

## Traffic Monitoring and Analysis for Future Internet Architectures

Kostas Pentikousis

<http://ipv6.willab.fi/kostas>

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### TMA: A Post IP-deployment Story

- Fact: The DARPA protocols were tested in overprovisioned “testbeds” (read: minicomputers) connected with overprovisioned operational networks used in a different way  
*You have Telnet and FTP. What else do you need?*  
—Alex McKenzie, 1975
- Fact: Essential monitoring and management tools and protocols came at least 10 years *after* the network was put into actual use
  - traceroute (87?), ping (90?), libpcap (94?), DAG (94?)
  - SNMP (1988?)
- Fact: Modeling is *still* an unfinished business
- Fact: The Internet is based on a single paradigm (packet-stream communication)

## TCP/IP is Dead. Long Live FI!

- There is a significant effort to move beyond TCP/IP and introduce new paradigms and Future Internet architectures (FI)
  - Several EU- and nationally-funded projects are looking at different paradigms, including 4WARD and ICT SHOK; ditto in North America and the Far East
  - Several infrastructure/testbed FI projects worldwide
    - Some to be used for testing proposals from other projects
    - Don't want to mention any names, but I bet they are all overprovisioned :)
- At this stage, feasibility matters for FI proposals
- Traffic Monitoring and Analysis (TMA) issues may be overlooked; evaluation using "simple" networks or simulation
- Assuming that all the FI proposals are deployed by 2015, shall we repeat all TMA work in 2025, this time for FI?

## Beyond Packet-stream Communication

- New paradigms emerge
  - Bio-inspired
  - Information-centric/dissemination networks
  - Publish/subscribe
  - Locator/identifier split
  - Network coding
  - Objects, clouds, grids
- New testbed architectures
- What exactly "qualifies" as "FI"?

## Open Questions

- Status check: Which projects consider TMA already, which do not, and why? Does it really matter at this stage?
- There are years of TMA experience in IP. What are the fundamental principles that we can take into the new emerging paradigms?
  - We still cannot model everything. How can we improve in FI?
  - What TMA mistakes should not be repeated?
  - What is our wish list for features in FI architectures?
  - Can we provide generic guidelines? Or, does each emerging paradigm need its own TMA-specific R&D?
- TMA as component/theme in FI or ad hoc tool collection?
- Which assumptions brake?
- Multiaccess prevails: Is the tap in the middle obsolete?

## Expression of Interest for a SIG

- People (Organization)
  - Zseby (Fraunhofer FOCUS); Salamatian (LIP6?); Niccolini (NEC); Maglaris, Papavassiliou (NTUA); Melia (P Torino); Ponce de Leon (TSSG); Wac (U Geneva); Garcia (U Lusofona); Denazis (U Patras); Pentikousis (VTT); Beben, Burakowski, Sliwinski (WUT)
- Direct liaison with EU-funded projects
  - 4WARD, BIONETS, E<sup>3</sup>, EFIPSANS, INTERSECTION, ANA, EuroNF, ...
- Direct liaison with nationally-funded projects in
  - Finland, Poland, Switzerland, ...
- Infrastructures
  - GEANT, FEDERICA, onelab2, Panlab II, VITAL++, ...

## Next Steps

- Start drafting a white paper
  - NDAs need to be respected
  - First draft released to rest of COST TMA by December 2008
    - Scope, status check, main points covered
    - Final version presented at next TMA meeting (Spring 2009)
- TOC, contributors, topics of interest
- Initiate a mailing list