Apps in 2020

Ibrahim Matta
Computer Science
Boston University
Will there be distributed apps too?

- We should be able to run **ANY** app on our smartphones
- The app architecture, whether centralized or distributed, is irrelevant
- No reason not to expect DIRECT / P2P communications between mobiles
- Need a richer architecture that allows us to **dynamically build “secure communication groups”**
Killer app for MANET/SN?

- Perhaps, taking pics to update street views in Google maps, measuring CO₂ levels, ...
- Or, small groups in a soccer stadium sharing pics, opinions, ...
- Or, alert others nearby in an emergency
- ... distributed games?
- But, distributed over a *small* geographical scope for MANET
- Otherwise, communication will likely happen through some sort of static (wired or wireless) infrastructure
  - No way if we can’t bound MPL due to disruptions!  [MPL = Max Pkt Lifetime]
DTN relevance?

- DTN is irrelevant to core networking
- Something done to get around not knowing a bound on MPL to the destination
  - It’s data management
- Useful principle to keep in mind!
Role for research in future apps?

- No, developing apps is NOT (academic) research
  - Architecture, principles
- And it’s NOT “networking” research
- Networking research is all about supporting IPC between app processes
  - i.e. provide two protocols: IPC transfer (transport) and IPC management (naming, routing, security, etc.)
Predictions? (1)

- Only if we adopt a new model
  - more secure and more dynamic

- Data from the National Vulnerability Database shows that last year security experts identified 30 security flaws in the software and operating systems of smartphones made by Apple, Nokia, and Research in Motion, nearly twice as many as the year before. [ACM TechNews, Wednesday, June 16, 2010]
Predictions? (2)

- Mobile app should **NOT** be tied to a particular mobile platform / smartphone
- A user should be **free** to join any network to run their apps
- Mobile phone vendors and network operators provide the hardware platform but otherwise get paid for IPC communication services to apps
  - i.e. they become **ONE provider of IPC service**!
- See our RINA project [http://csr.bu.edu/rina](http://csr.bu.edu/rina)