Virtual Home Gateway
vHGW : virtual Home Gateway

CHALLENGE AND BREAKTHROUGHS

- Home Gateways provide access to Internet and multimedia services in connected homes
- Equipment is typically always on and consuming power whether it is used or not
- Power reduction possible through virtualization of application level service functionalities into virtual Home Gateway
- Services now hosted on dedicated and shared facilities in network operator infrastructure

Energy Savings in Wireline Networks Through Virtualization and Equipment Sharing
vHGW : virtual Home Gateway

KEY ACCOMPLISHMENT AND RESULTS

• Developed a clustered vHGW data center architecture
• Services hosted on multiple servers in cloud environment
• Efficient sharing and on-off management of servers as needed by traffic demand
• Guarantee accessibility and availability of vHGW functionalities and ensure subscriber satisfaction
• Minimum energy consumption through server management, VM migration and live backup support

19% Reduction of Power Consumption in Residential Access Networks
vHGW : virtual Home Gateway

DEMO DESCRIPTION

• Implement conventional Home Gateway and Virtual Home Gateway for video streaming

• Demonstrate 1000 active vHGW with video transmissions on a single server of 110W

• Measured effective per-subscriber power consumption of 165mW for vHGW

• Introduced vHGW migration as function of traffic demand and increased processed requirements

Experimental Validation of Feasibility, Scalability and Power Reduction Opportunities