

caused problems for the satellite provider because authorization codes could be shared among viewers, and some viewers were able to watch programs illegally using the shared code without acquiring a license.

[0006] The second conventional satellite VOD procedure that avoids the need for a wired broadband used inserted a GSM cellular module into the STB. The STB would use the GSM module to send a cellular communication to the satellite provider notifying the satellite provider of the selected VOD program so that a license could be acquired for the viewer. While this procedure limited the number of cumbersome steps for the viewer, it greatly increased the service provider and viewer cost. First, the GSM module made the STB more expensive for the viewer or the satellite company to buy, and the viewer needed to purchase a service plan from a cellular provider merely to enable their STB to communicate wirelessly via the GSM module. The service plan added another monthly charge to an already expensive television subscription.

[0007] In view of the shortcomings of these known VOD techniques, the inventors believe that a need in the art exists for different and improved technologies to support VOD service.

[0008] Toward this end, the inventors disclose a number of exemplary embodiments whereby a wireless personal area network is used to notify a content provider of VOD selections.

SUMMARY OF INVENTION

[0008a] According to a first aspect of the present invention, there is provided a proxy method comprising:

a processor executing a mobile application, wherein the processor is resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein the executing step comprises:

creating a proxy service through the mobile application, wherein the creating step includes forming a personal area network ("PAN") with a set top box ("STB") via a PAN transceiver and forming a wide area network ("WAN") with a remote server via a WAN transceiver such that the mobile application communicates with the STB through the proxy service via the PAN transceiver and the PAN communicates with the remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receiving a plurality of segments of a message from the STB through the proxy service over the PAN;

reassembling the message from the received message segments according a PAN protocol;

preparing the message for transmission over the WAN according to a WAN protocol; and

sending the prepared message to the remote server through the proxy service over the WAN according to the WAN protocol.

[0008b] According to a second aspect of the present invention, there is provided an apparatus comprising:

a wide area network ("WAN") transceiver configured to send and receive data over a WAN connection;

a personal area network ("PAN") transceiver configured to communicate with a set top box ("STB") over a PAN connection;

a memory configured to store a plurality of processor-executable instructions that embody a mobile application; and

a processor in cooperation with the memory, wherein the processor configured to execute the mobile application;

wherein the PAN transceiver, the WAN transceiver, the memory, and the processor are resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein execution of the mobile application causes the processor to:

create a proxy service through which the mobile application communicates with the STB via the PAN transceiver and the PAN connection and through which the mobile application communicates with a remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receive a plurality of segments of a message from the STB through the proxy service over the PAN connection;

reassemble the message from the received message segments according to a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

[0008c] According to a third aspect of the present invention, there is provided a computer program product comprising:

a plurality of processor-executable instructions that embody a mobile application for execution by a portable computer, the instructions being resident on a non-transitory computer-readable storage medium and being configured, upon execution by a processor of the portable computer, to:

create a proxy service through which a wireless personal area network ("PAN") is established to pair the portable computer with a set top box ("STB") via a PAN connection and through which a wide area network ("WAN") connection is established between the mobile application and a remote server, wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

receive a plurality of segments of a message from the STB through the proxy service over the PAN connection;

reassemble the message from the received message segments according a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

[0008d] There is provided an apparatus comprising:

a serial connector configured to connect with a complementary serial connector of a set top box ("STB");

a personal area network ("PAN") transceiver configured to communicate over a PAN with a PAN transceiver-equipped computer within a range of the PAN, wherein the PAN provides a link through which the STB communicates with a remote server via the PAN transceiver and a proxy service created as a result of execution of a mobile application by the PAN transceiver-equipped computer, the proxy service including a communication path to the remote server via a wide area network (WAN), wherein the proxy service leverages an existing data service plan from a carrier for the PAN transceiver-equipped computer and does not leverage a tethering plan from the carrier for the PAN transceiver-equipped computer;

a memory in which a plurality of software instructions are stored; and

a processor in cooperation with the serial connector, PAN transceiver, and memory, the processor configured to execute the software instructions to (1) receive data from the STB via the serial connector, (2) form a message according to a PAN protocol based on the received data, and (3) send the message to the PAN transceiver-equipped computer via the PAN transceiver according to the PAN protocol for delivery to the remote server via the proxy service; and

wherein the serial connector, PAN transceiver, memory, and processor are arranged as a distinct PAN transceiver unit that is connectable to the STB via the respective complementary serial connectors of the PAN transceiver unit and the STB.

[0008e] There is provided a method comprising:

connecting a distinct personal area network ("PAN") transceiver unit with a set top box ("STB"), wherein the PAN transceiver unit comprises (1) a serial connector, (2) a personal area network ("PAN") transceiver, (3) a memory in which a plurality of software instructions are stored, and (4) a processor in cooperation with the serial connector, PAN transceiver, and memory, the processor configured to execute the software instructions, wherein the connecting step comprises connecting the serial connector of the PAN transceiver unit with a complementary serial connector of a set top box ("STB");

establishing a personal area network ("PAN") connection between the PAN transceiver unit and a PAN transceiver-equipped computer via the respective PAN transceivers of the PAN transceiver unit and the PAN transceiver-equipped computer, wherein the PAN connection provides a link through which the STB communicates with a remote server via the PAN transceiver unit and a proxy service created as a result of execution of a mobile application by the PAN transceiver-equipped computer, the proxy service providing a communication path to the remote server via a wide area network (WAN), wherein the proxy service leverages an existing data service plan from a carrier for the PAN transceiver-equipped computer and does not leverage a tethering plan from the carrier for the PAN transceiver-equipped computer;

the processor, via execution of the software, (1) receiving data from the STB via the complementary serial connectors of the STB and the PAN transceiver unit, (2) forming a message according to a PAN protocol based on the received data, and (3) sending the message to the PAN transceiver of the PAN transceiver unit;

the PAN transceiver of the PAN transceiver unit wirelessly communicating the message to the PAN transceiver-equipped computer via the PAN connection for delivery to the remote server via the proxy service.

[0008f] There is provided apparatus comprising:

a set top box ("STB"), the STB comprising:

- a metal chassis;
- a plastic front panel;
- a processor;
- a memory;
- a graphics unit; and

a personal area network ("PAN") transceiver configured to wirelessly communicate over a PAN with a PAN transceiver-equipped computer within a range of the PAN, wherein the PAN transceiver is mounted outside the metal chassis but inside the plastic front panel, wherein the PAN provides a link through which the STB communicates with a remote server via the PAN transceiver and a proxy service created as a result of execution of a mobile application by the PAN transceiver-equipped computer, the proxy service providing a communication path to the remote server via a wide area network (WAN), wherein the proxy service leverages an existing data service plan from a carrier for the PAN transceiver-equipped computer and does not leverage a tethering plan from the carrier for the PAN transceiver-equipped computer;

wherein the processor, memory, and graphics unit are configured to cooperate to process and output video content for display on a connected television; and

wherein the processor is further configured to: (1) form a message according to a PAN protocol, the message including data for communication to the PAN transceiver-equipped computer, and (2) command the PAN transceiver to send the message to the PAN transceiver-equipped computer according to the PAN protocol for delivery to the remote server via the proxy service.

[0008g] There is provided a system for authorizing video on demand ("VOD") purchases comprising:

- a set top box ("STB") comprising a serial connector;

a personal area network ("PAN") transceiver unit comprising a PAN transceiver, a processor, and a serial connector;

a portable computer comprising a processor, a memory, a PAN transceiver, and a wide area network ("WAN") transceiver, the portable computer including a mobile application that is embodied as a plurality of processor-executable instructions resident in the portable computer's memory; and

a server;

wherein the PAN transceiver unit is configured to connect with the STB's serial connector via the PAN transceiver unit's serial connector;

wherein the portable computer's processor is further configured to execute the mobile application to create a proxy service through which there is a PAN communication path between the STB and the mobile application via a wireless PAN that is established between the PAN transceivers of the PAN transceiver unit and the portable computer and through which there is a WAN communication path between the mobile application and the server via the portable computer's WAN transceiver, wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

wherein the STB is configured to (1) receive data representative of a selection of VOD content by a user, (2) generate a VOD authorization request corresponding to the VOD content selection in response to the received data, (3) output the VOD authorization request to the PAN transceiver unit through the STB's serial connector, and (4) play the VOD content in response to receipt of an authorization message;

wherein the PAN transceiver unit's processor is configured to (1) receive the VOD authorization request from the STB via the PAN transceiver unit's serial connector, and (2) send the VOD authorization request to the portable computer via the STB transceiver unit's PAN transceiver and the wireless PAN according to a PAN protocol;

wherein the portable computer is configured to, through the proxy service created by execution of the mobile application, (1) receive the VOD authorization request sent by the PAN transceiver unit and (2) send the VOD authorization request to the server via the WAN communication path according to a WAN protocol; and

wherein the server is configured to (1) receive the VOD authorization request sent by the portable computer, (2) generate an authorization message based on the received VOD authorization request, and (3) send the authorization message to the STB.

[0008h] There is provided a method for authorizing video on demand ("VOD") purchases comprising:

a mobile application executed by a portable computer creating a proxy service when the portable computer and a personal area network ("PAN") transceiver unit are within a PAN range of each other, wherein the created proxy service wirelessly connects the PAN transceiver unit with the mobile application via a PAN and wirelessly connects the mobile application with a remote server via a wide area network ("WAN"), and wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

receiving, by a set top box ("STB"), a selection of VOD content from a viewer, the STB including a serial connector through which the STB is connected with the PAN transceiver unit;

the STB communicating an authorization request corresponding to the VOD content selection to the PAN transceiver unit via the serial connection;

the PAN transceiver unit sending the authorization request to the portable computer over the PAN;

the mobile application, via the created proxy service, sending, the authorization request over the WAN to the remote server; and beginning playback, by the STB, of the VOD content selection after the remote server authenticates the VOD content selection.

[0008i] According to a fourth aspect of the present invention, there is provided a proxy method comprising:

a processor executing a mobile application, wherein the processor is resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein the executing step comprises:

creating a proxy service through the mobile application, wherein the creating step includes forming a personal area network ("PAN") with another device via a PAN transceiver and forming a wide area network ("WAN") with a remote server via a WAN transceiver such that the mobile application communicates with the another device through the proxy service via the PAN transceiver and the PAN communicates with the remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receiving a plurality of segments of a message from the another device through the proxy service over the PAN;

reassembling the message from the received message segments according a PAN protocol;

preparing the message for transmission over the WAN according to a WAN protocol; and

sending the prepared message to the remote server through the proxy service over the WAN according to the WAN protocol.

[0008j] According to a fifth aspect of the present invention, there is provided a computer program product comprising:

a plurality of processor-executable instructions that embody a mobile application for execution by a portable computer, the instructions being resident on a non-transitory computer-readable storage medium and being configured, upon execution by a processor of the portable computer, to:

create a proxy service through which a wireless personal area network ("PAN") is established to pair the portable computer with another device via a PAN connection and through which a wide area network ("WAN") connection is established between the mobile application and a remote server, wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

receive a plurality of segments of a message from the another device through the proxy service over the PAN connection;

reassemble the message from the received message segments according a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

[0008k] According to an sixth aspect of the present invention, there is provided an apparatus comprising:

a wide area network ("WAN") transceiver configured to send and receive data over a WAN connection;

a personal area network ("PAN") transceiver configured to communicate with a device over a PAN connection;

a memory configured to store a plurality of processor-executable instructions that embody a mobile application; and

a processor in cooperation with the memory, wherein the processor configured to execute the mobile application;

wherein the PAN transceiver, the WAN transceiver, the memory, and the processor are resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein execution of the mobile application causes the processor to:

create a proxy service through which the mobile application communicates with the device via the PAN transceiver and the PAN connection and through which the mobile application communicates with a remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receive a plurality of segments of a message from the device through the proxy service over the PAN connection;

reassemble the message from the received message segments according a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

[0008] There is provided a proxy system for linking a device with a remote server via a mobile application, the system comprising:

a device comprising a serial connector;

a personal area network ("PAN") transceiver unit comprising a PAN transceiver, a processor, and a serial connector;

a portable computer comprising a processor, a memory, a PAN transceiver, and a wide area network ("WAN") transceiver, the portable computer including a mobile application that is embodied as a plurality of processor-executable instructions resident in the portable computer's memory; and

a server;

wherein the PAN transceiver unit is configured to connect with the device's serial connector via the PAN transceiver unit's serial connector;

wherein the portable computer's processor is further configured to execute the mobile application to create a proxy service through which there is a PAN communication path between the device and the mobile application via a wireless PAN that is established between the PAN transceivers of the PAN transceiver unit and the portable computer and through which there is a WAN communication path between the mobile application and the server via the portable computer's WAN transceiver, wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

wherein the device is configured to output message data to the PAN transceiver unit through the device's serial connector;

wherein the PAN transceiver unit's processor is configured to (1) receive the message data from the device via the PAN transceiver unit's serial connector, and (2) send the message data to the portable computer via the transceiver unit's PAN transceiver and the wireless PAN according to a PAN protocol;

wherein the portable computer is configured to, through the proxy service created by execution of the mobile application, (1) receive the message data sent by the PAN transceiver unit and (2) send the message data to the server via the WAN communication path according to a WAN protocol; and

wherein the server is configured to receive and process the message data sent by the portable computer.

[0008m] There is provided a method comprising:

connecting a distinct personal area network ("PAN") transceiver unit with a device, wherein the PAN transceiver unit comprises (1) a serial connector, (2) a personal area network ("PAN") transceiver, (3) a memory in which a plurality of software instructions are stored, and (4) a processor in cooperation with the serial connector, PAN transceiver, and memory, the processor configured to execute the software instructions, wherein the connecting step comprises connecting the serial connector of the PAN transceiver unit with a complementary serial connector of a device;

establishing a personal area network ("PAN") connection between the PAN transceiver unit and a PAN transceiver-equipped computer via the respective PAN transceivers of the PAN transceiver unit and the PAN transceiver-equipped computer, wherein the PAN connection provides a link through which the device communicates with a remote server via the PAN transceiver unit and a proxy service created as a result of execution of a mobile application by the PAN transceiver-equipped computer, the proxy service providing a communication path to the remote server via a wide area network (WAN), wherein the proxy service leverages an existing data service plan from a carrier for the PAN transceiver-equipped computer

and does not leverage a tethering plan from the carrier for the PAN transceiver-equipped computer;

the processor, via execution of the software, (1) receiving data from the device via the complementary serial connectors of the device and the PAN transceiver unit, (2) forming a message according to a PAN protocol based on the received data, and (3) sending the message to the PAN transceiver of the PAN transceiver unit ;

the PAN transceiver of the PAN transceiver unit wirelessly communicating the message to the PAN transceiver-equipped computer via the PAN connection for delivery to the remote server via the proxy service.

[0009] For example, a computing device with its own wireless networking capabilities such as a smart phone, tablet computer, or iPod can be used as a proxy through which the STB can communicate requests for VOD content and/or the Internet to a remote server that determines whether the VOD content request should be granted. The computing device can have both a personal area network ("PAN")

Claims**1. A proxy method comprising:**

a processor executing a mobile application, wherein the processor is resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein the executing step comprises:

creating a proxy service through the mobile application, wherein the creating step includes forming a personal area network ("PAN") with a set top box ("STB") via a PAN transceiver and forming a wide area network ("WAN") with a remote server via a WAN transceiver such that the mobile application communicates with the STB through the proxy service via the PAN transceiver and the PAN communicates with the remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receiving a plurality of segments of a message from the STB through the proxy service over the PAN;

reassembling the message from the received message segments according a PAN protocol;

preparing the message for transmission over the WAN according to a WAN protocol; and

sending the prepared message to the remote server through the proxy service over the WAN according to the WAN protocol.

2. The method of claim 1, wherein the member is the smart phone.**3. The method of claim 2, further comprising downloading the mobile application onto the smart phone.****4. The method of claim 2, wherein the message comprises an authorization request with respect to video on demand (VOD) content.**

5. The method of claim 2, wherein the message comprises data indicative of channel changes made by a viewer during live watching of television programming.
6. The method of claim 2, wherein the message comprises diagnostic data regarding the STB.
7. The method of claim 1, wherein the STB is connected to a PAN transceiver unit through which the STB communicates over the PAN.
8. An apparatus comprising:
 - a wide area network ("WAN") transceiver configured to send and receive data over a WAN connection;
 - a personal area network ("PAN") transceiver configured to communicate with a set top box ("STB") over a PAN connection;
 - a memory configured to store a plurality of processor-executable instructions that embody a mobile application; and
 - a processor in cooperation with the memory, wherein the processor configured to execute the mobile application;
 - wherein the PAN transceiver, the WAN transceiver, the memory, and the processor are resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;
 - wherein execution of the mobile application causes the processor to:
 - create a proxy service through which the mobile application communicates with the STB via the PAN transceiver and the PAN connection and through which the mobile application communicates with a remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;
 - receive a plurality of segments of a message from the STB through the proxy service over the PAN connection;

reassemble the message from the received message segments according a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

9. The apparatus of claim 8, wherein the PAN transceiver comprises a Bluetooth transceiver.

10. The apparatus of claim 8, wherein the WAN transceiver comprises a cellular transceiver

11. The apparatus of claim 8, wherein the member is the smart phone.

12. The apparatus of claim 11, wherein the mobile application is a downloaded mobile application.

13. The apparatus of claim 11, wherein the message comprises an authorization request with respect to video on demand (VOD) content.

14. The apparatus of claim 11, wherein the message comprises data indicative of channel changes made by a viewer during live watching of television programming.

15. The apparatus of claim 11, wherein the message comprises diagnostic data regarding the STB.

16. The apparatus of claim 8, wherein the STB is connected to a PAN transceiver unit through which the STB communicates over the PAN connection.

17. A computer program product comprising:

a plurality of processor-executable instructions that embody a mobile application for execution by a portable computer, the instructions being resident on a non-transitory computer-

readable storage medium and being configured, upon execution by a processor of the portable computer, to:

- create a proxy service through which a wireless personal area network ("PAN") is established to pair the portable computer with a set top box ("STB") via a PAN connection and through which a wide area network ("WAN") connection is established between the mobile application and a remote server, wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

- receive a plurality of segments of a message from the STB through the proxy service over the PAN connection;

- reassemble the message from the received message segments according a PAN protocol;

- prepare the message for transmission over the WAN connection according to a WAN protocol; and

- send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

18. The computer program product of claim 17, wherein the PAN connection comprises a Bluetooth connection.

19. The computer program product of claim 17, wherein the WAN protocol comprises TCP/IP.

20. The computer program product of claim 17, wherein the instructions are further configured, upon execution by the processor of the portable computer, to:

- retrieve information indicative of a user associated with the portable computer from memory on the portable computer; and

- augment the prepared message with the retrieved information such that the prepared message sent to the remote server over the WAN connection includes the retrieved information.

21. The computer program product of claim 17, wherein the instructions are further configured, upon execution by the processor of the portable computer, to pair the portable computer with the

STB via the wireless PAN automatically when the portable computer comes within a PAN range of the second device.

22. The computer program product of claim 17, wherein the mobile application is a downloaded mobile application.

23. The computer program product of claim 22, wherein the portable computer comprises a smart phone.

24. The computer program product of claim 23, wherein the message comprises an authorization request with respect to video on demand (VOD) content.

25. The computer program product of claim 23, wherein the message comprises data indicative of channel changes made by a viewer during live watching of television programming.

26. The computer program product of claim 23, wherein the message comprises diagnostic data regarding the STB.

27. The computer program product of claim 17, wherein the STB is connected to a PAN transceiver unit through which the STB is paired with the portable computer via the PAN connection.

28. A proxy method comprising:

a processor executing a mobile application, wherein the processor is resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein the executing step comprises:

creating a proxy service through the mobile application, wherein the creating step includes forming a personal area network ("PAN") with another device via a PAN transceiver and forming a wide area network ("WAN") with a remote server via a WAN transceiver such that the mobile application communicates with the another device through the proxy service via the PAN transceiver and the PAN communicates with the remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receiving a plurality of segments of a message from the another device through the proxy service over the PAN;

reassembling the message from the received message segments according a PAN protocol;

preparing the message for transmission over the WAN according to a WAN protocol; and

sending the prepared message to the remote server through the proxy service over the WAN according to the WAN protocol.

29. The method of claim 28, wherein the message comprises status information regarding the another device.

30. The method of claim 29 wherein the another device comprises a vehicle.

31. The method of claim 29 wherein the another device comprises a television.

32. The method of claim 29 wherein the another device comprises a member of the group consisting of (1) a refrigerator, (2) a thermostat, and (3) a Blu-ray player.

33. The method of claim 28, wherein the member is the smart phone.

34. The method of claim 28, wherein the another device is connected to a PAN transceiver unit through which the another device communicates over the PAN.

35. The method of claim 28, wherein the PAN connection comprises a Bluetooth connection.

36. A computer program product comprising:

a plurality of processor-executable instructions that embody a mobile application for execution by a portable computer, the instructions being resident on a non-transitory computer-readable storage medium and being configured, upon execution by a processor of the portable computer, to:

create a proxy service through which a wireless personal area network ("PAN") is established to pair the portable computer with another device via a PAN connection and

through which a wide area network (“WAN”) connection is established between the mobile application and a remote server, wherein the proxy service leverages an existing data service plan from a carrier for the portable computer and does not leverage a tethering plan from the carrier for the portable computer;

receive a plurality of segments of a message from the another device through the proxy service over the PAN connection;

reassemble the message from the received message segments according a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.

37. An apparatus comprising:

a wide area network (“WAN”) transceiver configured to send and receive data over a WAN connection;

a personal area network (“PAN”) transceiver configured to communicate with a device over a PAN connection;

a memory configured to store a plurality of processor-executable instructions that embody a mobile application; and

a processor in cooperation with the memory, wherein the processor configured to execute the mobile application;

wherein the PAN transceiver, the WAN transceiver, the memory, and the processor are resident on a member of the group consisting of (1) a smart phone, (2) a tablet computer, and (3) a mobile handheld computing device;

wherein execution of the mobile application causes the processor to:

create a proxy service through which the mobile application communicates with the device via the PAN transceiver and the PAN connection and through which the mobile application communicates with a remote server via the WAN transceiver and the WAN connection, wherein the proxy service leverages an existing data service plan from

a carrier for the member and does not leverage a tethering plan from the carrier for the member;

receive a plurality of segments of a message from the device through the proxy service over the PAN connection;

reassemble the message from the received message segments according a PAN protocol;

prepare the message for transmission over the WAN connection according to a WAN protocol; and

send the prepared message to the remote server through the proxy service over the WAN connection according to the WAN protocol.