Intelligent Solutions for Home Networking

The Fraunhofer Institute of Microelectronic Circuits and Systems (Fraunhofer IMS) is a leading research and development organization with recognized competence in the area of intelligent, embedded network systems and components (incl. microchips). This know-how is demonstrated in the "inHaus" Intelligent Home Innovation Center, which draws on long-term cooperation with leading building and vehicle technology companies in order to develop, test, and demonstrate and market solutions for smart networked environments. (www.ims.fraunhofer.de, www.inhaus-duisburg.de)

The Challenge

In the course of more than 10 years of activity in the field of home network technology and applications, the Fraunhofer IMS has created a range of innovations to benefit consumers. However, growing market requirements and the need for a comprehensive and open total solution required a new approach to applications for the "smart home". Previously isolated developments had to be integrated into a state of the art system based on a secure communication network, using open standards and allowing for modular extensibility of applications and services.

The Solution

The Fraunhofer IMS aimed at finding the right partners to create an ecosystem of innovation in its inHaus development and application center in Duisburg. This project relies on the combined expertise of participants such as Miele, Sony, Deutsche Telekom, Liebherr, Siedle, Ackermann, Honeywell, Viessmann, Merten, Henkel, Geberit, Kaldewei, Burg-Wächter, Winkhaus, Stadtwerke Duisburg, and Volkswagen. When searching for a partner with specialized know-how and competence in applying OSGi technology to integrated home systems, the IMS chose to work with ProSyst. This step was sealed in May, 2002, with an official cooperation agreement covering the joint promotion of embedded networking projects in the marketplace. The IMS selected ProSyst because of its outstanding combination of highly professional

technology and market experience. ProSyst delivered the required OSGi framework and the related design tools. This is a contribution to the integration of diverse local devices and their connection to the outside world.

The Applications

With ProSyst's OSGi software technology, Fraunhofer IMS has developed different bundles for integrated applications that make for clear customer value. This included the development of intelligent living services such as:

- food management
- networked home appliances
- residential management services
- family management
- and information management

As a middleware layer residing between lower-level communication protocols / transports and higher-level applications, ProSyst's software provides a simple integration point for previously isolated home services.

Dr. Viktor Grinewitschus, Group leader at Fraunhofer IMS, comments:

"This cooperation helps us and our customers to position in new markets, in which success depends on flexible, dynamic and completely controllable networks. The usage of ProSyst technology and tools makes it possible for manufacturers and service providers to save time and money during development, and to satisfy their customers with innovative services and optimized information appliances."

Fraunhofer IMS inHaus Innovation and Application Center in Duisburg, Germany

The Residential Gateway Solution

The residential gateway is the platform for the OSGi software layer and is a central element of the Fraunhofer IMS smart house system solutions. Using ProSyst technology, the Fraunhofer Gateway acts as an intelligent handler of information between networked devices and the user, enabling a new level of comfort and convenience.

The following products are included in the solution:

- certified OSGi Framework (ProSyst mBedded Server)
- back-end management platform (ProSyst mPower Remote Manager)
- software development environment (ProSyst mBedded Builder)

Advantages of the inHaus OSGi System

The Fraunhofer IMS gateway solution including ProSyst technology provides numerous benefits for the intelligent home:

- Innovative services upon consumer request
- Interconnection of diverse home devices
- Remote control, maintenance & diagnostics
- Communication between car and home
- Support for multiple visual interfaces & control points for home system

The various appliances in the home (e.g. white goods, multimedia, productivity, security) can be integrated seamlessly into one system, and are controllable using the most convenient device – whether a PDA, web pad, PC, TV, or mobile phone.

Why ProSyst?

Fraunhofer IMS chose to partner with ProSyst Software due to the following advantages:

- Highly stable standardized solution
- Modular and scalable integration platform
- Broadest variety of ready to use components and tested platforms
- Stacks, drivers and services upgradeable on-the-fly
- Highly scalable and configurable remote management
- Best track record in the connected home market
- Compliance and openness to 3rd party solutions

- Best support, rapid professional services and active technology transfer

The Fraunhofer Institute's areas of research focus and ProSyst's key technology together provide an excellent foundation for innovative projects. ProSyst ensures the insider OSGi and software competence that Fraunhofer IMS needs to enhance its solution, reduce its development risks, simplify the user experience and accelerate the deployment of its applications.

Klaus Scherer, Head of the Fraunhofer IMS System and Applications Technology (SAT) division and inHaus Center, adds:

"We have chosen ProSyst as a strategic partner for our development activities due to their broad portfolio of key software technologies and their expertise in OSGi gateways – which lets us concentrate on our core business of creating compelling solutions for intelligent living."

The Conclusion

The first results of this collaboration between Fraunhofer IMS and ProSyst are expected to be available on the market starting in 2003. Consisting of special application packages and system solutions, they will enable features such as remote access, integrated local home control, smart home shopping and teleservice/maintenance. With the integration of ProSyst's OSGi certified software, the benefits of a connected home, that can be enhanced and modified to meet ever-changing user needs, can be accessed by all.

For more information and to learn more about what ProSyst can do to make your project a success, please contact ProSyst at sales@prosyst.com or Phone +49-221-6604-0.