Supporting IP Multicast with QoS in ATM Networks

Implementation report

M. Smirnov
GMD FOKUS
smirnow@fokus.gmd.de

smirnow@fokus.gmd.de
The Outline

- QoS by e.g. IntServ over ATM;
- Multicast Integration Server (MIS) in general;
- MIS: Practical View;
- EARTH implementation as a lightweight MARS;
- Future Work
Internet IntServ over ATM

Sender TSPEC, ADSPEC, Rec. FLOWSPEC

Data

Setup protocol [RFC2205]

Use of RSVP with IIS [RFC2210]

QoS aware Network Element [RFC2216]

Service Mappings: [draft-ietf-issll-atm-mapping-04]

Adaptation protocol

draft-ietf-issll-atm-framework-01.txt

smirnow@fokus.gmd.de
**MIS: Generic View**

- **IntServ Server** is co-located with *Layer-2_QoS_aware Multicast ARP server* (single point of interworking between layers).
- Joint operation of Layer 2 and Layer 3 with a strict functional separation, no changes to protocol semantics in both layers;
**MIS: Practical View**

- **IntServ Server** is RSVP-server - conformant to RFC 2216, inevitable in IP over ATM [draft-ietf-issll-atm-framework-01];

- **Layer-2_QoS_aware Multicast ARP server**: = EARTH server [draft-smirnov-ion-earth-02]
QSSI - QoS Support Interface; eRSRR - EARTH Routing Support for Resource Reservation (option for RSVP as a QoS setup); UI - User Interface; CM - ATM Connection Management; ESI, ECI - EARTH server and client Interfaces, LCI - local client interface (to kernel components)
Summary

- The architecture is open;
- MIS integrates layer2 and layer3 processing thus minimizing overhead;
- Remote capacity admission control (merging);
- ATM short-cuts are supported for multicast flows;
- No changes to RSVP semantics and no changes to Multicast ARP (if QoS and short-cuts aware) are needed;
- Quantized heterogeneity model is supported;
- 2 independent implementations exist
Future work

- Interop experiments with MARS;
- Trials with AAA services (charging and accounting for IP multicast with QoS over ATM);
- Support for IP multicast to ADSL extensions to ATM cloud