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*

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The HG brings quality to the home network.
HG-related Enablers for Fixed-line Operators

- **Home Gateway**
  - The HG is a strong enabler 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

- OS & Firmware
  - Java & OSGi
  - CWMP MA
  - PLC MA
  - Camera MA
  - OS & Firmware
  - UPnP
  - HTTP

- WAN connection
- RMS
- PLC Adapters
- Camera
  - video configuration
  - notches management
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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