Technical Article

An Out-of-the-box Internet of Things: Building a Seamless and Secure Smart Home Network

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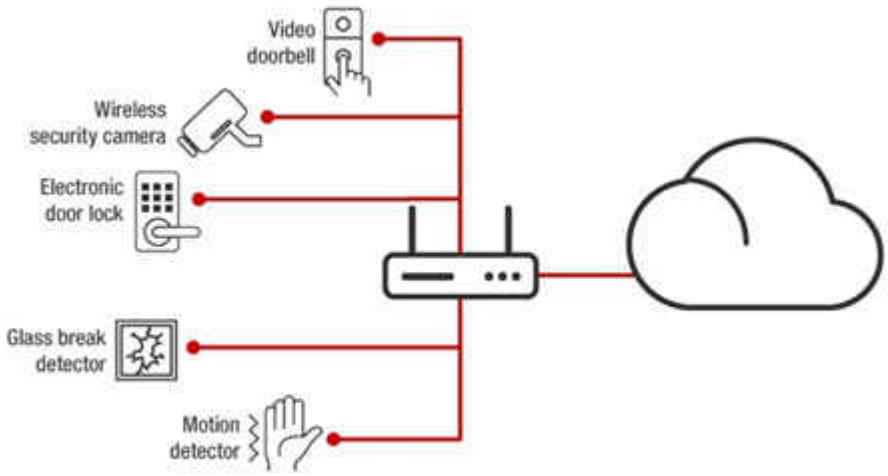

The term “home network” has evolved to include products that work together seamlessly to provide both a smart and secure home experience. Inside the newest smart home products and talking home assistants is a much more intricate story, however.

The home security space is fragmented at several levels, making interoperability a challenge. Every day consumers make choices based on ease of use and interoperability, including the availability of gateways and the ability to seamlessly connect and monitor activity locally and remotely.

Security service providers and security system companies are working to make products interoperable out of the box by integrating three essential building blocks of any security system:

- **Sensors**, including electronic door locks, door and window sensors, smoke/heat detectors, leak detectors, air quality monitors, and glass break detectors.
- **Monitoring**, using security cameras and/or video doorbells.
- **Control**, both local and remote, using gateways, access panels, cloud-based dashboards and smartphone apps.

Connectivity standards such as Wi-Fi®, Ethernet, Sub-1 GHz, *Bluetooth*® low energy, Thread and Zigbee are the underlying threads that tie these building blocks together. Service providers and vendors offer differentiation by leveraging connectivity protocols for their unique advantages while also providing a platform-as-a-service (PaaS) model to ensure that their services and products are enduring, comprehensive, simple and convenient. The platform model benefits developers when they build the foundational blocks of their system on wireless microcontrollers (MCUs), which provide comprehensive sensing, code portability and a wide variety of connectivity technologies.

The SimpleLink™ MCU platform offers the broadest portfolio of wired and wireless connected Arm® MCUs. Having a platform at the silicon and software level can greatly benefit home and building automation by providing:

- Compatible software between devices and protocol stacks. Whether a particular product in a system uses Wi-Fi, Bluetooth low energy, Thread, Zigbee, Ethernet, Sub-1 GHz or a combination, you can scale your code investment to expand and enhance your offerings.
- End-equipment references. The SimpleLink platform offers hardware and software reference designs for key applications within building security and heating, ventilation and air conditioning (HVAC).
- Built-in security features. SimpleLink devices offer hardware security enablers that enable you to design secure products to protect your own intellectual property and consumer's personal data.

SimpleLink MCUs are the ideal platform when building home security or HVAC systems, providing modular, foundational blocks with both hardware and software that help developers seamlessly reuse resources to build future-proof products that scale effectively. You can evaluate the SimpleLink Platform today using the SimpleLink multi-standard CC26x2R wireless MCU LaunchPad development kit. Learn more about SimpleLink MCUs and gain access to the broadest portfolio of connectivity technologies, unified by 100% code portability, flexibility and end-to-end development resources.

Additional Resources

- Get started with our latest development kits, which provide out-of-the-box Internet of Things (IoT) solutions with Sub-1 GHz, Bluetooth low energy, Thread, Zigbee and Ethernet support:
  - SimpleLink Sub-1 GHz CC1312R wireless MCU LaunchPad™ development kit.
  - SimpleLink multiband CC1352R wireless MCU LaunchPad development kit.
  - SimpleLink multistandard CC26x2R wireless MCU LaunchPad development kit.
  - SimpleLink Ethernet MSP432E401Y MCU LaunchPad development kit.
- View the SimpleLink Applications tab for building automation and HVAC.
- Check out dedicated reference designs from the TI Designs reference design library: [TID].
  - Battery Powered Smart Lock Reference Design with Cloud Connectivity Using SimpleLink Wi-Fi
  - Low Power Wireless PIR Motion Detector Reference Design Enabling 10 Year Coin Cell Battery Life
  - SimpleLink Wireless MCU-Based Thermostat Reference Design
- Get training on using the LaunchPad development kit via SimpleLink Academy.

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