(intel®)

IJENKO's intelligent energy

IJENKO demonstrates the power of the Intel® IoT Gateway based on the Intel® Puma™ 6 Family

IJENKO's Smart Home Solution* is an open-standard, cloud-based platform which harnesses the power of the Internet of Things (IoT) combined with the Internet of Energy (IoE). Running on an Intel® IoT Gateway powered by the Intel® Puma™ 6 family, it enables energy suppliers, Telcos and consumer electronics brands to develop innovative, value-add smart home and energy services for residential customers. By doing so, they can launch their own smart home services and enable interaction with best-selling IoT devices and ecosystems for the home to create an augmented user experience. In particular, utility providers can keep control of the customer experience rather than lose out to larger digital players who are moving into the home energy market segment.

Challenges

- **Modernizing energy.** IJENKO wanted to demonstrate the value of the IoT in helping utility providers to reconnect with customers
- **Adding value.** It wanted to develop a solution to enable utility providers to offer smarter, value-add energy services to customers

Solutions

- **Unlocking legacy systems.** IJENKO's Smart Home Solution runs on an Intel IoT Gateway powered by the Intel Puma 6 family
- **Secure connection.** The Intel IoT Gateway extracts data from legacy systems and securely connects them to next-generation intelligent infrastructure

Impact

- **Greater energy efficiency.** Energy suppliers can empower customers to become more efficient in their use of energy, enabling them to save on their electricity bills and to collectively influence the demand curve
- **Smart home services.** Building on IoT bestsellers and ecosystems, Telcos can provide customers with an engaging set of security, home automation, and smart heating services, enabling them to differentiate themselves and remain competitive in the marketplace
- **More profitable future.** By developing innovative smart services that offer long-term customer stickiness, IJENKO's IoE platform helps utility providers stay in control of the customer experience and avoid the commodity trap

IJENKO

"Distributing software intelligence in the home is key to the scalability of the Internet of Energy. Porting on the Intel® Puma™ 6 family is quick and simple. Hardware-based virtualization makes it easy to isolate and roll out applications, opening up infinite possibilities when it comes to deploying applications in the home."

Serge Subiron,
CEO and co-founder,
IJENKO

Harnessing the Internet of Energy

"At IJENKO, we believe we have only reached the tip of the iceberg when it comes to realizing the positive impact of the Internet on our digital home life, in particular with regard to energy. The IoE, as it is known, has the potential to connect the activities of utility providers and consumers in real time, enabling much more dynamic energy provision and consumption," explains Serge Subiron, CEO and co-founder at IJENKO.

"Our goal when we set up the company was to harness the IoE to create active and more efficient consumer engagement with energy while delivering business and social value for the energy and smart home ecosystem, from energy retailers to consumer electronics brands, telecom service providers, and smart city stakeholders. Specifically, we wanted to combine the power of the IoE with the IoT in a distributed software intelligence which could learn, analyze, predict, and act with human consent in the home, for a variety of applications.

"In particular, energy retailers run the risk of losing control of the customer experience with the IoT

wave," explains Subiron. "Many perceive energy to be a commodity and much of the energy usage in the home can be controlled through third-party devices, vertical platforms, and applications. The way for utility providers to avoid the commodity trap and continue to offer value to customers is through the delivery of smart energy services. The challenge for us is to ensure they can deploy viable smart home services that interact simply with best-selling IoT devices in the home to deliver added value."

IJENKO needed a solution to unify IP devices and legacy non-IP technologies in the home, deploy smart home applications safely, and run this local intelligence in a future-proof architecture. The Intel IoT Gateway offered the perfect solution.

By providing pre-integrated, pre-validated hardware and software building blocks, Intel® Gateway Solutions for the IoT connect legacy and new systems and enable seamless and secure data flow between edge devices and the cloud. They integrate technologies and protocols for networking, embedded control, enterprise-grade security, and easy manageability on which application-specific software can run.

The Intel® IoT Gateway facilitates the interaction of new smart home applications with other critical services

Internet of Energy platform

It took just a few weeks for IJENKO to integrate the Intel IoT Gateway based on the Intel Puma 6 family into its IoE platform, alongside other over-the-top gateways and Internet service provider (ISP) routers. Thanks to its unique hardware-based virtualization and quality of service (QoS) management features, the Intel IoT Gateway facilitates the interaction of new smart home applications, such as smart energy management, with other critical services, such as video, voice, and TV, for multiple-play service providers.

IJENKO now develops, operates, and markets this context-aware platform of services combining the IoE and the IoT (figure 1). It creates services with a unique suite of downstream and upstream applications on energy efficiency, demand response, micro-generation management, electric vehicle charging control, and adaptive smart heating. This context-aware platform is also used to develop and run flexibility plans for smart cities. It offers monitoring, control, and automation services, which enable service providers to develop and operate a vast array of smart home services, using its data model library, engines, and algorithms. Interaction with the IoE is built into the platform and integrates protocols and new objects according to the policies of customers' services. These services are based on APIs.

Since data protection is critical to service providers' operations, the IJENKO solution features end-to-end data encryption right from the sensors through the Intel IoT Gateway to the server.

Demonstrating use cases

At the European Utility Week conference in Amsterdam, IJENKO demonstrated the interaction of energy management, smart lighting, and smart heating services running on its platform with a few best-selling IoT devices for the home.
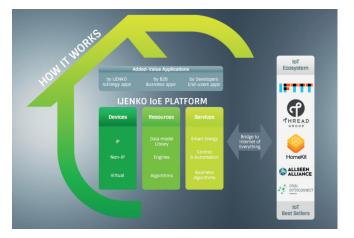
It showed how it was possible to automatically switch on and off a ZigBee HUE* lamp using motion detected through the Microsoft Kinnect* platform or a D-Link IP camera, which could send a trigger to operate the lamp when someone enters or leaves the room. It also demonstrated the ability to use voice to control a Nest* thermostat through an LG* smart watch and map the heating schedule with the actual gas consumption in Euros. In both instances IJENKO software and an Intel IoT Gateway based on the Intel Puma 6 family were used as the smart home management engine.

"We wanted to dispel the myth that we need one standard for the home," says Subiron. "By putting our resources at the disposal of developers who are able to build services on the interaction of a number of technologies, we wanted to show service providers that our solution offers endless possibilities when it comes to developing innovative services that offer long-term customer stickiness."

Full commercial offering

IJENKO offers this cloud-based framework to utility companies, ISPs, consumer electronics brands and smart city stakeholders to deploy

Lessons Learned

The Intel® IoT Gateway offered the perfect solution to unify IP devices and legacy technologies in the home, enabling IJENKO to combine the power of the IoE with the IoT. Its multi-JVM architecture has allowed IJENKO to embed its complete firmware, not only its software gateway. Having the complete control over its operating system, IJENKO can directly access hardware resources as well as IP-based ones and is totally autonomous on the platform, including its firmware upgrades. This independence provides great advantages during the development phase and is the key to a very short time-to-market.

and operate wide-scale, cost-effective smart home and energy management services in the residential market segment.

Subiron says: "Our IoE platform is powered by data analytics and machine learning, and adapts technology systems to meet the daily needs of family life. It alerts on exceptions, proposes optimization plans for a human final decision, and automates simple actions. The IoE platform is based on open standards and APIs, and can be adapted for almost any communication device to permit two-way monitoring and control, including IP, non-IP, as well as IoT-connected devices.

"Some utility providers perceive the IoT to be a threat, but this need not be the case. Many have seen what happened to the mobile industry with the advent of app stores and they fear they will similarly lose control of their customers to large digital players. With our IoE platform, we are trying to show them that the IoT is an opportunity to reconnect with their customers in a much smarter and more beneficial way," concludes Subiron.

Figure 1: IJENKO's Smart Home Solution

Find the solution that's right for your organization. View **success stories from your peers** and check out the **IT Center**, Intel's resource for the IT Industry.