

Rethinking IP Mobility

Basavaraj.Patil(@nokia.com),
Alper Yegin(Samsung)

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Mobility value proposition

- The primary need for end users is Internet connectivity
 - IP Mobility is a value add
- Cost and complexity of delivering IP mobility is high
 - Multiple solutions (eg. Host based vs Network centric)
 - Lack of default capability in IP stacks

Who needs mobility?

- Reason for mobility at the IP layer has been driven by ability to serve all applications
- Most applications are either short-lived or can recover from address changes
- Only a small class of applications (eg. VoIP, streaming of audio/video, etc.) benefit from IP mobility

Access technology evolution

- Wireless connectivity is the mainstay for the vast majority of devices
- Two key technologies
 - Wide area/Cellular connectivity
 - Local area/Wifi
- Multiple cellular technologies (HSPA, LTE, EV-DO, WiMAX,...)
 - However trending towards converging on LTE (and variants of LTE)
- Wifi variants include a/b/g/n and others in the IEEE pipeline

Design consideration

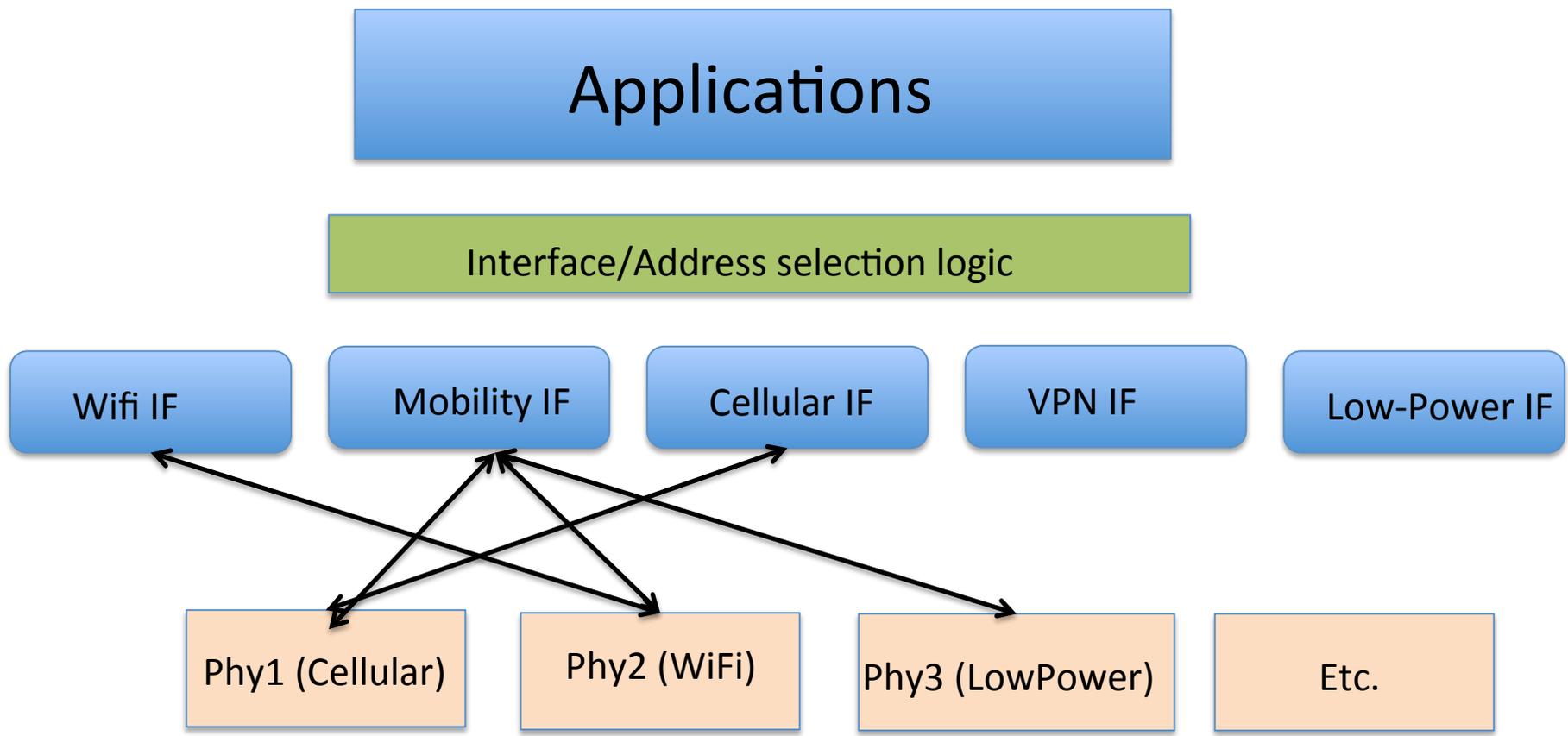
- Mobility within the cellular domain has been solved via a network based L2/3 approach
 - EDGE, HSPA, LTE variants are treated as a single interface
- Devices are increasingly multi-interface capable
 - Cellular and Wifi as a minimum
- Design Mobility for: Handovers between wide-area and local-area interfaces

Top-down view (Host stack)

- Devices have multiple interfaces
 - Cellular (various bands and technologies)
 - Wifi (b/g/n etc.)
 - Bluetooth or other low-power technologies
- IPv4 and/or IPv6 addresses assigned to an interface
- Consider solving mobility as an interface or address selection problem

I/F Selection

- Applications should be able to make an informed decision about which interface (and source-address to choose)
- Present a mobility capable interface alongside others



Conclusion

- Not all applications require IP mobility
 - Especially with the growing awareness of interface changes at the application layer
- Mobility should be provided as simply another interface to choose from
 - Enhanced logic available to applications to make an informed decision

