Mobility = QoS?
Papers >> users?

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Overview

- No mainstream applications
- Not good enough
- Mistaken generality
- Can't rely on it
- Administration
- Economics
- IPv4
- The temptation of the familiar

Why good ideas fail

	QoS	multi-cast	mobile IP	active networks	IPsec	IPv6
not manageable across competing domains	✝	✝	✝	✝		
not configurable by normal users (or apps writers)	✝			✝	✝	
no business model for ISPs	✝	✝	✝	✝	✝	✝
no initial gain	✝	✝	✝	✝		✝
80% solution in existing system	✝	✝	✝	✝	✝	✝ (NAT)
increase system vulnerability	✝	✝	✝	✝		

HM: No mainstream applications

- Most applications are nomadic, not mobile
  - no mid-session mobility or just use recovery (needed anyway)
- Most applications are clients, not servers
  - even SIP UAS are mediated through proxies
- Mobile applications are typically intra-LAN
  - cordless phones
- 3G: GGSN, tunneling
  - but may get MIP eventually...

HM: Not good enough

- Users care about data and service mobility
    - Web-based email, IMAP, Google docs, ...
- Not likely to be universally available -> bad user experience
    - including remote party in VoIP
- Performance insufficient
    - see ViFI and earlier work on L2/L3 fast hand-off
        - solvable with relatively minor protocol tweaks (except for L2 auth)

HM: Mistaken generality

- "Jack of all trades, master of none"

- "Applications don't have to deal with mobility"

  - but only if universally deployed

  - some have already paid for binding updates

    - e.g., SIP registrations

Administration

- See: multicast, QoS

- Any kind of agent requires management

- Critical to network function

- May become juicy attack target

  - traffic redirection, snooping, ...

Economics

- ISP: Why should I pay for my customer traffic when the user is not on my network?

- Increases total number of IPv4 addresses needed

- Possibly support-intensive

- No real charging model

IPv4

- No client deployment

The temptation of the familiar

- Focus on 10-year-old technology

  - make 802.11 a WWAN technology

  - the non-SIGCOMM world has moved on...

  - e.g., large-scale L2 networks

That was depressing - what now?

- Leverage need to deal with disconnections and vertical hand-off

  - people care about reliability (see VZ ads)

- Leverage need to do connectivity checks

  - e.g., ICE

- Allow application providers to assist mobility

- Assume 2010 networks, not 802.11b