SERVICE PROVIDERS AND SMART HOME SERVICES – A SHORT HISTORY FROM AN HGI MEMBER’S VIEW

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HGI’S CLOSING SYMPOSIUM
MARCH 8 & 9
VENICE, ITAY
WHEN IT ALL STARTED IN 2005 ...

HGI
Home Gateway Initiative

HGI off to a great start!

Paris, 11th May 2005

The recently held kick-off meeting of the Home Gateway Initiative (HGI) was a huge success! Optimistic estimates had lead the organisers to expect about 75 participants to attend. In fact more than 120 participants representing 45 companies attended the event.
... OPERATOR’S TALK WAS ABOUT

• Avoid becoming a dumb bitpipe
• specify a low cost, high capability end-to-end multi-service residential gateway between access networks and residential devices

Quote from Kick-Off Press Release
but until now there has not been work on a global architecture for home gateways and the surrounding environment capable of delivering administered and secured home services

Quote from Kick-Off Press Release
THE STANDARDS LANDSCAPE WAS MOVING ...
... AND HGI WAS FILLING A GAP
HGI’S RESIDENTIAL PROFILE BROUGHT IT ALL TOGETHER

Home Gateway: Residential profile

- Network Interfaces
- Switching/Routing
- Management
- QoS
- Multimedia services support

- Firewall/Security
- Authentication
- ALG
- Remote Access
- Devices Support

Plus:
- Recommendations on RMS, devices
- Performance metrics

www.homegateway.org
The Modular Home Gateway

Bringing software modularity to the home domain.
What is an Execution Environment?

A computing middleware where you can install, run, and manage software modules.
Why Software Modules on the HG?

... to make present and future home devices and appliances work with services and enablers!

WebDAV to UPnP AV

IM to SIP

?
## Modules vs. Firmware Updates

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- **user friendly and solid**
- **flexible and resource saving**
- **faster time to market**
- **multi source software provisioning**
So, should we start to deploy native code modules onto the Home Gateway?
So, should we start to deploy native code modules onto the Home Gateway?

probably not…

Windows

A fatal exception 0E has occurred at 0028:C0011E36 in VXD UMM(01) + 00010E36. The current application will be terminated.

* Press any key to terminate the current application.
* Press CTRL+ALT+DEL again to restart your computer. You will lose any unsaved information in all applications.

Press any key to continue _
Execution Environment Expectations

Reliable

✓ Proven technology
✓ Protecting the functioning of the HG
✓ Secure access to sensitive functions

Portable

✓ A module system that can be deployed to different HG brands
✓ Independent of operating system and hardware architecture

Open

✓ No niche know-how is needed for module development

there is a technology that fits...
Unfortunately, Java has no built-in concept of... but the OSGi Service Platform adds this to Java.
Highlights of the OSGi Service Platform

• Provides a **Package Format** for software modules („bundles“)
• Provides module **Lifecycle Management** (install, start, stop, uninstall)
• Provides **Module Interaction** mechanisms („services“)
• Provides **Access Control** for interaction based on Java Security
The OSGi Service Platform on the HG
Remote Management for Execution Environments

Definition of a data model for EE management initiated
Original challenges in designing a mass-deployment Home Gateway - a multi-objective design problem.

SW modularity on the Home Gateway – a key architectural component in the connected home.
HOME NETWORK

WAN

Operator Platform
Service Application (REMOTE)

Adapters for REMOTE representation
Adapters for LOCAL representation

Service Application (LOCAL)

WAN Network Connectivity Mgt

Virtual Appliance Driver

Appliance Drivers

Native Drivers

Appliances

connection over built-in or attached interfaces

connection over Ethernet/IP

local clients

HG Core (OS/drivers)

HG Software Stack

Smart Home Software on Open Platform 2.0

HGI’S SMART HOME ARCHITECTURE IS BASED ON SOFTWARE MODULARITY
SHORT EXCURSE - DT’S GATEWAY EVOLUTION & SMART HOME PLATFORM
STANDARDIZED PLATFORM FOR THE MASS MARKET.

"EXCLUSIVE MARKET"

"MASS MARKET"

"DO-IT-YOURSELF MARKET"
THE QIVICON OPEN PLATFORM APPROACH

Proprietary offerings

All offerings are compatible with the QIVICON platform
AN OPEN ECOSYSTEM BASED ON THE QIVICON PLATFORM.

QIVICON – the platform for the Smart Home

End Customer
Partner Solution (hardware/software)

Partner Ecosystem
Service, Hardware Manufacturer and Development Partners

Platform
Usage

B2C Relationship

B2B Relationship

Platform

- Portal
- Installation- and Pairing-Wizard
- Basic Client/Konfiguration

- SDK/
- Backend
- Smart Home white label app

OTT box in addition to router
BUSINESS AND SERVICE MODEL REQUIRED
AN OTT BOX FOR THE MARKET ENTRY
QIVICON HOME BASE.

HGI SWEX underpinning:
Linux OS
JavaSE 7 Embedded VM
OSGi Runtime QIVICON APIs

1st Generation Home Base
GENERALIZING THE HGI SMART HOME APPROACH?

• The Home has been the **first consumer environment to become connected and smart** ...

• ... with a **multitude of different** use cases, manufacturers, technologies, service providers, users, ...

• **Home Domain is a (one)M2M/IoT vertical** (besides e.g. the vehicular and industrial domains)

• The HGI **approach** on
  – Gateway & Smart Home Architecture
  – Abstraction Layer & Device Modeling with SDT

• ... can in principle be **applied to other verticals and developed into enablers for cross-domain interoperability**
FUTURE VISIONS

from Smart Living City - Dubai 2014

from http://www.marketingmagazine.co.uk/
from http://www.smartmeters.com/