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(54) **METHOD OF CONTROLLING OPERATION OF TELECOMMUNICATIONS NETWORK**

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(76) Inventor: **Karl Quinn, Dublin (IE)**

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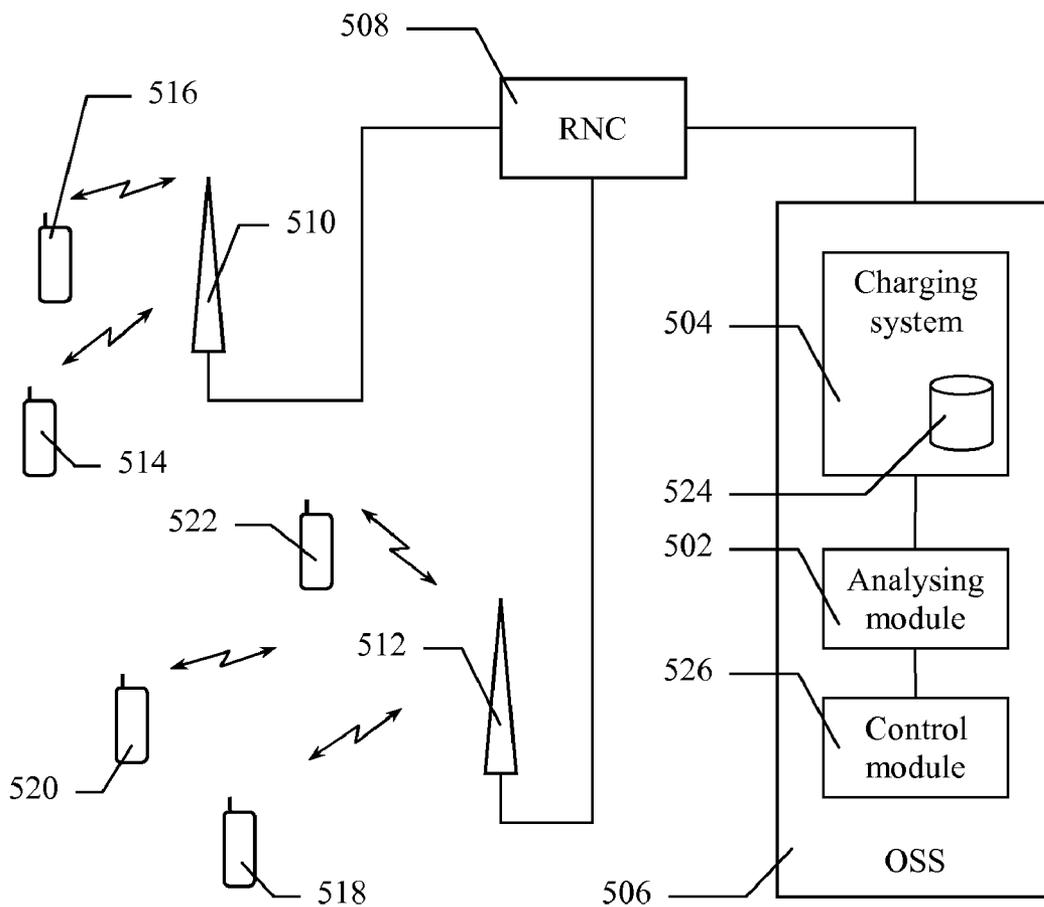
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(57) **ABSTRACT**

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A method of optimizing operation of a telecommunications network when traffic demand exceeds capacity of the network. The method comprises retrieving a call data record of a first subscriber; analyzing phone calls and/or text messages made and received by said first subscriber; creating a representation of a social network of said first subscriber based on the call data record; and suspending part of the subscribers from said social network in a way that at least one member of said social network is not suspended.



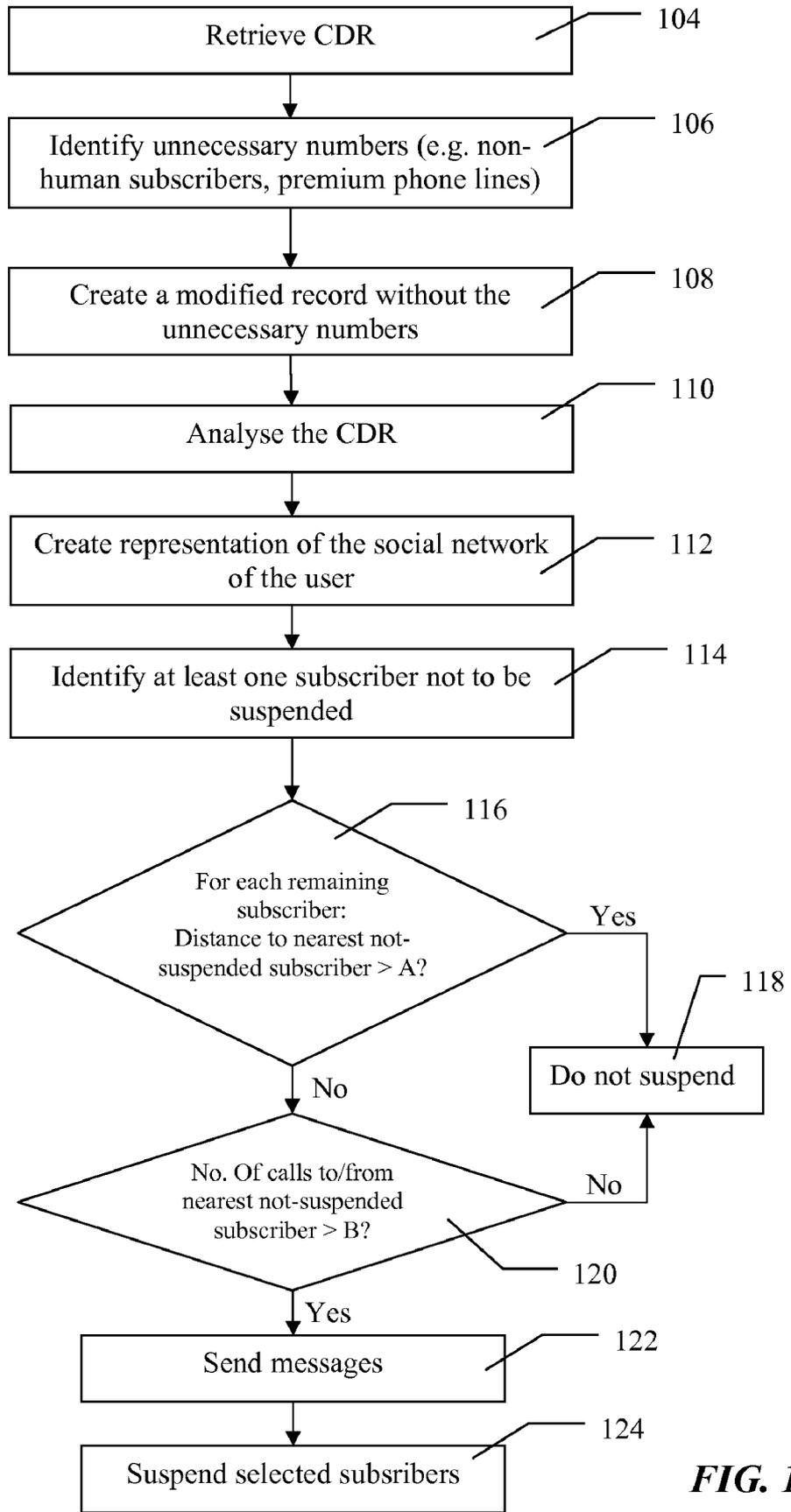


FIG. 1

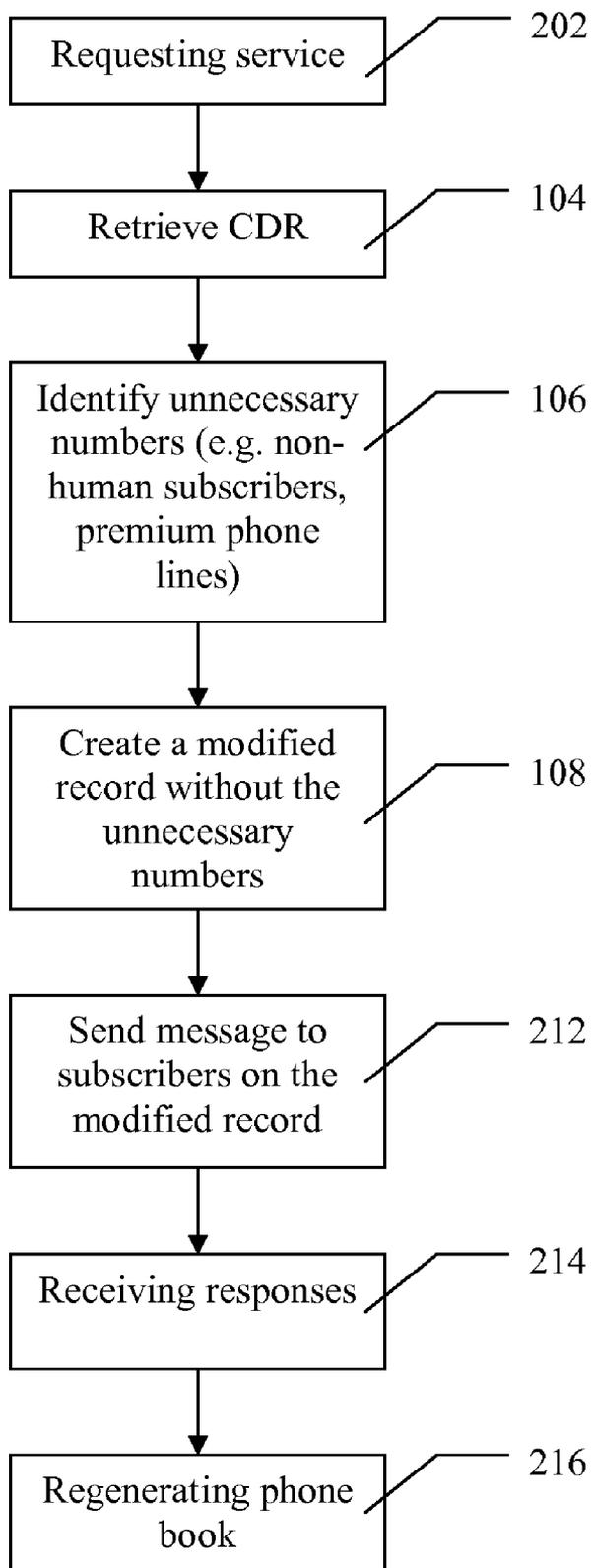


FIG. 2

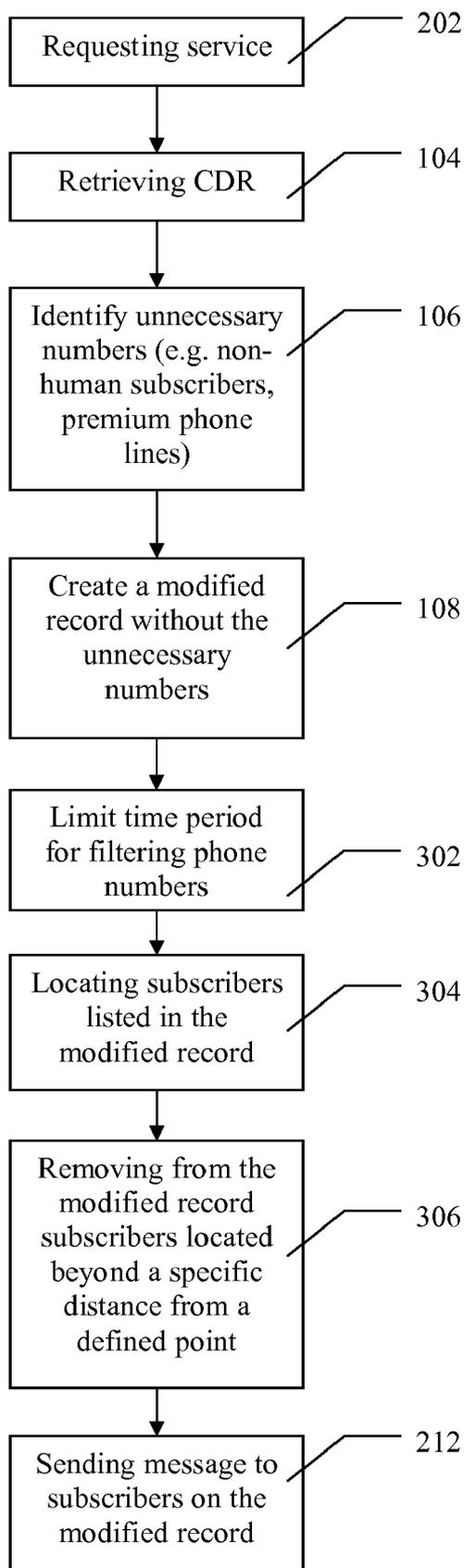


FIG. 3

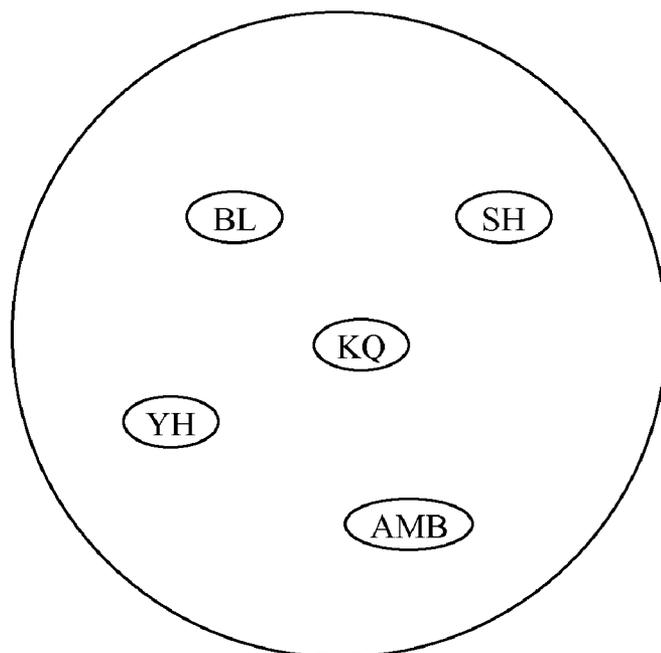


FIG. 4a

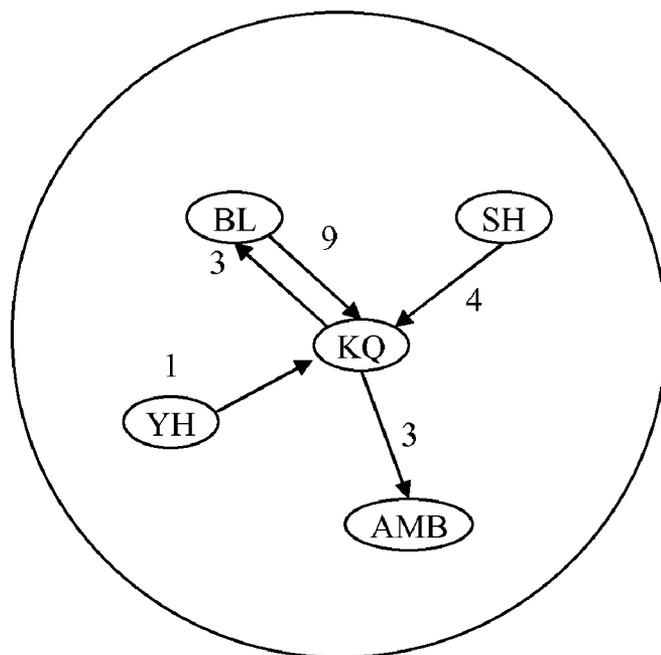


FIG. 4b

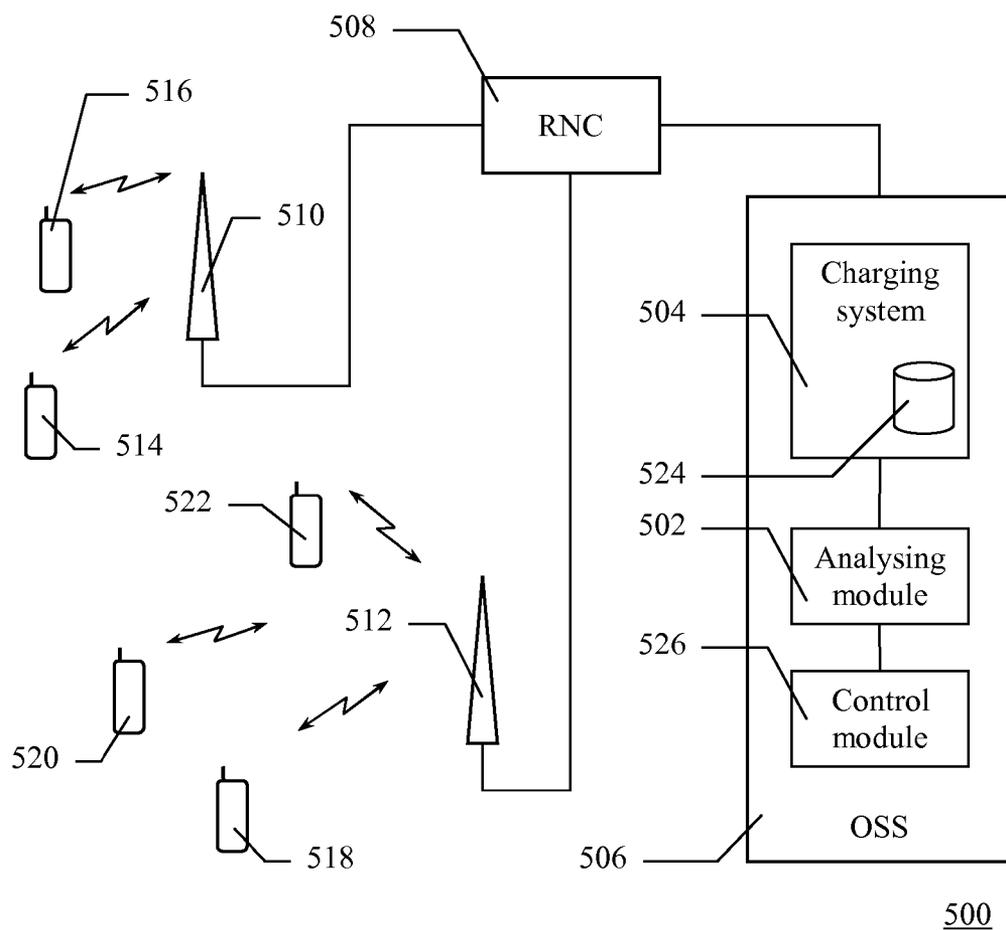


FIG. 5

METHOD OF CONTROLLING OPERATION OF TELECOMMUNICATIONS NETWORK

TECHNICAL FIELD

[0001] The present invention relates to telecommunications networks, in general, and in particular to providing services to subscribers based on a determined social network of the subscribers.

BACKGROUND

[0002] Social networks or social networking is a phenomenon of the Internet era. It allows users of internet to contact people they know and quite often had not seen for a long period of time. It also allows to establish contact with people they do not know, but with whom they share the same interest. This phenomenon, although extraordinary in its scale, is however artificial to some extent as the network created is not based on a day-to-day experience. The network is based on manual adding names, receiving invitations and accepting invitations from people they met long time ago or never. These types of social networks do not reflect the real network the user interacts on a daily basis.

SUMMARY

[0003] The present invention in its various embodiments describes a service enabler that is based on a real social network of a subscriber of a telecommunications network. The subscriber uses phone, mobile or wireline, to contact his fiends, family, business partners. These people form the real social network of the subscriber. Each phone call made or received, each message sent or received from a mobile phone leaves a trace in the records of the telecommunications network infrastructure. The present invention, in its embodiments uses this information to enable new network services.

[0004] According to a first aspect of the present invention there is provided a method of optimising operation of a telecommunications network in a situation of traffic demand exceeding capacity of the network. The method comprises the steps of: retrieving a call data record of a first subscriber of the telecommunications network; analysing phone calls and/or text messages made and received by said first subscriber. In the next step a representation of a social network of said first subscriber based on the call data record is created and then the method comprises suspending provision of telecommunications services to part of the subscribers from said social network, wherein the subscribers to be suspended are selected in a way that at least one member of said social network derived from the call data record is not suspended.

[0005] According to a second aspect of the present invention there is provided a method of operating a telecommunications network. The method comprises transmitting messages to selected subscribers and comprises the steps of: retrieving a call data record of a first subscriber of the telecommunications network and identifying in the call data record phone numbers of non-human subscribers and/or phone numbers of premium phone lines. In the next step the method comprises creating a modified record based on said call data record, wherein in said modified record said phone numbers of non-human subscribers and/or phone numbers of premium phone lines are removed and then transmitting a message to subscribers remaining on said modified record.

[0006] According to a third aspect of the present invention there is provided an Operations Support System for a tele-

communications network comprising a charging system and a record analysing module. The record analysing module is adapted to retrieve a call data record of a first subscriber from the charging system and to analyse phone calls and/or text messages made and received by said first subscriber. The Operations Support System further comprises a control module for controlling operations of the network based on information received from the analysing module.

[0007] According to a fourth aspect of the present invention there is provided a telecommunications network comprising a first plurality of base stations serving a second plurality of user equipment, a radio network controller and an Operations Support System. The Operations Support System comprises a charging system and a record analysing module. The record analysing module is adapted to retrieve a call data record of a first subscriber from the charging system and to analyse phone calls and/or text messages made and received by said first subscriber. The Operations Support System further comprises a control module for controlling operations of the network based on information received from the analysing module.

[0008] Further features of the present invention are as claimed in the dependent claims.

[0009] The advantages of the present invention include enabling a large variety of services based on the knowledge of social network of individual users. It is also very important that due to flexibility of the invention implementation of the services and the underlying algorithms is possible under any telecommunications network technology, and any service provider. Specific advantages include easy method of rebuilding lost contact list without the need for backup. Additionally, in situations of high traffic demand, when it is not possible to provide the services to all subscribers the invention allows for selecting subscribers to be suspended in a way that the impact of the suspension of the services is limited.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the drawings in which:

[0011] FIG. 1 is a diagram illustrating a method of optimising operation of a telecommunications network in one embodiment of the present invention;

[0012] FIG. 2 is a diagram illustrating a method of transmitting messages to selected subscribers in one embodiment of the present invention;

[0013] FIG. 3 is a diagram illustrating a method of transmitting messages to selected subscribers in an alternative embodiment of the present invention;

[0014] FIGS. 4a and 4b illustrate generation of a graphical representation of a social network of a subscriber in one embodiment of the present invention;

[0015] FIG. 5 is a diagram illustrating a telecommunications network in one embodiment of the present invention.

DETAILED DESCRIPTION

[0016] For the sake of clarity and simplicity the drawings in this application present the invention in a schematic way with elements and lines not essential for understanding the invention omitted.

[0017] The term "suspended subscriber" used in the description and the claims refers to a subscriber (user) of a

telecommunications network having suspended provision of a telecommunications services to his user equipment (UE).

[0018] FIG. 1 illustrates one embodiment of a method of optimising operation of a telecommunications network when traffic demand exceeds capacity of the network. This method allows for selective suspension of providing telecommunications services to user equipment used by the subscribers. The selection is based on social bounds between the subscribers and the social bounds are determined in the process of determining social network of a subscriber based on phone calls made and received by said subscriber. In the first step a call data record (CDR) of a first subscriber is retrieved **104** from the telecommunications network. In CDR records of all phone calls made and received as well as text messages sent and received are stored so this is a very good source of information about who forms a part of a social network of a particular subscriber. In the next step phone calls made and received by said first subscriber are analysed **110**. Preferably in this analysis sending and receiving of text messages is also included. In an alternative embodiment the social network is determined only on the basis of text messages sent and received. The benefit of basing the determination on text messages only is that text messages are used for less formal communication and therefore are used between members of real world social network. When the analysis is completed a representation of the social network of said first subscriber based on the call data record is created **112**. Then, finally, part of the subscribers from the social network has network service to their UE suspended. The subscribers to be suspended are selected in a way that at least one member of said social network derived from the call data record is not suspended.

[0019] FIG. 2 illustrates one embodiment of the method of transmitting messages to selected subscribers operating in a wireless telecommunications network. Again, for the sake of simplicity of examples given the description is focused on a wireless telecommunications network. The invention, however, to a large extent can also be applicable to wireline networks.

[0020] In various embodiments the present invention defines a platform for enabling services available to the user when these services use or are targeted on, so called, social network of the user. In the context of the present invention the term social network refers to a group of people the user is in contact via his mobile phone (e.g. via voice calls, video calls or text messages).

[0021] When a subscriber wants to use one of the services based on using his social network he requests **202** the service from the network. The request can use a text message sent to a dedicated number and with a pre-defined text, or a phone call to a call centre. Once the network identifies that this is a request for a service based on social network of the subscriber a Call Data Record for this subscriber is retrieved. **104**.

[0022] A Call Detail Record contains at least the following information: the number making the call, the number receiving the call, when the call started (date and time), how long the call was. The purpose of the CDR is to provide necessary information to charge customers for the service they used. In the embodiment of the present invention it is enough to have the numbers of parties that received calls, or SMS, from the subscriber. Because the data stored in the CDR are for billing purposes it has to be accurate, which means that all phone numbers called and texted are recorded there. In this situation some of the numbers will be there by accident (e.g. as a result of calling wrong number) and some will not be useful in

creating the social network, because they may be for example assigned to non-human subscribers (e.g. number where you have to send SMS in order to claim a discount for some services provided). The numbers of non-human subscribers are identified **106** in the CDR and a modified record, without said non-human subscribers, is created in step **108**.

[0023] The modified record created in this way may still contain some phone numbers that could easily be removed without any loss of quality of the service provided, however, it has to be noted that this is an optional feature. The numbers to be removed include for example phone numbers of call centres, other premium phone numbers, and sets of numbers (like mobile broadband SIM numbers) that the service provider can deem unnecessary. However in specific types of services also these numbers may be required by the subscriber. In the embodiment illustrated in FIG. 3 the premium/unnecessary phone numbers are removed **108** from the modified record leaving there only phone numbers of people the subscriber called or received call from as part of his personal or business life. This modified record defines his social network and could be in great simplification illustrated as shown in FIG. 4a. It may be, in yet another embodiment, that the social network graphical representation is updated with additional information showing the number of phone calls made and received to particular subscribers from said modified record. This is illustrated in FIG. 4b. The knowledge of frequency of calls made and received in a certain period of time **302** allows the user to define a threshold of e.g. at least 3 calls in the last 6 months as a qualification for the service he is requesting. With reference to FIG. 4b the user KQ whose social network is illustrated may decide that he wants to use the service with a threshold of at least 3 calls in the time period used for creating the modified record (e.g. 6 months). This means that subscriber YH will not be included in the service.

[0024] Once the modified record (which in a simplest embodiment can be a list of phone numbers that were in contact with KQ) is defined according to the request from the subscriber KQ a message is sent **212** to the subscribers from the modified record.

[0025] The mechanisms described above are a platform for providing various services to the users and three examples of these services will be described below.

Example 1

[0026] In this scenario a user of a mobile phone lost the data in his/her phone book stored in the mobile phone. The service provided by the network operator allows for regeneration of the phone book. The user requests **202** the relevant service (i.e. regeneration) by sending text message to a specified number or by making a phone call.

[0027] When the request is received by the telecommunications network the operations performed are illustrated in FIG. 2 in steps **104-212** and described above. In step **212** the network sends a message to the subscribers from the modified record created on the basis of the CDR and the message explains that it was sent on behalf of the user KQ and why it was sent. The message also asks the subscriber to reply by sending text message with his/her name (first name+surname). Because the numbers selected for the modified record belong to social network of KQ it is assumed that the subscribers that received the message know KQ and will reply.

[0028] In one embodiment the subscribers send their replies to the telecommunications network by sending text messages to a specified number. In this embodiment the net-

work collects all the information received in response 214 to the request and compiles a new phone book for KQ 216. Once this is completed KQ downloads the complete phone book to his mobile phone. The downloading of the restored phone book can be done in few stages as KQ will be interested in having his phone book restored as soon as possible and it may take some time before the subscribers reply to the request. Additionally there may be a time limit specified, for example 1 week within which the network accepts the responses.

[0029] Alternatively the instruction given in the text message sent to the subscribers from the modified record may ask these subscribers to reply directly to KQ. In this embodiment KQ receives responses 214 from the subscribers and enters these to the phone book of his mobile phone. In this way the phone book is regenerated 216. The benefit of this solution is that there is no time limit for receiving the responses by KQ and additionally the phone book is regenerated in small, but more frequent increments, which means that the first effects of the regeneration will be available to KQ earlier than in the embodiment in which the network compiles the regenerated phone book for the user KQ.

[0030] An algorithm that can be used in one embodiment of the present invention is presented below:

may limit sending the message only to subscribers located within specified distance from a defined location. The user specifies for example that he wants the message to be sent only to subscribers located within 10 km radius from his current location, or for example 20 km radius from the town of Athlone. After receiving this request the network's Operations Support System (OSS) 506 locates 304 subscribers whose numbers are on the modified record created in step 108 and once the location is known the phone numbers of subscribers located beyond the specified distance are removed 306 from the modified record. Once the modified record is updated the message is sent 212 to the subscribers on the updated modified record. Yet another alternative embodiment is specifying in the request 202 that the user wants the message to be sent to this contact from his social network that is located at a shortest distance from him. In this embodiment the OSS 506, once the location of the subscribers from the modified record is determined, selects the one located closest to the user requesting the service and sends 212 the message to this subscriber.

[0032] FIG. 5 illustrates a telecommunications network 500 operating according to the method described above. In a great simplification the network comprises a first plurality of

PHASE ONE

For the last [history] of distinct made/received call/text to/from [orig].

(i) Cross check found number against known mobile service providers (to ensure SMS is sent to a mobile phone).

- If number is that of a mobile phone

- Add arc to/from [orig] to/from other user in the mobile and (social) network

- If number is NOT that of a mobile phone

- (Optionally) ignore or add number as an arc as above. [SMS may not arrive at a non-mobile number, or reply may not be possible]

(ii) Total all calls & texts to/from each specific user

Where [orig] is the phone number of the user that has lost his contact information and [history] is an arbitrary values that can be set statically or dynamically depending on the operator, e.g. it could be 1,3, 6 months etc.

PHASE TWO

For each number retrieved in PHASE ONE with total communications >= x

(i) Send SMS from [orig] to retrieved number

"Hi, I've lost all my phone contact details, can you reply with your firstname and surname, rgds KQ?"

Where [x] is an arbitrary value that can be set statically or dynamically depending on the operator or individual, e.g. only send an SMS to numbers with contact of more than 3 times in the specified time period.

Example 2

[0031] In this scenario a user of a mobile phone requests 202 a service in which a message should be sent to members of his social network. This can be an invitation to a party or other kind of social event. In the simplest embodiment the message will be sent to all subscribers on the modified record based on the CDR. The steps performed by the network are illustrated in FIG. 2. There are, however, possible other embodiments that provide the subscriber requesting the service with more control over the service he is about to request and this is illustrated in FIG. 3. In a first alternative embodiment, the user can limit that only phone numbers called or SMS was sent to (or alternatively also numbers from which he received calls or SMS) in a specified time period should be included in the modified record based on the CDR 302. For example the time period can be limited to the last seven days and only numbers contacted within these last seven days will be contacted. In the second alternative embodiment the user

radio base stations 510 and 512 connected to a radio network controller (RNC) 508 and an Operations Support System (OSS) 506. The base stations 510 and 512 of the network 500 serve a second plurality of user equipment 514-522. The OSS 506 comprises a charging system module 504 which is responsible for collecting data related to services used by the subscribers of the network as well as subscribers of other networks that used the network 500 when roamed to the network 500. Data related to services used by the subscriber are recorded in a Call Data Record stored in a database 524. The record analysing module 502, which in one embodiment is a software module operating on a processor, is adapted to retrieve a call data record of a specific subscriber (in one embodiment it is the subscriber that is requesting the service) from the charging system 504. Preferably, the analysing module identifies in said call data record phone numbers of non-human subscribers and/or premium phone lines and then creates a modified record based on said call data record excluding the phone numbers of the identified non-human

subscribers and/or premium phone lines. Once the modified record is created by the analysing module 502 a control module 526 of the OSS 506, based on the information from the analysing module 502, instructs the radio part of the network 500 to transmit a message to the subscribers on the modified record. The control module, in one embodiment, is a software operating on a processor that is adapted to receive information from the analysing module 502 and prepare instructions for the network (e.g. for the Radio Network Controller 508) in a format understandable by the network entity the instructions are addressed to. The network 500 comprises radio base stations 510 and 512 that transmit the message to subscribers remaining on said modified record.

Example 3

[0033] The scenario described here illustrates an application of the present invention in situations of network failures and capacity handling issues caused for example in emergency/disaster situations. It is known, that in situations of disasters (whether natural or caused by people) a number of phone calls made increases so dramatically that it may lead to capacity issues and this is often worsened by the disaster damaging part of the network infrastructure. It may happen, for example, that an earthquake destroys a Radio Base Station (RBS) and as a result of that the area previously served by the damaged RBS is now served by neighbouring RBSs. This approach results in the capacity of the adjacent RBS being used also by the UE previously served by the damaged RBS. When one considers also that in the case of such a disaster people present in the affected and surrounding areas attempt to make significantly more phone calls than usual (calling family and friends to tell they are OK, checking friends and family if they are OK, calling emergency services, etc.) it is clear that the wireless communication network will face some serious capacity handling problems. The wireless network is used here as an example only. It is clear that such a disaster would affect in a very similar way also wired telecommunications network.

[0034] There is another factor that has to be considered here and this is the need for providing communications services to all the emergency services operating in the affected and surrounding areas. These services have to have priority over regular users of the network, but to provide these services one needs resources. The resources can be freed by disconnecting (or suspending) at least part of UE operating in the affected and surrounding areas. The present invention allows for optimisation of communications network affected by such an extraordinary event like for example an earthquake by disconnecting (or suspending) only carefully selected UE. It is possible to selectively, and temporarily, suspend service to individuals who are known to be in the range of the same Radio Base Station, while retaining the ability for those individuals to receive crucial emergency information. As in the previous embodiments a Call Data Record for an individual user is retrieved 104 and the numbers of non-human subscribers are identified 106 in the CDR. In the following step a modified record of phone numbers without said non-human subscribers is created in step 108. The key for selecting which individual should be suspended is information about his/her social network and current location. In order to be able to use the social network in the process of suspending selected subscribers it is necessary to analyse 110 the list of phone calls and messages (e.g. SMS messages) received and sent by the subscriber. The analysis gives the information with whom the

subscriber was in contact in a specified period of time and how long was the phone call he made and received. This analysis results in creating 112 a representation of the social network of the subscriber. As in earlier embodiments the modified record can also be modified by removing phone numbers of premium phone lines, call centres, etc. In FIG. 4b, it can be seen that 'YH' has made only one phone call to 'KQ'. Therefore, it can not be ascertained if 'YH' is part of the real world social network (it may be that he dialled wrong number) and service should not be suspended to this person, 120, 118. It is clear from FIG. 4b that 'KQ' and 'BL' are key to the social network in terms of usage and relationships so their service should not be suspended 114. The final two users 'SH' and 'AMB' are part of the social network but are less tightly bound, so their service can be suspended, 120, 124 and they will still be able to receive crucial emergency information from 'KQ' or 'BL' who are in the same physical locality. In a preferred embodiment the network operator texts 122 the suspended users with the name of their point of contact just prior to suspension, e.g. 'SH' and 'AMB' are sent a text stating that 'KQ' is their point of contact while the service is suspended and, preferably, also more detailed information on where 'KQ' is now located. Also the not-suspended subscribers, in a preferred embodiment, is sent a text 214 message informing them that they are contact point for other members of their social network who have been suspended. As mentioned earlier the information about location of UE 514-522 is readily available in telecommunications networks of third generation and is also available in Long Term Evolution (LTE) networks as part, for example, of 911 emergency call service. This information can be used in further optimisation of the selective suspending of the service. For example, as shown in the earlier analysis, the user AMB can be suspended as there is enough evidence that this user is part of the real social network of the user KQ and the emergency information can be relayed to AMB by KQ. If, however, the location information available to the network shows that although AMB and KQ are in the range of the same Radio Base Station, but the distance between them is too large then the service provided to AMB will not be suspended, 116, 118.

[0035] In a preferred embodiment the analysis of CDR resulting in creating a representation of social network is carried for every subscriber located in the area affected by the network capacity issue.

[0036] An algorithm that can be used in one embodiment of the present invention for deriving and creating a representation of a social network of a user of a mobile phone is presented below:

-
- PHASE ONE
 - For each cell where the emergency affects communications capacity
 - (i) Generate a list of all User Equipment in that cell (cell-list)
 Repeat & update cell list after time [update]
 - PHASE TWO
 - For each cell in a network
 - For each User Equipment in a network
 - (i) For the last [history] of made/received calls/texts
 - a. Cross-check Call Data Records with cell-list
 - IF (match between phone numbers in CDR & phone number in Cell-list)
 - THEN
 - (i) Add arc from call originator to call destination in the social network
 - (ii) Total all calls & texts for user within time [t]
- Repeat & update social network after time [update]

-continued

Where [update], [history], and [t] are arbitrary values that can be set statically or dynamically depending on the operator and emergency situation.

[0037] In this way, by selectively suspending some of the users (or more precisely their UE) is possible to release the vital network resources and allocate them to emergency services at the same time maintaining the best possible, in the circumstances, communication with the regular users present in the affected area.

[0038] The network **500** is operable to provide the services three examples of which were described above. The analysing module **502** is adapted to filter the phone numbers from the CDR based on various criteria, like for example time when the last call was made. Additionally information about location of user equipment **514-522** is readily available in telecommunications networks of third generation and is also available in Long Term Evolution (LTE) networks as part, for example, of 911 emergency call service. Technical aspects of determining location of user equipment (UE) in a network are not subject matter of the present invention.

1. A method of optimising operation of a telecommunications network in a situation of traffic demand exceeding capacity of the network, the method comprising:

- retrieving a call data record of a first subscriber of the telecommunications network;
- analysing phone calls and/or text messages made and received by said first subscriber;
- creating a representation of a social network of said first subscriber based on the call data record; and
- suspending provision of telecommunications services to part of the subscribers from said social network, wherein the subscribers to be suspended are selected in a way that at least one member of said social network derived from the call data record is not suspended.

2. The method according to claim 1 further comprising:

- sending a message by the telecommunications network to the not-suspended subscriber requesting said not-suspended subscriber to relay messages to members of his social network; and
- sending a message by the telecommunications network to the subscribers to be suspended identifying the not-suspended member of the social network.

3. The method according to claim 1, wherein the steps of the method are carried out in relation to all subscribers served by the telecommunications network located in an area affected by the traffic demand exceeding capacity of the telecommunications network.

4. The method according to claim 1, wherein a subscriber is not suspended if a distance from said subscriber to a nearest not-suspended member of his social network is greater than a defined distance.

5. The method according to claim 1, wherein a subscriber is not suspended if a number of phone calls or text messages between said subscriber and the nearest not-suspended member of his social network is lower than a defined value.

6. The method according to claim 1, further comprising:

- identifying in the call data record phone numbers of non-human subscribers and/or phone numbers of premium lines; and

creating a modified record based on said call data record, wherein in said modified record said phone numbers of non-human subscribers and/or phone numbers of premium lines are removed.

7. A method of operating a telecommunications network comprising transmitting messages to selected subscribers, the method comprising:

- retrieving a call data record of a first subscriber of the telecommunications network;
- identifying in the call data record phone numbers of non-human subscribers and/or phone numbers of premium phone lines;
- creating a modified record based on said call data record, wherein in said modified record said phone numbers of non-human subscribers and/or phone numbers of premium phone lines are removed; and
- transmitting a message to subscribers remaining on said modified record.

8. The method according to claim 7, wherein the message is sent to the subscribers remaining on said modified record following a request from the first subscriber to regenerate a phone book of a user equipment of said first subscriber.

9. The method according to claim 8, wherein the message sent to the subscribers remaining on said modified record comprises a request to send a reply specifying the name of the sending subscriber.

10. The method according to claim 9 comprising a step of regenerating the phone book based on received replies.

11. The method according to claim 7, wherein the transmitted message is a message received from the first subscriber.

12. The method according to claim 11, comprising specifying by the first subscriber a distance from a defined location and forwarding the message received from the first subscriber only to subscribers remaining on said modified record and located within said distance from said defined location.

13. The method according to claim 7, wherein the message is transmitted only to subscribers located within a defined distance from a defined location.

14. An Operations Support System for a telecommunications network comprising a charging system and a record analysing module, wherein the record analysing module is adapted to retrieve a call data record of a first subscriber from the charging system and to analyse phone calls and/or text messages made and received by said first subscriber; the Operations Support System further comprises a control module for controlling operations of the network based on information received from the analysing module.

15. The Operations Support System according to claim 14, wherein the analysing module is adapted to create a representation of a social network of said first subscriber based on the call data record and the control module is adapted to suspend provision of telecommunications services to part of the subscribers from said modified record, wherein the subscribers to be suspended are selected in a way that at least one member of a social network derived from the call data record is not suspended.

16. The Operations Support System according to claim 14 adapted to perform a method of optimising operation of a telecommunications network in a situation of traffic demand exceeding capacity of the network, the method comprising:

- retrieving a call data record of a first subscriber of the telecommunications network;

analysing phone calls and/or text messages made and received by said first subscriber;
 creating a representation of a social network of said first subscriber based on the call data record; and
 suspending provision of telecommunications services to part of the subscribers from said social network, wherein the subscribers to be suspended are selected in a way that at least one member of said social network derived from the call data record is not suspended.

17. The Operations Support System according to claim **14**, wherein the analysing module is adapted to create a modified record based on said call data record, wherein in said modified record phone numbers of non-human subscribers and/or phone numbers of premium lines are removed and said control module is adapted to instruct the telecommunications network to transmit a message to subscribers remaining on said modified record.

18. The Operations Support System according to claim **14** adapted to operate in accordance with a method of operating a telecommunications network comprising transmitting messages to selected subscribers, the method comprising:

- retrieving a call data record of a first subscriber of the telecommunications network;
- identifying in the call data record phone numbers of non-human subscribers and/or phone numbers of premium phone lines;
- creating a modified record based on said call data record, wherein in said modified record said phone numbers of non-human subscribers and/or phone numbers of premium phone lines are removed; and
- transmitting a message to subscribers remaining on said modified record.

19. A telecommunications network comprising a first plurality of base stations serving a second plurality of user equipment, a radio network controller and an Operations Support System with a charging system and a record analysing module, wherein the record analysing module is adapted to retrieve a call data record of a first subscriber from the charging system and to analyse phone calls and/or text messages made and received by said first subscriber; the Operations Support System further comprises a control module for controlling operations of the network based on information received from the analysing module.

20. The network according to claim **19**, wherein the analysing module is adapted to create a representation of social network of said first subscriber based on the call data record

and the control module is adapted to suspend provision of telecommunications services to part of the subscribers from said modified record, wherein the subscribers to be suspended are selected in a way that at least one member of a social network derived from the call data record is not suspended.

21. The network according to claim **19** adapted to operate in accordance with a method of optimising operation of a telecommunications network in a situation of traffic demand exceeding capacity of the network, the method comprising:

- retrieving a call data record of a first subscriber of the telecommunications network;
- analysing phone calls and/or text messages made and received by said first subscriber;
- creating a representation of a social network of said first subscriber based on the call data record; and
- suspending provision of telecommunications services to part of the subscribers from said social network, wherein the subscribers to be suspended are selected in a way that at least one member of said social network derived from the call data record is not suspended.

22. The network according to claim **19**, wherein the analysing module is adapted to create a modified record based on said call data record, wherein from said modified record said phone numbers of non-human subscribers and/or phone numbers of premium phone lines are removed and further adapted to instruct the telecommunications network to transmit a message to subscribers remaining on said modified record.

23. The network according to claim **19** adapted to operate in accordance with a method of operating a telecommunications network comprising transmitting messages to selected subscribers, the method comprising:

- retrieving a call data record of a first subscriber of the telecommunications network;
- identifying in the call data record phone numbers of non-human subscribers and/or phone numbers of premium phone lines;
- creating a modified record based on said call data record, wherein in said modified record said phone numbers of non-human subscribers and/or phone numbers of premium phone lines are removed; and
- transmitting a message to subscribers remaining on said modified record.

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