SUMMARY OF THE INVENTION

In accordance with a first aspect of the present invention, there is provided a system for adjusting the amount of data bandwidth provided to a mobile device comprising a bandwidth adjustment facilitator arranged to receive a request from the mobile device for adjusting the amount of data bandwidth; a bandwidth throttler in communication with the bandwidth adjustment facilitator; the bandwidth throttler adapted to cap or allocate excess available data bandwidth to the mobile device; wherein on receipt of the request, the bandwidth adjustment facilitator processes the request and if the request is successfully processed, adjusts the data bandwidth provided to the mobile device via the bandwidth throttler; wherein the data bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where data bandwidth is at least 2 Mbps.

Preferably the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

~~Preferably the data bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower; and a boost mode where data bandwidth is at least 2 Mbps.~~

Preferably, the system further comprises a subscriber database arranged to maintain details of a plurality of subscribers; and an accounting database arranged to be in data communication with the subscriber database for the settlement and checking of available funds for each subscriber and maintaining a history of transaction of each subscriber.

Preferably, the default mode for a pre-paid subscriber is the trickle mode.

Preferably, the mobile device is arranged to send the request automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

device comprising the following steps: - a. receiving at a bandwidth adjustment facilitator from the mobile device a request to adjust bandwidth; b. processing the request to adjust bandwidth; and c. adjusting the data bandwidth to the mobile device via a bandwidth throttler upon successful processing of the request, the bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where date bandwidth is at least 2 Mbps.

Preferably, the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

~~Preferably the bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower; and a boost mode where data bandwidth is at least 2 Mbps.~~

Preferably the processing step includes checking a subscriber database to determine if the mobile device has a subscriber account and the subscriber type (pre-paid or post-paid); and checking an accounting database for available of funds to make the adjustment of bandwidth.

Preferably the default mode of a pre-paid subscriber is the trickle mode.

Preferably the request is sent automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

Preferably the bandwidth adjustment facilitator is arranged to monitor the usage profile of the mobile device and sends a prompt to the mobile device to adjust the data bandwidth to boost mode according to the usage profile.

The usage profile used to determine if the data bandwidth should be adjusted to boost mode is based on one or more of the following:- whether the mobile device consumed the maximum data bandwidth of the trickle mode for a predetermined period of time; detecting that an active connection is

dedicated software application 30, request 22 may be sent via simple SMS.

- More than two modes of data bandwidth may be configured depending on the user's/subscribers' needs. For example, the 'trickle' mode (9.6 kbps and lower, good for notifications and text instant messages; the EDGE/GPRS mode of about maximum rate of 384 kbps, which is good for browsing, general Internet messaging, HTML pages browsing with images or pictures; and 3G mode up to speed about 2 Mbps and higher which is ideal for watching videos, doing 3G video calls etc.

- An option allowing the user of mobile device 14 to toggle off or pause the boosting of bandwidth may also be adapted in the dedicated mobile software application. Such an option allows the user to have better control over his/her pre-paid credits.

- As mentioned earlier, the dedicated mobile software application 30 may, if the user of mobile device 14 allows, go into an automatic mode where the dedicated software application automatically boost or un-boost the data bandwidth depending on likely actions taken by the user of mobile device 14 (e.g. passively waiting for push notifications or accessing 'heavy content' as based on the detection algorithm described earlier). In order to help the user be aware of the cost incurred, the user is notified in the background if he is in 'boost' mode and therefore incurring higher pre-paid credits. The automatic mode may be manually 'override' at any point of time by the user of mobile device 14.

- In the system 100, in addition to the 'charge per action' billing method, a "flat fee for a defined set of web resources" method, or some combination of both may be adopted.

Comprises/comprising and grammatical variations thereof when used in this specification are to be taken to specify the presence of stated features, integers, steps or components or groups thereof, but do not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

The Claims Defining the Invention are as Follows:

1. A system for adjusting the amount of data bandwidth provided to a mobile device comprising:-

a bandwidth adjustment facilitator arranged to receive a request from the mobile device for adjusting the amount of data bandwidth;

a bandwidth throttler in communication with the bandwidth adjustment facilitator; the bandwidth throttler adapted to cap or allocate excess available data bandwidth to the mobile device;

wherein on receipt of the request, the bandwidth adjustment facilitator processes the request and if the request is successfully processed, adjusts the data bandwidth provided to the mobile device via the bandwidth throttler, wherein the data bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where data bandwidth is at least 2 Mbps.~~.~~

2. A system according to claim 1, wherein the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

~~3. A system according to claim 1, wherein the data bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower; and a boost mode where data bandwidth is at least 2 Mbps.~~

43. A system according to claim 1 comprising a subscriber database arranged to maintain details of a plurality of subscribers; and an accounting database arranged to be in data communication with the subscriber database for the settlement and checking of available funds for each subscriber and maintaining a history of transaction of each subscriber.

~~5~~4. A system according to claims ~~3 and 4~~ 1 to 3, wherein the default mode of a pre-paid subscriber is the trickle mode.

~~6~~5. A system according to claim 1, wherein the mobile device is arranged to send the request automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

~~7~~6. A system according to claim 1, wherein the bandwidth adjustment facilitator is arranged to monitor ~~the~~a usage profile of the mobile device and sends a prompt to the mobile device to adjust the data bandwidth according to the usage profile.

~~8~~7. A system according to claim ~~3 and claim~~ 5 or 6 ~~or 7~~, wherein the usage profile to adjust the data bandwidth to boost mode is based on one or more of the following:- whether the mobile device consumed the maximum data bandwidth of the trickle mode for a predetermined period of time; detecting that an active connection is established with a URL/IP address that is known to deliver video, images, or large files for a predetermined period of time; detecting that a file of a certain type and size is being accessed or downloaded; and detecting that the mobile device uses progressive http download.

~~9~~8. A system according to claim 1, wherein the bandwidth adjustment facilitator is arranged to check the access point name (APN) of the mobile device prior to processing the request.

~~10~~9. A system according to claim 1, wherein bandwidth usage is charged or billed based on either a pay-per-specific time model or pay per action model.

~~11~~10. A system according to claim ~~10~~9, wherein the pay-per-specific time model or pay per action model is activated by sending a request from the

mobile device to the bandwidth adjustment facilitator, the bandwidth adjustment facilitator operable to, upon receiving the request, toggle between an existing billing infrastructure implementing the pay-per-specific time model and an independent billing module implementing the pay per action model.

~~12~~11. A system according to claim ~~11~~10, wherein the toggling from the existing billing infrastructure to the independent billing module is achieved either by switching off the existing billing infrastructure; or defining the data bandwidth connection as a zero tariff.

~~13~~12. A method for adjusting the amount of data bandwidth provided to a mobile device comprising the following steps:-

a. receiving at a bandwidth adjustment facilitator from the mobile device a request to adjust bandwidth;

b. processing the request to adjust bandwidth; and

c. adjusting the data bandwidth to the mobile device via a bandwidth throttler upon successful processing of the request, wherein the bandwidth is adjustable to between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where data bandwidth is at least 2 Mbps.

~~14~~13. A method according to claim ~~13~~12, wherein the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

~~15. A method according to claim 13, wherein the bandwidth is adjustable to between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower; and a boost mode where data bandwidth is at least 2 Mbps.~~

~~16~~14. A method according to claim ~~13~~12, wherein the processing step includes checking a subscriber database to determine if the mobile device has a subscriber account and the subscriber type (pre-paid or post-paid); and checking an accounting database for available of funds to make the adjustment of bandwidth.

~~17~~15. A method according to claim~~s~~ 14~~15 and 16~~, wherein the default mode of a pre-paid subscriber is the trickle mode.

~~18~~16. A method according to claim ~~13~~12, wherein the request is sent automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

~~19~~17. A method according to claim ~~13~~12, wherein the bandwidth adjustment facilitator is arranged to monitor ~~the~~a usage profile of the mobile device and sends a prompt to the mobile device to adjust the data bandwidth according to the usage profile.

~~20~~18. A method according to claim 16 or 17~~15 and claim 18 or 19~~, wherein the monitoring of usage profile is based on one or more of the following:- whether the mobile device consumed the maximum data bandwidth of the trickle mode for a predetermined period of time; detecting that an active connection is established with a URL/IP address that is known to deliver video, images, or large files for a predetermined period of time; detecting that a file of a certain type and size is being accessed or downloaded; and detecting that the mobile device uses progressive http download.

~~21~~19. A method according to claim ~~13~~12, including a step of checking the access point name (APN) of the mobile device prior to processing the request.

~~22~~20. A method according to claim ~~13~~12, the method comprising an additional step of billing for the bandwidth consumed based on either a pay-per-specific time model or pay per action model.

~~23~~21. A method according to claim ~~22~~20, wherein the pay-per-specific time model or pay per action model is activated by sending a request from the mobile device to the bandwidth adjustment facilitator, the bandwidth adjustment facilitator operable to, upon receiving the request, toggle between an existing billing infrastructure implementing the pay-per-specific time model and an independent billing module implementing the pay per action model.

~~24~~22. A method according to claim ~~23~~21, wherein the toggling from the existing billing infrastructure to the independent billing module is achieved either by switching off the existing billing infrastructure; or defining the data bandwidth connection as a zero tariff.

~~25~~23. A mobile device containing software instructions, wherein upon execution of the software instructions performs the method of any one of claims 12 to 22 ~~13 to adjust the data bandwidth~~.

~~26. A mobile device according to claim 25, wherein the software instructions includes monitoring the user profile according to claim 20.~~

~~27. A mobile device containing software instructions, wherein upon execution of the software instructions performs the method of claim 23 to select either the pay-per-specific time model or the pay per action model.~~

SUMMARY OF THE INVENTION

In accordance with a first aspect of the present invention, there is provided a system for adjusting the amount of data bandwidth provided to a mobile device comprising a bandwidth adjustment facilitator arranged to receive a request from the mobile device for adjusting the amount of data bandwidth; a bandwidth throttler in communication with the bandwidth adjustment facilitator; the bandwidth throttler adapted to cap or allocate excess available data bandwidth to the mobile device; wherein on receipt of the request, the bandwidth adjustment facilitator processes the request and if the request is successfully processed, adjusts the data bandwidth provided to the mobile device via the bandwidth throttler; wherein the data bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where data bandwidth is at least 2 Mbps.

Preferably the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

Preferably, the system further comprises a subscriber database arranged to maintain details of a plurality of subscribers; and an accounting database arranged to be in data communication with the subscriber database for the settlement and checking of available funds for each subscriber and maintaining a history of transaction of each subscriber.

Preferably, the default mode for a pre-paid subscriber is the trickle mode.

Preferably, the mobile device is arranged to send the request automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

device comprising the following steps: - a. receiving at a bandwidth adjustment facilitator from the mobile device a request to adjust bandwidth; b. processing the request to adjust bandwidth; and c. adjusting the data bandwidth to the mobile device via a bandwidth throttler upon successful processing of the request, the bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where date bandwidth is at least 2 Mbps.

Preferably, the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

Preferably the processing step includes checking a subscriber database to determine if the mobile device has a subscriber account and the subscriber type (pre-paid or post-paid); and checking an accounting database for available of funds to make the adjustment of bandwidth.

Preferably the default mode of a pre-paid subscriber is the trickle mode.

Preferably the request is sent automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

Preferably the bandwidth adjustment facilitator is arranged to monitor the usage profile of the mobile device and sends a prompt to the mobile device to adjust the data bandwidth to boost mode according to the usage profile.

The usage profile used to determine if the data bandwidth should be adjusted to boost mode is based on one or more of the following:- whether the mobile device consumed the maximum data bandwidth of the trickle mode for a predetermined period of time; detecting that an active connection is

dedicated software application 30, request 22 may be sent via simple SMS.

- More than two modes of data bandwidth may be configured depending on the user's/subscribers' needs. For example, the 'trickle' mode (9.6 kbps and lower, good for notifications and text instant messages; the EDGE/GPRS mode of about maximum rate of 384 kbps, which is good for browsing, general Internet messaging, HTML pages browsing with images or pictures; and 3G mode up to speed about 2 Mbps and higher which is ideal for watching videos, doing 3G video calls etc.

- An option allowing the user of mobile device 14 to toggle off or pause the boosting of bandwidth may also be adapted in the dedicated mobile software application. Such an option allows the user to have better control over his/her pre-paid credits.

- As mentioned earlier, the dedicated mobile software application 30 may, if the user of mobile device 14 allows, go into an automatic mode where the dedicated software application automatically boost or un-boost the data bandwidth depending on likely actions taken by the user of mobile device 14 (e.g. passively waiting for push notifications or accessing 'heavy content' as based on the detection algorithm described earlier). In order to help the user be aware of the cost incurred, the user is notified in the background if he is in 'boost' mode and therefore incurring higher pre-paid credits. The automatic mode may be manually 'override' at any point of time by the user of mobile device 14.

- In the system 100, in addition to the 'charge per action' billing method, a "flat fee for a defined set of web resources" method, or some combination of both may be adopted.

Comprises/comprising and grammatical variations thereof when used in this specification are to be taken to specify the presence of stated features, integers, steps or components or groups thereof, but do not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

The Claims Defining the Invention are as Follows:

1. A system for adjusting the amount of data bandwidth provided to a mobile device comprising:- a bandwidth adjustment facilitator arranged to receive a request from the mobile device for adjusting the amount of data bandwidth; a bandwidth throttler in communication with the bandwidth adjustment facilitator; the bandwidth throttler adapted to cap or allocate excess available data bandwidth to the mobile device; wherein on receipt of the request, the bandwidth adjustment facilitator processes the request and if the request is successfully processed, adjusts the data bandwidth provided to the mobile device via the bandwidth throttler, wherein the data bandwidth is adjustable between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where data bandwidth is at least 2 Mbps.

2. A system according to claim 1, wherein the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

3. A system according to claim 1 comprising a subscriber database arranged to maintain details of a plurality of subscribers; and an accounting database arranged to be in data communication with the subscriber database for the settlement and checking of available funds for each subscriber and maintaining a history of transaction of each subscriber.

4. A system according to claims 1 to 3, wherein the default mode of a prepaid subscriber is the trickle mode.

5. A system according to claim 1, wherein the mobile device is arranged to send the request automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

6. A system according to claim 1, wherein the bandwidth adjustment facilitator is arranged to monitor a usage profile of the mobile device and sends a prompt to the mobile device to adjust the data bandwidth according to the usage profile.

7. A system according to claim 5 or 6 , wherein the usage profile to adjust the data bandwidth to boost mode is based on one or more of the following:- whether the mobile device consumed the maximum data bandwidth of the trickle mode for a predetermined period of time; detecting that an active connection is established with a URL/IP address that is known to deliver video, images, or large files for a predetermined period of time; detecting that a file of a certain type and size is being accessed or downloaded; and detecting that the mobile device uses progressive http download.

8. A system according to claim 1, wherein the bandwidth adjustment facilitator is arranged to check the access point name (APN) of the mobile device prior to processing the request.

9. A system according to claim 1, wherein bandwidth usage is charged or billed based on either a pay-per-specific time model or pay per action model.

10. A system according to claim 9, wherein the pay-per-specific time model or pay per action model is activated by sending a request from the mobile device to the bandwidth adjustment facilitator, the bandwidth adjustment facilitator operable to, upon receiving the request, toggle between an existing billing infrastructure implementing the pay-per-specific time model and an independent billing module implementing the pay per action model.

11. A system according to claim 10, wherein the toggling from the existing billing infrastructure to the independent billing module is achieved either

by switching off the existing billing infrastructure; or defining the data bandwidth connection as a zero tariff.

12. A method for adjusting the amount of data bandwidth provided to a mobile device comprising the following steps:- a. receiving at a bandwidth adjustment facilitator from the mobile device a request to adjust bandwidth; b. processing the request to adjust bandwidth; and c. adjusting the data bandwidth to the mobile device via a bandwidth throttler upon successful processing of the request, wherein the bandwidth is adjustable to between two modes comprising a trickle mode where data bandwidth is 9.6 kbps and lower and a boost mode where data bandwidth is at least 2 Mbps.

13. A method according to claim 12, wherein the request for adjusting the amount of data bandwidth is in the form of one of the following: Short Messaging Service (SMS) message; electronic text message; Unstructured Supplementary Service Data (USSD) message.

14. A method according to claim 12, wherein the processing step includes checking a subscriber database to determine if the mobile device has a subscriber account and the subscriber type (pre-paid or post-paid); and checking an accounting database for available of funds to make the adjustment of bandwidth.

15. A method according to claim 14, wherein the default mode of a pre-paid subscriber is the trickle mode.

16. A method according to claim 12, wherein the request is sent automatically to the bandwidth adjustment facilitator based on the usage profile of the mobile device.

17. A method according to claim 12, wherein the bandwidth adjustment facilitator is arranged to monitor a usage profile of the mobile device and

sends a prompt to the mobile device to adjust the data bandwidth according to the usage profile.

18. A method according to claim 16 or 17, wherein the monitoring of usage profile is based on one or more of the following:- whether the mobile device consumed the maximum data bandwidth of the trickle mode for a predetermined period of time; detecting that an active connection is established with a URL/IP address that is known to deliver video, images, or large files for a predetermined period of time; detecting that a file of a certain type and size is being accessed or downloaded; and detecting that the mobile device uses progressive http download.

19. A method according to claim 12, including a step of checking the access point name (APN) of the mobile device prior to processing the request.

20. A method according to claim 12, the method comprising an additional step of billing for the bandwidth consumed based on either a pay-per-specific time model or pay per action model.

21. A method according to claim 20, wherein the pay-per-specific time model or pay per action model is activated by sending a request from the mobile device to the bandwidth adjustment facilitator, the bandwidth adjustment facilitator operable to, upon receiving the request, toggle between an existing billing infrastructure implementing the pay-per-specific time model and an independent billing module implementing the pay per action model.

22. A method according to claim 21, wherein the toggling from the existing billing infrastructure to the independent billing module is achieved either by switching off the existing billing infrastructure; or defining the data bandwidth connection as a zero tariff.

23. A mobile device containing software instructions, wherein upon execution of the software instructions performs the method of any one of claims 12 to 22.