

# HGI's Activities & Vision

## Meeting of Potential Consolidation Partners with Vertical Industry Representatives

Berlin December 15<sup>th</sup>, 2011

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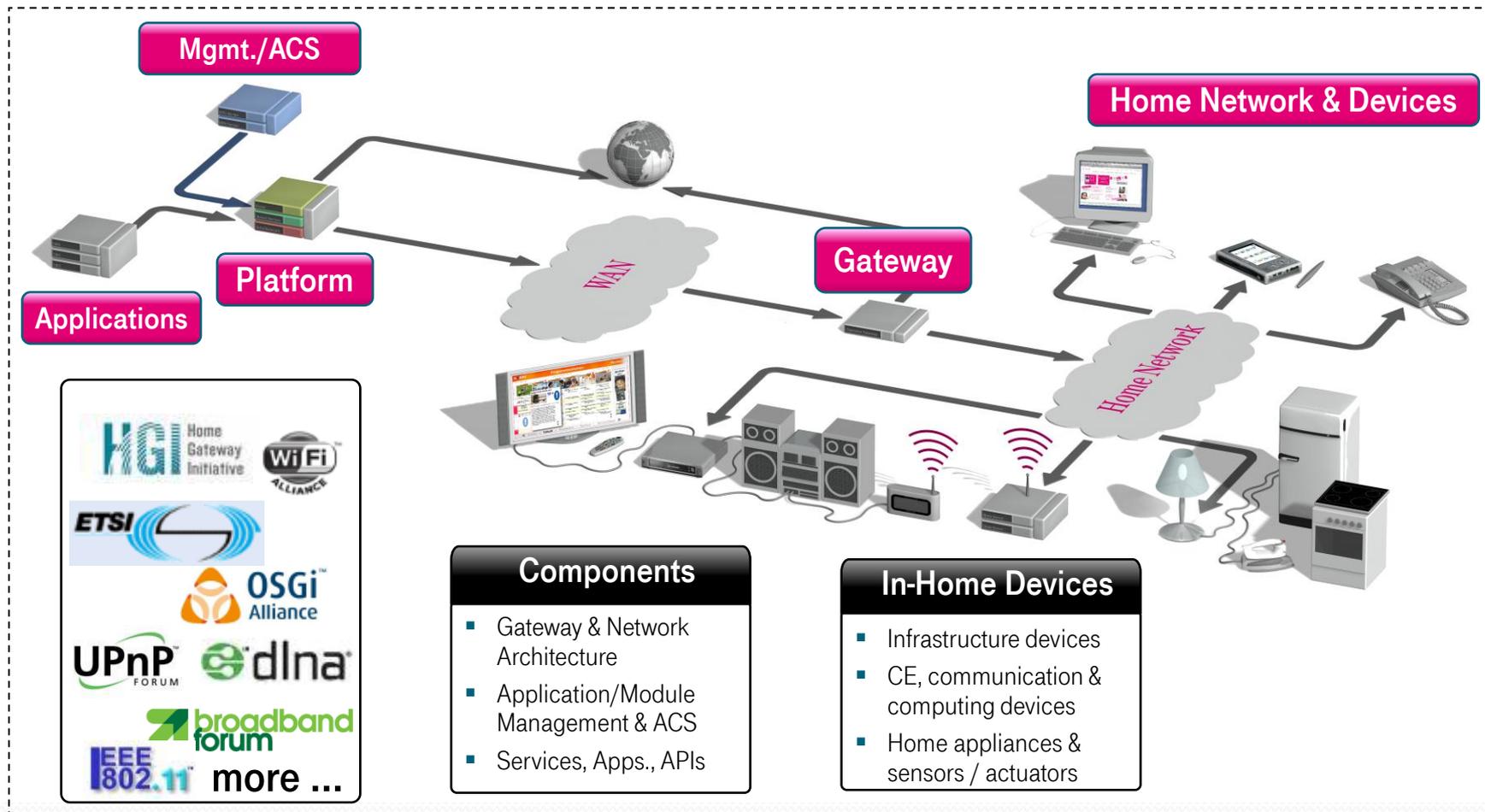
**HGI**  
CONNECTING HOMES, ENABLING SERVICES



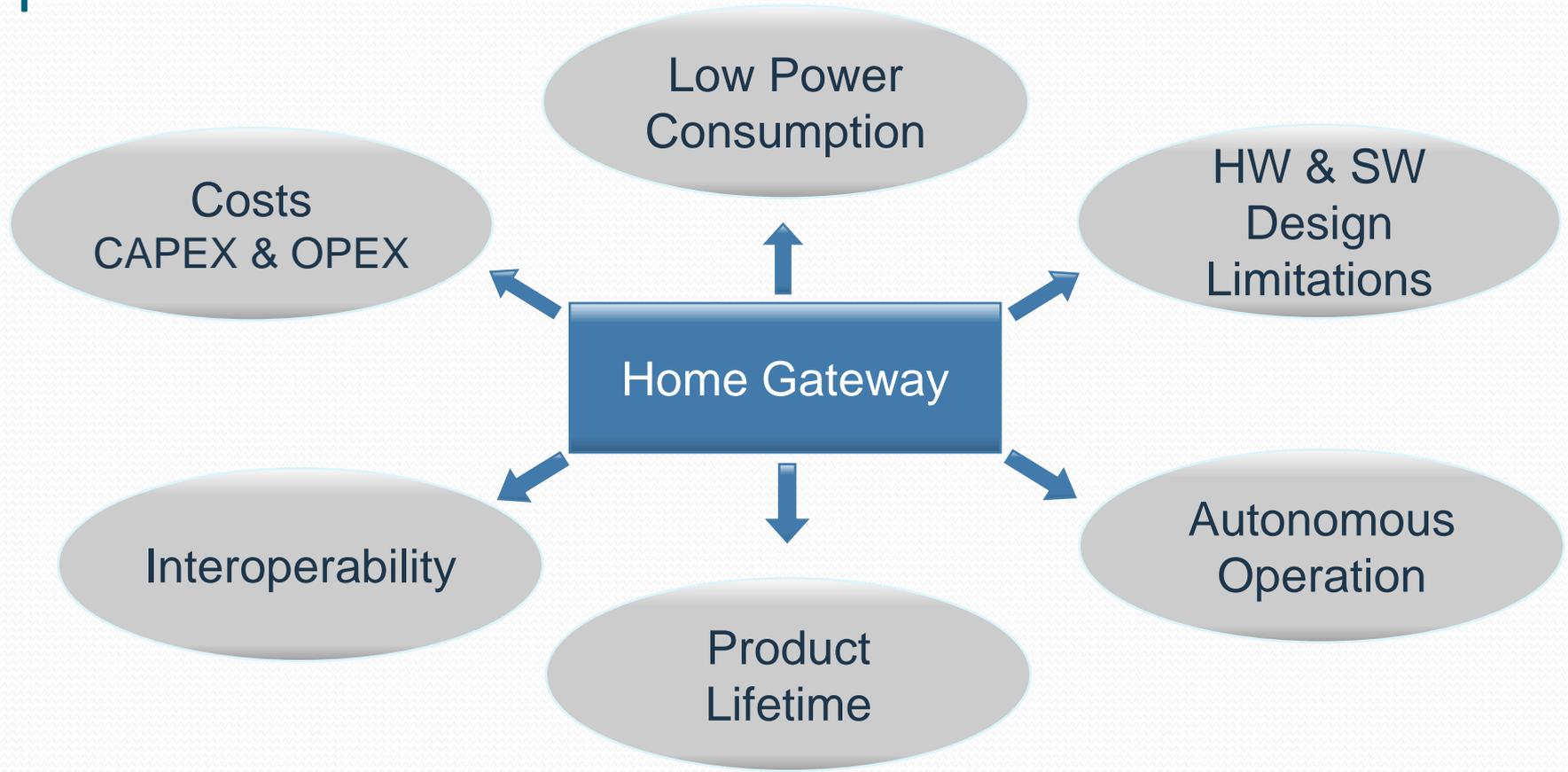
**HGI**  
CONNECTING HOMES, ENABLING SERVICES

- OPERATORS*
- HOME GW / NETWORK SUPPLIERS*
- CHIP SUPPLIERS*
- SOFTWARE / others*

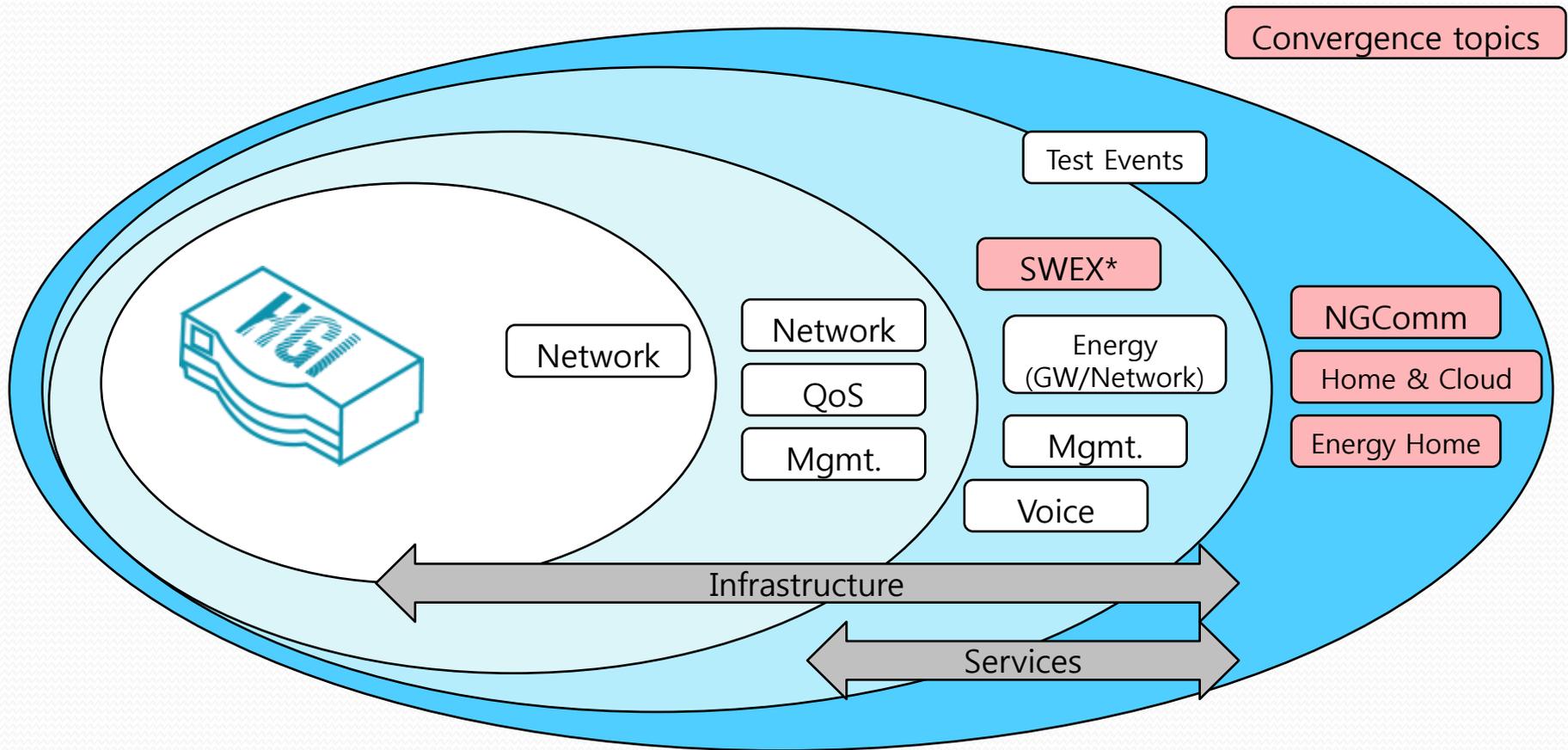
# HGI is addressing the Connected Home Ecosystem.



# Original challenges in designing a mass-deployment HG - a multi-objective design problem.

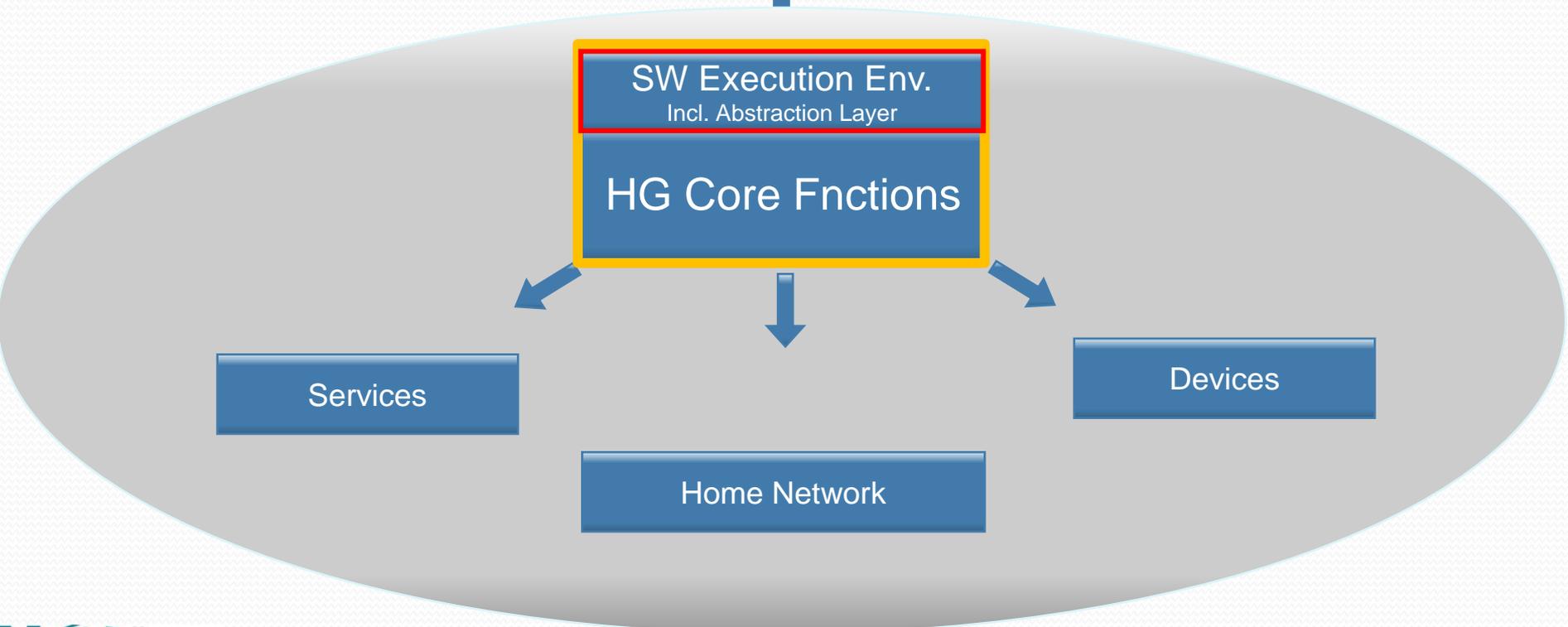
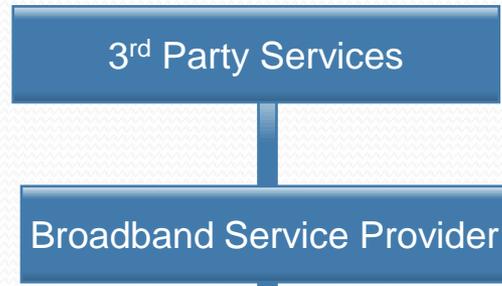


# HGI's evolutionary steps towards convergence.

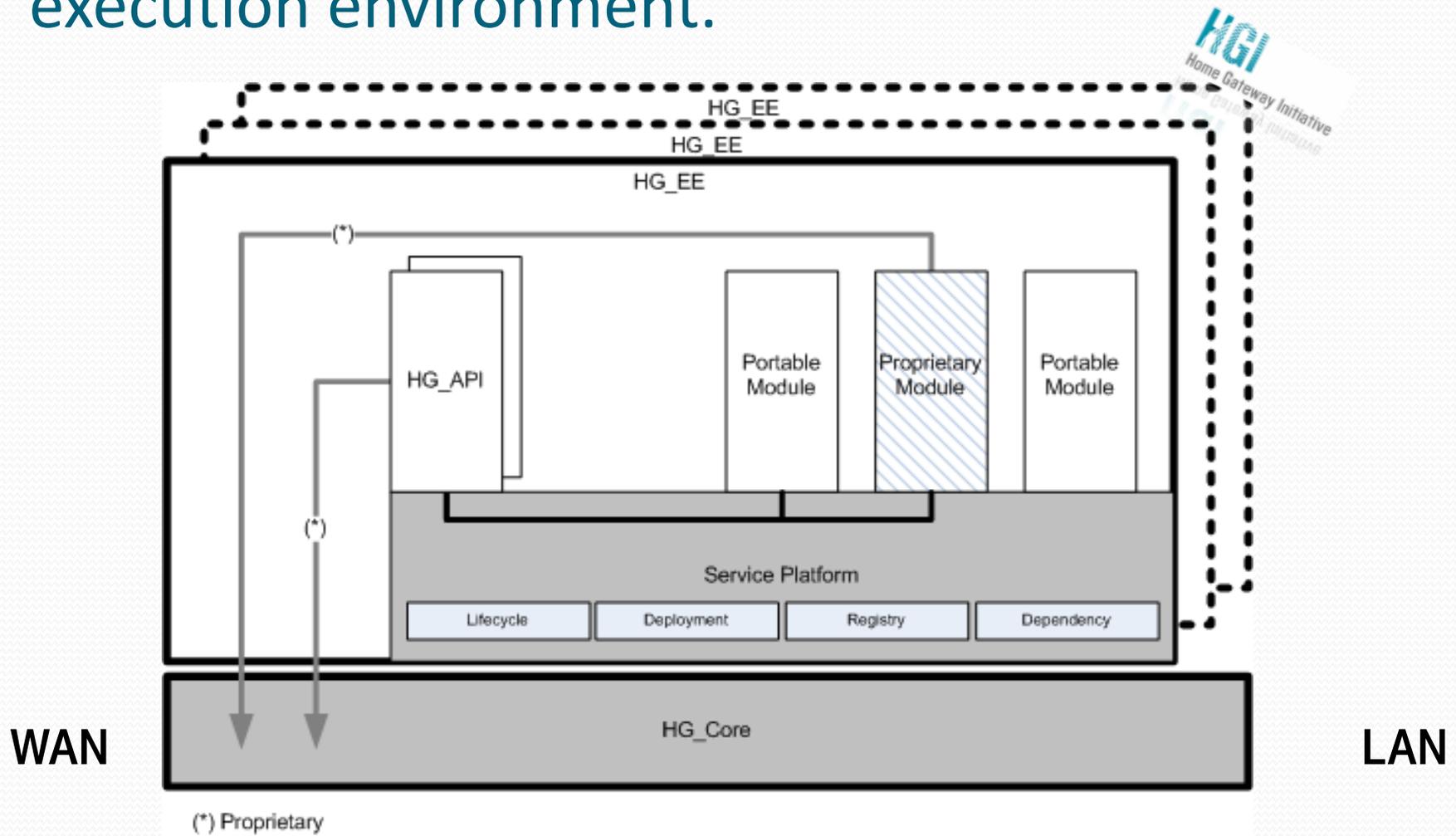


- SWEX = Software Execution Environment
- NGCom = Next Generation Communication local interface (DECT, SIP, UPnP Telephony)

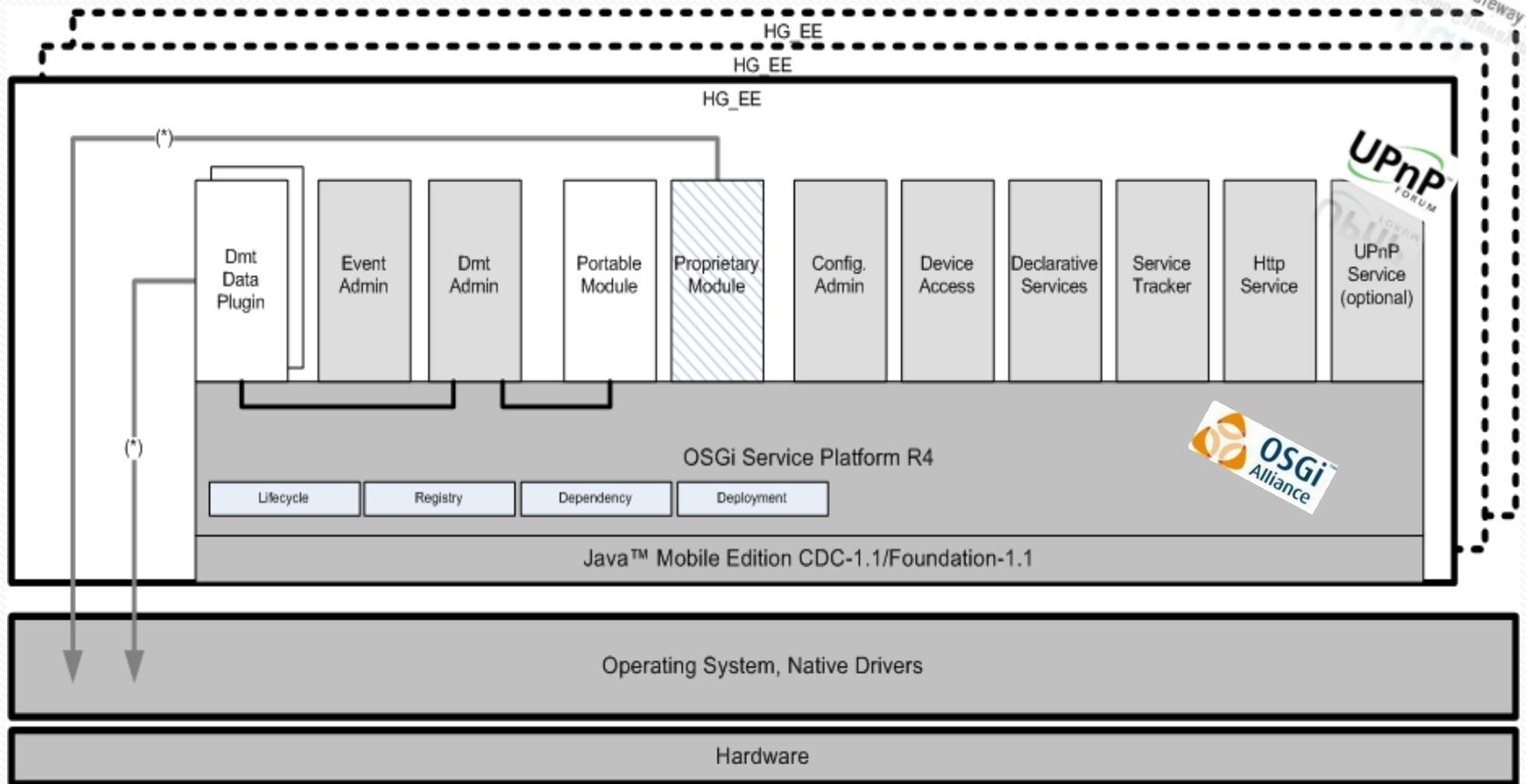
# SW modularity on the Home Gateway a the key architectural component in the ecosystem.



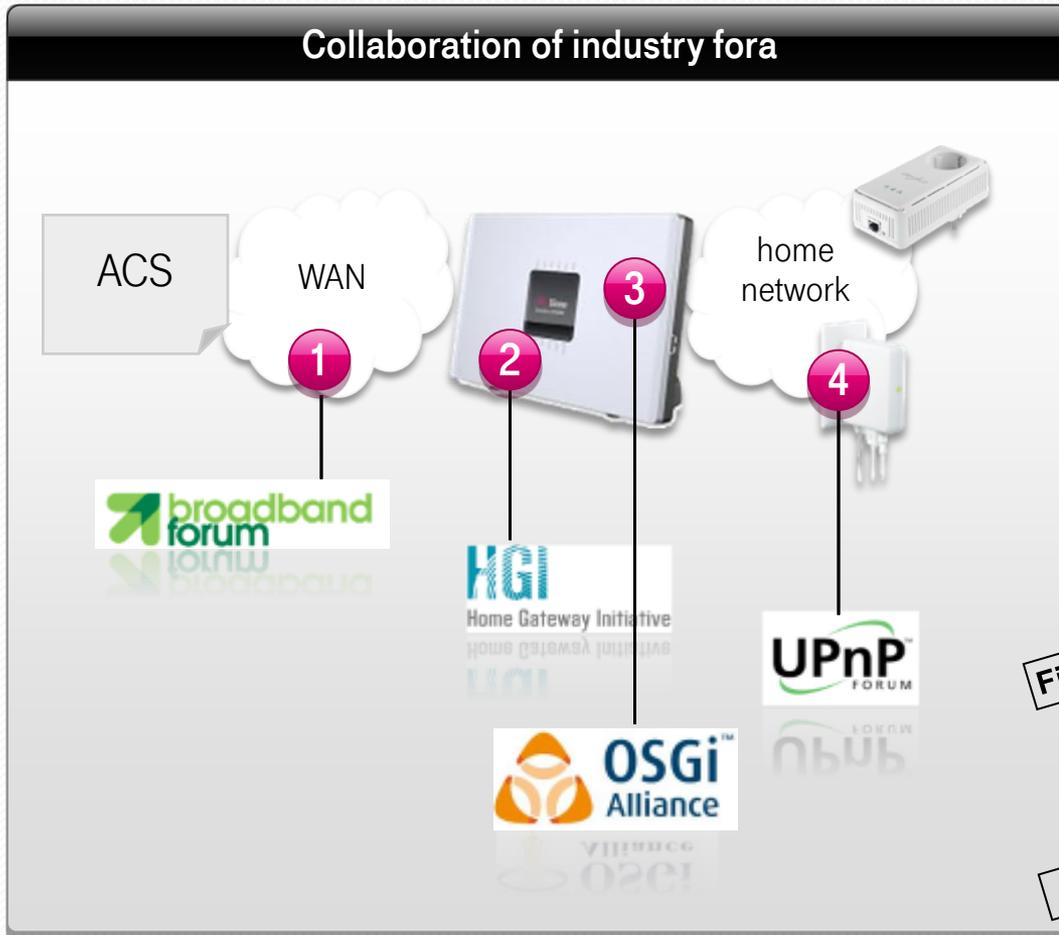
# HGI specified requirements for a software execution environment.



# The environment was instantiated with the OSGi technology and aligned with other fora.



# Remote deployment and software modularity - a joint effort of industry fora supporting open solutions.



- Status of reference points**
- ✓ 1 **Remote Management of SW environment and modules**  
Broadband Forum defines a data model and TR-069 changes for the management of software modules on the CPE.
  - ✓ 2 **Gateway architecture, functions and functional profiles**  
The HGI defines a requirements specification for "Software Execution Environments on the HG" (RWD008-R3).  
Test Event featuring OSGi / SWEX tests.
  - ✓ 3 **Defined API to gateway functions**  
OSGi provides a specification "Home Gateway Device Admin" that provides secure access for modules to the core functions of a home gateway.
  - 4 **Local Management**  
UPnP Forum provides a specification for basic management, configuration management, software management.

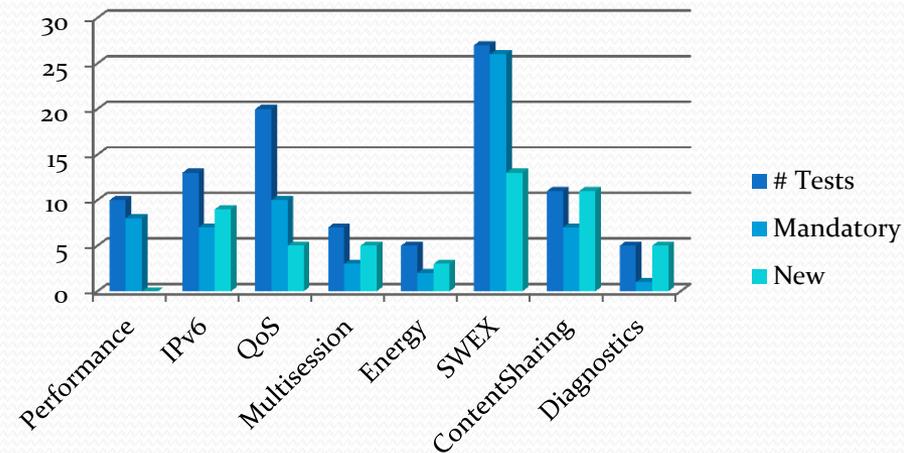
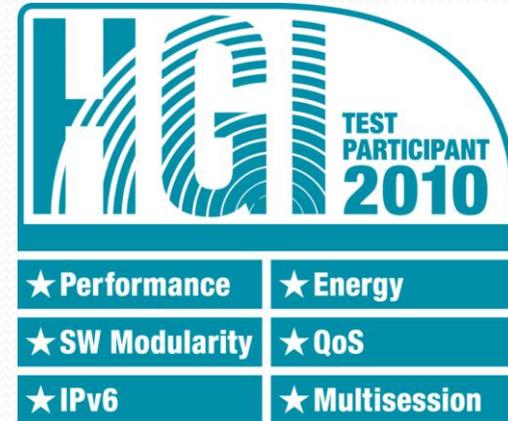
Final Draft

4Q2011

✓ = ready

# HGI Test Event 2011 testing leading edge feature requirements.

- 2009 and 2010 events were both a great success
- 2011 happening just now (Nov/Dec)
- Service Providers
  - Pre-qualification of HGs and chips
  - Understand state of the art of the cutting edge features
  - Common service provider metrics and procedures
- HG System, Chip and Software Vendors
  - Prequalify with Service Providers
  - Marketing based on test event results
  - Understand leading edge performance requirements and how they compare
- LOGO Program is available to participants



# Phase 3 of HGI Energy Efficiency – a good example to relate M2M and Home.

## Phase 1

Home Gateway Energy Efficiency

## Phase 2

Home Network Energy Efficiency

## Phase 3

Home Energy Management Service

# Home Energy Management

## Use Cases

- Visualization of current energy and power data
- Visualization of historical data
- Alarms for different events
- Home Domain overload management and avoidance
- Optimising energy cost
- End User Control
- Demand response
  - ranging from tariff variation, though phased usage to power-down

# HGI pulling the HEM ecosystem together

*Torino energy symposiums 2011*

## HGI Experts from

- ✓ ADB
- ✓ ALU
- ✓ Broadcom
- ✓ British Telecom
- ✓ Cisco
- ✓ Deutsche Telecom
- ✓ DSP Group
- ✓ France Telecom
- ✓ Freescale
- ✓ Pingcom
- ✓ Sagemcom
- ✓ Swisscom
- ✓ Telecom Italia

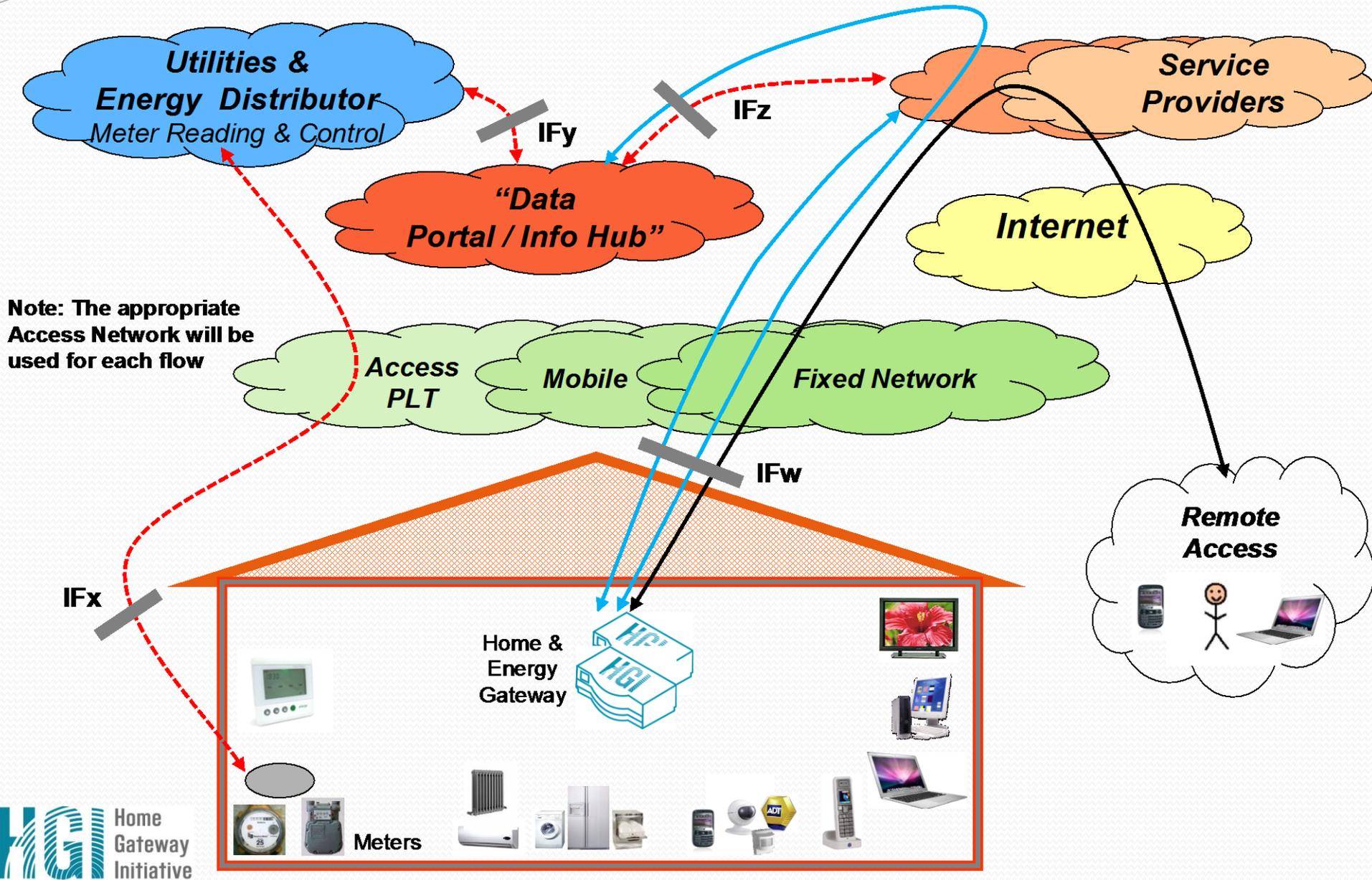
## + Experts from industry partners

- ✓ Beywatch
- ✓ Broadband Forum
- ✓ CECEDE
- ✓ DECT Forum
- ✓ Energy @ Home
- ✓ ESMIG
- ✓ ETSI M2M & TISPAN
- ✓ Homeplug
- ✓ Homegrid
- ✓ UPNP Home Energy
- ✓ Whirlpool
- ✓ Z-Wave
- ✓ Zigbee Alliance

## REVIEWED

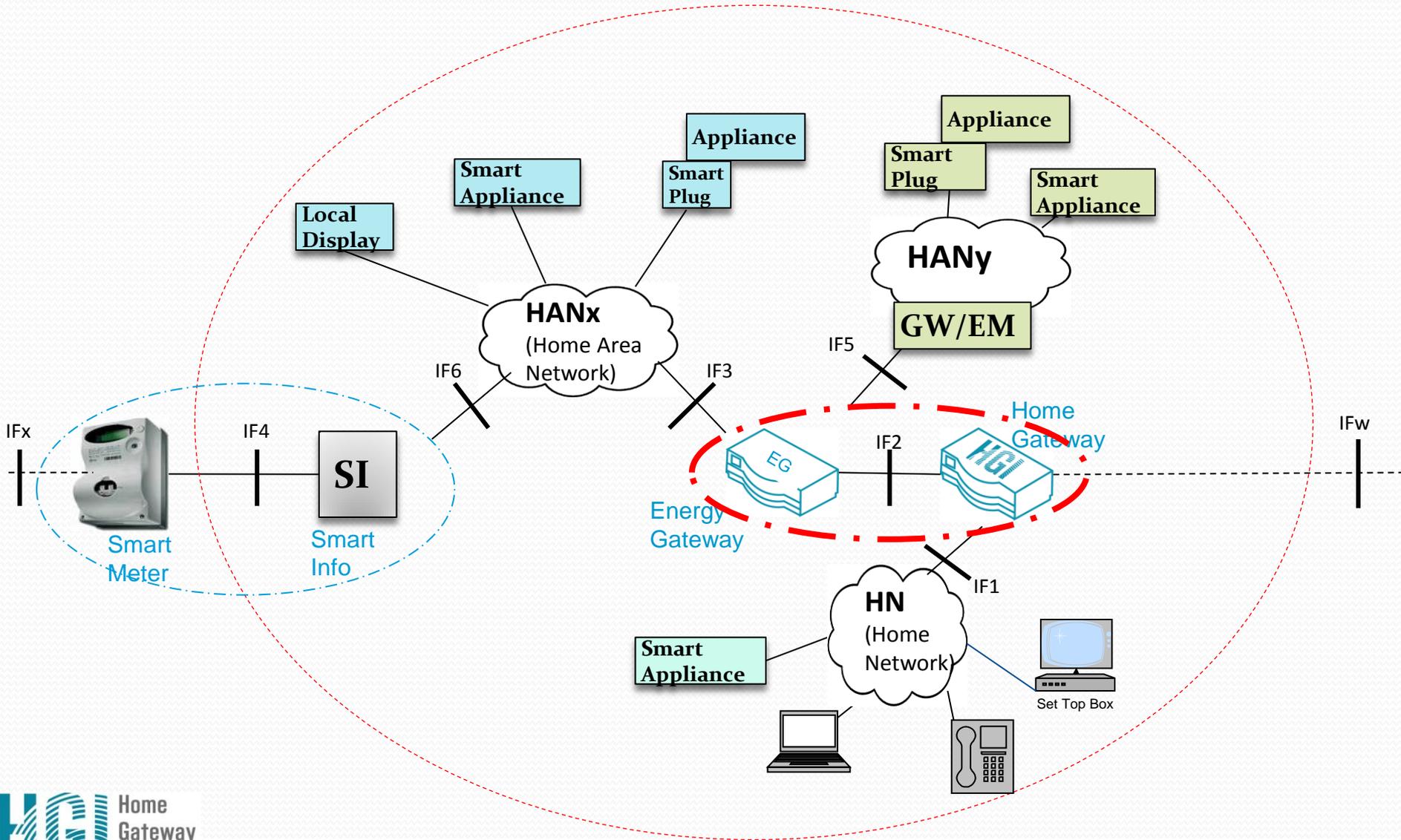
- ✓ Business Architecture
- ✓ Services & Use Cases
- ✓ Technical Architecture

# Home Energy Mgmt. (HEM) business model

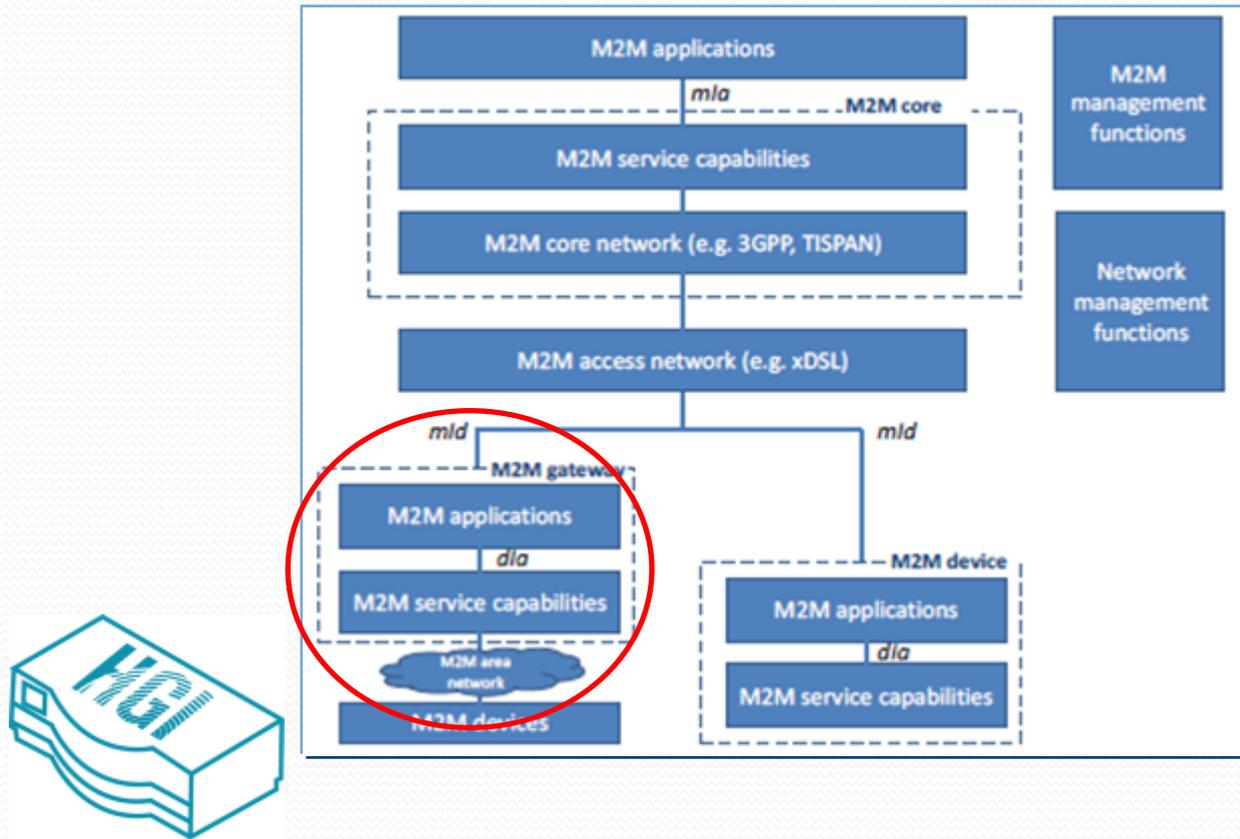


# Home Architecture with Energy Gateway

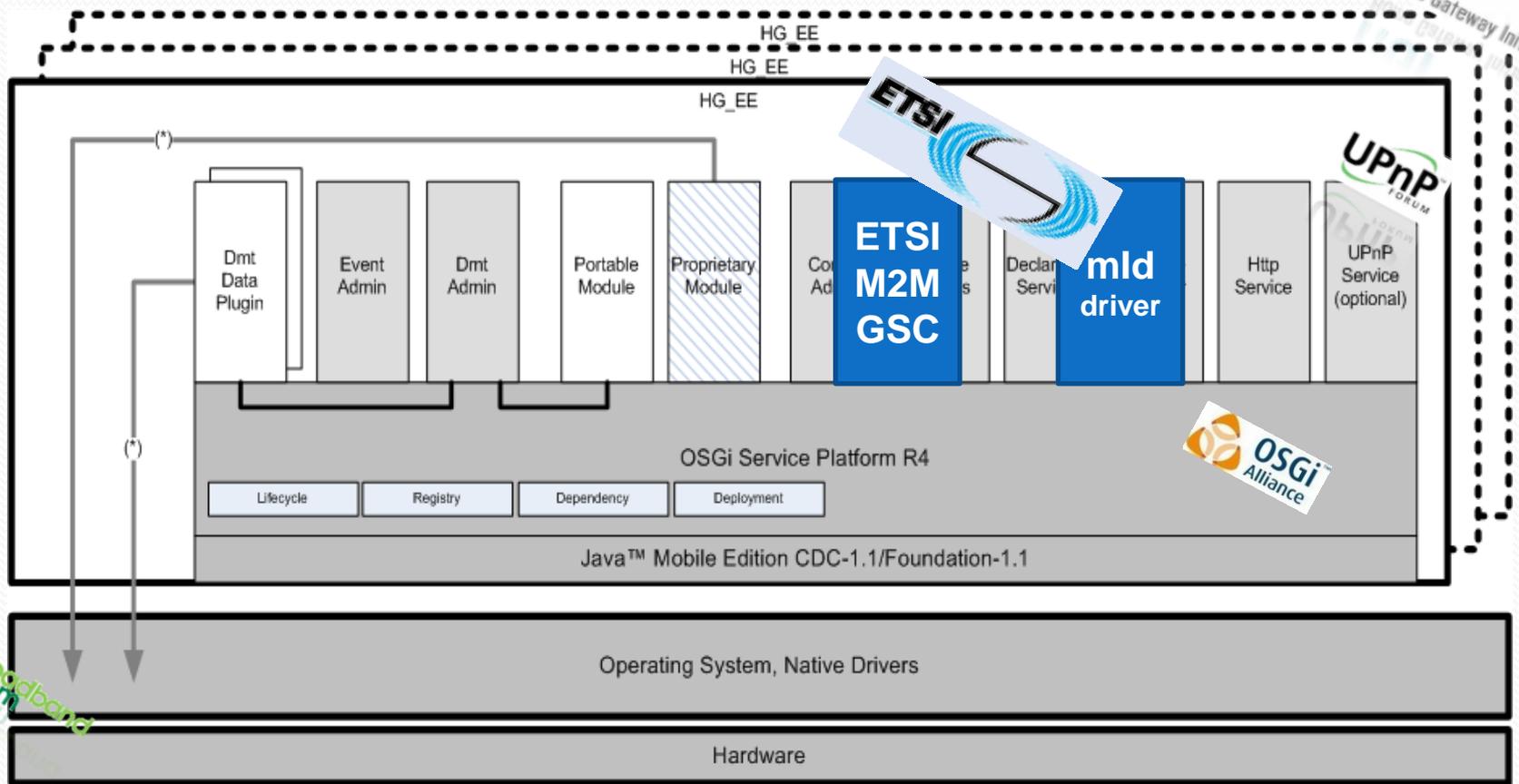
Home Domain



# The Home Gateway as instantiation of an M2M Gateway for the vertical Home



# Possible implementation of M2M functional blocks in SWEX environment.



# Next steps for HGI on HEM and M2M

- Specifying the architecture for HG-based implementation
  - Device abstraction
  - In-home interfaces
  - APIs for applications
  - OSGi as the applications environment
- Inclusion of key HEM features in 2012 HGI test event
- M2M
  - Instantiate M2M features in the home gateway
  - Align M2M and HGI architectural approach
- Continue outreach initiatives to home automation, appliance, utility & smart meter industry segments

# HGI Questions for M2M

## Home Network

- HGI is introducing applications (HEM, health, security, automation) in the home that interact with IP and non-IP devices. and has defined an execution environment incl. a set of standardized APIs.
- Several interfaces being considered such as Zigbee, Z-wave, DECT, Homeplug, G.hn, Wi-Fi, and others
  - Overall, what role does M2M assigns to the home environment elements?
  - What is the relation between Smart Energy Profiles and M2M?
  - Does M2M assume the suggested abstraction layer structures in the HG?
  - Does M2M assume the distribution of application logic across device, gateway, cloud?

## Cloud

- In M2M view, what is the appropriate interface for cloud-located applications that interact with applications in the HG?
  - Service-provider supported applications
  - Internet based applications
- What is the state of specification of the M2M gateway, and how can HGI help to specify requirements, if needed?

# HGI is committed to contribute in the M2M Consolidation Initiative.

- **Further develop and consolidate** the architecture, abstraction and service layer specifications for the vertical Connected Home Ecosystem.
- Enable the **Home Gateway to be an M2M Gateway**.
- **Build on the achieved results** regarding the HGI Home Gateway architecture and stack that is becoming available on the market and is adopted by major operators.
- **Explore how HGI Test Events can contribute** to M2M testing and certification efforts.
- Contributing with domain specific background to a **collaboration with SDOs and other fora** active in developing M2M solutions.
- ... i.e. develop specifications that will help drive the industry towards a goal of lower operating expenses, lower capital expenses, faster time-to-market, and mass-market economies of scale.

**Thank you for your attention!**