CLAIMS

1. A method for switching between data connections for a mobile communication device, the method comprising the steps of:

establishing via a cellular network, a cellular data connection between the mobile communication device and a server;

establishing via a Wi-Fi network, a Wi-Fi data connection between the mobile communication device and the server;

concurrently maintaining the cellular data connection and the Wi-Fi data connection;

collecting monitoring data by concurrently monitoring a first ping of the cellular data connection and a second ping of the Wi-Fi data connection, the first ping and the second ping each being a weighted average of a series of ping values;

using one of the cellular data connection and the Wi-Fi data connection for data communication with the server at any one time;

collecting switching data, the switching data indicative of a frequency of switching;

determining at a predetermined time based on the monitoring data whether switching should be performed;

determining based on the switching data whether switching should be performed by evaluating if the frequency of switching over a time period is within a switching threshold, wherein determining that based on the switching data that switching should not be performed will override any determination for switching made in relation to the monitoring data; and

if it is determined that switching should be performed, performing switching to switch from the one of the cellular data connection and the Wi-Fi data connection, to another one of the cellular data connection and the Wi-Fi data connection, for data communication with the server.

2. The method of claim 1 wherein if the monitoring data indicates that the first ping is larger than a high ping threshold, and that the second ping is less than the high ping threshold, and that a difference between the first ping and the second ping is larger than a ping-delta threshold, it would be determined that based on the monitoring data,

switching should be performed, and switching is performed to switch from the cellular data connection to the Wi-Fi data connection for data communication with the server.

3. The method of claim 1 wherein if the monitoring data indicates that the second ping is larger than a high ping threshold, and that the first ping is less than the high ping threshold, and that a difference between the first ping and the second ping is larger than a ping-delta threshold, it would be determined that based on the monitoring data, switching should be performed, and switching is performed to switch from the Wi-Fi data connection to the cellular data connection for data communication with the server.

4 The method of claim 2 or 3 wherein the high ping threshold is a ping value in the range of 100 to 300 ms; and wherein the ping-delta threshold is a ping value in the range of 50 to 70 ms.

5. The method of claim 1 wherein if the monitoring data indicates that the first ping is larger than a severe ping threshold, and that the second ping is less than the first ping, it would be determined that based on the monitoring data, switching should be performed, and switching is performed to switch from the cellular data connection to the Wi-Fi data connection for data communication with the server.

6. The method of claim 1 wherein if the monitoring data indicates that the second ping is larger than a severe ping threshold, and that the first ping is less than the second ping, it would be determined that based on the monitoring data, switching should be performed, and switching is performed to switch from the Wi-Fi data connection to the cellular data connection for data communication with the server.

7. The method of claim 5 or 6 wherein the severe ping threshold is around 350 ms.

8. The method of any one of the preceding claims wherein the data communication with the server is for the purposes of playing an online game on the mobile communication

device, and wherein if the switching data indicates that the frequency of switching for a session of the online game will exceed a game session switching threshold, it would be determined that based on the switching data, switching should not be performed, and switching is not performed.

9. The method of any one of the preceding claims wherein the monitoring data is collected by sending heartbeat packets to the server.

10. The method of any one of the preceding claims wherein the cellular data connection is assigned a first port number and a first IP address, and the Wi-Fi data connection is assigned a second port number and a second IP address; and switching being performed results in assigning the second port number and the second IP address to the cellular data connection, and assigning the first port number and the first IP address to the Wi-Fi data connection.

11. A mobile communication device comprising:

a cellular module configured to establish via a cellular network, a cellular data connection with a server;

a Wi-Fi module configured to establish via a Wi-Fi network, a Wi-Fi data connection with the server;

a monitoring module configured to collect monitoring data by concurrently monitoring a first ping of the cellular data connection and a second ping of the Wi-Fi data connection, the first ping and the second ping each being a weighted average of a series of ping values;

a communication module configured to use one of the cellular data connection and the Wi-Fi data connection for data communication with the server at any one time;

and

a switching module configured to collect switching data, the switching data indicative of a frequency of switching;

wherein the cellular data connection and the Wi-Fi data connection are concurrently maintained; and

wherein the switching module is configured to :

determine at a predetermined time based on the monitoring data whether switching should be performed;

determine based on the switching data whether switching should be performed by evaluating if the frequency of switching over a time period is within a switching threshold, wherein determining that based on the switching data that switching should not be performed will override any determination for switching made in relation to the monitoring data;

and if it is determined that switching should be performed, perform switching to switch from the one of the cellular data connection and the Wi-Fi data connection, to another one of the cellular data connection and the Wi-Fi data connection, for data communication with the server.

12. The mobile communication device of claim 11 wherein if the monitoring data indicates that the first ping is larger than a high ping threshold, and that the second ping is less than the high ping threshold, and that a difference between the first ping and the second ping is larger than a ping-delta threshold; the switching module would determine that based on the monitoring data, switching should be performed and switch from the cellular data connection to the Wi-Fi data connection for data communication with the server.

13. The mobile communication device of claim 11 wherein if the monitoring data indicates that the second ping is larger than a high ping threshold, and that the first ping is less than the high ping threshold, and that a difference between the first ping and the second ping is larger than a ping-delta threshold; the switching module would determine that based on the monitoring data, switching should be performed, and switch from the Wi-Fi data connection to the cellular data connection for data communication with the server.

14. The mobile communication device of claim 11 wherein if the monitoring data indicates that the first ping is larger than a severe ping threshold, and that the second ping is less than the first ping; the switching module would determine that based on the monitoring data, switching should be performed and switch from the cellular data connection to the Wi-Fi data connection for data communication with the server.

15. The mobile communication device of claim 11 wherein if the monitoring data indicates that the second ping is larger than a severe ping threshold, and that the first ping is less than the second ping; the switching module would determine that based on the

monitoring data, switching should be performed and switch from the Wi-Fi data connection to the cellular data connection for data communication with the server.

16. The mobile communication device of any one of claims 11 to 15 wherein the data communication with the server is for the purposes of playing an online game on the mobile communication device, and if the switching data indicates that the frequency of switching for a session of the online game will exceed a game session switching threshold, the switching module would determine that based on the switching data, switching should not be performed, and switching is not performed.