Named Data Networking (NDN) Project

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Introduction

- A blue print of the next generation Internet architecture
- Defined the research agenda
  - Topics & Directions
  - Challenges
- Suggestion of evaluation methods & metrics

Principles

- Keeping the hourglass architecture of Internet
- Security must be built into the architecture
- Retains and expands the end-to-end principle
- Design flow-balance into the thin waist
- Separation of routing and forward plane
- To facilitate user user choice and competition

Architecture

- Same as CCN
- Run fine over existing IP infrastructure
- ISP can evolve their network and transit their gears slowly without disruption

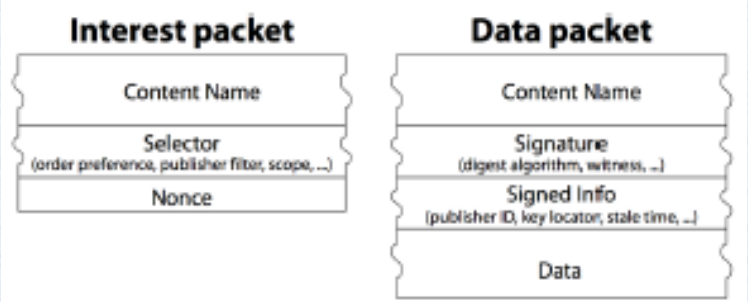

Figure 1: Packets In the NDN Architecture.

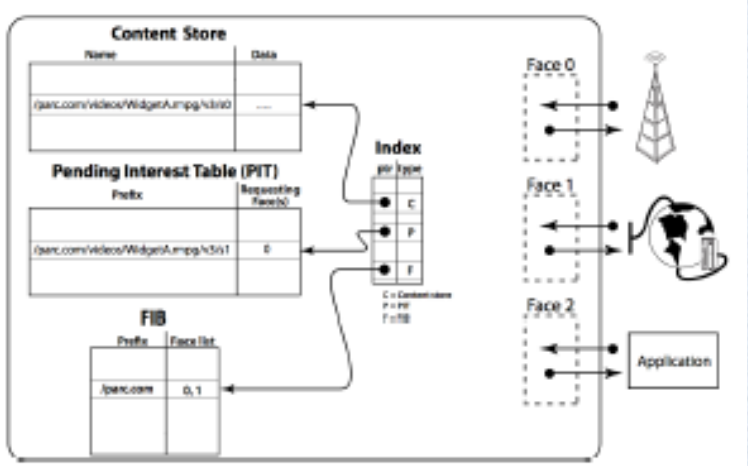

Figure 2: Forwarding Process at an NDN Node.

Naming

- Variable-length, hierarchical names
- /parc/videos/WidgetA.mpg
- Opaque to the network
- Allow application specific naming scheme
- The naming system still under active research

Security & Privacy

- Efficiency of signatures
- Usable trust management
- Network security and defense
- Content protection and privacy

Performance Metrics

- Let go of the concept of source-destination transmission rate
- Destination reception rate
- Total consumed entropy rate in bits per second
- bit-meters per second

Education

- Use the prototype to teach student on architectural thinking
- Encourage student to join the research
- Train a future generation of engineers
- A completed R&D cycle from design blue print to train future engineers

Questions

- How long will it take from research to officially launch?
- Will the deployment cost very hight?
- How the new architecture to maintain the balance between privacy and legal issues (e.g. protecting copyright)?

Summary

- A blue print of the next generation Internet architecture
- Defined the research agenda
  - Topics & Directions
  - Challenges
- Suggestion of evaluation methods & metrics
- Educate student by the prototype and plan to train the future engineers
- A completed R&D cycle from design blue print to future engineers