ICN Evaluation: Why and How?

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Discussion Starter
George Xylomenos, AUEB
Questions Overview

• Quantitative criteria?
• Evaluation environment?
• Qualitative criteria?
• What do we really want to prove?
Quantitative criteria

• What does *better* mean?
  – Faster downloads?
  – Quicker response?
  – Lower utilization (links, CPUs, …)?
  – Do we need new metrics? Why?
  – Danger of confusing evaluation and profiling!

• And compared to what?
  – Consider the transport protocols in ICN 2012
  – Compare against TCP or BitTorrent?
Evaluation environment

- What is the measurement environment?
- Can we use existing traces for ICN?
  - Will ICN applications behave the same way?
  - Same for models of application behavior
- Can we use existing network graphs for ICN?
  - Will ICN networks look the same as IP networks?
  - Maybe business relationships will change a lot
Qualitative criteria

• Are there important qualitative benefits from ICN?
  – Improved multi-homing?
  – Improved mobility?
  – Improved privacy?
  – Improved access controls?
  – Simplified network management?
  – Simplified application design?
  – There are arguments against some of these!
What do we really want to prove?

- Is ICN research worthwhile to begin with?
  - Is ICN only about caching (HotNets 2011)?
  - If so, is it better than evolving HTTP?
- Maybe ICN lowers resource requirements
  - Spreading CPU/RAM load across more nodes
- Maybe ICN improves real-time delivery
  - Allowing dynamic traffic engineering
- It must be something to do with naming data!
  - But we need to decide what that is…