

are described in more detail below. The operating system 70 and the software components 72 to 82 that are executed by the processor 40 are typically stored in a persistent store such as the flash memory 48, which may alternatively be a read-only memory (ROM) or similar storage element (not shown). Those skilled in the art will appreciate that portions of the operating system 70 and the software components 72 to 82, such as specific device applications, or parts thereof, may be temporarily loaded into a volatile store such as the RAM 46. Other software components can also be included, as is well known to those skilled in the art.

**[0030]** The subset of software applications 72 that control basic device operations, including data and voice communication applications, will normally be installed on the portable electronic device 20 during its manufacture. Other software applications include a message application 74 that can be any suitable software program that allows a user of the portable electronic device 20 to send and receive electronic messages. Various alternatives exist for the message application 74 as is well known to those skilled in the art. Messages that have been sent or received by the user are typically stored in the flash memory 48 of the portable electronic device 20 or some other suitable storage element in the portable electronic device 20. In at least some embodiments, some of the sent and received messages may be stored remotely from the device 20 such as in a data store of an associated host system that the portable electronic device 20 communicates with.

**[0031]** The software applications can further include a device state module 76, a Personal Information Manager (PIM) 78, and other suitable modules (not shown). The device state module 76 provides persistence, i.e. the device state module 76 ensures that important device data is stored in persistent memory, such as the flash memory 48, so that the data is not lost when the portable electronic device 20 is turned off or loses power.

**[0032]** The PIM 78 includes functionality for organizing and managing data items of interest to the user, such as, but not limited to, e-mail, contacts, calendar events, voice mails, appointments, and task items. A PIM application has the ability to send and receive data items via the wireless network 1000. PIM data items may be seamlessly integrated, synchronized, and updated via the wireless network 1000 with the portable electronic device subscriber's corresponding data items stored and/or associated with a host computer system. This functionality creates a mirrored host computer on the portable electronic device 20 with respect to such items. This can be particularly advantageous when the host computer system is the portable electronic device subscriber's office computer system.

**[0033]** The portable electronic device 20 also includes a connect module 80, and an information technology (IT) policy module 82. The connect module 80 implements the communication protocols that are required for the portable electronic device 20 to communicate with the wireless infrastructure and any host system, such as an enterprise system, that the portable electronic device 20 is authorized to interface with.

**[0034]** The connect module 80 includes a set of APIs that can be integrated with the portable electronic device 20 to allow the portable electronic device 20 to use any number of services associated with the enterprise system. The connect module 80 allows the portable electronic device 20 to establish an end-to-end secure, authenticated communication pipe with the host system. A subset of applications for which

access is provided by the connect module 80 can be used to pass IT policy commands from the host system to the portable electronic device 20. This can be done in a wireless or wired manner. These instructions can then be passed to the IT policy module 82 to modify the configuration of the device 20. Alternatively, in some cases, the IT policy update can also be done over a wired connection.

**[0035]** Other types of software applications can also be installed on the portable electronic device 20. These software applications can be third party applications, which are added after the manufacture of the portable electronic device 20. Examples of third party applications include games, calculators, utilities, etc.

**[0036]** The additional applications can be loaded onto the portable electronic device 20 through at least one of the wireless network 1000, the auxiliary I/O subsystem 50, the data port 52, the short-range communications subsystem 58, or any other suitable device subsystem 60. This flexibility in application installation increases the functionality of the portable electronic device 20 and may provide enhanced on-device functions, communication-related functions, or both. For example, secure communication applications may enable electronic commerce functions and other such financial transactions to be performed using the portable electronic device 20.

**[0037]** The data port 52 enables a subscriber to set preferences through an external device or software application and extends the capabilities of the portable electronic device 20 by providing for information or software downloads to the portable electronic device 20 other than through a wireless communication network. The alternate download path may, for example, be used to load an encryption key onto the portable electronic device 20 through a direct and thus reliable and trusted connection to provide secure device communication.

**[0038]** The data port 52 can be any suitable port that enables data communication between the portable electronic device 20 and another computing device. The data port 52 can be a serial or a parallel port. In some instances, the data port 52 can be a USB port that includes data lines for data transfer and a supply line that can provide a charging current to charge the battery 68 of the portable electronic device 20.

**[0039]** The short-range communications subsystem 58 provides for communication between the portable electronic device 20 and different systems or devices, without the use of the wireless network 1000. For example, the subsystem 58 may include an infrared device and associated circuits and components for short-range communication. Examples of short-range communication standards include standards developed by the Infrared Data Association (IrDA), Bluetooth, and the 802.11 family of standards developed by IEEE.

**[0040]** In use, a received signal such as a text message, an e-mail message, or web page download is processed by the communication subsystem 42 and input to the processor 40. The processor 40 then processes the received signal for output to the display 26 or alternatively to the auxiliary I/O subsystem 50. A subscriber may also compose data items, such as e-mail messages, for example, using the input surface 28 in conjunction with the controller 34, the display 26 and possibly the auxiliary I/O subsystem 50. It will be appreciated that the location of a touch on the touch-sensitive input surface 28 communicates with the main processor 40 via the controller 34 for determining the location of a touch on the touch screen display 34. The auxiliary subsystem 50 may include devices