system knowledge and a considerable development time involving individual developers.

(iv) Infrastructure providers require considerable scalability and reliability. For example, millions of end devices may be potential end nodes and it is desired to provide high levels of reliability and/or useability, particularly for a gas or electricity network.

[0008] Existing problems make it difficult for infrastructure providers to deploy additional applications and/or modules, that provide additional functionality, to end devices at an acceptable speed and/or acceptable cost. The technical difficulties prevent users or customers from simply selecting and deploying a wide variety of possible applications over a variety of infrastructure networks.

[0009] Accordingly, there is a need for systems, methods, and/or apparatus for enabling communication between devices using different communication protocols and for integration systems, apparatus, and/or methods for assisting with selection, configuration and/or delivery of applications to end devices and/or infrastructure devices. This disclosure is directed to overcoming and/or ameliorating at least one or more of the disadvantages of the prior art, or at least providing a useful alternative, as will become apparent from the discussion herein.

SUMMARY

[0010] The present disclosure provides a integration system for enabling communication between service providers and end-devices, the integration system comprising:

at least one memory for storing data about end-devices, including application and device profiles associated with applications deployed from the integration system on the end-devices;

an interface for receiving communications from service providers intended for a plurality of end-devices and retransmitting the communication to the plurality of end devices;

wherein the plurality of end-devices are configured to communicate with two or more different service providers and the integration system is configured to validate and

transform the incoming communication from the service provider using at least one of the application and device profiles into a format and protocol corresponding to the end-device.

[0011] The present disclosure also provides a method, executed by an integration system, for communicating with a plurality of end-devices, the method comprising:

receiving a communication from a service provider;

identifying which plurality of end-devices the communication was intended for and accessing application or device profiles associated with applications deployed from the integration system on the end-devices;

determining which of two or more formats and communication protocols the plurality of end-devices use;

validating and transforming the received communication into the plurality of different formats and communication protocols using the application or device profiles;

retransmitting the communication to the identified plurality of end-devices.

[0011A] Certain embodiments described herein may comprise an integration system for enabling communication between service providers and end-devices, the integration device comprising: at least one memory for storing data about end-devices; an interface for receiving communications from service providers intended for a plurality of end-devices and retransmitting the communication to the plurality of end-devices; wherein the plurality of end-devices are configured to communicate with two or more different service providers and the integration system is configured to translate the incoming communication from the service provider to the protocol corresponding to the end-device.

[0011B] In certain embodiments, the integration device may further comprise a common interface for receiving communications from service providers using a common protocol.

system.

[00165] The integration system will then forward the application data or alert to the customer.

[00166] As will be apparent from the above, the integration system is able to support a wide variety of customer premises devices 132, 709, 809 and integrate them for deployment and control with a wide variety of infrastructure, service providers and customer systems 110, 502, 520 and 700, as shown in for example, Figures 10 and 11.

[00167] Additionally, the disclosure has been described with reference to particular embodiments. However, it will be readily apparent to those skilled in the art that it is possible to embody the disclosure in specific forms other than those of the embodiments described above. The embodiments are merely illustrative and should not be considered restrictive. The scope of the disclosure is given by the appended claims, rather than the preceding description, and variations and equivalents that fall within the range of the claims are intended to be embraced therein.

[00168] Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

[00169] The reference in this specification to any prior publication (or information derived from it), or to any matter which is known, is not, and should not be taken as an acknowledgment or admission or any form of suggestion that that prior publication (or information derived from it) or known matter forms part of the common general knowledge in the field of endeavour to which this specification relates.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An integration system for enabling communication between service providers and end-devices, the integration system comprising:

at least one memory for storing data about end-devices, including application and device profiles associated with applications deployed from the integration system on the end-devices;

an interface for receiving communications from service providers intended for a plurality of end-devices and retransmitting the communication to the plurality of end-devices;

wherein the plurality of end-devices are configured to communicate with two or more different service providers and the integration system is configured to validate and transform the incoming communication from the service provider using at least one of the application and device profiles into a format and protocol corresponding to the end-device.

2. The integration system of claim 1, further comprising a common interface for receiving communications from service providers using a common protocol.

3. The integration system of any one of the preceding claims, further comprising a processor for implementing access management protocols across a plurality of service providers.

4. The integration system of claim 3, wherein the access management protocols comprise security protocols.

5. The integration system of claim 4, wherein the security protocols comprise at least one of authentication, service provider rights and roles, end-device data, or service provider data.

6. The integration system of any one of the preceding claims, further comprising an application kiosk for storing applications for distribution to the end-devices.

7. The integration system of any one of the preceding claims, wherein the service providers desire to communicate with the end-devices to provide applications to the end-devices.

8. The integration system of any one of the preceding claims, wherein the service providers desire to communicate with the end-devices to query the end-devices.

9. The integration system of any one of the preceding claims, wherein the service providers desire to request the protocol corresponding to the end device from the integration system.

10. The integration system of any one of the proceeding claims, wherein end-device manufacturers are given rights to update firmware on the end-devices and provide applications and the remaining service providers desire to request their available commands for respective devices

11. The integration system of any one of the preceding claims, wherein the integration device is further configured to translate communications from the end-devices into a protocol corresponding to the service provider.

12. The integration system of any one of the preceding claims, wherein the end-devices comprise at least one of customer premise utility devices, mobile devices, hand-held devices, and/or mounted tracking devices or sensors.

13. The integration system of any one of the preceding claims, wherein the service providers comprise at least one of end-device manufactures, utility companies, and/or third party service providers.

14. The integration system of claim 13, wherein the manufacturers are given rights to update firmware on the end-devices and provide applications and the remaining service providers are given rights to query the end devices.

15. The integration system of claim 13, wherein the manufacturers are given rights to update firmware on the end-devices and provide applications and the remaining service providers desire to request the protocol corresponding to the end device from the integration system.

16. The integration system of any one of the preceding claims, wherein there are at least 100 end-devices using at least 3 different communication protocols.

17. The integration system of any one of the preceding claims, wherein at least one of the end-devices is a gateway that communicates with another device.

18. The integration system of any one of the preceding claims, wherein at least one of the end-devices is a microengine device that communicates with another device.

19. A method, executed by an integration system, for communicating with a plurality of end-devices, the method comprising:

receiving a communication from a service provider;

identifying which plurality of end-devices the communication was intended for and accessing application or device profiles associated with applications deployed from the integration system on the end-devices;

determining which of two or more formats and communication protocols the plurality of end-devices use;

validating and transforming the received communication into the plurality of different formats and communication protocols using the application or device profiles;

retransmitting the communication to the identified plurality of end-devices.

20. The method of claim 19, wherein the communications from the service providers are received using a common protocol.

21. The method of claim 19 or 20, further comprising implementing access management protocols across a plurality of service providers.

22. The method of claim 21, wherein the access management protocols comprise security protocols.

23. The method of claim 22, wherein the security protocols comprise at least one of authentication, service provider rights and roles, end-device data, or service provider data.

24. The method of one of claims 19 to 23, further comprising storing applications for distribution to the end-devices.

25. The method of one of claims 19 to 24, wherein the service providers desire to communicate with the end-devices to provide applications to the end-devices.

26. The method of one of claims 19 to 25, wherein the service providers desire to communicate with the end-devices to query the end-devices.

27. The method of one of claims 19 to 26, wherein the service providers desire to request the protocol corresponding to the end device from an integration system.

28. The method of one of claims 19 to 27, further comprising translating communications from the end-devices into a protocol corresponding to the service provider.

29. The method of one of claims 19 to 28, wherein the end-devices comprise at least one of customer premise utility devices, mobile devices, hand-held devices, and/or mounted tracking devices.

30. The method of one of claims 19 to 29, wherein the service providers comprise at least one of end-device manufactures, utility companies, and/or third party service providers.

31. The method of claim 30, wherein the manufactures are given rights to update firmware on the end-devices and provide applications and the remaining service providers are given rights to query the end devices.

32. The method of claim 30, wherein the manufacturers are given rights to update firmware on the end-devices and provide applications and the remaining service providers desire to request the protocol corresponding to the end device from the integration system.

33. The method of claim 30, wherein the manufacturers are given rights to update firmware on the end-devices and provide applications and the remaining service providers desire to request their available commands for respective devices.

34. The method of one of claims 19 to 33, wherein there are at least 100 end-devices using at least 3 different communication protocols.

35. The method of one of claims 19 to 34, wherein at least one of the end-devices is a gateway that communicates with another device.

36. The method of one of claims 19 to 35, wherein at least one of the end-devices is a microengine device that communicates with another device.