Solution Brief
Intel® IOT Gateway
Intel® Quark™ SoC X1000 Series
Internet of Things

Securing the smart home

Yoga Systems harnesses the Intel® IoT Gateway to deliver secure, end-to-end Yoga Smart Home* cloud-based platform to service providers

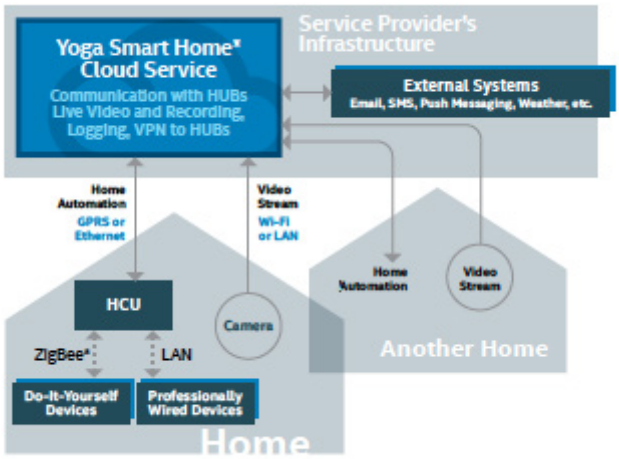

Figure 1. Simplified view of Yoga Smart Home

"Thanks to Intel Security, we can fully trust the software running in our gateways. And because of this, we can also trust the encrypted communication between the devices, the cloud, and the user of the system. This is the basis for full end-to-end security."

Priit Vimberg,
Founder and CEO, Yoga Systems

Adding value to the marketplace

Service providers (telco, cable, broadband, and security) are facing tough times. Average revenue per user (ARPU) is falling through the floor, meaning they must find new ways to generate income and boost the bottom line. By creating new opportunities in home and building automation, the Internet of Things (IoT) can help service providers offer smarter value-add services and reconnect with customers.

Estonian-based Yoga Systems is riding the crest of this IoT wave. Yoga Smart Home* is an intelligent home automation platform which is enabling service providers to generate incremental revenue from existing customers and increase subscriber stickiness through additional bundled features.

Yoga Smart Home

Yoga Smart Home connects to wireless and wired security detectors, cameras, thermostats, smart plugs, lights, entertainment systems, locks, and appliances. Once these devices are in place and switched on, they appear on the Yoga Smart Home app, which runs on smartphones, tablets, and computers.

Figure 1 shows a simplified architectural view of Yoga Smart Home—the equipment that resides in the home and the cloud-based service provider infrastructure.

In the home, the home central unit (HCU) connects to wireless and wired home devices. Cameras may also be added using the customer's Wi-Fi or LAN connection. Yoga Smart Home also scales to multiple homes from the same app. The cloud-based service provider infrastructure communicates with the HCU and provides a number of services such as live video recording and sending weather updates. As with all IoT solutions, security is paramount.

Securing the HCU - endpoint

Priit Vimberg, founder and CEO at Yoga Systems, says: "Security is of critical

importance for any IoT solution, yet many of the available IoT and smart home gateways can actually be hacked quite easily. Our aim was to develop a highly secure gateway to manage communication between the cloud and the devices connected to it. We needed to ensure that only authenticated software was able to run on our HCUs. And for that, we needed a chipset that enabled the signing of the software from within the chip. Intel was able to provide this—and more."

> "The Intel® IoT Gateway delivers full end-to-end security to the Yoga Tiny* and Yoga PRO1*, which is vital to the smart home and building automation industries. Beyond security, the attractive pricing, ease of use, and expandable feature set are compelling benefits for service providers."
>
> — Martin Despain, Director of Smart Homes, Intel

Both the Yoga Tiny* and YogaPRO1* are based on the Intel® IoT Gateway using the Intel® Quark™ SoC X1000 series with special security features.

Application whitelisting software—a key capability in McAfee Embedded Control*—allows authorized code to run on the smart home system. Once a whitelist is created and enabled, the system is locked down to the known good baseline. No program or code outside the authorized set can run, and no unauthorized changes can be made. This approach is a secure and reliable alternative to the traditional blacklisting anti-virus solutions that continually scan for malicious code and work to remove it from the system.

The McAfee Management Agent* is used to scale the whitelisting technology and provide an audit trail of who did what, when, and how for customer compliance purposes.

Vimberg adds: "Thanks to Intel Security, we can fully trust the software running in our gateways. And because of this, we can also trust the encrypted communication between the devices, the cloud, and the user of the system. This is the basis for full end-to-end security."

Data center and network security

In addition to endpoint security, Yoga Systems also employs several Intel Security (McAfee) products to secure the backend system in the cloud.

McAfee ePolicy Orchestrator* (ePO)* provides centralized security management, meaning the end customer (Yoga Systems, if it is hosting the solution on behalf of the customer), has full end-to-end visibility. ePO offers intelligence across endpoints, data, and networks for immediate insight, as well as automation for faster response times.

Security information and event management (SIEM) monitoring is used to detect attacks in the overall IoT environment. Tailored to Yoga Systems' IoT-specific rules, it brings together event, threat, and risk data to provide security intelligence, rapid incident response, seamless log management, and extensible compliance reporting.

At the network level, McAfee Next-Generation Firewall* (NGFW)* offers intelligence-aware security controls supported by real-time updates. In a domestic environment, the NGFW sits in the home and establishes a direct, secure connection into the cloud. In a larger environment, where not all gateways will have a direct connection to the Internet, one NGFW sits in the building environment and another sits on the data center perimeter to establish a direct, secure tunnel into the cloud.

"The Intel IoT Gateway delivers full end-to-end security to the Yoga Tiny and Yoga PRO1, which is vital to the smart home and building automation industries," said Martin Despain, director of smart homes at Intel. "Beyond security, the attractive pricing, ease of use, and expandable feature set are compelling benefits for service providers."

Smarter, more profitable future

Smart home systems based on IoT solutions from Yoga Systems and Intel allow service providers to offer customers an engaging set of home automation services, creating a new source of revenue and staying competitive in the marketplace. The intuitive and easy-to-use system means end customers can be more proactive with their energy management, helping to reduce costs and safeguard their homes. But most importantly, with IoT technologies from Intel, Yoga Systems developed a secure smart home system that service providers can feel comfortable offering to a mass market.

Learn more about Intel and the Internet of Things **here.**

Learn more about Smart Home Solutions from Yoga Systems **here.**