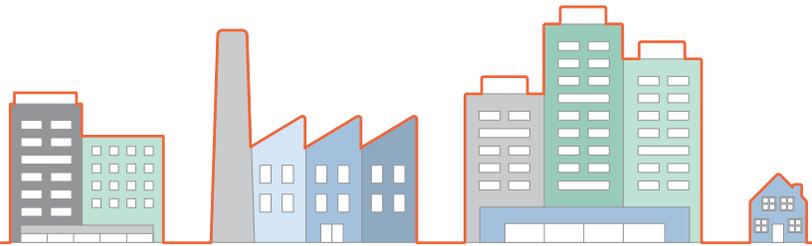




THREAD IN COMMERCIAL



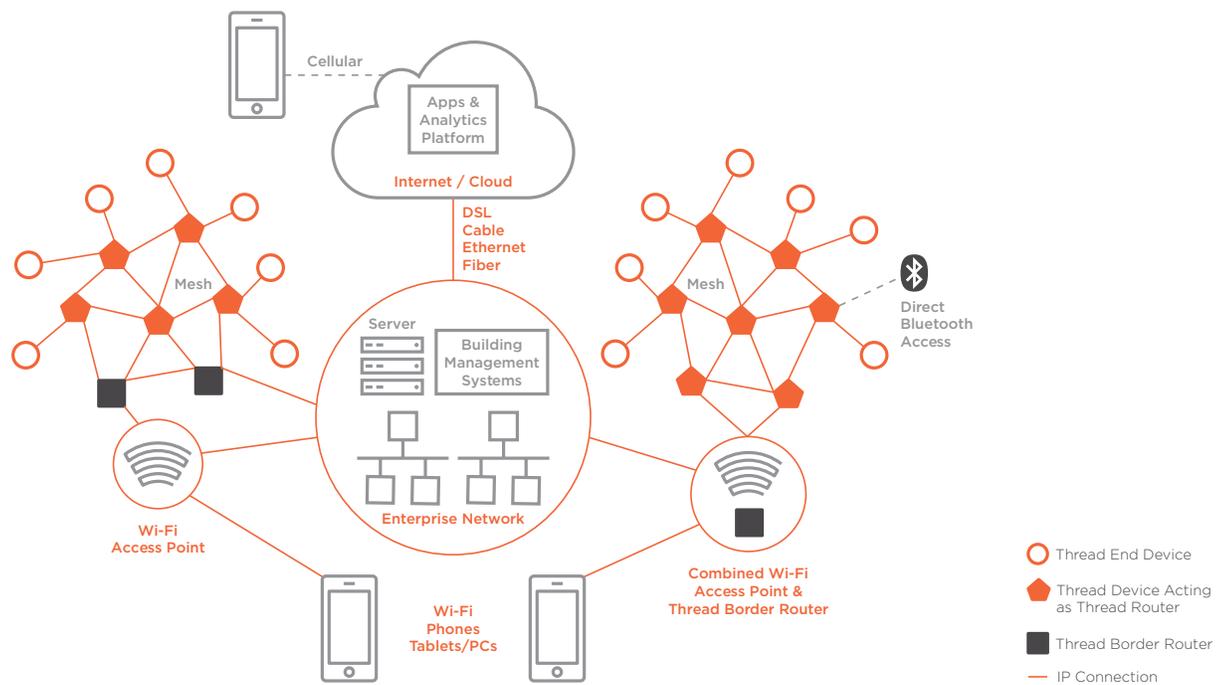
The Internet of Things (IoT) aims to transform people’s lives through smart homes and businesses. In the home, the goal is a network of internet connected appliances, lights, sensors, climate controls, etc, all of which work together with apps and web services to make life more convenient and rewarding for the user.

Beyond the home, IoT aims to improve working convenience, people productivity, energy consumption & safety in intelligent buildings.

Thread is an open standard for wireless communication providing a native IP (Internet Protocol) solution for reliable, secure, device-to-device, application agnostic communication, just as is needed for IoT.

Today, the majority of commercial buildings consist of technology silos with minimal interoperation. Thread connectivity serves to provides a common IP networking solution for easy integration in enterprise networks. This enables more flexibility in functionality planning, better system features, easier maintenance and lower cost. It scales to thousands of wireless, robustly connected IP devices and handles both local communication between devices as well as cloud connectivity over the internet.

The network topology below explains how Thread in a commercial building enables cloud to end-device IP connectivity and how this unlocks the ever growing value of internet up to every node in a building system:



Thread uniquely facilitates end-to-end IP connectivity, all the way from cloud-based applications up to the thousands of individual end-devices in a Thread-network. Its banking-class AES-encryption remains intact throughout the entire chain.

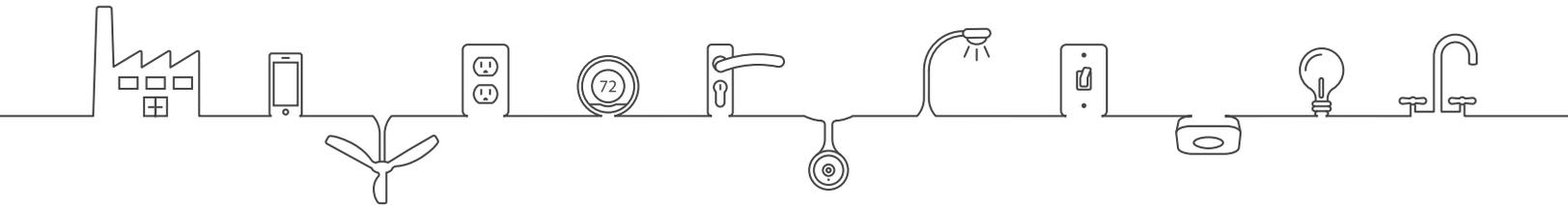
Thread will be a seamless part of the enterprise network and allows the usage of various application-level protocols to integrate with existing infrastructure while maintaining the security and flexibility to commission and maintain devices. This allows the creation of individual and group profiles and domains, even spanning multiple Thread mesh networks.



BUILT ON PROVEN TECHNOLOGY

Thread is currently in use in residential IoT applications & scales to reliably connect thousands of wireless products in commercial grade buildings.

Since Thread is IP-based and self-configuring and -reconfiguring, it brings a familiar way of setting up and managing the network for system administrators. There's no need to worry about address and topology assignment. End-to-end routing and addressability allows IP packets to securely move from one end point to another across multiple Thread mesh networks. Its 6LoWPAN foundation is based on low power IEEE 802.15.4 radio technology that supports sleepy nodes and reduces network overhead.



Thread offers benefits specifically targeted at large scale enterprise implementations:

- ✓ **End-to-end IP benefits.** Since Thread uses IP, all devices can reach the internet directly, no endless gateways are needed making IP devices truly universal and economical. The end-to-end IP security integrates with existing enterprise security solutions and network management systems. For developers, this means that it can talk device-to-device, device-to-cloud and device-to-mobile, all with one universal platform.
- ✓ **Ultimate migration strategy towards true IP systems.** Thread ties things together due to its future-proof IP technology and integrates seamlessly with existing enterprise networks like Ethernet, Wi-Fi and LTE. One networking layer for several building verticals results in easier management, lower maintenance, lower complexity and lower costs.
- ✓ **Enterprise-level security requirements.** Thread offers the capability for network engineers to remotely commission devices and simultaneously commission multiple devices.
- ✓ **Increased device capacity for large managed networks.** Thread offers the ability to associate devices with an operational IT domain as typically used in enterprise networks, and will scale up to support thousands of devices. It can run multiple application standards on multiple subnets in parallel, allowing multi protocol networking.
- ✓ **Automatic roaming to nearby networks.** Devices can seamlessly and automatically switch to the network that is closest in proximity, or administrators can set prioritized networks. This allows for unmatched scalability when the network is extended with additional nodes, for example to accommodate higher network throughput demands, without the need to replace the entire system.
- ✓ **Enterprise-level IT requirements.** Enterprise-level IT systems require the ability to assign an identity to each device in their managed network. Thread offers the capability to assign a secure, verifiable identity to each individual device.
- ✓ **Enterprise-level user permissions.** The role of managing a network in a professional installation is associated with specific privileges. Thread will add the ability to assign levels of network privileges to individual users or groups of users. Administrators can adapt the network easily to change user requirements without the need to recommission applications.
- ✓ **Installation handover from installer to network commissioner.** Handover typically requires that the installer demonstrate to the network engineer the correctly mounted and wired installation. Thread will add essential installation handover functionality and verification capabilities.
- ✓ **Advanced analytics.** One end-to-end network generates coherent data, due to its ability to monitor a broad range of cloud-connected, cross-network and cross-sector devices without conversions or the need for multiple network-interfaces.