

INTERNET OF THINGS (IOT)

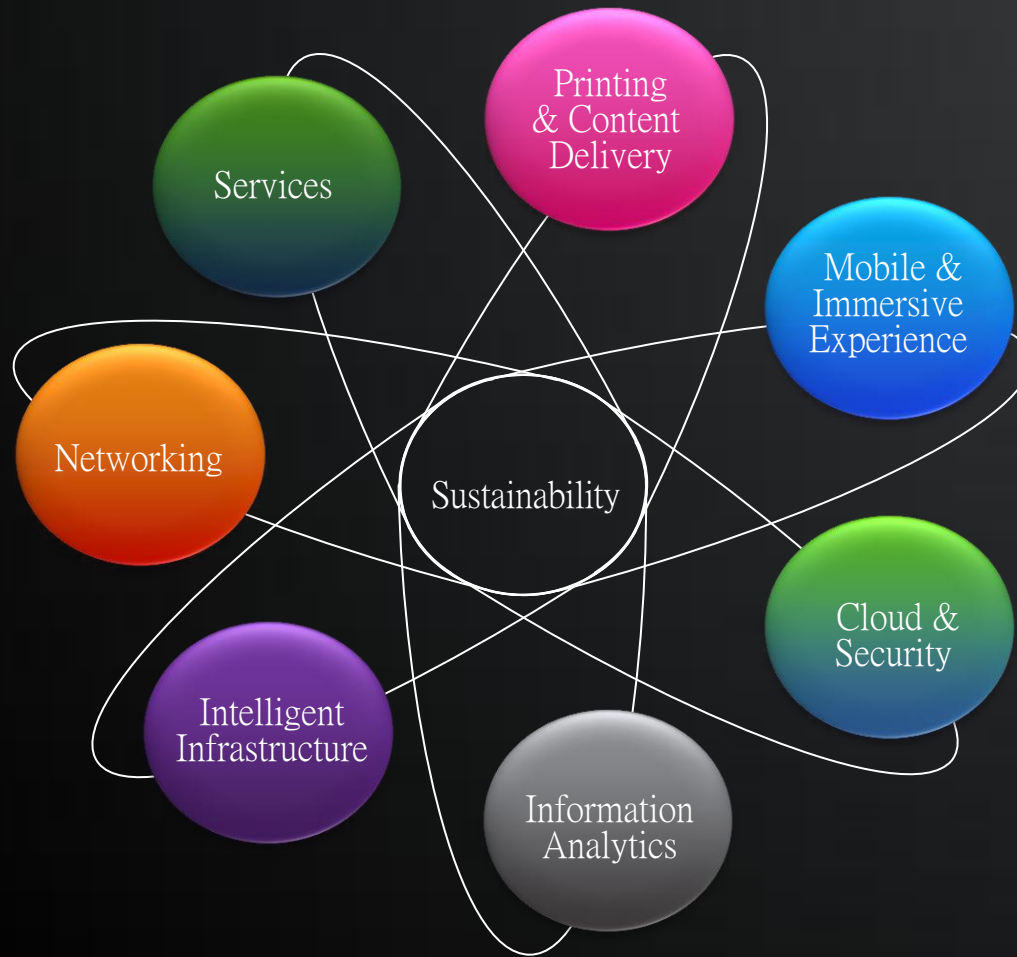
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Oct 28, 2011

(for SRB of STAG, Taiwan)



HP Labs Research Areas



Internet of Things

- Wireless Sensor Network of Million Nodes
- Seamless Mobile Connectivity
- Cloud
- Enabling Technologies



Large Scale Sensing

The Challenges:

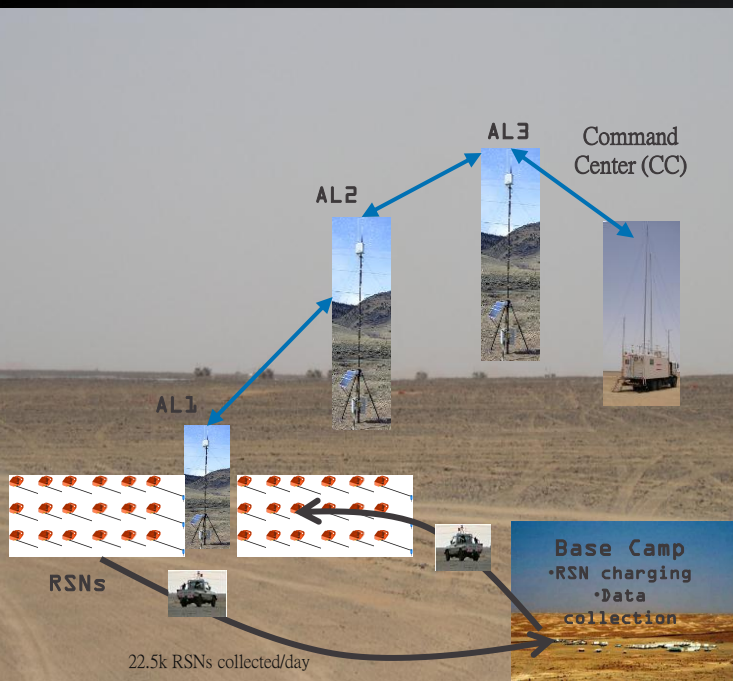
Massive scale
mobile sensing
networks

- Scalable, efficient data collection
- Weight & Power
- Robust environment

Meeting the Challenges with:

CeNSE
Networking

- Wireless MEMs sensors
- Cost effective, easily deployable, high capacity, long distance WiFi
- Exploit HP core competence: IT SW, HW and services



Seamless Mobile Connectivity

The Challenges:

Effortless pervasive bonding between users and clouds

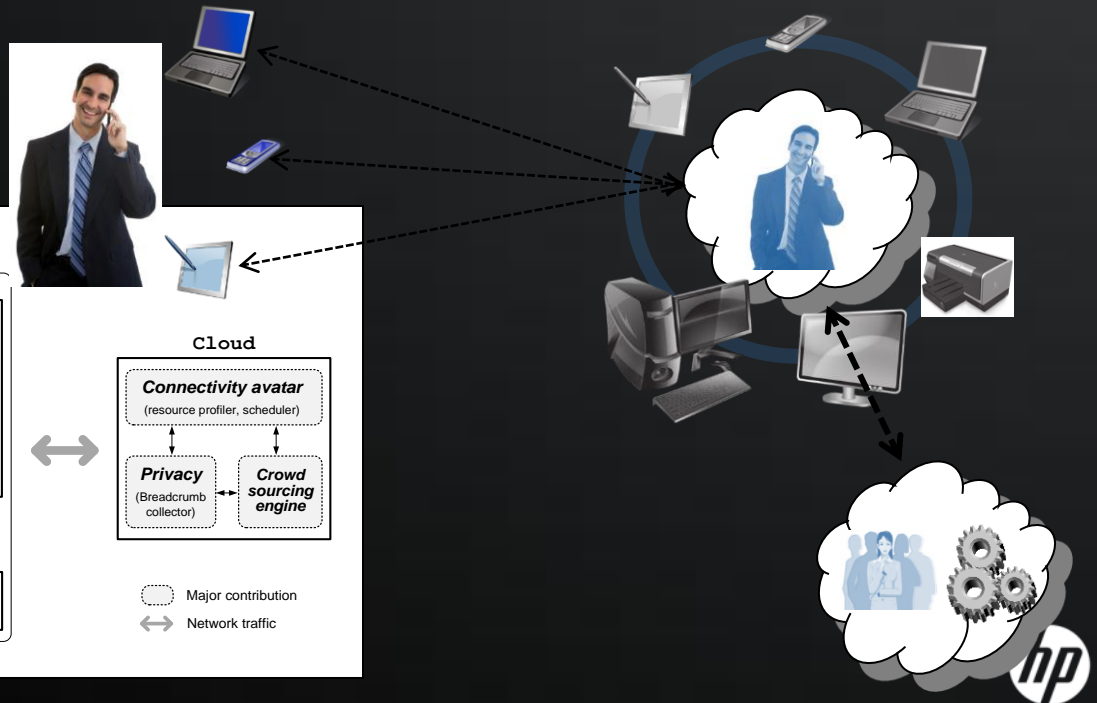
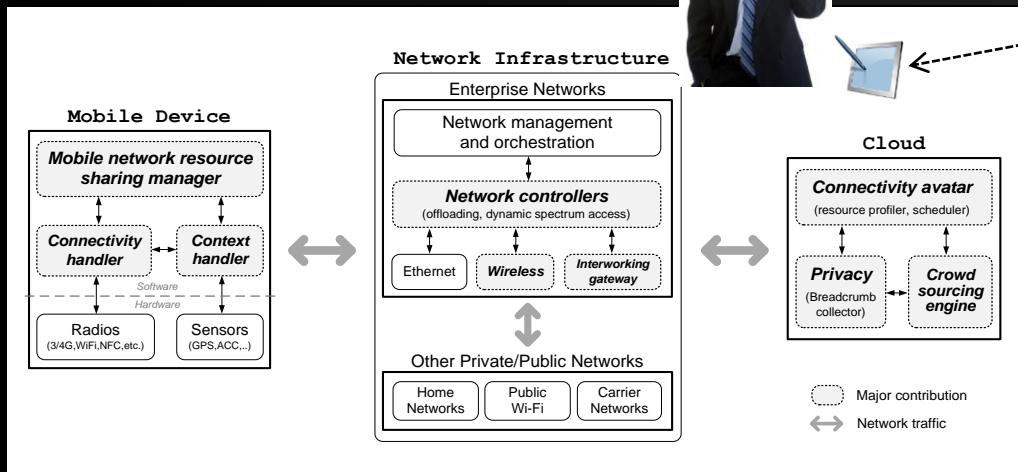
- Multiple Access Networks
- Multiple Devices
- Multiple Context/Persona

Meeting the Challenges with:

Seamless Mobile Connectivity

- Cloud connectivity assistant (Avatar)
- Mobile Personal Grid
- Contextual seamless handoff
- Mobile operator and Enterprise network interworking

Software-assisted Mobile Personal Grid



Cloud

- Scalable and secure cloud services for millions of persistently connected clients
 - ePrint cloud service
- Security
 - Authorization



Flexible Programmable Networks

The Challenges:

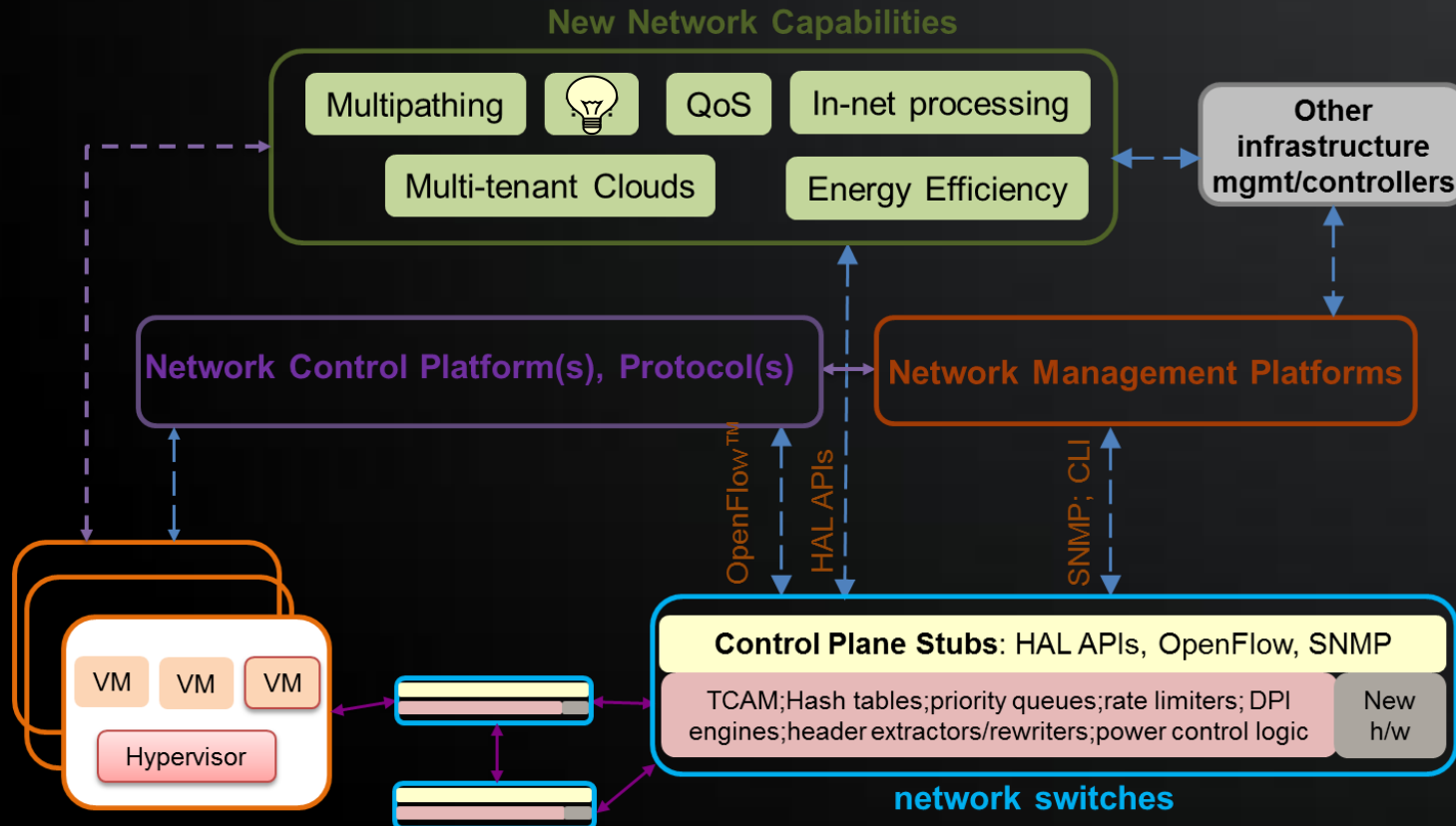
Rigid, inefficient complex networks

- Slow innovation
- Over-provisioned or over-subscribed
- Manual configuration, manual debugging

Meeting the Challenges with:

Flexible Programmable Networks

- Program the network, not the pieces
- Manage the network, not the pieces
- Enable rapid deployment of network-wide features



Router Design

- Seeking ways to make future routers more flexible at lower cost
- Our Solution:
 - Fast algorithms and software
- Developing state-of-the-art routing algorithms
 - Accommodate more routing demands: VPN, IPv6
 - Route faster
 - Cost reduction
 - Easy to update/upgrade



Optical Backplane

- For data center, cloud, enterprise service ...
- Extremely high data rates
- Low cost
- Energy efficient
- Environmentally friendly – green technology

