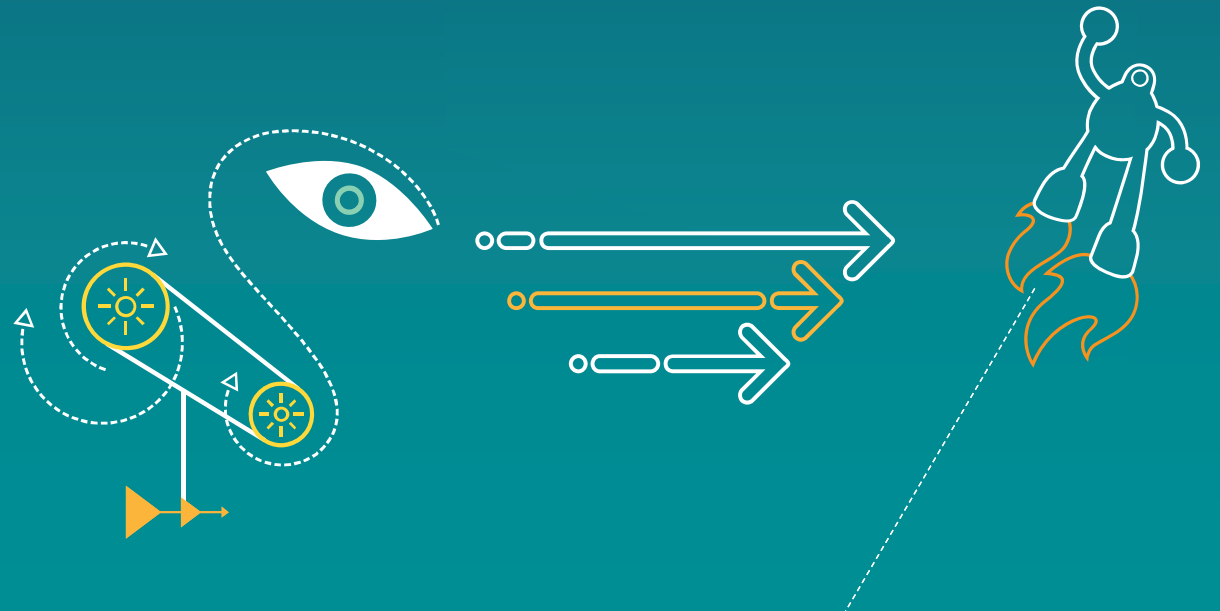January 2014

Smart Gateway
Analyst Presentation

Qualcomm®

The Home Network as a Platform

The "router" is moving toward an expanded role, supporting new capabilities

Smarter Network

- Smart traffic management (better app performance)
- Self learning capabilities to keep up w/ changing environment
- User/device discovery and profile awareness

Application platform

- Loadable apps that take advantage of the router's always on, always connected position in the home.
- App environment that leverages existing developer base and creates synergies with apps on other devices

Applications Leverage Always-On, Central Position of the Smart Gateway

Public Cloud

- Always-on, always-connected smart gateway ensures 24/7 home automation

- Smart gateway apps securely pull/push resources from/to the public cloud

- Central position of the smart gateway makes it ideal for multi-user, multi-devices apps

- Smart gateway apps minimize software footprint in connected devices

- Smart gateway apps offload mobile devices in the home and keep them power efficient.

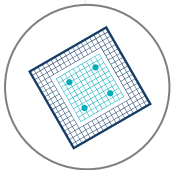# Spanning Across Three Clouds: Public, Home, Proximal

Qualcomm Smart Gateway

BUILT ON MULTIPLE PILLARS...

**Qualcomm
Internet Processor**

Immense 10K+DMIPs processing to power multiple devices, applications, services
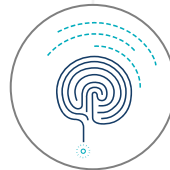
**Qualcomm
VIVE**

3-stream, dual-band 802.11ac networking capacity

**StreamBoost
Intelligence**

To optimize the networking capacity of the broadband connection

**AllJoyn
Framework & Services**

Enabling discovery, onboarding & control of many "things"

**Open App-Friendly
Dev Environment**

To facilitate development of new network apps & services

Qualcomm Internet Processor (IPQ)

Built to power the next generation of Internet-based content, services and applications

Dual-core Krait

Power management

System Fabric

System Peripheral I/Os

LAN/ WAN Connectivity I/Os

Packet Processor Engine

Dual-core Packet Processor

Security Engine

Leading the Home Network Performance Curve
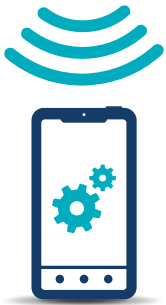
Highest Performance
- Dual-core 1.4 GHz Krait
  - ~10K DMIPS
- Dual-core Packet Processor Engine
  - Multi-Gbps network offload capacity
  - Multi-thread, concurrent processing

Lowest power in the industry
- Low power based on mobile architecture
- Industry's First CPU/NPU for home at 28nm
- Highest DMIPS per Watt
- Unique, dynamic voltage & frequency scaling

Flexibility
- Broad range of advanced network connectivity, media access/storage and control interfaces
- Programmable Network Accelerator provides future proof for new standards & features

Security
- AES/3DES/SHA Encryption
- Ipsec, MACsec
- HW Key Authentication
- Trusted Computing

Whose packets are the priority?

Problems grow when there are more network users in the home all competing for the same Internet connection

Optimizing the Network with StreamBoost™

Intelligent traffic management for a faster, more efficient home network

Automatically gives each app & device the bandwidth it needs for the best experience

Simple GUI lets you see every device & app running on the network

Cloud-based updates continue to optimize network performance

AllJoyn™ is a Free, Open Framework For Discovery & Connectivity

Rich, open interaction across device categories

Applications

AllJoyn Core Services

| Onboarding | Control Panel | Notifications | Audio Streaming | Future... |

AllJoyn Core

| Discovery | Security | Connection Management | Network Management |

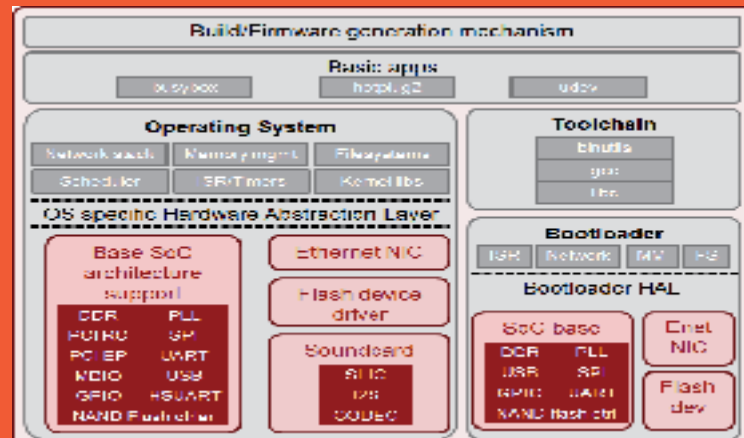# QSDK: QCA's platform approach

QSDK Profiles

Coordination of integrated stack with value-add components

OpenWRT AA basic router stack

Configuration mechanism (GUI, scripts...)

Minimal board support release

Full SoC package

Full Wi-Fi pkg

Full PLC pkg

Full Switch pkg

ebtables
dropbear
iptables
icmpv6proxy
igmpproxy
inadyn
iproute2
pptp
pppd
quagga
radvd
tspc

OSGI
AllPlay
JVM
Streamboost
Streamboost UI
TR-069
AllJoyn
Connected Home
...
Other cool stuff
...

What Functionality Can Quickly Be Added to the Smart Gateway

- Functionality of discrete devices
  - Dongle/puck hardware doesn't make sense in most situations

- Easy-to-use network management
  - Big opportunity for parental controls, network management, etc.

- Carrier/business-grade services
  - Home security, IoE, caching, and remote IT services

- Better content availability
  - Moving content is still a pain due to limited bandwidth, etc.

- Network security
  - Proven value + biz model; protect all the devices in the home network

- Run apps that currently use other devices (PC, tablet, etc.)
  - Router is better positioned to talk to devices and the cloud vs. other devices

Applications on the Qualcomm Smart Gateway

- Akamai's intelligent software demonstrates the ability to optimize delivery and pre-positioning of content such as videos and software.

- Pogoplug software allows users to attach a hard drive to their Qualcomm Atheros enabled router and instantly access files, photos, music and videos from both inside and outside home.

- Parental control provider Qustodio offers a superior solution to understand, manage and protect children's Internet activity.

Thank you

Follow us on:

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