

OSGi Alliance Community Event

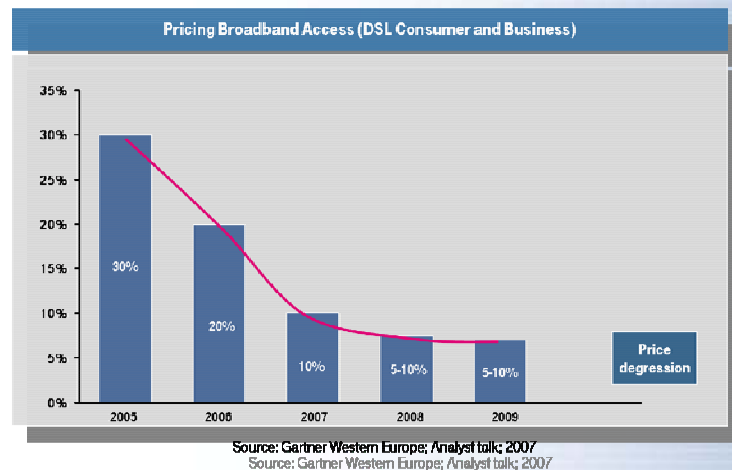
Making the Home Gateway an Operator Control Point

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The Undesired Bitpipe Business

- Access bit rates increase, but prices decrease
- Being a pure access provider is not a promising business model for the future
- Competition demands even higher bit rates
- New investments in broadband networks are not covered by significantly higher revenues in the access market
- Fixed-line operators must bring added value to their networks (services and applications)



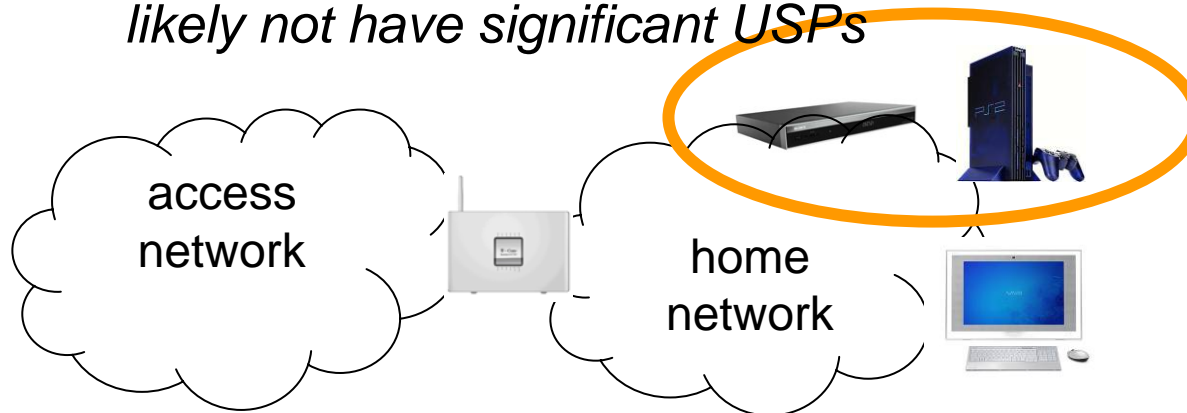
Competition Examples

- Companies like Apple, Google and Microsoft start to deliver **Internet video services** through broadband networks
- **Game consoles** from Nintendo, Sony and Microsoft intend to become an application control point in the home network
- Operators may gain **additional revenues** through these services (higher broadband penetration)
- But business model still remains to be access provider, with all competition drawbacks and **very few differentiation opportunities**
- *So what are the unique assets that an operator can make use of?*



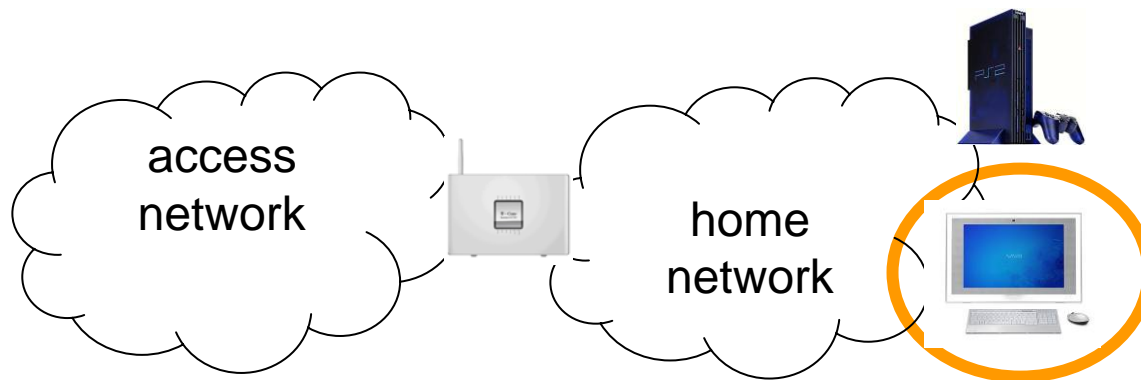
Competition in the Connected Home

- The CE market for networked in-home equipment is dominated by strong players like Sony, Microsoft, Philips
 - *Customers are not very used to place telco CPE into the living room*
 - *Thus, an STB might provide services and applications, but will likely not have significant USPs*



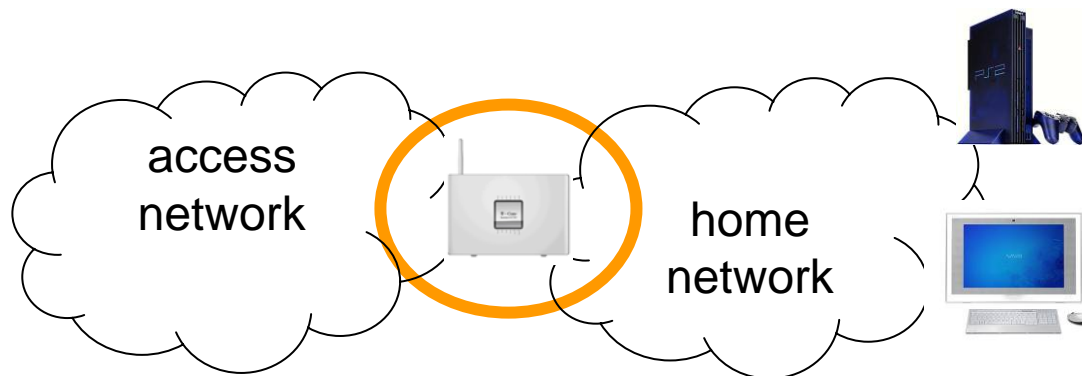
Competition in the Connected Home

- The home PC could be an option, but no operator control point
 - *Has major drawbacks on security, reliability, energy consumption etc.*
 - *Controlled by OS and application vendors*



Competition in the Connected Home

- But operators have a key component in the home: The **Home Gateway...**
 - *Usually provided by the operator and provides access to the Internet, voice and TV services*
 - *Controls in most cases the data flows in the home and enables QoS enforcement*
 - *Provides management access to the home*



The HG brings quality to the home network.

HG-related Enablers for Fixed-line Operators

- **Home Gateway**
 - *The HG is a strong enablers that provides service access to the connected home*
- **Quality of Service**
 - *Network operators can implement an end-to-end QoS management*
- **IP Multicast**
 - *Network operators can implement an end-to-end multicast infrastructure, which is a very efficient way to deliver IPTV services*
 - *Using unicast connections for broadcast TV services causes high OPEX*
 - *Peer-to-peer TV technical feasible, but quality is unreliable*
- **Remote Management**
 - *Reduce complexity for customers to a minimum*
 - *Improve user experience by eliminating issues in the home network remotely*
 - *Help customers with PC configuration and management*



Enabling HG Features

- Support of full in-home QoS
 - *Delivering Full-HD video streams in a robust and reliable way is a major differentiator for TV services*
- Awareness of home network Infrastructure
 - *Trouble-shooting*
 - *Remote Management and Auto-Configuration of Infrastructure*
 - *In-home QoS management*



Enabling HG Features

- Remote management proxy for CPE incl. PCs
 - *Make customer's life easier and reach non-expert target groups*
 - *New ICT service opportunities for non-experts and small businesses*
- Access to network-based enablers
 - *Leverage operator assets as unique selling propositions*



Value Proposition of OSGi Technology on the HG

- Accelerate Differentiation
 - *Run non-standard applications and features on the HG, e. g. Remote Access*
 - ***Manage CE devices that run non-TR69 management agents (e. g. UPnP Wi-Fi Access Points) using device-specific management driver modules (example follows)***
- Leverage WAN Services
 - *Advertise content services to the home network, e. g. using UPnP CDS*
 - ***Advertise remote storage services to the home network, e. g. using SMB (example follows)***

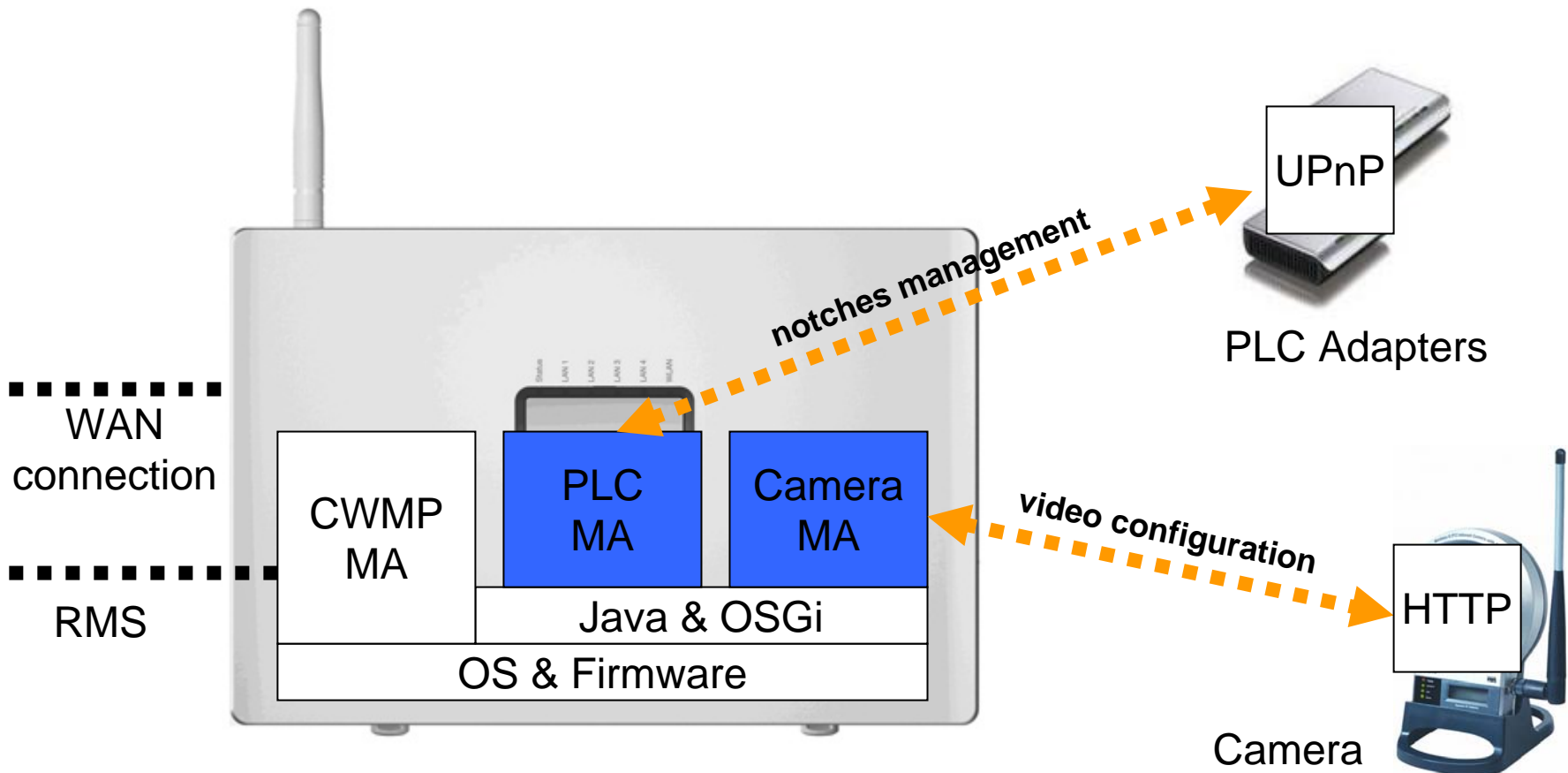


Value Proposition of OSGi Technology on the HG

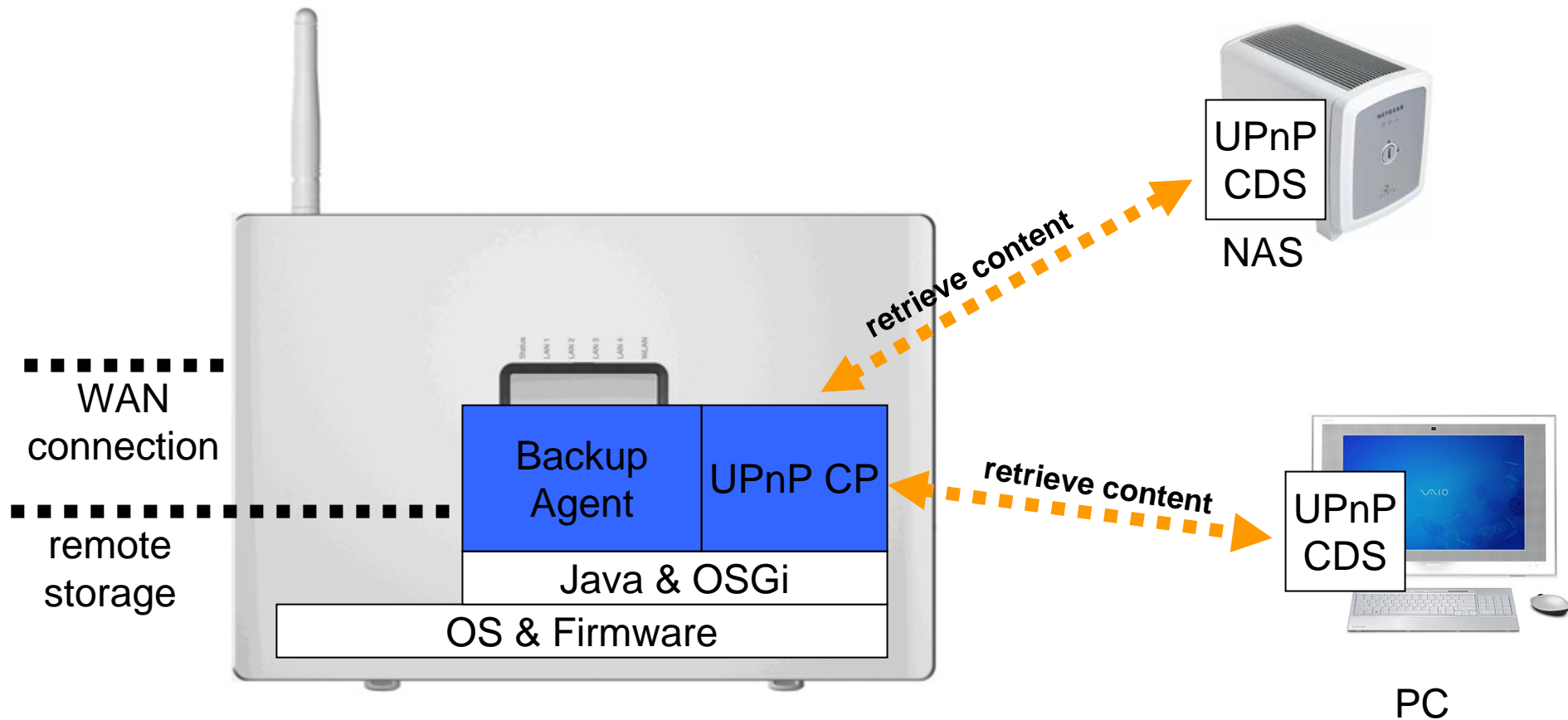
- Increase Compatibility
 - *Make a standard HG platform compatible with a variety of operator networks and benefit from larger scales*
 - *Distribute the same operator-specific user interface application to different HG models, even from different vendors*
- Good User Experience
 - *Install and update modules without service interruption*



Management of home devices



Backup on remote storage



OSGi technology doesn't solve all issues

- There are still are some **specifications/standards gaps** (remote management, local HG management)
- **Hardware modularity** can be solved today using USB host connectors on the HG
- Using OSGi technology implies to have a significant **resources headroom** on the HG (memory, and probably CPU power depending on the applications to run)
- So telco business cases must balance between **higher cost per unit** (memory and licenses) and the additional revenues and the OPEX savings



Conclusion

- The HG is a **unique asset** in telco operator's end-to-end service delivery which is able to provide much more than only triple play services
- Providing a dynamic functionality on the HG offers a broad variety of **differentiating business opportunities** to generate new revenues and/or save OPEX
- **OSGi technology** is the only appropriate standardised solution for software flexibility on the HG
 - Other solutions are either proprietary, or have weak capabilities, or are focussed on other application areas (e. g. user interfaces)



Thank you!

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