A Viable Solution for Large-Scale Multicast Support

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- **Problem**
  - Overlay multicast is not scalable to the number of co-existing groups
  - Application-level multicast is not scalable to large groups
  - Goal: To design a scalable multicast scheme for wired/wireless users

- **Proposed Solution: Two-tier Overlay Multicast Architecture (TOMA)**
  - Backbone domain: Multicast Service Overlay Network (MSON) using aggregated multicast
    - Aggregated Multicast forces multiple multicast groups to share one aggregated multicast tree
    - Multiplex and de-multiplex group packets on incoming and outgoing edge routers
    - Perfect match vs. leaky match: trade-off of aggregation vs. bandwidth waste
  - Access networks: application-level multicast
  - Three types of proxy nodes:
    - Member proxies handle end users’ join requests and establish application-layer multicast trees in access networks
    - Host proxies conduct multicast routing and group-tree matching algorithms
    - Forwarding proxies are responsible for forwarding multicast data inside MSON

TOMA

- **Benefits**
  - Scalable to group size w.r.t. multicast tree performance and control overhead
  - Reduce multicast state information and speed up packet forwarding
  - Reduce multicast tree setup and maintenance overhead
  - Facilitate heterogeneity handling (wired/wireless, stationary/mobile users)

- **Preliminary Results**

- **Ongoing Work**
  - Implement and test TOMA in iVisit

1 iVisit LLC ("iVisit") is a provider of scalable online video/audio communications and collaboration technologies and services. It has over 200,000 current active users from 132 countries. Over the past few years, iVisit has hosted over 10 billion minutes of video conferencing and over 2 million downloads of the software.