AMENDED CLAIMS (11. May 2015)

1. Method for optimal utilization of the capacity of a mobile network serving mobile phones located in a selected geographical area (100), and for handling of network traffic in a period with heavy network load exerted by network traffic to or from, or both to and from said area for avoiding overloading of said mobile network, comprising the following steps:

a) establishing an overview of maximum network capacity (200) of said mobile network serving said selected geographical area as well as adjacent areas;

b) establishing an overview of the identity of mobile phones (300) located within said selected geographical area as well as in adjacent areas served by said mobile network for determining maximum traffic load that may be exerted by mobile phones (300) on the mobile network, characterized in further comprising:

c) performing monitoring of current traffic load (400) exerted by each of different types of mobile services requiring different bandwidth, and which are delivered via said mobile network;

d) determining type of barring (530), of one or more of said different types of mobile services, to be set or removed for network traffic to or from, or both to and from, mobile phones (300) identified in step b), based on said maximum network capacity (200), said determined maximum traffic load, and said current monitored traffic load (400);

e) setting type of barring (550) or removing set type of barring (540), determined in step d), of said mobile phones (300) identified in step b) and served by said mobile network for utilizing maximum network capacity without overloading the network during a period with heavy network load, and preferably without shutting down all network services for a particular mobile phone;

f) repeating steps b) to e).

2. Method according to claim 1, where prioritized mobile phones (300) are excluded from barring (520).

3. Method according to claim 1, where barring of the selected type to or from, or both to and from, mobile phones located inside said selected area is performed.

4. Method according to claim 1, where barring of the selected type to or from, or both to and from, mobile phones in areas adjacent to said selected area is performed.

5. Method according to claim 1, where barring of the selected type to or from, or both to and from, mobile phones located both inside said selected area and areas adjacent to said selected area is performed.

6. Method according to claims 3, 4 or 5, where mobile phones in the selected area is grouped in at least two groups, and where network services is barred for one group at a time set by time intervals.

7. Method according to claim 6, where barring of network services rotates between the groups set by time intervals, such that each group will have access to network services for a limited time in a period with heavy network load.

8. Method according to one of the claims 1 to 7, where type of mobile service barred is SMS, voice and/or different type of data.

9. Method according to claim 8, where the different type of data barred is low bandwidth demanding services such as browsing and/or high bandwidth demanding services such as streaming of video and voice.

10. Method according to one of the claims 1 to 9, where gradual barring of services for identified mobile phones is performed based on current traffic load on the mobile network.

11. Device for performing optimal utilization of the capacity of a mobile network serving mobile phones located in a selected geographical area (100), and for handling of network traffic in a period with heavy network load exerted by network traffic to or from, or both to and from said area for avoiding overloading of said mobile network, comprising:

a) input means for receiving information of a selected geographical area;

b) input means for receiving an overview of maximum network capacity (200) of said mobile network serving said selected geographical area as well as adjacent areas;

c) input means for receiving an overview of the identity of mobile phones (300) located within said selected geographical area as well as in adjacent areas served by said mobile network for determining maximum traffic load that may be exerted by mobile phones (300) on the mobile network; characterized in further comprising:

d) input means for receiving data regarding current traffic load (400) exerted by each of different types of mobile services requiring different bandwidth, and which are delivered via said mobile network;

e) means for determining type of barring (530) of one or more of said different types of mobile services to be set or removed for network traffic to or from, or both to and from, the identified mobile phones (300) based on said maximum network capacity (200), said determined maximum traffic load, and said current monitored traffic load (400), and

f) output means for outputting information of type of barring (550) to be set or removed of said identified mobile phones (300) served by said mobile network for utilizing maximum network capacity without overloading the network during a period with heavy network load, and preferably without shutting down all network services for a particular mobile phone.

12. Device according to claim 11, characterized in further comprising input means for receiving data regarding prioritised mobile phones (300) that are not to be barred.

13. System for performing optimal utilization of the capacity of a mobile network serving mobile phones located in a selected geographical area (100), and for handling network traffic in a period with heavy network load exerted by network traffic to or from, or both to and from said area for avoiding overloading of said mobile network, comprising:

a) means for selecting said geographical area;

b) means for establishing an overview of maximum network capacity (200) of said mobile network serving said selected geographical area as well as adjacent areas;

c) means for establishing an overview of the identity of mobile phones (300) located within said selected geographical area as well as in adjacent areas served by said mobile network for determining maximum traffic load that may be exerted by mobile phones (300) on the mobile network; characterized in further comprising

d) means for establishing an overview of the current traffic load (400) exerted by each of different types of mobile services requiring different bandwidth, and which are delivered via said mobile network;

e) a location based barring device for determining type of barring (530) of one or more of said different types of mobile services to be set or removed for network traffic to or from, or both to and from, the identified mobile phones (300) based on said maximum network capacity (200), said determined maximum traffic load, and said current monitored traffic load (400);

f) a mobile switching centre performing barring (550) by enabling and disabling mobile services for said mobile phones (300), said switching centre having input means for receiving the identity of mobile phones (300) where barring (550) and type of barring is to be set or removed, determined by said location based barring device.

14. System according to claim 13, characterized in further comprising a priority database with the identity of prioritised mobile phones (300) that are not to be barred.

CLAIMS

1. Method for optimal utilization of the capacity of a mobile network serving mobile phones located in a selected geographical area, and for handling of network traffic in a period with heavy network load exerted by network traffic to or from, or both to and from said geographical area for avoiding overloading of said mobile network, comprising the following steps:

   a) establishing an overview of maximum network capacity of said mobile network serving said selected geographical area as well as adjacent areas;

   b) establishing an overview of the identity of mobile phones located within said selected geographical area as well as in adjacent areas served by said mobile network, and determining possible maximum traffic load that may be exerted by the identified mobile phones;

   c) monitoring current traffic load of the mobile network as well as traffic load of each of different mobile services requiring different bandwidth on the network;

   d) determining if barring is to be set or removed for said different mobile services to or from, or both to and from the mobile phones identified in step b), and where this is based on the established maximum network capacity, determined possible maximum traffic load, and current monitored traffic load;

   e) setting barring or removing barring of one or more of said different mobile services for the mobile phones identified in step b) for utilizing maximum network capacity of the network without overloading the network during a period with heavy network load, and without shutting down all mobile services for a particular mobile phone;

   f) repeating steps b) to e).

2. Method according to claim 1, where prioritized mobile phones are excluded from barring.

3. Method according to claim 1, where barring of the selected type to or from, or both to and from, mobile phones located inside said selected area is performed.

4. Method according to claim 1, where barring of the selected type to or from, or both to and from, mobile phones in areas adjacent to said selected area is performed.

5. Method according to claim 1, where barring of the selected type to or from, or both to and from, mobile phones located both inside said selected area and areas adjacent to said selected area is performed.

6. Method according to claims 3, 4 or 5, where mobile phones in the selected area is grouped in at least two groups, and where network services is barred for one group at a time set by time intervals.

7. Method according to claim 6, where barring of network services rotates between the groups set by time intervals, such that each group will have access to network services for a limited time in a period with heavy network load.

8. Method according to one of the claims 1 to 7, where type of mobile service barred is SMS, voice and/or different type of data.

9. Method according to claim 8, where the different type of data barred are low bandwidth demanding services such as browsing and/or high bandwidth demanding services such as streaming of video and voice.

10. Method according to one of the claims 1 to 9, where gradual barring of services for identified mobile phones is performed based on current traffic load on the mobile network.

11. Device for performing optimal utilization of the capacity of a mobile network serving mobile phones located in a selected geographical area, and for handling of network traffic in a period with heavy network load exerted by network traffic to or from, or both to and from said area for avoiding overloading of said mobile network, comprising:

    a) input means for receiving information of a selected geographical area;

    b) input means for receiving an overview of maximum network capacity of said mobile network serving said selected geographical area as well as adjacent areas;

c) input means for receiving an overview of the identity of mobile phones located within said selected geographical area as well as in adjacent areas served by said mobile network for determining maximum traffic load that may be exerted by identified mobile phones on the mobile network;

d) input means for receiving data regarding current traffic load of the mobile network as well as traffic load of each of different mobile services requiring different bandwidth on the network;

e) means for determining if barring is to be set or removed for said different mobile services to or from, or both to and from the mobile phones identified in step c), and where this is based on the established maximum network capacity, determined possible maximum traffic load, and current monitored traffic load, and

f) means for setting barring or removing barring of one or more of said different mobile services for the mobile phones identified in step c) for utilizing maximum network capacity of the network without overloading the network during a period with heavy network load, and without shutting down all mobile services for a particular mobile phone.

12. Device according to claim 11, further comprising input means for receiving data regarding prioritised mobile phones that are not to be barred.

13. System for performing optimal utilization of the capacity of a mobile network serving mobile phones located in a selected geographical area, and for handling of network traffic in a period with heavy network load exerted by network traffic to or from, or both to and from said area for avoiding overloading of said mobile network, comprising:

a) means for selecting said geographical area;

b) means for establishing an overview of maximum network capacity of said mobile network serving said selected geographical area as well as adjacent areas;

c) means for establishing an overview of the identity of mobile phones located within said selected geographical area as well as in adjacent areas served by said mobile network for determining maximum traffic load that may be exerted by mobile phones on the mobile network;

d) means for establishing an overview of the current traffic load of the mobile network as well as traffic load of each of different mobile services requiring different bandwidth on the network;

e) a location based barring device for determining if barring is to be set or removed for said different mobile services to or from, or both to and from the mobile phones identified in step c), and where this is based on the established maximum network capacity, determined possible maximum traffic load, and current monitored traffic load;

f) a mobile switching centre for setting barring or removing barring of one or more of said different mobile services for the mobile phones identified in step c), said switching centre having input means for receiving the identity of mobile phones where barring and type of barring is to be set or removed, determined by said location based barring device.

14. System according to claim 13, further comprising a priority database with the identity of prioritised mobile phones that are not to be barred.