Virtual Home Gateway

vHGW : virtual Home Gateway

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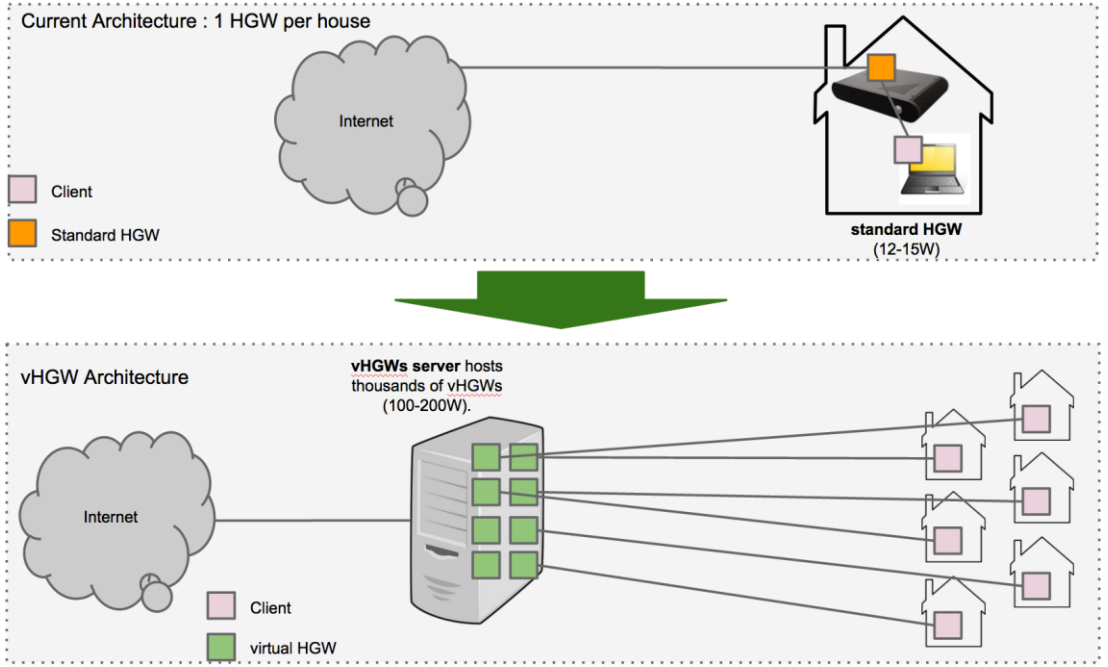
CHALLENGE AND BREAKTHROUGHS

- 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

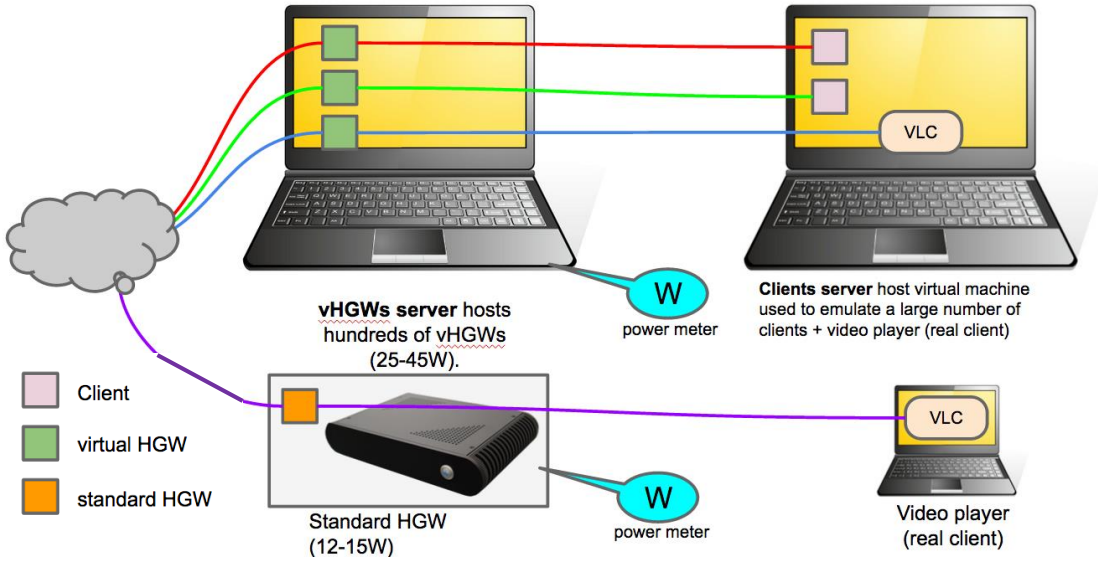
- Developed a clustered vHGW data center architecture
- Services hosted on multiple servers in cloud environment
- Efficient sharing and on-off management of servers as needed by traffic demand
- Guarantee accessibility and availability of vHGW functionalities and ensure subscriber satisfaction
- Minimum 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