THE SMART HOUSE EUROPEAN PROJECT

Paolo Mongiovì - President Assodomotica

Scope and Objective

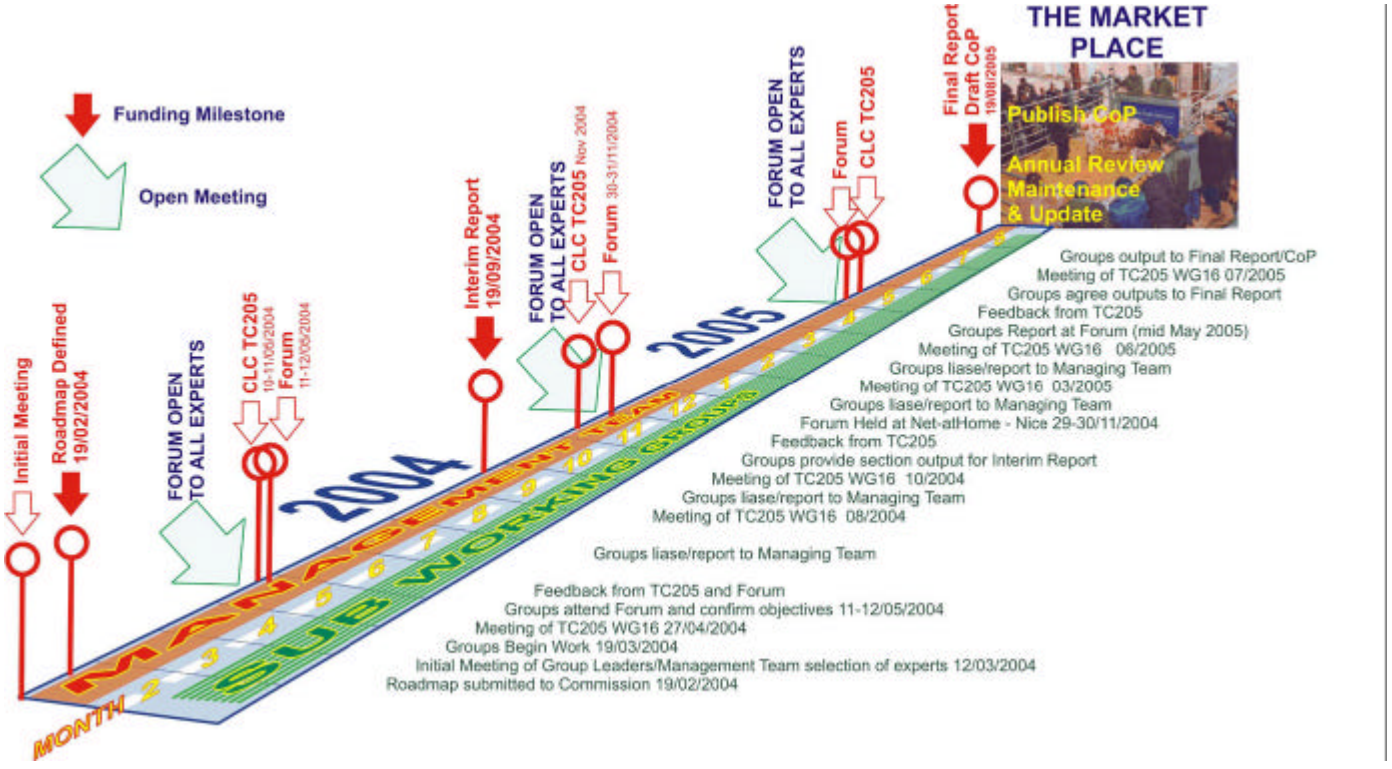
In January of 2004 CENELEC and IPv6 Forum launched the SMARTHOUSE project, supported by the EU commission, to develop a SMARTHOUSE Code of Practice.

The general scope of the SmartHouse project is to grow and sustain the interoperability of systems, services and devices for the SmartHouse that ensures the European Citizen has access to increased functionality, accessibility, reliability and security that a Smart House, with open architectures, will deliver in an expanding broadband infrastructure throughout Europe.

The specific objective of the SmartHouse project is to deliver a "Code of Practice" for all actors, systems, networks, applications and services involved in the SmartHouse, specifying functionalities, methodologies, recommended standards and working practices that ensure interoperability and interactivity of multiple products, applications and services in and to the SmartHouse.

The SmartHouse project is part of the eEurope 2005 objective and is drived by Cenelec with the involvement of various organizations and associations (ETSI, CEN, AIE, CECED, KONNEX, TAHI, …) and experts from the european countries divided in 10 subgroups covering the sections of Consumers, Service Providers, Architectures, Network Operators, Home Networks, NTE & Gateways, System Security, Home Equipments, User Interfaces and Installation.

The SmartHouse Project started in February 2004 and plan to release the document with the "Code of Practice" in September 2005.



The SmartHouse consists of a large and wide ranging set of many Services, Applications, Equipment, Networks and Systems that act together in delivering the "intelligent" or "connected" home. These components are represented by many actors that interact and work together to provide interoperable systems that benefit the home based user in the SmartHouse.

The main actors that influence the SmartHouse are the consumers (customers, subscribers, individuals) that live in and utilise the Services, Applications and Products that are designed for the SmartHouse. It is

therefore appropriate that the other main set of actors in the environment are the service and application providers that deliver the services that the consumers need and require, including those responsible for installing systems in the SmartHouse and for maintaining them.

These consumers have needs and requirements in many areas and these are described in the Section on Consumers. Likewise the aims and objectives of the Service Providers in fulfilling consumer needs are described in the section on Service Providers. The installer also has to fulfil consumer needs and the Installation Process is described in the section on Installation.

The SmartHouse Code of Practice

The SmartHouse Code of Practice is a document that provides a "system designer" working to implement a SmartHouse, to be used as dwelling and as a home office, with a source of information on sensible and pragmatic guidelines for the design, installation and maintenance of SmartHouse systems and the services and applications provided.

It is recognised also that providers and installers must work within diverse regulatory environments and must be free to make choices appropriate to their business objectives (which focus on meeting the needs of domestic and small-office users, not large-scale commercial premises). Therefore, standards are considered as enablers and leave prescriptive aspects to local regulation.

The aim is to provide a useful reference document to ensure that the user may exploit the benefits of a consistent system architecture by utilising European and International Standards and other generally accepted specifications in the design the SmartHouse system. This document will deliver a route to investment synergies, flexibility of services and useful and usable applications that satisfy the individual consumer's needs and requirements.

The design and implementation of systems, services, applications and products requires detailed information about:

- consumer needs and expectations;
- user interfaces;
- security;
- the performance of both the wide area and local networks;
- the kinds of applications and services to be used;
- the equipment using it;
- the principles of systems architecture;
- and how the system and its components are installed, operated, maintained and used.

The Code of Practice provides a resource for the practitioner of the SmartHouse and covers information and issues that surround the choices to be made as well as providing a route map for the designer of systems in the SmartHouse. In short, the consumer must want or need the service or application, must be able to use it and have it delivered within a SmartHouse system that is installed so that it works effectively and seamlessly with the other systems and components in the SmartHouse.

Any service, application or device in the SmartHouse should also to be simple, easy and intuitive to operate and allow additional applications and services to be added retrospectively. The Code of Practice is therefore subdivided into sections addressing the environment in which the system designer is working and the requirements of the actors in that environment in order to place into context the decisions and constraints the System Designer must make.

Parts of the Code of Practice

The Code of Practice is presented in four main Parts.

Part 1 - The Introduction

Part 2 - The Environment of the SmartHouse:

- the reason for a SmartHouse and why its value is more than the sum of parts;
- the Consumer's needs and requirements
- the Service Provider's aims and objectives in meeting the consumer's needs

Part 3 - The SmartHouse system, product development and use:

- Architectures
- the Wide Area and its Network Operators and delivery media
- the Home Networks and their Media
- Residential Gateway
- Security
- Service and Application development
- Home Equipment
- User Interface

Part 4 - Installation

Sections of the Code of Practice

The Introduction and each following section deliver material that provides:

- At the highest level, anyone with some knowledge of what may be possible
- At the next level, any practitioner of the SmartHouse with details of best practice
- At the lowest level, the system designer overall and experts in the specific area of the section, recommendations for implementing the SmartHouse

The four parts focus on the process of selecting from a wide range of possible options, what standards and practices to use and how to use them in configuring and installing systems for the SmartHouse. Because there are many ways in which this may be achieved, each subsection has a number of levels of description.

- The first level is an introduction that outlines the major issues of the subsection

- The second level describes the issues in greater detail and provides a decision process that assists the system designer in reaching appropriate design choices in the form of recommendations.

- The third level is to guide the user where decision have to be made. Here there are references to appropriate standards, specifications and ongoing standards and research work.

Issues and Recommendations

Each of the sections describe the issues as they relate mainly to the system designer of the SmartHouse. However each section will include specific issues that are relevant to the section and what any stakeholder will need to consider when designing, installing, managing and operating the systems and services of the SmartHouse

Each section provides a set of recommended methods of working, standards that should be used and will have a form of decision tree that will assist the user.

Appendices

As referenced in each section, European and International Standards as well as other specifications that are relevant can be found in a separate Appendix. Each Appendix has a general part and a part that is specific to each section. The appendices reference:

Appendix A: Abbreviations, Acronyms and Terms

Appendix B: Referenced Standards

- Standards
- National Standards
- Specification and proprietary specifications
- and Standards and specifications in progress that is relevant to the issues and recommendations.

Appendix C: Additional Material (addenda and additional supporting material from sections)

Appendix D: Bibliography

The reason for a SmartHouse and why its value is more than the sum of its parts

The term SmartHouse is a convenient term for the convergence of intelligent devices and entertainment systems in the home. Devices that contain processors or are computers (pervasive computing) that can communicate with other systems are increasingly populating the home. Some of these are remote from the house and some can receive an ever increasing wealth of information and entertainment content from external and internal sources into or within the home.

The introduction and development of intelligent devices, networks, applications and services in the home are a direct result of manufacturers providing new technology and of consumers becoming aware and demanding new services, applications and equipment. It is ih this convergent environment of the wide range of services, applications, equipment and entertainment products that the SmartHouse (Connected Home, Intelligent Home) is situated.

Until recently, almost all these devices have operated independently from one another. However, because communication systems into and around the Home are becoming capable of delivering any information anywhere at realistic speeds, these independent devices can now communicate.

The SmartHouse is all about harnessing the additional value that systems of interacting devices deliver to the user and consumer. It is the integration of differing systems in the SmartHouse that allows new services and applications to be constructed, new ways of living and synergistic economies that can only be attained in the truly SmartHouse that deliver a value that can far out weigh that of the individual part.

Innovations in telecom industry have reshaped the way we communicate, with more connectivity, more bandwidth, more services, and more scalability and we want all, not just certain elements. The demand goes not only for high speed access, but also other applications such as controlling a home alarm from the other side of the country or turning the dishwasher ON from the office.

Reliable broadband services delivered to the home enable a variety of applications to enrich our quality of life, like: new multimedia services for voice, video, videoconferencing, interactive gaming, high speed internet access, telecommuting; services for white goods, metering, health care for the ill, elderly and disabled, security, monitoring and intelligence.

The devices in the home can be classified and fall into a number of types. Again while similar types of device may use the same communications technologies, the information that they have for other systems is applicable for all types of device. It is also likely that external management, monitoring and control of some devices is both possible and beneficial.

The information that is likely to come into the home will include entertainment from many sources and also much low level information about the environment. This will enable energy and utility management systems to conserve valuable resources world-wide, there will be enhancements to security systems and, for example, a benefit that can be realised includes the use of the security system to assist the energy management system by saving energy usage in unoccupied rooms. Just as easily the TV could be put on Pause if all the room's occupants left the room.

The SmartHouse enables device interactivity in the home and this changes the home from a place with multiple dumb devices to a system comprised of many intelligent devices working together to the advantage of the occupants but also in many cases for the common good.

Every SmartHouse is likely to be unique. There will be a myriad of ways in which any SmartHouse will be implemented and the needs of consumers in any Smarthouse will be different. The SmartHouse once installed is likely to evolve organically as consumers needs change, they add to their systems and new services and applications will require new systems to support their new requirements.

The wide range of differing systems makes the SmartHouse a highly complex system of systems and autonomous management of this system is in itself a very necessary requirement. This is why the Code of Practice is being prepared. It covers the things that should be thought about and carried out by the System designer. It covers issues such as how we design an overall architecture that ensures the many subsystems can interact and exchange valuable information and it looks at all the components in this very valuable system.