consideration, the receipt of which is hereby  
acknowledged, I the undersigned hereby sell, assign, and transfer to Nokia Corporation, a  
corporation of Keilalahdentie 4, Espoo, FIN-02150, Finland, having a principal place of business  
at Finland ("Assignee"), and its successors, assigns, and legal representatives, the entire right,  
title, and interest for the United States and all foreign countries, in and to any and all  
improvements that are disclosed in the above-identified application for the United States patent,  
which:

and in and to said application and all divisional, continuing, substitute, renewal, reissue,  
and all other patent applications that have been or shall be filed in the United States and all  
foreign countries on any of said improvements; and in and to all original and reissued patents that  
have been or shall be issued in the United States and all foreign countries on said improvements;  
and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said  
improvements in its own name; and that, when requested, without charge to, but at the expense  
of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the  
intent and purpose of this Assignment, the undersigned will execute all divisional, continuing,  
substitute, renewal, reissue, and all other patent applications on any and all said improvements;  
execute all assignments and powers of attorney; communicate to said Assignee, its successors,

DITTHAVONG MORI & STEINER, P.C.

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ALEXANDRIA, VIRGINIA 22314 USA  
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Attorney Docket No.: P6383US00

*Patent*

assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Full Name of First or Sole Inventor (Given name, FAMILY NAME):

Sergey BOLDYREV

Inventor's Signature



Date

Oct 25 2012

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.

Use an additional form for each inventor.

DITTHAVONG MORI & STEINER, P.C.

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Attorney Docket No.: P6383US00

*Patent*

**COMBINED DECLARATION AND ASSIGNMENT  
FOR PATENT APPLICATION**

Title of Invention: METHOD AND APPARATUS FOR PROVIDING DYNAMIC  
STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

As the below named inventor, I hereby declare that this declaration is directed to:

- ☐ The attached application, or  
☒ United States application or PCT international application filed on September 17,  
2012 and assigned Serial No. 13/621,511

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention  
in the application.

I hereby state that I have reviewed and understand the contents of the above-identified  
specification, including the claim(s), as amended by any amendment made on \_\_\_\_ (if applicable).

I acknowledge the duty to disclose all information known to me to be material to patentability as  
defined in Title 37, Code of Federal Regulations, Section 1.56.

In consideration of good and valuable consideration, the receipt of which is hereby  
acknowledged, I the undersigned hereby sell, assign, and transfer to Nokia Corporation, a  
corporation of Keilalahdentie 4, Espoo, FIN-02150, Finland, having a principal place of business  
at Finland ("Assignee"), and its successors, assigns, and legal representatives, the entire right,  
title, and interest for the United States and all foreign countries, in and to any and all  
improvements that are disclosed in the above-identified application for the United States patent,  
which:

and in and to said application and all divisional, continuing, substitute, renewal, reissue,  
and all other patent applications that have been or shall be filed in the United States and all  
foreign countries on any of said improvements; and in and to all original and reissued patents that  
have been or shall be issued in the United States and all foreign countries on said improvements;  
and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said  
improvements in its own name; and that, when requested, without charge to, but at the expense  
of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the  
intent and purpose of this Assignment, the undersigned will execute all divisional, continuing,  
substitute, renewal, reissue, and all other patent applications on any and all said improvements;  
execute all assignments and powers of attorney; communicate to said Assignee, its successors,

DITTHAVONG MORI & STEINER, P.C.

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+1-703-519-9958 FACSIMILE

Attorney Docket No.: P6383US00

*Patent*

assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Full Name of First or Sole Inventor (Given name, FAMILY NAME):

Lauri Aarno Olavi TARKKALA

Inventor's Signature



Date

2022-10-26

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.

Use an additional form for each inventor.

| Electronic Acknowledgement Receipt   |                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------|
| EFS ID:                              | 14594042                                                                                       |
| Application Number:                  | 13621511                                                                                       |
| International Application Number:    |                                                                                                |
| Confirmation Number:                 | 1067                                                                                           |
| Title of Invention:                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| First Named Inventor/Applicant Name: | Sergey BOLDYREV                                                                                |
| Customer Number:                     | 11764                                                                                          |
| Filer:                               | Phouphanomketh Ditthavong/Kimberly Armradit                                                    |
| Filer Authorized By:                 | Phouphanomketh Ditthavong                                                                      |
| Attorney Docket Number:              | P6383US00                                                                                      |
| Receipt Date:                        | 02-JAN-2013                                                                                    |
| Filing Date:                         | 17-SEP-2012                                                                                    |
| Time Stamp:                          | 12:06:59                                                                                       |
| Application Type:                    | Utility under 35 USC 111(a)                                                                    |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description      | File Name                                  | File Size(Bytes)/<br>Message Digest                | Multi Part /.zip | Pages (if appl.) |
|-----------------|---------------------------|--------------------------------------------|----------------------------------------------------|------------------|------------------|
| 1               | Oath or Declaration filed | NC78280US_P6383US00_CombinedFormalDocs.pdf | 144413<br>baa301d56fca8ab8c21918b2dcf2d0c5d41998c8 | no               | 4                |

### Warnings:

### Information:

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.

# PATENT ASSIGNMENT

Electronic Version v1.1  
 Stylesheet Version v1.1

|                                                                                                                                                                                                                                                                         |                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| SUBMISSION TYPE:                                                                                                                                                                                                                                                        | NEW ASSIGNMENT                                             |
| NATURE OF CONVEYANCE:                                                                                                                                                                                                                                                   | ASSIGNMENT                                                 |
| <b>CONVEYING PARTY DATA</b>                                                                                                                                                                                                                                             |                                                            |
| Name                                                                                                                                                                                                                                                                    | Execution Date                                             |
| Sergey Boldyrev                                                                                                                                                                                                                                                         | 10/25/2012                                                 |
| Lauri Aamo Olavi Tarkkala                                                                                                                                                                                                                                               | 10/26/2012                                                 |
| <b>RECEIVING PARTY DATA</b>                                                                                                                                                                                                                                             |                                                            |
| Name:                                                                                                                                                                                                                                                                   | Nokia Corporation                                          |
| Street Address:                                                                                                                                                                                                                                                         | Keilalahdentie 4                                           |
| City:                                                                                                                                                                                                                                                                   | ESPOO                                                      |
| State/Country:                                                                                                                                                                                                                                                          | FINLAND                                                    |
| Postal Code:                                                                                                                                                                                                                                                            | FIN-02150                                                  |
| <b>PROPERTY NUMBERS Total: 1</b>                                                                                                                                                                                                                                        |                                                            |
| Property Type                                                                                                                                                                                                                                                           | Number                                                     |
| Application Number:                                                                                                                                                                                                                                                     | 13621511                                                   |
| <b>CORRESPONDENCE DATA</b>                                                                                                                                                                                                                                              |                                                            |
| Fax Number:                                                                                                                                                                                                                                                             | 7035199958                                                 |
| <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i>                                                                                                                                                                                    |                                                            |
| Phone:                                                                                                                                                                                                                                                                  | 7035199959                                                 |
| Email:                                                                                                                                                                                                                                                                  | docket@dcpatent.com                                        |
| Correspondent Name:                                                                                                                                                                                                                                                     | DITTHAVONG MORI & STEINER, P.C.                            |
| Address Line 1:                                                                                                                                                                                                                                                         | 44 Canal Center Plaza                                      |
| Address Line 4:                                                                                                                                                                                                                                                         | Alexandria, VIRGINIA 22314                                 |
| ATTORNEY DOCKET NUMBER:                                                                                                                                                                                                                                                 | P6383US00                                                  |
| NAME OF SUBMITTER:                                                                                                                                                                                                                                                      | Phouphanomketh Ditthavong                                  |
|                                                                                                                                                                                                                                                                         | This document serves as an Oath/Declaration (37 CFR 1.63). |
| <b>Total Attachments: 4</b><br>source=NC78280US_P6383US00_CombinedFormalDocs#page1.tif<br>source=NC78280US_P6383US00_CombinedFormalDocs#page2.tif<br>source=NC78280US_P6383US00_CombinedFormalDocs#page3.tif<br>source=NC78280US_P6383US00_CombinedFormalDocs#page4.tif |                                                            |

OP \$40.00 13621511

DITTHAVONG MORI & STEINER, P.C.

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+1-703-519-9951  
+1-703-519-9958 FACSIMILE

Attorney Docket No.: P6383US00

*Patent*

**COMBINED DECLARATION AND ASSIGNMENT**  
**FOR PATENT APPLICATION**

Title of Invention: METHOD AND APPARATUS FOR PROVIDING DYNAMIC  
STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

As the below named inventor, I hereby declare that this declaration is directed to:

- ☐ The attached application, or  
☒ United States application or PCT international application filed on September 17,  
2012 and assigned Serial No. 13/621,511

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention  
in the application.

I hereby state that I have reviewed and understand the contents of the above-identified  
specification, including the claim(s), as amended by any amendment made on \_\_\_\_ (if applicable).

I acknowledge the duty to disclose all information known to me to be material to patentability as  
defined in Title 37, Code of Federal Regulations, Section 1.56.

In consideration of good and valuable consideration, the receipt of which is hereby  
acknowledged, I the undersigned hereby sell, assign, and transfer to Nokia Corporation, a  
corporation of Keilalahdentie 4, Espoo, FIN-02150, Finland, having a principal place of business  
at Finland ("Assignee"), and its successors, assigns, and legal representatives, the entire right,  
title, and interest for the United States and all foreign countries, in and to any and all  
improvements that are disclosed in the above-identified application for the United States patent,  
which:

and in and to said application and all divisional, continuing, substitute, renewal, reissue,  
and all other patent applications that have been or shall be filed in the United States and all  
foreign countries on any of said improvements; and in and to all original and reissued patents that  
have been or shall be issued in the United States and all foreign countries on said improvements;  
and in and to all rights of priority resulting from the filing of said United States application;

agree that said Assignee may apply for and receive a patent or patents for said  
improvements in its own name; and that, when requested, without charge to, but at the expense  
of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the  
intent and purpose of this Assignment, the undersigned will execute all divisional, continuing,  
substitute, renewal, reissue, and all other patent applications on any and all said improvements;  
execute all assignments and powers of attorney; communicate to said Assignee, its successors,

DITTHAVONG MORI & STEINER, P.C.

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Attorney Docket No.: P6383US00

*Patent*

assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Full Name of First or Sole Inventor (Given name, FAMILY NAME):

Sergey BOLDYREV

Inventor's Signature



Date

Oct 25 2012

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.

Use an additional form for each inventor.

DITTHAVONG MORI & STEINER, P.C.

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ALEXANDRIA, VIRGINIA 22314 USA  
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+1-703-519-9958 FACSIMILE

Attorney Docket No.: P6383US00

*Patent*

**COMBINED DECLARATION AND ASSIGNMENT**  
**FOR PATENT APPLICATION**

Title of Invention: METHOD AND APPARATUS FOR PROVIDING DYNAMIC  
STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

As the below named inventor, I hereby declare that this declaration is directed to:

- ☐ The attached application, or  
☒ United States application or PCT international application filed on September 17,  
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The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention  
in the application.

I hereby state that I have reviewed and understand the contents of the above-identified  
specification, including the claim(s), as amended by any amendment made on \_\_\_\_ (if applicable).

I acknowledge the duty to disclose all information known to me to be material to patentability as  
defined in Title 37, Code of Federal Regulations, Section 1.56.

In consideration of good and valuable consideration, the receipt of which is hereby  
acknowledged, I the undersigned hereby sell, assign, and transfer to Nokia Corporation, a  
corporation of Keilalahdentie 4, Espoo, FIN-02150, Finland, having a principal place of business  
at Finland ("Assignee"), and its successors, assigns, and legal representatives, the entire right,  
title, and interest for the United States and all foreign countries, in and to any and all  
improvements that are disclosed in the above-identified application for the United States patent,  
which:

and in and to said application and all divisional, continuing, substitute, renewal, reissue,  
and all other patent applications that have been or shall be filed in the United States and all  
foreign countries on any of said improvements; and in and to all original and reissued patents that  
have been or shall be issued in the United States and all foreign countries on said improvements;  
and in and to all rights of priority resulting from the filing of said United States application:

agree that said Assignee may apply for and receive a patent or patents for said  
improvements in its own name; and that, when requested, without charge to, but at the expense  
of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the  
intent and purpose of this Assignment, the undersigned will execute all divisional, continuing,  
substitute, renewal, reissue, and all other patent applications on any and all said improvements;  
execute all assignments and powers of attorney; communicate to said Assignee, its successors,

1/2

DITTHAVONG MORI & STEINER, P.C.

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ALEXANDRIA, VIRGINIA 22314 USA  
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+1-703-519-9958 FACSIMILE

Attorney Docket No.: P6383US00

*Patent*

assigns, and representatives all facts known to the undersigned relating to said improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or representatives in securing and maintaining proper patent protection for said improvements and for vesting title to said improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, and legal representatives; and

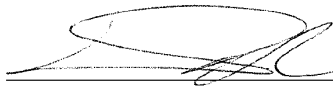
covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Full Name of First or Sole Inventor (Given name, FAMILY NAME):

Lauri Aarno Olavi TARKKALA

Inventor's Signature



Date

2022-10-26

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.  
Use an additional form for each inventor.

## POWER OF ATTORNEY BY APPLICANT

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

11764

**OR**

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

| Name Registration | Number |
|-------------------|--------|
|                   |        |
|                   |        |
|                   |        |
|                   |        |
|                   |        |
|                   |        |

| Name Registration | Number |
|-------------------|--------|
|                   |        |
|                   |        |
|                   |        |
|                   |        |
|                   |        |
|                   |        |

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-mentioned Customer Number.

**OR**

☐ The address associated with Customer Number:

**OR**

|                                                  |  |       |  |     |
|--------------------------------------------------|--|-------|--|-----|
| <input type="checkbox"/> Firm or Individual Name |  |       |  |     |
| Address                                          |  |       |  |     |
| City                                             |  | State |  | Zip |
| Country                                          |  |       |  |     |
| Telephone                                        |  | Email |  |     |

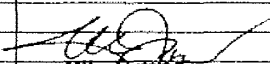
I am the Applicant:

☐ Inventor or Joint Inventor

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign

☐ Person Who Otherwise Shows Sufficient *Proprietary* Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

| SIGNATURE of Applicant for Patent |                                                                                     |           |                |
|-----------------------------------|-------------------------------------------------------------------------------------|-----------|----------------|
| Signature                         |  | Date      |                |
| Name                              | Harri Honkasalo                                                                     | Telephone |                |
| Title and Company                 | Director, Patenting<br>Legal and Intellectual Property                              |           | 26. 09. 2012   |
| Signature                         |  | Date      | Espoo, Finland |
| Name                              | Ulla James                                                                          | Telephone |                |
| Title and Company                 | Director, Finance & Strategic Marketing<br>Legal & Intellectual Property            |           |                |

**NOTE:** Signature - This form must be signed by the applicant or applicant's representative(s) in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82A (07-12)

Approved for use through 11/30/2014. OMB 0651-0035

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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**TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE  
REGISTERED PRACTITIONERS**

**NOTE:** This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

|                        |                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------|
| Application Number     | 13621511                                                                                       |
| Filing Date            | September 17, 2012                                                                             |
| First Named Inventor   | Sergey BOLDYREV                                                                                |
| Title                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| Art Unit               | 2447                                                                                           |
| Examiner Name          | Not yet assigned                                                                               |
| Attorney Docket Number | P6383US00                                                                                      |

**SIGNATURE of Applicant or Patent Practitioner**

|                     |                             |           |                  |
|---------------------|-----------------------------|-----------|------------------|
| Signature           | /Phouphanomketh Ditthavong/ | Date      | January 23, 2013 |
| Name                | Phouphanomketh Ditthavong   | Telephone | 7035199951       |
| Registration Number | 44658                       |           |                  |

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.

☐ \*Total of \_\_\_\_\_ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.*

**STATEMENT UNDER 37 CFR 3.73(c)**

Applicant/Patent Owner: Sergy BOLDYREV et al.

Application No./Patent No.: 13621511 Filed/Issue Date: September 17, 2012

Titled: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

Nokia Corporation, a Corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is \_\_\_\_%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 029552, Frame 0545, or for which a copy thereof is attached.

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at

Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at

Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). 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 1.11 and 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.*

**STATEMENT UNDER 37 CFR 3.73(c)**

3. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

4. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

5. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

6. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Phouphanomketh Ditthavong/

Signature

Phouphanomketh Ditthavong

Printed or Typed Name

January 23, 2013

Date

44658

Title or Registration Number

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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.

| Electronic Acknowledgement Receipt   |                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------|
| EFS ID:                              | 14772555                                                                                       |
| Application Number:                  | 13621511                                                                                       |
| International Application Number:    |                                                                                                |
| Confirmation Number:                 | 1067                                                                                           |
| Title of Invention:                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| First Named Inventor/Applicant Name: | Sergey BOLDYREV                                                                                |
| Customer Number:                     | 11764                                                                                          |
| Filer:                               | Phouphanomketh Ditthavong/Tiffany Butler                                                       |
| Filer Authorized By:                 | Phouphanomketh Ditthavong                                                                      |
| Attorney Docket Number:              | P6383US00                                                                                      |
| Receipt Date:                        | 23-JAN-2013                                                                                    |
| Filing Date:                         | 17-SEP-2012                                                                                    |
| Time Stamp:                          | 17:05:03                                                                                       |
| Application Type:                    | Utility under 35 USC 111(a)                                                                    |

### 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               | Power of Attorney    | NC78280US_P6383US00_POA_<br>filed01-23-13.pdf | 232307<br><small>d72307f15c2832e9fa21c5dd5fefeacdb928110e</small> | no               | 2                |

### Warnings:

### Information:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                |                                                |                                                        |        |   |
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| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Assignee showing of ownership per 37 CFR 3.73. | NC78280US_P6383US00_373C<br>_filed01-23-13.pdf | 118128<br><br>af4ed3057a2dd0403db394aee4fc04b5ce965d71 | no     | 3 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                                                |                                                        |        |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                                |                                                        |        |   |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                                                |                                                        | 350435 |   |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                                                |                                                |                                                        |        |   |



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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 13/621,511         | 09/17/2012            | Sergey BOLDYREV       | P6383US00              |

11764  
Ditthavong Mori & Steiner, P.C.  
44 Canal Center Plaza  
Suite 322  
Alexandria, VA 22314

**CONFIRMATION NO. 1067**  
**IMPROPER CPOA LETTER**



Date Mailed: 02/05/2013

**NOTICE REGARDING POWER OF ATTORNEY**

This is in response to the power of attorney filed 01/23/2013. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power of attorney has not been identified. power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A patent owner who was not the applicant must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/hsarwari/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

**To:** docket@dcpatent.com,ipadmin@dcpatent.com,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
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Feb 05, 2013 05:37:15 AM

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| 13/621,511         | 09/17/2012            | Sergey BOLDYREV       | P6383US00              |

**CONFIRMATION NO. 1067**

11764

Ditthavong Mori & Steiner, P.C.  
44 Canal Center Plaza  
Suite 322  
Alexandria, VA 22314

## PUBLICATION NOTICE



\*OC000000067268773\*

**Title:**METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

**Publication No.**US-2014-0082178-A1

**Publication Date:**03/20/2014

## NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publicly available Searchable Databases via the Internet at [www.uspto.gov](http://www.uspto.gov). The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at [www.uspto.gov](http://www.uspto.gov) using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/621,511      | 09/17/2012  | Sergey BOLDYREV      | P6383US00           | 1067             |

|                                                                                          |      |            |
|------------------------------------------------------------------------------------------|------|------------|
| 11764                                                                                    | 7590 | 06/25/2014 |
| Ditthavong & Steiner, P.C.<br>44 Canal Center Plaza<br>Suite 322<br>Alexandria, VA 22314 |      |            |

|                  |  |
|------------------|--|
| EXAMINER         |  |
| WASEL, MOHAMED A |  |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2454     |              |

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
| 06/25/2014        | 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.

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|                              |                                      |                                        |                                                  |
|------------------------------|--------------------------------------|----------------------------------------|--------------------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>13/621,511 | <b>Applicant(s)</b><br>BOLDYREV ET AL. |                                                  |
|                              | <b>Examiner</b><br>MOHAMED WASEL     | <b>Art Unit</b><br>2454                | <b>AIA (First Inventor to File) Status</b><br>No |

**-- 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 MONTHS 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 12/17/2012.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ 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\***

- 5) ☒ Claim(s) 1-20 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-20 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 9/17/2012 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).

**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).

**Certified copies:**

- 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)).

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

**Attachment(s)**

- |                                                                                                |                                                         |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                    | 3) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) | Paper No(s)/Mail Date. ____.                            |
| Paper No(s)/Mail Date ____.                                                                    | 4) <input type="checkbox"/> Other: ____.                |

Art Unit: 2454

The present application is being examined under the pre-AIA first to invent provisions.

#### **DETAILED ACTION**

This action is responsive to application filed on December 17, 2012. Claims 21-48 have been canceled.

Claims 1-20 are pending and presented for examination.

#### **Abstract**

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

#### **Claim Objections**

Claims 2-10 are objected to because of the following informalities: It is recommended to amend the preamble of the aforementioned claims from "**A** method of claim..." to read "**The** method of claim...".

Appropriate corrections are required where applicable.

Claims 12-20 are objected to because of the following informalities: It is recommended to amend the preamble of the aforementioned claims from "**An** apparatus of claim..." to read "**The** apparatus of claim...". Appropriate corrections are required where applicable.

#### **Claim Rejections - 35 USC § 112**

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

Art Unit: 2454

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:  
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.

Claims 1-10 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 1 recites "A method comprising facilitating a processing of and/or processing (1) data and/or ..." on the preamble of the claim which renders the claims indefinite because it is unclear what the claim is directed to. Appropriate corrections and clarifications are required.

Claims 2-10 are rejected under the same rationale as claim 1 due to their dependency.

#### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-20 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Siripurapu ("Siripurapu"), US Patent Application Pub. No. 2014/0059185.

1. As per claim 1, Siripurapu teaches a method comprising facilitating a processing of and/or processing (1) data and/or (2) information and/or (3) at least one signal, the (1) data and/or (2) information and/or (3) at least one signal based **(Paragraph(s) [0003], [0059])**, at least in part, on the following:

at least one determination of at least one processing element of at least one dynamic processing mechanism **(Paragraph(s) [0347])**; and

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a marshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by at least one static processing mechanism **(Paragraph(s) [0471], [0473])**.

2. As per claim 2, Siripurapu teaches the method, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering events **(Paragraph(s) [0401])**; and

a transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events, wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level **(Paragraph(s) [0471], [0490], [0544])**.

3. As per claim 3, Siripurapu teaches the method, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

an unmarshalling of the at least one processing element as at least one data object, wherein the at least one data object is processable by the at least one static processing mechanism **(Paragraph(s) [0471])**.

4. As per claim 4, Siripurapu teaches the method, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of the at least one data object via the at least one static processing mechanism to cause, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof **(Paragraph(s) [0461], [0532])**.

5. As per claim 5, Siripurapu teaches the method, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

at least one determination of one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element, wherein at least one data

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object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof **(Paragraph(s) [0283], [0302], [0319])**.

6. As per claim 6, Siripurapu teaches the method, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof **(Paragraph(s) [0323])**.

7. As per claim 7, Siripurapu teaches the method, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

a processing of the at least one data object to cause, at least in part, an updating of one or more components of the at least one static processing mechanism **(Paragraph(s) [0348])**.

8. As per claim 8, Siripurapu teaches the method, wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following:

an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism and at least one determination of one or more outputs of at least one processing job based, at least in part, on the aggregation **(Paragraph(s) [0307], [0362])**.

9. As per claim 9, Siripurapu teaches the method, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency **(Paragraph(s) [0241], [0302])**.

10. As per claim 10, Siripurapu teaches the method, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics **(Paragraph(s) [0362])**.

11. Claims 11-20 are rejected under the same rationale as claims 1-10.

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### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please refer to form PTO-892 (Notice of Reference Cited) for a list of relevant prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohamed Wasel whose telephone number is (571) 272-2669. The examiner can normally be reached on Mon-Thurs (7:00 am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Avellino can be reached on (571) 272-3905. 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.

/Mohamed Wasel/  
Primary Examiner, Art Unit 2454  
June 16, 2014

|                                   |                                       |                                                               |             |
|-----------------------------------|---------------------------------------|---------------------------------------------------------------|-------------|
| <b>Notice of References Cited</b> | Application/Control No.<br>13/621,511 | Applicant(s)/Patent Under<br>Reexamination<br>BOLDYREV ET AL. |             |
|                                   | Examiner<br>MOHAMED WASEL             | Art Unit<br>2454                                              | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name                    | Classification |
|---|---|--------------------------------------------------|-----------------|-------------------------|----------------|
| * | A | US-2007/0282775 A1                               | 12-2007         | Tingling, Peter Maxwell | 706/045        |
| * | B | US-7,693,808 B2                                  | 04-2010         | Tingling, Peter Maxwell | 706/45         |
| * | C | US-2013/0073400 A1                               | 03-2013         | Heath, Stephan          | 705/14.73      |
| * | D | US-2013/0073473 A1                               | 03-2013         | Heath, Stephan          | 705/319        |
| * | E | US-2014/0059185 A1                               | 02-2014         | Siripurapu et al.       | 709/219        |
|   | F | US-                                              |                 |                         |                |
|   | G | US-                                              |                 |                         |                |
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|   | M | US-                                              |                 |                         |                |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>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.



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## BIB DATA SHEET

CONFIRMATION NO. 1067

|                                                                                                                                                                                                                                                                                     |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                             |                               |                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------|------------------------------------|
| <b>SERIAL NUMBER</b><br>13/621,511                                                                                                                                                                                                                                                  | <b>FILING or 371(c)<br/>DATE</b><br>09/17/2012<br><b>RULE</b>                                                     | <b>CLASS</b><br>709                                      | <b>GROUP ART UNIT</b><br>2454                                                                                                                                                                                                                                             | <b>ATTORNEY DOCKET<br/>NO.</b><br>P6383US00 |                               |                                    |
| <b>APPLICANTS</b><br><b>INVENTORS</b><br>Sergey BOLDYREV, Soderkulla, FINLAND;<br>Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;<br><b>** CONTINUING DATA *****</b><br><b>** FOREIGN APPLICATIONS *****</b><br><b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **</b><br>10/15/2012 |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                             |                               |                                    |
| Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Verified and /MOHAMED A<br>WASEL/<br>Acknowledged Examiner's Signature        |                                                                                                                   | <input type="checkbox"/> Met after Allowance<br>Initials | <b>STATE OR<br/>COUNTRY</b><br>FINLAND                                                                                                                                                                                                                                    | <b>SHEETS<br/>DRAWINGS</b><br>11            | <b>TOTAL<br/>CLAIMS</b><br>20 | <b>INDEPENDENT<br/>CLAIMS</b><br>2 |
| <b>ADDRESS</b><br>Ditthavong & Steiner, P.C.<br>44 Canal Center Plaza<br>Suite 322<br>Alexandria, VA 22314<br>UNITED STATES                                                                                                                                                         |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                             |                               |                                    |
| <b>TITLE</b><br>METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON<br>STATIC ANALYTICS                                                                                                                                                                   |                                                                                                                   |                                                          |                                                                                                                                                                                                                                                                           |                                             |                               |                                    |
| <b>FILING FEE<br/>RECEIVED</b><br>1390                                                                                                                                                                                                                                              | FEES: Authority has been given in Paper<br>No. _____ to charge/credit DEPOSIT ACCOUNT<br>No. _____ for following: |                                                          | <input type="checkbox"/> All Fees<br><input type="checkbox"/> 1.16 Fees (Filing)<br><input type="checkbox"/> 1.17 Fees (Processing Ext. of time)<br><input type="checkbox"/> 1.18 Fees (Issue)<br><input type="checkbox"/> Other _____<br><input type="checkbox"/> Credit |                                             |                               |                                    |

## EAST Search History

## EAST Search History (Prior Art)

| Ref # | Hits  | Search Query                                                                                                                     | DBs                             | Default Operator | Plurals | Time Stamp          |
|-------|-------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|---------|---------------------|
| L1    | 1     | 13/621511                                                                                                                        | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:00 |
| L2    | 4423  | ( (H04L29/08 OR H04L67/10).CPC. )                                                                                                | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:00 |
| L5    | 36258 | 709/223,224.ccls.                                                                                                                | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:17 |
| L6    | 523   | (facilitat\$3 with process\$3 with dynamic with data)                                                                            | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:18 |
| L7    | 18    | 5 and 6                                                                                                                          | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:18 |
| L8    | 7     | 6 with analytic                                                                                                                  | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:19 |
| L9    | 110   | ((Sergey) near2 (BOLDYREV)).INV.                                                                                                 | US-PGPUB;<br>USPAT              | ADJ              | ON      | 2014/06/16<br>10:19 |
| L10   | 7     | 8 not L9                                                                                                                         | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:19 |
| L11   | 16    | 7 and @ad<"20120917"                                                                                                             | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:19 |
| L12   | 7     | 8 and @ad<"20120917"                                                                                                             | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:19 |
| L13   | 3386  | (facilitat\$3 or manag\$5 or provid\$3) near6 process\$3 near6 (dynamic or real\$time) near4 (data or information)               | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:25 |
| L14   | 76    | 13 near6 static                                                                                                                  | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:26 |
| L15   | 2     | 14 near5 analy\$4                                                                                                                | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:26 |
| L16   | 3483  | (facilitat\$3 or manag\$5 or provid\$3) near6 process\$3 near6 (dynamic or real\$time or serializ\$) near4 (data or information) | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:27 |
| L17   | 1     | 16 with marshall\$3                                                                                                              | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ              | ON      | 2014/06/16<br>10:28 |
| L18   | 59    | 16 and marshall\$3                                                                                                               | US-PGPUB;<br>USPAT;             | ADJ              | ON      | 2014/06/16<br>10:28 |

## EAST Search History

|     |     |                                  |                                 |     |    |                      |
|-----|-----|----------------------------------|---------------------------------|-----|----|----------------------|
|     |     |                                  | EPO; JPO                        |     |    |                      |
| L19 | 11  | 16 and 2                         | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/06/16:<br>11:15 |
| S2  | 110 | ((Sergey) near2 (BOLDYREV)).INV. | US-PGPUB;<br>USPAT              | ADJ | ON | 2014/06/12:<br>12:14 |

**6/ 16/ 2014 11:21:36 AM****C:\ Users\ mwasel.USPTO\ Documents\ EAST\ Workspaces\ 13621511.wsp**

|                                                                                                              |                                                |                                                                       |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------|
| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>BOLDYREV ET AL. |
|                                                                                                              | <b>Examiner</b><br><br>MOHAMED WASEL           | <b>Art Unit</b><br><br>2454                                           |

| CPC- SEARCHED |           |          |
|---------------|-----------|----------|
| Symbol        | Date      | Examiner |
| H04L 29/08    | 6/16/2014 | MW       |
| H04L 67/10    | 6/16/2014 | MW       |

| CPC COMBINATION SETS - SEARCHED |      |          |
|---------------------------------|------|----------|
| Symbol                          | Date | Examiner |
|                                 |      |          |

| US CLASSIFICATION SEARCHED |             |           |          |
|----------------------------|-------------|-----------|----------|
| Class                      | Subclass    | Date      | Examiner |
| 709                        | 223 AND 224 | 6/16/2014 | MW       |

| SEARCH NOTES                                           |           |          |
|--------------------------------------------------------|-----------|----------|
| Search Notes                                           | Date      | Examiner |
| US-PGPUB, USPAT, EPO & JPO (EAST) - SEE SEARCH HISTORY | 6/16/2014 | MW       |

| INTERFERENCE SEARCH     |                         |           |          |
|-------------------------|-------------------------|-----------|----------|
| US Class/<br>CPC Symbol | US Subclass / CPC Group | Date      | Examiner |
| 709                     | 223                     | 6/16/2014 | MW       |

|  |                                          |
|--|------------------------------------------|
|  | /M.W./<br>Primary Examiner.Art Unit 2454 |
|--|------------------------------------------|

|                                                                                                                        |                                                |                                                                       |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------|
| <b><i>Index of Claims</i></b><br><br> | <b>Application/Control No.</b><br><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>BOLDYREV ET AL. |
|                                                                                                                        | <b>Examiner</b><br><br>MOHAMED WASEL           | <b>Art Unit</b><br><br>2454                                           |

|   |                 |   |                   |   |                     |   |                 |
|---|-----------------|---|-------------------|---|---------------------|---|-----------------|
| ✓ | <b>Rejected</b> | - | <b>Cancelled</b>  | N | <b>Non-Elected</b>  | A | <b>Appeal</b>   |
| = | <b>Allowed</b>  | ÷ | <b>Restricted</b> | I | <b>Interference</b> | O | <b>Objected</b> |

| <input type="checkbox"/> Claims renumbered in the same order as presented by applicant |          |            | <input type="checkbox"/> CPA |  |  | <input type="checkbox"/> T.D. |  |  | <input type="checkbox"/> R.1.47 |  |  |
|----------------------------------------------------------------------------------------|----------|------------|------------------------------|--|--|-------------------------------|--|--|---------------------------------|--|--|
| CLAIM                                                                                  |          | DATE       |                              |  |  |                               |  |  |                                 |  |  |
| Final                                                                                  | Original | 06/16/2014 |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 1        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 2        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 3        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 4        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 5        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 6        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 7        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 8        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 9        | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 10       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 11       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 12       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 13       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 14       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 15       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 16       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 17       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 18       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 19       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 20       | ✓          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 21       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 22       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 23       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 24       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 25       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 26       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 27       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 28       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 29       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 30       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 31       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 32       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 33       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 34       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 35       | -          |                              |  |  |                               |  |  |                                 |  |  |
|                                                                                        | 36       | -          |                              |  |  |                               |  |  |                                 |  |  |

|                                                                                                                    |                                            |                                                                   |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
| <b><i>Index of Claims</i></b><br> | <b>Application/Control No.</b><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br>BOLDYREV ET AL. |
|                                                                                                                    | <b>Examiner</b><br>MOHAMED WASEL           | <b>Art Unit</b><br>2454                                           |

|   |                 |   |                   |   |                     |   |                 |
|---|-----------------|---|-------------------|---|---------------------|---|-----------------|
| ✓ | <b>Rejected</b> | - | <b>Cancelled</b>  | N | <b>Non-Elected</b>  | A | <b>Appeal</b>   |
| = | <b>Allowed</b>  | ÷ | <b>Restricted</b> | I | <b>Interference</b> | O | <b>Objected</b> |

| <input type="checkbox"/> Claims renumbered in the same order as presented by applicant |          |            |      |  |  |  |  |  |  |  | <input type="checkbox"/> CPA |  |  |  |  |  |  |  |  |  |  | <input type="checkbox"/> T.D. |  |  |  |  |  |  |  |  |  |  | <input type="checkbox"/> R.1.47 |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------------------------------------------------|----------|------------|------|--|--|--|--|--|--|--|------------------------------|--|--|--|--|--|--|--|--|--|--|-------------------------------|--|--|--|--|--|--|--|--|--|--|---------------------------------|--|--|--|--|--|--|--|--|--|--|
| CLAIM                                                                                  |          |            | DATE |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
| Final                                                                                  | Original | 06/16/2014 |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 37       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 38       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 39       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 40       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 41       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 42       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 43       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 44       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 45       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 46       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 47       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |
|                                                                                        | 48       | -          |      |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |  |                               |  |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |  |

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**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
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Jun 25, 2014 05:30:21 AM

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44 Canal Center Plaza  
Suite 322  
Alexandria, VA 22314  
UNITED STATES

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| Application | Document | Mailroom Date | Attorney Docket No. |
|-------------|----------|---------------|---------------------|
| 13621511    | CTNF     | 06/25/2014    | P6383US00           |
|             | 892      | 06/25/2014    | P6383US00           |

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|                       |                               |                   |            |
|-----------------------|-------------------------------|-------------------|------------|
| In re Application of: | Sergey BOLDYREV <i>et al.</i> | Confirmation No.: | 1067       |
| Application No.:      | 13/621,511                    | Examiner:         | M. A.WASEL |
| Filed:                | September 17, 2012            | Group Art Unit:   | 2454       |

For: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM  
PROCESSING OF DATA BASED ON STATIC ANALYTICS

Commissioner for Patents  
Alexandria, VA 22313-1450

**RESPONSE UNDER 37 C.F.R. § 1.111**

Dear Commissioner:

In response to the Office Action dated June 25, 2014, please amend this application as follows.

|                                            |   |
|--------------------------------------------|---|
| AMENDMENT AND PRESENTATION OF CLAIMS ..... | 2 |
| REMARKS .....                              | 9 |

**AMENDMENT AND PRESENTATION OF CLAIMS**

Please replace all prior claims in the present application with the following claims.

1. (Currently Amended) A method comprising: ~~facilitating a processing of and/or processing (1) data and/or (2) information and/or (3) at least one signal, the (1) data and/or (2) information and/or (3) at least one signal based, at least in part, on the following:~~

~~at least one determination of at least one processing element of at least one dynamic processing mechanism; and~~

~~a marshalling of the at least one processing element as at least one data object,~~

~~wherein the at least one data object is processable by at least one static processing mechanism~~  
determining via a processor at least one processing element of at least one dynamic processing mechanism;

causing, at least in part, a marshalling via the processor of the at least one processing element as at least one data object;

transferring of the at least one data object to at least one static processing mechanism;

processing of the at least one data object by the at least one static processing mechanism; and

after processing, transferring the at least one data object back to the at least one dynamic processing mechanism.

2. (Currently Amended) ~~A method~~ The method of claim 1, ~~wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following further comprising:~~

a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering ~~events; and~~ events.

~~a transfer~~ wherein, the transferring of the at least one data object to the at least one static processing mechanism is based, at least in part, on the one or more triggering events, and wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

3. (Currently Amended) ~~A method~~ The method of claim 2, ~~wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following~~ further comprising:

~~an unmarshalling~~ unmarshalling of the at least one processing element as the at least one data object;  
~~wherein the at least one data object is processable by the at least one static processing mechanism.~~

4. (Currently Amended) ~~A method~~ The method of claim 2, wherein ~~the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following: a~~ processing the processing of the at least one data object via the at least one static processing mechanism ~~to cause~~ causes, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

5. (Currently Amended) ~~A method~~ The method of claim 4, ~~wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following~~ further comprising:

at least one ~~determination~~ determining of one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element,

wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

6. (Currently Amended) ~~A method~~ The method of claim 5, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

7. (Currently Amended) ~~A method~~ The method of claim 1, wherein ~~the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following: a processing~~ the processing of the at least one data object ~~to cause~~ causes, at least in part, ~~an updating~~ updating of one or more components of the at least one static processing mechanism.

8. (Currently Amended) ~~A method~~ The method of claim 1, ~~wherein the (1) data and/or (2) information and/or (3) at least one signal are further based, at least in part, on the following~~ further comprising:

~~an aggregation~~ aggregating of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and

at least one determination of one or more outputs of at least one processing job based, at least in part, on the ~~aggregation~~ aggregating.

9. (Currently Amended) ~~A method~~ The method of claim 1, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

10. (Currently Amended) ~~A method~~ The method of claim 1, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

11. (Currently Amended) An apparatus comprising:

at least one processor; and

at least one memory including computer program code for one or more programs,

the at least one memory and the computer program code configured to, with the at least one processor, cause the apparatus to perform at least the following,

~~determine at least one processing element of at least one dynamic processing mechanism; and~~  
~~cause, at least in part, a marshalling of the at least one processing element as at least one data~~  
~~object,~~

~~wherein the at least one data object is processable by at least one static processing mechanism~~

determine at least one processing element of at least one dynamic processing mechanism;  
cause a marshalling via the processor of the at least one processing element as at least one  
data object;  
transfer of the at least one data object to at least one static processing mechanism;  
process the at least one data object by the at least one static processing mechanism; and  
after the process, transfer the at least one data object back to the at least one dynamic  
processing mechanism.

12. (Currently Amended) ~~An apparatus~~ The apparatus of claim 11, wherein the apparatus is further caused to:

process and/or facilitate a processing of at least substantially real-time data via the at least one processing element to determine one or more triggering ~~events; and events,~~  
~~cause, at least in part, a~~ wherein the transfer of the at least one data object to the at least one static processing mechanism based, at least in part, on the one or more triggering events,  
and  
wherein the one or more triggering events include, at least in part, one or more contextual trends occurring above at least one threshold level.

13. (Currently Amended) ~~An apparatus~~ The apparatus of claim 12, wherein the apparatus is further caused to:

cause, at least in part, an unmarshalling of the at least one processing element as at least one data object;  
~~wherein the at least one data object is processable by the at least one static processing~~  
~~mechanism.~~

14. (Currently Amended) ~~An apparatus~~ The apparatus of claim 12, wherein ~~the apparatus is further caused to:~~ the process and/or facilitate a processing of the at least one data object via the at least one static processing mechanism ~~to cause~~ causes, at least in part, an updating of the at least one data object based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

15. (Currently Amended) ~~An apparatus~~ The apparatus of claim 14, wherein the apparatus is further caused to:

determine one or more computational chains, one or more parameters of the one or more computational chains, one or more data elements of the one or more computational chains, or a combination thereof associated with the at least one processing element, wherein at least one data object includes, at least in part, the one or more computational chains, the one or more parameters, the one or more data elements, or a combination thereof.

16. (Currently Amended) ~~An apparatus~~ The apparatus of claim 15, wherein the updating of the at least one data object comprises, at least in part, causing a shaping of the one or more computational chains based, at least in part, on the one or more triggering events, the one or more contextual trends, or a combination thereof.

17. (Currently Amended) ~~An apparatus~~ The apparatus of claim 11, wherein the ~~apparatus is further caused to:~~ process and/or facilitate a processing of the at least one data object ~~to cause~~ causes, at least in part, an updating of one or more components of the at least one static processing mechanism.

18. (Currently Amended) ~~An apparatus~~ The apparatus of claim 11, wherein the apparatus is further caused to:

cause, at least in part, an aggregation of one or more outputs of the at least one dynamic processing mechanism and the one or more other outputs of the at least one static processing mechanism; and

determining one or more outputs of at least one processing job based, at least in part, on the aggregation.

19. (Currently Amended) ~~An apparatus~~ The apparatus of claim 11, wherein the at least one static processing mechanism operates, at least in part, in a batch mode with a predetermined batch frequency; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof operate, at least in part, in substantially real-time or at a frequency greater than the predetermined batch frequency.

20. (Currently Amended) ~~An apparatus~~ The apparatus of claim 11, wherein the at least one static processing mechanism is associated with performing, at least in part, slow moving data analytics; and wherein the at least one dynamic processing mechanism, the at least one processing element, or a combination thereof are associated with performing, at least in part, fast moving data analytics.

21 – 48. (Canceled)

**REMARKS**

By this amendment, claims 1-20 are pending, in which claims 1-20 are currently amended.

**Claim Objections**

Claims 2-10 and 12-20 stand objected to for having minor informalities. In particular, the Office Action recommends that these dependent claims begin with “The”.

By this Response, pending claims 2-10 and 12-20 are amended to begin with “The” as recommended. Therefore, reconsideration and withdrawal of the objection to claims 2-10 and 12-20 as amended, are respectfully solicited.

**Rejection of Claims Under 35 U.S.C. §112, Second Paragraph**

Claims 1-10 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Office Action alleges that it is unclear what independent claim 1 is directed to in view of the preamble.

By this Response, independent claim 1 is amended, in response to the Examiner's objection, positively recite the steps of the method. Claims 2-10 are amended for consistency with amended independent claim 1. Claims 1-10, as amended, recite the invention with the degree of precision and particularity required by the statute. Therefore, reconsideration and withdrawal of the rejection of claims 1-10, as amended, under 35 U.S.C. §112, second paragraph, are respectfully solicited.

**Rejection Under 35 U.S.C. §102**

Claims 1-20 stand rejected under 35 U.S.C. §102(e) as being anticipated by Siripurapu et al. (US 2014/0059185).

To anticipate a patent claim, the identical disclosure in a single reference of each element of a claimed invention, as those elements are set forth in the claims, is necessary such that the claimed invention is placed into the recognized possession of one having ordinary skill in the art. *Therasense Inc. v. Becton, Dickinson and Co.*, 593 F.3d 1325 (Fed. Cir. 2010); *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1308, (Fed. Cir. 2008); *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358 (Fed. Cir. 2003); *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003), *Crown Operations International Ltd. v. Solutia Inc.*, 289 F.3d 1367 (Fed. Cir. 2002); *Candt Tech Ltd. v. Resco Metal & Plastics Corp.*, 264 F.3d 1344 (Fed. Cir. 2001).

Additionally, “[u]nless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations **arranged or combined in the same way** as recited in the claim, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102” (*see, Id. Therasense* quoting *Net moneyIN, Inc. v. VeriSign, Inc.*, 535 F.3d 1359 (Fed. Cir. 2008)) (emphasis added).

Although “inherent disclosure” is also a basis of anticipation, (*see, Finnigan Corp. v. Int’l Trade Comm’n*, 180 F.3d 1354, 1365 (Fed. Cir. 1999)), it “does not alter the requirement that all elements must be disclosed in an anticipatory reference in the same way they are arranged or combined in the claim” (*see, Id. Therasense*). “[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must necessarily include the unstated limitation.” (*see, Id. quoting Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002)). “Inherency, however, **may not be established by probabilities or**

**possibilities.** The mere fact that a certain thing may result from a given set of circumstances is not sufficient” (*see, Id.* quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)) (emphasis added).

The rejection is respectfully traversed because the Examiner has not explained on this record how Siripurapu et al. discloses each and every feature of each of the claims. In this regard, 37 CFR 1.104(c)(2) *Rejection of Claims* indicates:

In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, ***the particular part relied on must be designated*** as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified. (Emphasis added)

It is respectfully submitted that the requirements of 37 CFR 1.104(c)(2) have not been met because each “particular part relied on” of Siripurapu et al. has been designated by merely referring generally to certain paragraphs, but the pertinence of each of these paragraphs to the respective limitation it is applied has not been clearly explained. Therefore, the basis of the rejection has not been properly communicated. Accordingly, it is respectfully requested that the Examiner, in an office action, not only specifically identify the particular parts/portions of Siripurapu et al. relied on, but also explain how the parts/portions (i.e., specific phrases) are being read onto claim language to make the record clear as to what aspects of Siripurapu et al. are being interpreted as the claimed limitations. This information provides Applicants with a fair opportunity to respond.

While the Examiner might believe that it is clear or apparent how each of the identified paragraphs of Siripurapu et al. is being read on the claimed limitations, the disclosure discusses many concepts. The mere reference to the certain paragraphs is not considered to be sufficient

for clarifying the record as to how the Examiner is interpreting Siripurapu et al. in light of the claim language so that a proper response can be formulated in light of such interpretation.

Because the Examiner has not provided detailed explanation of how Siripurapu et al. is being interpreted with respect to each of the recited limitation, as required by 37 CFR 1.104(c)(2), the Examiner has not factually established that Siripurapu et al. discloses every feature recited in each of the claims.

At any rate, while not conceding the appropriateness of the rejection, but merely to advance prosecution of the instant application and reduce issues for possible appeal, claims 2, 4, 12, and 14 are canceled, and independent claim 1 is amended to delineate, *inter alia*:

...  
determining via a processor at least one processing element of at least one dynamic processing mechanism;  
causing, at least in part, a marshalling via the processor of the at least one processing element as at least one data object;  
transferring of the at least one data object to at least one static processing mechanism;  
processing of the at least one data object by the at least one static processing mechanism; and  
after processing, transferring the at least one data object back to the at least one dynamic processing mechanism.

Independent claim 11 is amended to delineate similar subject matter in varying scope. This subject matter is supported by, for example, paragraph [0056] of Applicants' published application (US 2014/0082178).

The features recited in independent claims 1 and 11, as amended, are not disclosed in Siripurapu et al. For example, Fig. 36, to which paragraphs [0461], [0471], and [0473] refer (see to page 4 of the Office Action) show disk storage 3626 outputting to either the external application 3628 or external application 3528 (via the worker nodes and intermediate data streams 3622), but not to the external application 3602 that corresponds to the at least one

dynamic processing mechanism. Therefore, Siripurapu et al. cannot disclose at least “*after processing, transferring the at least one data object back to the at least one dynamic processing mechanism*” of which the at least one processing element has been determined. Therefore, independent claims 1 and 11, as amended, are patentable over Siripurapu et al.

Because claims 2-10 and 12-20, as amended, variously depend from amended independent claims 1 or 11, they are patentable over Siripurapu et al. for at least the reason(s) discussed above, as well as for the additional features they recite. Therefore, reconsideration of the rejection and allowance of claims 1-20, as amended, are respectfully solicited.

### **Conclusion**

As Applicants’ remarks with respect to the Examiner’s rejections are sufficient to overcome these rejections, Applicants’ silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, ability to combine references, assertions as to patentability of dependent claims) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserves the right to analyze and dispute such in the future.

Therefore, the present application, as amended, overcomes the objections and rejections of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 519-9951 so that such issues may be resolved as expeditiously as possible.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 504213 and please credit any excess fees to such deposit account.

Respectfully Submitted,

DITTHAVONG & STEINER, P.C.

September 24, 2014  
Date

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| Electronic Acknowledgement Receipt          |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 20229782                                                                                       |
| <b>Application Number:</b>                  | 13621511                                                                                       |
| <b>International Application Number:</b>    |                                                                                                |
| <b>Confirmation Number:</b>                 | 1067                                                                                           |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| <b>First Named Inventor/Applicant Name:</b> | Sergey BOLDYREV                                                                                |
| <b>Customer Number:</b>                     | 11764                                                                                          |
| <b>Filer:</b>                               | Phouphanomketh Ditthavong/Michelle Simmons                                                     |
| <b>Filer Authorized By:</b>                 | Phouphanomketh Ditthavong                                                                      |
| <b>Attorney Docket Number:</b>              | P6383US00                                                                                      |
| <b>Receipt Date:</b>                        | 24-SEP-2014                                                                                    |
| <b>Filing Date:</b>                         | 17-SEP-2012                                                                                    |
| <b>Time Stamp:</b>                          | 17:24:49                                                                                       |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                    |

**Payment information:**

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**File Listing:**

| Document Number | Document Description | File Name                                        | File Size(Bytes)/ Message Digest                   | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|--------------------------------------------------|----------------------------------------------------|------------------|------------------|
| 1               |                      | NC78280US_P6383US00_Response_filed2014-09-24.pdf | 182959<br>8a8758c3fc8ed5c0a9b2c3cd74b64c4632327140 | 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):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                       | 182959 |     |
| <p>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.</p>                                                                                                                                                                                                                                                                                                                                    |                                                       |        |     |
| <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>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.</p>                                                                                                                                                                                                                                  |                                                       |        |     |
| <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>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.</p>                                                                                                                                                                |                                                       |        |     |
| <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>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.</p> |                                                       |        |     |

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| PATENT APPLICATION FEE DETERMINATION RECORD                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                  |       |                                    | Application or Docket Number |                 | Filing Date |                     | <input type="checkbox"/> To be Mailed |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------|------------------------------------|------------------------------|-----------------|-------------|---------------------|---------------------------------------|--|
| Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                  |       |                                    | 13/621,511                   |                 | 09/17/2012  |                     |                                       |  |
| ENTITY: <input checked="" type="checkbox"/> LARGE <input type="checkbox"/> SMALL <input type="checkbox"/> MICRO                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                               |                                  |       |                                    |                              |                 |             |                     |                                       |  |
| APPLICATION AS FILED – PART I                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                               |                                  |       |                                    |                              |                 |             |                     |                                       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                               | (Column 2)                       |       |                                    |                              |                 |             |                     |                                       |  |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                               | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     |       |                                    |                              | RATE (\$)       | FEE (\$)    |                     |                                       |  |
| <input type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                               | N/A                                                                                                                                                                                                                           | N/A                              |       |                                    |                              | N/A             |             |                     |                                       |  |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m))                                                                                                                                                                                                                                                                                                                                              | N/A                                                                                                                                                                                                                           | N/A                              |       |                                    |                              | N/A             |             |                     |                                       |  |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                         | N/A                                                                                                                                                                                                                           | N/A                              |       |                                    |                              | N/A             |             |                     |                                       |  |
| TOTAL CLAIMS<br>(37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                                                  | minus 20 =                                                                                                                                                                                                                    | *                                |       |                                    |                              | X \$            | =           |                     |                                       |  |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                            | minus 3 =                                                                                                                                                                                                                     | *                                |       |                                    |                              | X \$            | =           |                     |                                       |  |
| <input type="checkbox"/> APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                 | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 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). |                                  |       |                                    |                              |                 |             |                     |                                       |  |
| <input type="checkbox"/> 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           |             |                     |                                       |  |
| APPLICATION AS AMENDED – PART II                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |                                  |       |                                    |                              |                 |             |                     |                                       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                               | (Column 2)                       |       | (Column 3)                         |                              |                 |             |                     |                                       |  |
| AMENDMENT                                                                                                                                                                                                                                                                                                                                                                                                         | 09/24/2014                                                                                                                                                                                                                    | CLAIMS REMAINING AFTER AMENDMENT |       | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA                | RATE (\$)       |             | ADDITIONAL FEE (\$) |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Total (37 CFR 1.16(i))                                                                                                                                                                                                        | * 20                             | Minus | ** 20                              | = 0                          | X \$80 =        |             | 0                   |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | * 2                              | Minus | ***3                               | = 0                          | X \$420 =       |             | 0                   |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |       |                                    |                              |                 |             |                     |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |       |                                    |                              |                 |             |                     |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                               |                                  |       |                                    |                              | TOTAL ADD'L FEE |             | 0                   |                                       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                               | (Column 2)                       |       | (Column 3)                         |                              |                 |             |                     |                                       |  |
| AMENDMENT                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |       | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA                | RATE (\$)       |             | ADDITIONAL FEE (\$) |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Total (37 CFR 1.16(i))                                                                                                                                                                                                        | *                                | Minus | **                                 | =                            | X \$            |             | =                   |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | *                                | Minus | ***                                | =                            | X \$            |             | =                   |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |       |                                    |                              |                 |             |                     |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |       |                                    |                              |                 |             |                     |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                               |                                  |       |                                    |                              | TOTAL ADD'L FEE |             |                     |                                       |  |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. |                                                                                                                                                                                                                               |                                  |       |                                    |                              |                 |             |                     |                                       |  |

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.

## TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

|                        |                                                                                                |
|------------------------|------------------------------------------------------------------------------------------------|
| Application Number     | 13/621,511                                                                                     |
| Filing Date            | 09-17-2012                                                                                     |
| First Named Inventor   | Sergey BOLDYREV                                                                                |
| Title                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| Art Unit               | 2454                                                                                           |
| Examiner Name          | WASEL, MOHAMED A                                                                               |
| Attorney Docket Number | 042933/454443                                                                                  |

### SIGNATURE of Applicant or Patent Practitioner

|                                                    |                     |                     |            |
|----------------------------------------------------|---------------------|---------------------|------------|
| Signature                                          | /Guy R. Gosnell/    | Date (Optional)     | 11/14/2014 |
| Name                                               | Guy R. Gosnell      | Registration Number | 34,610     |
| Title (if Applicant is a juristic entity)          | Patent Practitioner |                     |            |
| Applicant Name (if Applicant is a juristic entity) | Nokia Corporation   |                     |            |

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

\*Total of \_\_\_\_\_ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.*

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82B(07-12)

Approved for use through 11/30/2014. OMB 0651-0035

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.

## POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

10949

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

| Name | Registration Number | Name | Registration Number |
|------|---------------------|------|---------------------|
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

|                                                  |       |     |  |
|--------------------------------------------------|-------|-----|--|
| <input type="checkbox"/> Firm or Individual Name |       |     |  |
| Address                                          |       |     |  |
| City                                             | State | Zip |  |
| Country                                          |       |     |  |
| Telephone                                        | Email |     |  |

I am the Applicant:

☐ Inventor or Joint Inventor

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

|                   |                                                                                        |           |                  |
|-------------------|----------------------------------------------------------------------------------------|-----------|------------------|
| Signature         | <i>Virpi Tognetty</i>                                                                  | Date      | 20 December 2012 |
| Name              | Virpi Tognetty                                                                         | Telephone |                  |
| Title and Company | NOKIA CORPORATION<br>Director, Patenting Operations<br>Legal and Intellectual Property |           |                  |

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.103. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below \*.

☐ \*Total of \_\_\_\_\_ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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.

*Jukka Nihtilä*  
Jukka Nihtilä  
Head, Business Development  
Legal & IP

20 December 2012

| Electronic Acknowledgement Receipt          |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 20706244                                                                                       |
| <b>Application Number:</b>                  | 13621511                                                                                       |
| <b>International Application Number:</b>    |                                                                                                |
| <b>Confirmation Number:</b>                 | 1067                                                                                           |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| <b>First Named Inventor/Applicant Name:</b> | Sergey BOLDYREV                                                                                |
| <b>Customer Number:</b>                     | 11764                                                                                          |
| <b>Filer:</b>                               | Guy Randall Gosnell/Kim Shaul                                                                  |
| <b>Filer Authorized By:</b>                 | Guy Randall Gosnell                                                                            |
| <b>Attorney Docket Number:</b>              | P6383US00                                                                                      |
| <b>Receipt Date:</b>                        | 14-NOV-2014                                                                                    |
| <b>Filing Date:</b>                         | 17-SEP-2012                                                                                    |
| <b>Time Stamp:</b>                          | 17:51:23                                                                                       |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                    |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description          | File Name         | File Size(Bytes)/<br>Message Digest                  | Multi Part /.zip | Pages (if appl.) |
|-----------------|-------------------------------|-------------------|------------------------------------------------------|------------------|------------------|
| 1               | Miscellaneous Incoming Letter | 454443Request.pdf | 7704<br>b7d66c1bd9e054fbf4beba36c8c4cc2b36a<br>b99ad | no               | 2                |

### Warnings:

### Information:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                |                     |                                                    |    |   |
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| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Application Data Sheet                         | 454443ADS.pdf       | 7407<br>f0f081a121514b8f26c204019d9cbe5ff0282928   | no | 2 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                     |                                                    |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                     |                                                    |    |   |
| This is not an USPTO supplied ADS fillable form                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                |                     |                                                    |    |   |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Assignee showing of ownership per 37 CFR 3.73. | 454443Statement.pdf | 73421<br>ce8be7d610510efeb2140f128ae8e370787042e2  | no | 3 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                     |                                                    |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                     |                                                    |    |   |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Power of Attorney                              | 454443POA.pdf       | 180789<br>4c7e3962f4cd41b343a86b475e3732c688281699 | no | 2 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                |                     |                                                    |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                     |                                                    |    |   |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                |                     | 269321                                             |    |   |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                                                |                     |                                                    |    |   |

Attorney's Docket No. 042933/454443

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

|              |                                                                                                         |                   |                  |
|--------------|---------------------------------------------------------------------------------------------------------|-------------------|------------------|
| In re:       | Sergey BOLDYREV                                                                                         | Confirmation No.: | 1067             |
| Appl. No.:   | 13/621,511                                                                                              | Group No.:        | 2454             |
| Filing Date: | 09-17-2012                                                                                              | Examiner:         | Mohamed A. Wasel |
| Title:       | METHOD AND APPARATUS FOR<br>PROVIDING DYNAMIC STREAM<br>PROCESSING OF DATA BASED<br>ON STATIC ANALYTICS |                   |                  |

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Request to Correct or Update Applicant Name Under 37 CFR § 1.46(c)**

This is a request to correct or update the original naming of Applicant(s) for the above-identified application.

- ☒ Please correct or update the name of the Applicant(s) to:  
  
Applicant No. 1: Nokia Corporation
- ☒ A Power of Attorney and 3.73(c) statement from each corrected or updated Applicant accompanies this Request.
- ☒ An Application Data Sheet with an updated Applicant Information Section accompanies this Request.

Applicant(s) respectfully requests that an updated Filing Receipt confirming these changes be issued.

Respectfully submitted,

/Guy R. Gosnell/

Guy R. Gosnell  
Registration No. 34,610

**CUSTOMER NO. 10949**  
**ALSTON & BIRD LLP**  
Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000

In re: Sergey BOLDYREV

Appl. No.: 13/621,511

Filing Date: 09-17-2012

Page 2

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Tel Charlotte Office (704) 444-1000

Fax Charlotte Office (704) 444-1111

## **Application Data Sheet**

### **Application Information**

Application number: 13/621,511  
Filing Date: September 17, 2012  
Title: METHOD AND APPARATUS FOR PROVIDING  
DYNAMIC STREAM PROCESSING OF DATA  
BASED ON STATIC ANALYTICS  
Attorney Docket Number: 042933/454443

### **Applicant Information**

Applicant 1 **Nokia Corporation**

Assignee: **Yes**

Legal Representative under 35 USC 117:

Joint Inventor:

Person to whom the inventor is obligated to assign:

Person who shows sufficient proprietary interest:

If applicant is the legal representative, indicate the  
Authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here: ☒

Prefix:

Given Name:

Middle Name:

Family Name:

Suffix:

### **Mailing Address**

Address 1: **Karakaari 7**

Address 2:

City: **Espoo**

State/Province:

Country: **Finland**

Postal Code: **FIN-02610**

Phone Number:

Fax Number:

Email Address:

Submitted by:

Signature /Guy R. Gosnell/

Date 2014-11-14

Printed Name Guy R. Gosnell

Registration Number 34,610

**STATEMENT UNDER 37 CFR 3.73(c)**

Applicant/Patent Owner: Nokia Corporation  
Application No./Patent No.: 13/621,511 Filed/Issue Date: 09-17-2012  
Titled: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS  
Nokia Corporation, a corporation  
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is \_\_\_\_%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 029552, Frame 0545, or for which a copy thereof is attached.
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). 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 1.11 and 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.*

**STATEMENT UNDER 37 CFR 3.73(c)**

3. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

4. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

5. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

6. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Guy R. Gosnell/

11/14/2014

Signature

Date

Guy R. Gosnell

Attorney of Record

Printed or Typed Name

Title or Registration Number

[Page 2 of 2]

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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.



# 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<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY. DOCKET NO | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|-----------------|------------|------------|
| 13/621,511            | 09/17/2012               | 2454            | 1390          | 042933/454443   | 20         | 2          |

CONFIRMATION NO. 1067

## REPLACEMENT FILING RECEIPT



OC000000071967171

10949

Nokia Corporation and Alston & Bird LLP  
c/o Alston & Bird LLP  
Bank of America Plaza, 101 South Tryon Street  
Suite 4000  
Charlotte, NC 28280-4000

Date Mailed: 11/25/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

### Inventor(s)

Sergey BOLDYREV, Soderkulla, FINLAND;  
Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;

### Applicant(s)

Nokia Corporation, Espoo, FINLAND

### Assignment For Published Patent Application

Nokia Corporation, Espoo, FINLAND

**Power of Attorney:** The patent practitioners associated with Customer Number 10949

### Domestic Applications for which benefit is claimed - None.

*A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.*

**Foreign Applications** for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

*Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.*

### If Required, Foreign Filing License Granted: 10/15/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/621,511**

**Projected Publication Date:** Not Applicable

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA  
BASED ON STATIC ANALYTICS

**Preliminary Class**

709

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:** No

**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

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 patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

**LICENSE FOR FOREIGN FILING UNDER**  
**Title 35, United States Code, Section 184**  
**Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



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 | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 13/621,511         | 09/17/2012            | Sergey BOLDYREV       | 042933/454443          |

**CONFIRMATION NO. 1067**

**POA ACCEPTANCE LETTER**

10949  
Nokia Corporation and Alston & Bird LLP  
c/o Alston & Bird LLP  
Bank of America Plaza, 101 South Tryon Street  
Suite 4000  
Charlotte, NC 28280-4000



Date Mailed: 11/25/2014

**NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY**

This is in response to the Power of Attorney filed 11/14/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/tkim/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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www.uspto.gov

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 13/621,511         | 09/17/2012            | Sergey BOLDYREV       | P6383US00              |

**CONFIRMATION NO. 1067**

**POWER OF ATTORNEY NOTICE**



11764  
Ditthavong & Steiner, P.C.  
44 Canal Center Plaza  
Suite 322  
Alexandria, VA 22314

Date Mailed: 11/25/2014

**NOTICE REGARDING CHANGE OF POWER OF ATTORNEY**

This is in response to the Power of Attorney filed 11/14/2014.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tkim/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

10949 7590 11/26/2014  
Nokia Corporation and Alston & Bird LLP  
c/o Alston & Bird LLP  
Bank of America Plaza, 101 South Tryon Street  
Suite 4000  
Charlotte, NC 28280-4000

EXAMINER

WASEL, MOHAMED A

ART UNIT

PAPER NUMBER

2454

DATE MAILED: 11/26/2014

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/621,511      | 09/17/2012  | Sergey BOLDYREV      | 042933/454443       | 1067             |

TITLE OF INVENTION: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | UNDISCOUNTED  | \$960         | \$0                 | \$0                  | \$960            | 02/26/2015 |

**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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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.**

**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)

10949 7590 11/26/2014  
Nokia Corporation and Alston & Bird LLP  
c/o Alston & Bird LLP  
Bank of America Plaza, 101 South Tryon Street  
Suite 4000  
Charlotte, NC 28280-4000

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. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/621,511      | 09/17/2012  | Sergey BOLDYREV      | 042933/454443       | 1067             |

TITLE OF INVENTION: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | UNDISCOUNTED  | \$960         | \$0                 | \$0                  | \$960            | 02/26/2015 |

| EXAMINER         | ART UNIT | CLASS-SUBCLASS |
|------------------|----------|----------------|
| WASEL, MOHAMED A | 2454     | 709-224000     |

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, 1 \_\_\_\_\_
- (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. 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 credits any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/621,511      | 09/17/2012  | Sergey BOLDYREV      | 042933/454443       | 1067             |

|                                                                                                                                                             |      |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|
| 10949                                                                                                                                                       | 7590 | 11/26/2014 |
| Nokia Corporation and Alston & Bird LLP<br>c/o Alston & Bird LLP<br>Bank of America Plaza, 101 South Tryon Street<br>Suite 4000<br>Charlotte, NC 28280-4000 |      |            |

|                  |  |
|------------------|--|
| EXAMINER         |  |
| WASEL, MOHAMED A |  |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2454     |              |

DATE MAILED: 11/26/2014

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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.

### Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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.

|                               |                                      |                                        |                                                  |
|-------------------------------|--------------------------------------|----------------------------------------|--------------------------------------------------|
| <b>Notice of Allowability</b> | <b>Application No.</b><br>13/621,511 | <b>Applicant(s)</b><br>BOLDYREV ET AL. |                                                  |
|                               | <b>Examiner</b><br>MOHAMED WASEL     | <b>Art Unit</b><br>2454                | <b>AIA (First Inventor to File) Status</b><br>No |

**-- 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 Applicant's response submitted on 9/24/2014.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

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

5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.  
☐ 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)**

|                                                                                                            |                                                                           |
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| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Examiner's Amendment/Comment                  |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 7. <input type="checkbox"/> Other _____                                   |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____                      |                                                                           |

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| /MOHAMED WASEL/<br>Primary Examiner, Art Unit 2454 |  |
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| <b>Notice of References Cited</b> | Application/Control No.<br>13/621,511 | Applicant(s)/Patent Under<br>Reexamination<br>BOLDYREV ET AL. |             |
|                                   | Examiner<br>MOHAMED WASEL             | Art Unit<br>2454                                              | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name                    | Classification |
|---|---|--------------------------------------------------|-----------------|-------------------------|----------------|
| * | A | US-5,999,534 A                                   | 12-1999         | Kim, Deog-Nyoun         | 370/395.42     |
| * | B | US-6,035,278 A                                   | 03-2000         | Mansour, Steven F.      | 705/7.19       |
| * | C | US-2006/0019665 A1                               | 01-2006         | Aghvami et al.          | 455/444        |
| * | D | US-2007/0282775 A1                               | 12-2007         | Tingling, Peter Maxwell | 706/045        |
| * | E | US-7,693,808 B2                                  | 04-2010         | Tingling, Peter Maxwell | 706/45         |
| * | F | US-2013/0073473 A1                               | 03-2013         | Heath, Stephan          | 705/319        |
| * | G | US-2013/0073400 A1                               | 03-2013         | Heath, Stephan          | 705/14.73      |
| * | H | US-2014/0059185 A1                               | 02-2014         | Siripurapu et al.       | 709/219        |
|   | I | US-                                              |                 |                         |                |
|   | J | US-                                              |                 |                         |                |
|   | K | US-                                              |                 |                         |                |
|   | L | US-                                              |                 |                         |                |
|   | M | US-                                              |                 |                         |                |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Country | Name | Classification |
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**NON-PATENT DOCUMENTS**

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|-------------------------------------------------------------------------------------------|
|   | U |                                                                                           |
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\*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.

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| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>BOLDYREV ET AL. |
|                                                                                                              | <b>Examiner</b><br><br>MOHAMED WASEL           | <b>Art Unit</b><br><br>2454                                           |

| CPC- SEARCHED |            |          |
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| Symbol        | Date       | Examiner |
| H04L 29/08    | 11/20/2014 | MW       |
| H04L 67/10    | 11/20/2014 | MW       |

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| SEARCH NOTES                                           |            |          |
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| US-PGPUB, USPAT, EPO & JPO (EAST) - SEE SEARCH HISTORY | 11/20/2014 | MW       |

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| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br>BOLDYREV ET AL. |  |
|                                                                                                                  | <b>Examiner</b><br>MOHAMED WASEL           | <b>Art Unit</b><br>2454                                           |  |

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| H04L   |  | 67 |  | 10  | F    | 2013-01-01 |
| H04L   |  | 29 |  | 08  | I    | 2013-01-01 |
| H04W   |  | 4  |  | 008 | A    | 2013-01-01 |
| H04W   |  | 4  |  | 02  | A    | 2013-01-01 |
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| NONE                                              |            | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                              | (Date)     | 20                           |                   |
| /MOHAMED WASEL/<br>Primary Examiner.Art Unit 2454 | 11/20/2014 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                | (Date)     | 1                            | 1                 |

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| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br>BOLDYREV ET AL. |
|                                                                                                                  | <b>Examiner</b><br>MOHAMED WASEL           | <b>Art Unit</b><br>2454                                           |

| US ORIGINAL CLASSIFICATION |                                   |          |  |  |  | INTERNATIONAL CLASSIFICATION |   |   |   |                       |             |  |  |  |  |
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| CLASS                      |                                   | SUBCLASS |  |  |  | CLAIMED                      |   |   |   |                       | NON-CLAIMED |  |  |  |  |
| 709                        |                                   | 224      |  |  |  | G                            | 0 | 6 | F | 15 / 173 (2006.01.01) |             |  |  |  |  |
| CROSS REFERENCE(S)         |                                   |          |  |  |  |                              |   |   |   |                       |             |  |  |  |  |
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| NONE                                               |            | <b>Total Claims Allowed:</b> |                   |
|                                                    |            | 20                           |                   |
| (Assistant Examiner)                               | (Date)     |                              |                   |
| /MOHAMED WASEL/<br>Primary Examiner. Art Unit 2454 | 11/20/2014 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                 | (Date)     | 1                            | 1                 |

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|------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>13621511 | <b>Applicant(s)/Patent Under Reexamination</b><br>BOLDYREV ET AL. |
|                                                                                                                  | <b>Examiner</b><br>MOHAMED WASEL           | <b>Art Unit</b><br>2454                                           |

| <input type="checkbox"/> <b>Claims renumbered in the same order as presented by applicant</b> <input type="checkbox"/> <b>CPA</b> <input type="checkbox"/> <b>T.D.</b> <input type="checkbox"/> <b>R.1.47</b> |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|
| Final                                                                                                                                                                                                         | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
| 1                                                                                                                                                                                                             | 1        | 17    | 17       |       | 33       |       |          |       |          |       |          |       |          |       |          |
| 2                                                                                                                                                                                                             | 2        | 18    | 18       |       | 34       |       |          |       |          |       |          |       |          |       |          |
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| 4                                                                                                                                                                                                             | 4        | 20    | 20       |       | 36       |       |          |       |          |       |          |       |          |       |          |
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| 6                                                                                                                                                                                                             | 6        |       | 22       |       | 38       |       |          |       |          |       |          |       |          |       |          |
| 7                                                                                                                                                                                                             | 7        |       | 23       |       | 39       |       |          |       |          |       |          |       |          |       |          |
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| 16                                                                                                                                                                                                            | 16       |       | 32       |       | 48       |       |          |       |          |       |          |       |          |       |          |

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| NONE<br><br>(Assistant Examiner) _____ (Date) _____                                             |  | <b>Total Claims Allowed:</b><br>20 |                        |
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## EAST Search History

## EAST Search History (Prior Art)

| Ref # | Hits | Search Query                                                                                               | DBs                       | Default Operator | Plurals | Time Stamp       |
|-------|------|------------------------------------------------------------------------------------------------------------|---------------------------|------------------|---------|------------------|
| L2    | 2    | prioritiz\$ with process\$3 with data with (dymanic\$ or real\$time) with static                           | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:19 |
| L3    | 296  | process\$3 with data with (dymanic\$ or real\$time) with static                                            | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:20 |
| L4    | 21   | 3 with (order\$3 or arrang\$3)                                                                             | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:21 |
| L5    | 23   | 3 with (mobile or wireless or cell\$5 or handheld)                                                         | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:22 |
| L6    | 5    | 3 with partial\$                                                                                           | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:24 |
| L7    | 546  | (facilitat\$3 with process\$3 with dynamic with data)                                                      | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:27 |
| L8    | 52   | L7 with (mobile or wireless or cell\$5 or handheld)                                                        | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:27 |
| L11   | 3    | prioritiz\$ with process\$3 with (dymanic\$ or real\$time) with static                                     | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 10:28 |
| L12   | 42   | prioritiz\$ with process\$3 with (dymanic\$ or real\$time) near3 data                                      | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 11:09 |
| L13   | 1    | 12 same (mobile or wireless or cell\$5 or handheld)                                                        | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 11:10 |
| L14   | 21   | prioritiz\$ with (process\$3 or schedul\$) with (dymanic\$ or real\$time) with (static or non\$real\$time) | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 11:14 |
| L15   | 2    | 14 with (mobile or wireless or cell\$5 or handheld)                                                        | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 11:15 |
| L16   | 4    | 14 same (mobile or wireless or cell\$5 or handheld)                                                        | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/20 11:15 |
| S40   | 121  | ((Sergey) near2 (BOLDYREV)).INV.                                                                           | US-PGPUB; USPAT           | ADJ              | ON      | 2014/11/12 11:03 |
| S41   | 1    | 13/621511                                                                                                  | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/12 11:03 |
| S42   | 5426 | ( (H04L29/08 OR H04L67/10).CPC. )                                                                          | US-PGPUB; USPAT; EPO; JPO | ADJ              | ON      | 2014/11/12 11:03 |

## EAST Search History

|     |       |                                                                                                                                           |                                 |     |    |                     |
|-----|-------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----|----|---------------------|
| S43 | 38582 | 709/223,224.ccls.                                                                                                                         | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S44 | 544   | (facilitat\$3 with process\$3 with dynamic<br>with data)                                                                                  | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S45 | 18    | S43 and S44                                                                                                                               | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S46 | 7     | S44 with analytic                                                                                                                         | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S47 | 121   | ((Sergey) near2 (BOLDYREV)).INV.                                                                                                          | US-PGPUB;<br>USPAT              | ADJ | ON | 2014/11/12<br>11:03 |
| S48 | 7     | S46 not S47                                                                                                                               | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S49 | 16    | S45 and @ad<"20120917"                                                                                                                    | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S50 | 7     | S46 and @ad<"20120917"                                                                                                                    | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S51 | 3584  | (facilitat\$3 or manag\$5 or provid\$3)<br>near6 process\$3 near6 (dynamic or<br>real\$time) near4 (data or information)                  | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S52 | 80    | S51 near6 static                                                                                                                          | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S53 | 2     | S52 near5 analy\$4                                                                                                                        | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S54 | 3684  | (facilitat\$3 or manag\$5 or provid\$3)<br>near6 process\$3 near6 (dynamic or<br>real\$time or serializ\$) near4 (data or<br>information) | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S55 | 1     | S54 with marshall\$3                                                                                                                      | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S56 | 65    | S54 and marshall\$3                                                                                                                       | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |
| S57 | 11    | S54 and S42                                                                                                                               | US-PGPUB;<br>USPAT;<br>EPO; JPO | ADJ | ON | 2014/11/12<br>11:03 |

11/ 20/ 2014 11:29:00 AM

C:\Users\mwasel.USPTO\Documents\EAST\Workspaces\13621511.wsp

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Nov 25, 2014 05:18:54 AM

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| Application | Document     | Mailroom Date | Attorney Docket No. |
|-------------|--------------|---------------|---------------------|
| 13621511    | APP.FILE.REC | 11/25/2014    | 042933/454443       |
|             | N570         | 11/25/2014    | 042933/454443       |
|             | N570         | 11/25/2014    | 042933/454443       |

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| Application | Document | Mailroom Date | Attorney Docket No. |
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| 13621511    | NOA      | 11/26/2014    | 042933/454443       |
|             | 892      | 11/26/2014    | 042933/454443       |

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| APPLICATION NO.                                                                                                                                                                      | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------------------|-----------------------------|
| 13/621,511                                                                                                                                                                           | 09/17/2012  | Sergey BOLDYREV      | 042933/454443                   | 1067                        |
| 10949 7590 01/21/2015<br>Nokia Corporation and Alston & Bird LLP<br>c/o Alston & Bird LLP<br>Bank of America Plaza, 101 South Tryon Street<br>Suite 4000<br>Charlotte, NC 28280-4000 |             |                      | EXAMINER<br>WASEL, MOHAMED A    |                             |
|                                                                                                                                                                                      |             |                      | ART UNIT<br>2454                | PAPER NUMBER                |
|                                                                                                                                                                                      |             |                      | NOTIFICATION DATE<br>01/21/2015 | DELIVERY MODE<br>ELECTRONIC |

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Application No. : 13621511  
Applicant : Boldyrev  
Filing Date : 09/17/2012  
Date Mailed : 01/21/2015

## NOTICE TO FILE CORRECTED APPLICATION PAPERS

### *Notice of Allowance Mailed*

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

**Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.**

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

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**Application No. 13621511**

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See Page(s)/Paragraph(s) .

- ☒ The specification refers by number to one or more claims that are not present in the allowed application – that is, the claim number(s) mentioned in the specification are higher than the total number of allowed claims.

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See Page(s)/Paragraph(s) page 3 paragraph 12.

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Jan 21, 2015 05:22:29 AM

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| 13621511    | M327     | 01/21/2015    | 042933/454443       |

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|               |                                                                                                   |                    |            |
|---------------|---------------------------------------------------------------------------------------------------|--------------------|------------|
| Appl. No.:    | 13/621,511                                                                                        | Confirmation No.:  | 1067       |
| Applicant(s): | Boldyrev et al.                                                                                   | Date of Allowance: | 11/26/2014 |
| Filed:        | 9/17/2012                                                                                         |                    |            |
| Art Unit:     | 2454                                                                                              |                    |            |
| Examiner:     | Mohamed A. Wasel                                                                                  |                    |            |
| Title:        | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM<br>PROCESSING OF DATA BASED ON STATIC ANALYTICS |                    |            |

Docket No.: 042933/454443  
Customer No.: 10949

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Alexandria, VA 22313-1450

**AMENDMENT UNDER 37 CFR 1.312**

Sir:

This Amendment is filed in response to the Notice of Allowance mailed November 26, 2014 and the Notice to file Corrected Application Papers mailed January 21, 2015.

**Amendments to the Specification** begin on page 2 of this paper.

**Remarks** begin on page 3 of this paper.

In re: Boldyrev et al.  
Appl. No.: 13/621,511  
Filed: 9/17/2012  
Page 2 of 3

Amendments to the Specification:

Please amend Paragraph 12 as follows:

[0012] For various example embodiments, the following is applicable: An apparatus comprising means for performing any of the method-methods (or processes) disclosed in this application as relevant to any embodiment of the invention~~of any of originally filed claims 1-10, 21-30, and 46-48.~~

In re: Boldyrev et al.  
Appl. No.: 13/621,511  
Filed: 9/17/2012  
Page 3 of 3

**REMARKS**

The amendment above has been presented to remove references by number to claims which are not present in the allowed application. No new matter is added by this amendment.

It is not believed that extensions of time or fees for net addition of claims 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 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

*/Grant Gildehaus/*

Grant Gildehaus  
Registration No. 68805

**Customer No. 10949**  
**ALSTON & BIRD LLP**  
Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000  
Tel Charlotte Office (704) 444-1000  
Fax Charlotte Office (704) 444-1111



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|-----------------|-------------|----------------------|---------------------|------------------|
| 13/621,511      | 09/17/2012  | Sergey BOLDYREV      | 042933/454443       | 1067             |

|                                               |      |            |
|-----------------------------------------------|------|------------|
| 10949                                         | 7590 | 01/21/2015 |
| Nokia Corporation and Alston & Bird LLP       |      |            |
| c/o Alston & Bird LLP                         |      |            |
| Bank of America Plaza, 101 South Tryon Street |      |            |
| Suite 4000                                    |      |            |
| Charlotte, NC 28280-4000                      |      |            |

| EXAMINER         |
|------------------|
| WASEL, MOHAMED A |

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2454     |              |

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Application No. : 13621511  
Applicant : Boldyrev  
Filing Date : 09/17/2012  
Date Mailed : 01/21/2015

## NOTICE TO FILE CORRECTED APPLICATION PAPERS

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This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

**Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.**

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**Application No. 13621511**

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See Page(s)/Paragraph(s) page 3 paragraph 12.

| Electronic Acknowledgement Receipt          |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 21400430                                                                                       |
| <b>Application Number:</b>                  | 13621511                                                                                       |
| <b>International Application Number:</b>    |                                                                                                |
| <b>Confirmation Number:</b>                 | 1067                                                                                           |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| <b>First Named Inventor/Applicant Name:</b> | Sergey BOLDYREV                                                                                |
| <b>Customer Number:</b>                     | 10949                                                                                          |
| <b>Filer:</b>                               | Grant Allen Gildehaus/Emma Pham                                                                |
| <b>Filer Authorized By:</b>                 | Grant Allen Gildehaus                                                                          |
| <b>Attorney Docket Number:</b>              | 042933/454443                                                                                  |
| <b>Receipt Date:</b>                        | 04-FEB-2015                                                                                    |
| <b>Filing Date:</b>                         | 17-SEP-2012                                                                                    |
| <b>Time Stamp:</b>                          | 16:10:03                                                                                       |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                    |

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| Submitted with Payment | no |
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**File Listing:**

| Document Number | Document Description | File Name    | File Size(Bytes)/<br>Message Digest           | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|--------------|-----------------------------------------------|------------------|------------------|
| 1               |                      | Response.pdf | 136408                                        | yes              | 6                |
|                 |                      |              | e4aeb46d6259fb0344cb27d6d70b92233d<br>abxdae3 |                  |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Multipart Description/PDF files in .zip description |        |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------|-----|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Document Description                                | Start  | End |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Amendment after Notice of Allowance (Rule 312)      | 1      | 1   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Specification                                       | 2      | 2   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Applicant Arguments/Remarks Made in an Amendment    | 3      | 3   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Miscellaneous Incoming Letter                       | 4      | 6   |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                     |        |     |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                     |        |     |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                     | 136408 |     |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>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.</p> |                                                     |        |     |



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|                                                                                                                                                             |      |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|
| 10949                                                                                                                                                       | 7590 | 02/24/2015 |
| Nokia Corporation and Alston & Bird LLP<br>c/o Alston & Bird LLP<br>Bank of America Plaza, 101 South Tryon Street<br>Suite 4000<br>Charlotte, NC 28280-4000 |      |            |

|                  |  |
|------------------|--|
| EXAMINER         |  |
| WASEL, MOHAMED A |  |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2454     |              |

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
| 02/24/2015        | 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):

usptomail@alston.com



# **PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **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)

10949 7590 11/26/2014  
 Nokia Corporation and Alston & Bird LLP  
 c/o Alston & Bird LLP  
 Bank of America Plaza, 101 South Tryon Street  
 Suite 4000  
 Charlotte, NC 28280-4000

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. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/621,511      | 09/17/2012  | Sergey BOLDYREV      | 042933/45-4443      | 1067             |

TITLE OF INVENTION: METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | UNDISCOUNTED  | \$960         | \$0                 | \$0                  | \$960            | 02/26/2015 |

| EXAMINER         | ART UNIT | CLASS-SUBCLASS |
|------------------|----------|----------------|
| WASEL, MOHAMED A | 2454     | 709-224000     |

|                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).<br><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.<br><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a <b>Customer Number is required.</b> | 2. For printing on the patent front page, list<br>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,<br>(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. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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: **Nokia Corporation**

(B) RESIDENCE: (CITY and STATE OR COUNTRY): **Espoo, Finland**

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:<br><input checked="" type="checkbox"/> Issue Fee<br><input type="checkbox"/> Publication Fee (No small entity discount permitted)<br><input type="checkbox"/> Advance Order - # of Copies _____ | 4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)<br><input type="checkbox"/> A check is enclosed.<br><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.<br><input checked="" type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number <b>16-0605</b> (enclose an extra copy of this form). |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature: /Grant Gildehaus/ Date: February 23, 2015

Typed or printed name: Grant Gildehaus Registration No.: 68,806

| Electronic Patent Application Fee Transmittal |          |                                                                                                |        |                      |
|-----------------------------------------------|----------|------------------------------------------------------------------------------------------------|--------|----------------------|
| Application Number:                           |          | 13621511                                                                                       |        |                      |
| Filing Date:                                  |          | 17-Sep-2012                                                                                    |        |                      |
| Title of Invention:                           |          | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |        |                      |
| First Named Inventor/Applicant Name:          |          | Sergey BOLDYREV                                                                                |        |                      |
| Filer:                                        |          | Christopher Jason Gegg/Joyce Smith                                                             |        |                      |
| Attorney Docket Number:                       |          | 042933/454443                                                                                  |        |                      |
| Filed as Large Entity                         |          |                                                                                                |        |                      |
| Filing Fees for Utility under 35 USC 111(a)   |          |                                                                                                |        |                      |
| 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                                                                                              | 960    | 960                  |

| Description        | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|--------------------|----------|----------|--------|----------------------|
| Extension-of-Time: |          |          |        |                      |
| Miscellaneous:     |          |          |        |                      |
| Total in USD (\$)  |          |          |        | 960                  |

| Electronic Acknowledgement Receipt          |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 21570609                                                                                       |
| <b>Application Number:</b>                  | 13621511                                                                                       |
| <b>International Application Number:</b>    |                                                                                                |
| <b>Confirmation Number:</b>                 | 1067                                                                                           |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| <b>First Named Inventor/Applicant Name:</b> | Sergey BOLDYREV                                                                                |
| <b>Customer Number:</b>                     | 10949                                                                                          |
| <b>Filer:</b>                               | Christopher Jason Gegg/Joyce Smith                                                             |
| <b>Filer Authorized By:</b>                 | Christopher Jason Gegg                                                                         |
| <b>Attorney Docket Number:</b>              | 042933/454443                                                                                  |
| <b>Receipt Date:</b>                        | 23-FEB-2015                                                                                    |
| <b>Filing Date:</b>                         | 17-SEP-2012                                                                                    |
| <b>Time Stamp:</b>                          | 15:05:00                                                                                       |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                    |

### Payment information:

|                                                                                                                                                                                                                                                                                                                                                                                          |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Submitted with Payment                                                                                                                                                                                                                                                                                                                                                                   | yes             |
| Payment Type                                                                                                                                                                                                                                                                                                                                                                             | Deposit Account |
| Payment was successfully received in RAM                                                                                                                                                                                                                                                                                                                                                 | \$ 960          |
| RAM confirmation Number                                                                                                                                                                                                                                                                                                                                                                  | 1486            |
| Deposit Account                                                                                                                                                                                                                                                                                                                                                                          | 160605          |
| Authorized User                                                                                                                                                                                                                                                                                                                                                                          |                 |
| <p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p> |                 |

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

### File Listing:

| Document Number | Document Description        | File Name          | File Size(Bytes)/<br>Message Digest                | Multi Part /.zip | Pages (if appl.) |
|-----------------|-----------------------------|--------------------|----------------------------------------------------|------------------|------------------|
| 1               | Issue Fee Payment (PTO-85B) | ISSUEFEE454443.pdf | 266040<br>b178929e1256ffa231d21c9a5c7579859cc02f43 | no               | 1                |

### Warnings:

### Information:

|   |                      |              |                                                  |    |   |
|---|----------------------|--------------|--------------------------------------------------|----|---|
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 30709<br>51fe94518c22ed4dbe9ff2107e27cd0aae17b36 | no | 2 |
|---|----------------------|--------------|--------------------------------------------------|----|---|

### Warnings:

### Information:

**Total Files Size (in bytes):** 296749

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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.

**To:** usptomail@alston.com,,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 10949

Feb 24, 2015 05:31:56 AM

Dear PAIR Customer:

Nokia Corporation and Alston & Bird LLP  
c/o Alston & Bird LLP  
Bank of America Plaza, 101 South Tryon Street  
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UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 10949 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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| Application | Document | Mailroom Date | Attorney Docket No. |
|-------------|----------|---------------|---------------------|
| 13621511    | N271     | 02/24/2015    | 042933/454443       |

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



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

| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|------------|------------|---------------------|------------------|
| 13/621,511      | 03/31/2015 | 8996693    | 042933/454443       | 1067             |

10949 7590 03/11/2015  
Nokia Corporation and Alston & Bird LLP  
c/o Alston & Bird LLP  
Bank of America Plaza, 101 South Tryon Street  
Suite 4000  
Charlotte, NC 28280-4000

## 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 199 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):

Sergey BOLDYREV, Soderkulla, FINLAND;  
Nokia Corporation, Espoo, FINLAND, Assignee (with 37 CFR 1.172 Interest);  
Lauri Aarno Olavi TARKKALA, Berlin, GERMANY;

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**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 10949

Mar 12, 2015 05:32:21 AM

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|-------------|-----------|---------------|---------------------|
| 13621511    | ISSUE.NTF | 03/11/2015    | 042933/454443       |

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# Alston & Bird LLP

Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000  
(704) 444-1000  
Fax (704) 444-1111

August 13, 2015

Certificate of Correction Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

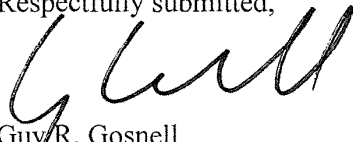
Re: United States Patent for *Method And Apparatus For Providing Dynamic Stream Processing Of Data Based On Static Analytics*  
Application No. 13/621,511; Filed September 17, 2012  
Patent No. 8,996,693; Issued March 31, 2015  
Our File 042933/454443

---

It is respectfully requested that a Certificate of Correction be issued for the above-identified patent, in accordance with 37 C.F.R. §1.322. This request is made in order to correct the mistakes incurred through the fault of the United States Patent and Trademark Office ("USPTO").

The mistakes appearing in the patent are set forth on the Certificate of Correction e-filed herewith.

Respectfully submitted,



Guy R. Gosnell  
Registration No. 34,610

GRG:mhf  
Enclosure

LEGAL02/35797525v1

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

PATENT NO. : 8,996,693 B2

Page 1 of 1

APPLICATION NO. : 13/621,511

ISSUE DATE : March 31, 2015

INVENTOR(S) : Boldyrev et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the claims:

Column 26,

Lines 12 and 13, "the processing the processing" should read --the processing--;

Line 16, "The method of claim 1," should read --The method of claim 1, further comprising:--.

Column 28,

Line 1, "wherein process" should read --wherein the process--.

MAILING ADDRESS OF SENDER

ALSTON & BIRD LLP  
Bank of America Plaza  
101 South Tryon Street, Suite 4000  
Charlotte, NC 28280-4000  
Tel Charlotte Office (704) 444-1000

| Electronic Acknowledgement Receipt          |                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 23257120                                                                                       |
| <b>Application Number:</b>                  | 13621511                                                                                       |
| <b>International Application Number:</b>    |                                                                                                |
| <b>Confirmation Number:</b>                 | 1067                                                                                           |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR PROVIDING DYNAMIC STREAM PROCESSING OF DATA BASED ON STATIC ANALYTICS |
| <b>First Named Inventor/Applicant Name:</b> | Sergey BOLDYREV                                                                                |
| <b>Customer Number:</b>                     | 10949                                                                                          |
| <b>Filer:</b>                               | Jonathan Abbott Thomas/Marigrace Faulkner                                                      |
| <b>Filer Authorized By:</b>                 | Jonathan Abbott Thomas                                                                         |
| <b>Attorney Docket Number:</b>              | 042933/454443                                                                                  |
| <b>Receipt Date:</b>                        | 19-AUG-2015                                                                                    |
| <b>Filing Date:</b>                         | 17-SEP-2012                                                                                    |
| <b>Time Stamp:</b>                          | 18:40:26                                                                                       |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                    |

### 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               | Request for Certificate of Correction | coc454443.PDF | 43953<br>a3c44c29bec4b47f4bf685e6b27aa01346385d2d | no               | 2                |

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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.

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 8,996,693 B2  
APPLICATION NO. : 13/621511  
DATED : March 31, 2015  
INVENTOR(S) : Boldyrev et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the claims:

Column 26,

Lines 12 and 13, Claim 7, “the processing the processing” should read --the processing--;  
Line 16, Claim 8, “The method of claim 1,” should read --The method of claim 1, further comprising:--.

Column 28,

Line 1, Claim 17, “wherein process” should read --wherein the process--.

Signed and Sealed this  
Eighth Day of December, 2015



Michelle K. Lee  
*Director of the United States Patent and Trademark Office*

**To:** usptomail@alston.com,,  
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**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 10949

Aug 21, 2018 01:20:16 PM

Dear PAIR Customer:

Nokia Corporation and Alston & Bird LLP  
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Bank of America Plaza, 101 South Tryon Street  
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UNITED STATES

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| Application | Document | Mailroom Date | Attorney Docket No. |
|-------------|----------|---------------|---------------------|
| 13621511    | CTNF     | 06/25/2014    | 042933/454443       |
|             | 892      | 06/25/2014    | 042933/454443       |

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