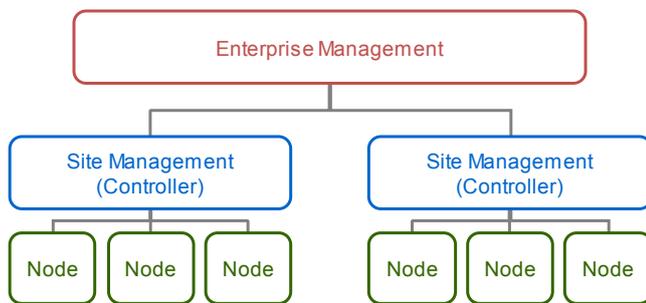White paper

Home automation: A growing market

Customer

Customers are known international companies, leaders in their area of expertise, looking for Home Automation solution or integration of their existing products with one.

Project Overview

Nowadays it becomes evident that home automation technologies are emerging and getting increasingly approachable to end users. It is an evolving and growing market, and many companies are finding new opportunities there. The opportunities range from integration of existing products up to providing a turn-key HA solution.

As a response to the inquiries we have initiated a Home Automation programme that addresses the full vertical of a Home Automation system.

Nodes are the end-devices used in everyday life, like switches, light sources, sensors (daylight, presence, temperature, humidity, cameras, power meters). In the programme, we have built a significant number of products: light dimmers, power-measuring outlets, smart starters, touch remote controllers.

The major challenges were in reaching the desired usability of the product, in productizing advanced concepts, and in delivering products that will seamlessly integration into living environment.

Nodes have local intelligence providing various functions like event reporting, local control, energy saving, safety or commodity. By interconnecting them into a wider network (e.g. at facility level), further possibilities open for monitoring and control. Complex scenarios can be implemented, involving conscious or non-conscious interaction with the users. Sometimes, it is just learning the user's habits and adapt to it. In other cases, scriptable scenarios can be season dependent, and can be delivered by upper level services.

The facility level network is made up from the nodes, central controller and an appropriate network technology - either wireless (Zigbee Pro or WiFi, even IR in some specific use cases) or wired (LAN, RS-485).

The controller is an embedded platform, running Android, Linux or FreeRTOS on ARM CPU. It is hosting the site-level management functions and intelligence. At the same time acts as a gateway between the high level services and site network.

To ease the commissioning and use of deployed systems, a number of supporting tools were developed. They are meant to help setting up and diagnose the system. Such handy tools are (Android) applications for handhelds, smart cards carrying the desired configuration.

In order to respond to the wide-area management needs, and enterprise platform is developed relying on state-of-the art web tech-nologies (Java 7, JBoss 7, GWT, PostgreSQL). Controllers connect to it via Internet. The enterprise platform was designed having on mind world-wide distribution of sites, wide variety of sites to handle, large scalability and robustness.

The enterprise platform provides management, monitoring and diagnostics of remote deployments. It is the place where data is aggregated from the deployments, stored, processed and served to the relevant users (e.g. service provider, manager, end-user) in form of monthly reports, energy saving recipes, statistics. Additional features of the platform are pushing supplementary content, new behaviour scripts and updated configuration to the controllers. The remote control (and 24/7 access to remote sites) is another feature of the platform we feel is very significant in modern era.

Customer benefits

The benefit for our customers emerges from our awareness of and experience in full scope of HA. Throughout years of involvement we built up in product design and development (both software and hardware), manufacturing and mass production, deployment and maintenance in Home Automation area.

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