lamaPLC communication: Thread

Thread is an IPv6-based, low-power mesh networking technology for Internet of things (IoT) products. The Thread protocol specification is available at no cost; however, this requires agreement and continued adherence to an end-user license agreement (EULA), which states *“Membership in Thread Group is necessary to implement, practice, and ship Thread technology and Thread Group specifications.”*

Often used as a transport for Matter (the combination being known as **Matter over Thread**), the protocol has seen increased use for connecting low-power and battery-operated smart-home devices.

Thread uses 6LoWPAN, which, in turn, uses the IEEE 802.15.4 wireless protocol with mesh communication (in the 2.4 GHz spectrum), as do Zigbee and other systems. However, Thread is IP-addressable, with cloud access and AES encryption. A BSD-licensed open-source implementation of Thread called OpenThread is available from and managed by Google.

Thread is a low-power and low-latency wireless mesh networking protocol built using open and proven standards. It uses 6LoWPAN, which is based on the use of a connecting router, called an edge router. Thread calls their edge routers border routers. Thread solves the complexities of the IoT, addresses challenges such as interoperability, range, security, energy, and reliability. A Thread network doesn’t have a single point of failure, and it has the ability to self-heal.

Thread is based on existing technologies in all its layers: from routing, packeting, and security to its wireless radio technology. Similar to Wi-Fi, with its broad range of devices, Thread is an open standard that is not tied to a specific manufacturer, which minimizes the risk of incompatibilities.

Thread’s IPv6 foundation is application-agnostic, offering product manufacturers the flexibility to choose one or more application layers to connect devices across multiple networks. Developers can bring their apps, devices, systems, and services to market faster because they’re using the same set of tools available for the Internet.

The OpenThread network simulator, a part of the OpenThread implementation, simulates Thread networks using OpenThread POSIX instances, and provides visualization and management of those simulated networks. The simulator utilises discrete-event simulation and allows for visualisation of communications through a web interface.

While that allows Thread devices to communicate with IPv4-only endpoints, the Thread devices are still communicating using IPv6.

Sources

Wikipedia (here)

Thread topics on lamaPLC

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