Fueling the wireless world with convergence, capacity and context

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@qualcomm  #whywait
Capacity
Three ways of addressing capacity

More spectrum

More antennas

More efficiency
Multiplying Wi-Fi capacity can greatly improve experiences

802.11ac with Multi-User MIMO solves traffic congestion

Up to 3x increase in throughput and capacity
NEWS: Tri-radio platforms bring high-end performance & user-friendly features into mainstream 11ac routers

- More network capacity
  - AC3200 or new AC2200 router classes
  - Multi-User MIMO

- Greater flexibility
  - Band-steering & load balancing across 2.4 / 5 GHz
  - Ideal for distributed & mesh networks

- Better connected experiences
  - Less congestion
  - Wi-Fi SON for simple setup and automatic optimizations
More capacity can also empower completely new services

802.11ad taps into new spectrum to transform Wi-Fi experiences

**Productivity**
Wire-free desktops, back-up and sync

**Entertainment**
4k media streaming, wireless VR, lag-free gaming, mobile media kiosks

**Networking**
Homes, enterprises, schools and universities
Context and experience
Grocery List

- Kombucha
- Kumquat
- Organic Cheese
- Olives
- Yogurt
- Beet Spread
- Tuna Fillets
- Tofu & Tempeh
- Veggies
- Miso
- Rice Noodles
- Soy Milk
- Cilantro
- Lemon Curd
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Lorem Kombucha Delish

Ingredients
- Filtered Water, Organic
- Brewed Oolong Tea (Filtered Water, Organic Oolong Tea Leaves), Organic Kombucha (Filtered Water, Organic Cane Juice, Organic Oolong Tea Leaves, Yeast and Bacteria Cultures), Organic Cane Juice, Carbonation.

Nutrition Facts +
- Lemon Curd
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Lorem Kombucha Delish

Online Sales
loremite.com – 11.40
ipsumsite.com – 9.90
click to see more
User-centric view of context awareness

- **Gathering data**
  - Always ON, low-power

- **Inferring context**
  - Smart algorithms

- **Action**
  - Autonomous

- **Personalization**
  - For best user experience

- **Optimizations**
  - For best performance

- **Location**
  - Where

- **Activity**
  - What is happening

- **Co-presence**
  - Who is around

- **Environment**
  - Who is around

- **Connectivity**
  - LTE, Wi-Fi, BT

- **Sensors**
  - Motion, Location, Proximity

- **Application**
  - Usage/Behavior
Introducing Qualcomm® All-Ways Aware™ Hub
Utilized by Google Awareness API; Part of Qualcomm® Snapdragon™ processors

- Low-power DSP
- Low-power Wi-Fi Scans
- Low-power BT/BTLE Scans
- Low-power Location
- Power Efficient 3G/ 4G LTE
- Range of sensors

Google I/O 2016
Network-centric view of context awareness

Monitoring air links

Understanding device/app needs

Action

Autonomous

- Security for whole network
- Round-the-clock security
- Robust connection
- Efficient management
- Optimized configuration

Speed
 e.g. for media

Battery life
 e.g. for IoT

Latency
 e.g. critical services

Bands, technologies, and topologies
802.11n, ac, ad, ax
2.4GHz, 5GHz, 60 GHz
LTE, BT, BLE
xDSL, PLC
Qualcomm® Wi-Fi SON (Self-Organizing Networks)

Contextually aware networks address many pain points associated with networking

- **Self-configuring**
  - Plug-and-play

- **Self-managing**
  - Autonomous performance optimization

- **Self-healing**
  - Network bottleneck resolution

- **Self-defending**
  - Round-the-clock security

Bringing cellular-class user experience to WiFi networking and future platforms

Qualcomm Wi-Fi SON is a product of Qualcomm Atheros, Inc.
End-to-end approach to deliver best contextual experience

For the “always best connected”

Utilizing context from both sides
Convergence
Convergence across multiple dimensions

Device integration
Optimizing components for better size, cost and power

Resource aggregation
Making best use of spectrum and infrastructure to maximize performance

Platform convergence
Combining disparate parts of the platform to simplify home, enterprise, and carrier deployments
LTE is like Beijing

Wi-Fi is like Hong Kong
Convergence of access, wired, and wireless technologies

Smart gateway/small cell at the center of this convergence

- Broadband access (xDSL, Fiber, Cable, LTE)
- Wireless (802.11ac/11ax, 11ad/ay, 11ah)
- Wired (PLC, Ethernet)

**Orchestrate connectivity**
Central hub for all connected devices
Plug-and-play connectivity

**Manage personal cloud**
Securely store and manage user content, information

**Continuously learn and adapt**
Manage QoS based on analytics, user, and app behavior
Building the end-to-end ecosystem
Thank you

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