

What is the Smart Home? What is the Really Smart Home?

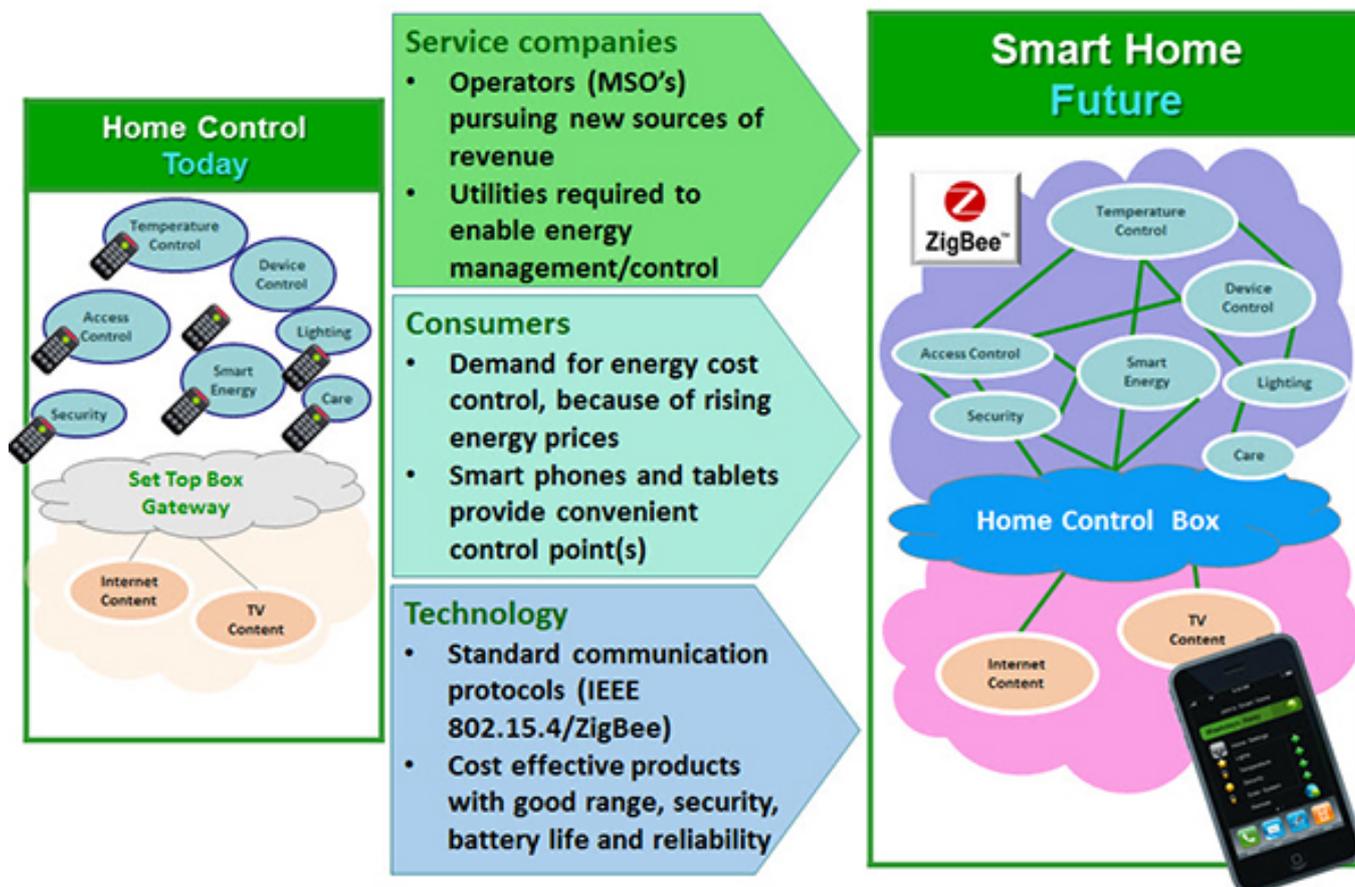
Cees Links, founder and CEO of GreenPeak

We are currently experiencing the first phases of the Smart Home with much more to come as the Really Smart Home finally becomes a reality



The adaption of ZigBee remote controls and ZigBee set top boxes by most of the world's cable TV and broadband service providers is the launching platform for the rolling out of various Smart Home-Connected Home services such as home security, energy monitoring, home energy management and environment control, door and window closing and locking, etc. This is currently happening worldwide but especially in the US and Europe.

From Home Control to Smart Home



These home control capabilities are being marketed as vertical (solution-based) services addressing specific needs of the subscriber that would like to buy security, energy management or home care. The first wave of smart home devices will be primarily marketed, installed and maintained by the service providers. However, once installed, up and running, it will be simple for the home owners to purchase add-on devices and install them. For example, a home owner may opt to purchase a window and door lock home security system that is operated and maintained by their cable TV company. However, a few months later, they can purchase a home motion control system from their local home improvement store that will easily connect to and talk with their cable company security system. Later, they may opt to buy a health monitoring system that also talks to the cable company's set top box.

These Smart Home systems will provide two options for management — a local remote control in the home as well as cloud network. As the set top box is connected to the internet, by using suitable apps they will be monitor and manage all of the home's systems via smart phone or smart tablet.

Depending on the vendor, the web based control system may consist of individual apps for each system or a single web page that controls the entire house.

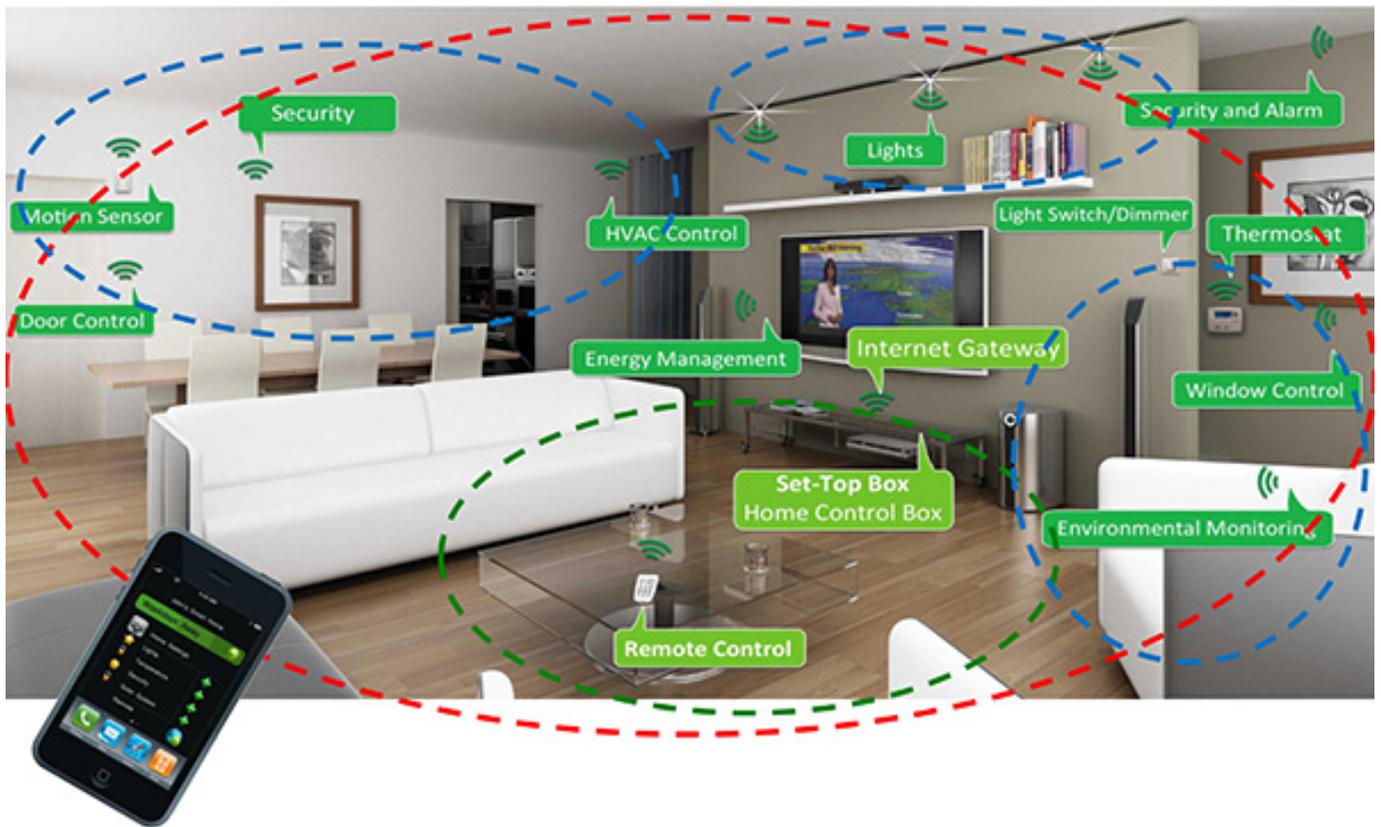
The Real Smart Home

The Real Smart Home provides an ecosystem where the vertical services converge into complete Smart Home service, where sensors are no longer tied to single

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applications. For example, a room's motion sensor can be used for the security system (to detect intrusion) as well as for the home health system (to detect motion/lack of motion) or the home's environmental control (turning on/off heating and lighting). The same motion sensor can even be used by the home's smart entertainment system to activate a specific genre of music to recognize when a specific home member enters a room. Ah, dad's home, time to play seventies disco.



The Really Smart Home will consist of sentrollers – sensors, controllers and actuators like motion sensors, temperature sensors, smoke detectors, humidity sensors, leakage detectors, light sensors, etc., all connected to the internet. What makes them Really Smart is the sensors can initiate actions based on pre-defined requirements and conditions without requiring direct human intervention.

Cloud based intelligence receive this data and compare it with expected or desired values, and then transmits a signal to the home actuators which control the various systems (heating, lighting, etc.). For example, if a sensor registers that the temperature is too low in a specific room and that room is occupied, the cloud based intelligence then sends a signal to the home heating system actuator, telling it to turn on the heating in that specific room.

What new services will result from the Really Smart Home and ZigBee?

Initially we expect to see three types of services that will be quickly migrating to ZigBee base: security services, energy management services and home care

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services.

Security services are available today, but are relatively expensive because they use proprietary technology. New generations of home monitoring will be ZigBee based and integrated with the set-top box and smart phone and will be very cost effective. Subscribers will also be capable of remotely controlling the locks of their house with their smart phones, from any place in the world. Just like your car — press a button and all your home's doors and windows will lock and be secured. Because of ZigBee's built-in security and encryption protocols, ZigBee based Smart Home devices are extremely resistant to hacker attacks.

Energy management services will allow people to manage their energy consuming devices from any place in the world. Subscribers will be able to turn on/off their lights, heating/air-conditioners, etc. from anywhere.

Smart Home services will also become popular – services that automatically react to stimuli within the home – for instance – systems can make sure that empty rooms do not have unnecessary lights burning or heaters on.

Home care or assisted living is a set of services that can help the aging generation to live comfortably, being able to send a warning to family or any service organization if there is a medical problem or allowing monitoring by relatives, while still respecting privacy.

In the future, we expect that our homes will show a consistent integrated behavior for all these devices, and this will pave the way for a new way of living, with increased security, comfort and increasingly capable of managing our energy consumption.

Today we live in an integrated internet infrastructure. We are capable of sharing information anywhere. Our computers, tablets and smart phones form a set of consistent devices that can access information straight from our homes. When we are with friends we can pull up photos and videos from our home server and share them. However, if we want to use the Smartphone to change the temperature setting on our thermostat, currently that is not possible. We can reach our homes, but we cannot reach into our homes – and that is what ZigBee and the Real Smart Home is going to change.

Cees Links is the founder and CEO of GreenPeak. Under his responsibility, the first wireless LANs were developed, ultimately becoming household technology integrated into PCs and notebooks. He also pioneered the development of access points, home networking routers, and hotspot basestations. He was involved in the establishment of the IEEE 802.11 standardization committee and the WiFi Alliance. And, he was instrumental in establishing the IEEE 802.15 standardization committee to become the basis for the ZigBee sense and control networking.

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