



Green ICN

# Supporting Publish/Subscribe in ICN

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# Motivation

- ***Need for Publish-Subscribe***
  - Allows true temporal independence of publication from request
  - Support content-centric subscription and publication of information
- **Timeliness**
  - Real-time media (e.g. video streaming & gaming), Disaster Management
  - Push based Multicast
- **Coverage**
  - Providers can be ‘dynamic’/‘transient’
- **Scalability**
  - Large number of producers and consumers
  - Even large number of interests and data items
  - avoid each publisher from making a FIB registration to avoid large increase in FIB size
  - Topic based subscription to avoid complexity on the routers
- **Incremental Deployment**
  - Beneficial for early adopters and seamless migration from an IP dominated environment
- **Complementary to query/response**

# Application Scenarios for a Pub/Sub Architecture

- Online Social Networks and RSS Feeds
  - Resource wasted on polling
- Notification Systems in Disaster Situations
  - Uni-directional communication
- Online Gaming and Audio/Video Conferencing
  - Timeliness
  - Efficient use of resources (for maintaining connections)

# Requirements/Desirable Characteristics

- An Efficient pub/sub content delivery system should
  - Support hierarchies and context in naming content
    - Richer (finer granularity) identification of content
    - Allow aggregation
    - Allow grouping/subscription at various levels
  - Need to Support:
    - Policy control
    - Efficiency (especially for distributing large volume content)
    - Subscriber offline support
      - Asynchronous delivery of information

# Planned Next steps

- A survey of existing pub/sub work for ICN
  - Survey draft
- A pub/sub enhancement specification
  - based on the requirements, borrow from existing solutions
  - specify concrete extensions to the CCNx specification for pub/sub
    - E.g. based on CCN Binary Encoding (CCNB) (draft-ietf-ccnb-mosko-01)
    - Experimental
    - Future versions of this document will outline such extensions more concretely

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