Admission Control and Real-Time Channel Establishment in an ATM Testbed

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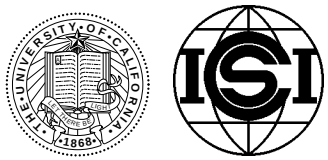


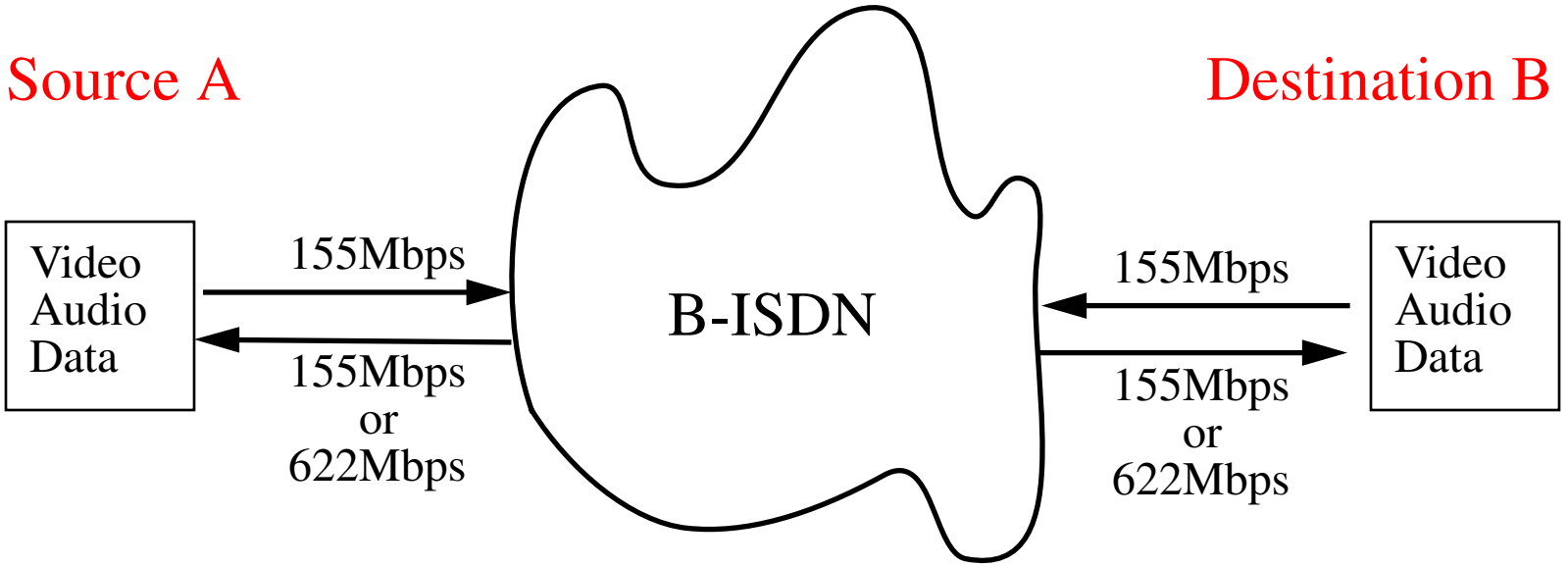
16th Annual ILP Conference
March 10, 1994

Outline of the Talk

1. What is channel establishment in ATM?
2. The Tenet Real-Time Protocol Suite
3. RCAP & its real-time guarantees
4. Xunet ATM testbed
5. Xunet components (software/hardware)
6. Current signalling in Xunet
7. Modifications to be added to Xunet signalling
8. Summary

What is ATM?

Example:



-- Statistical Multiplexing

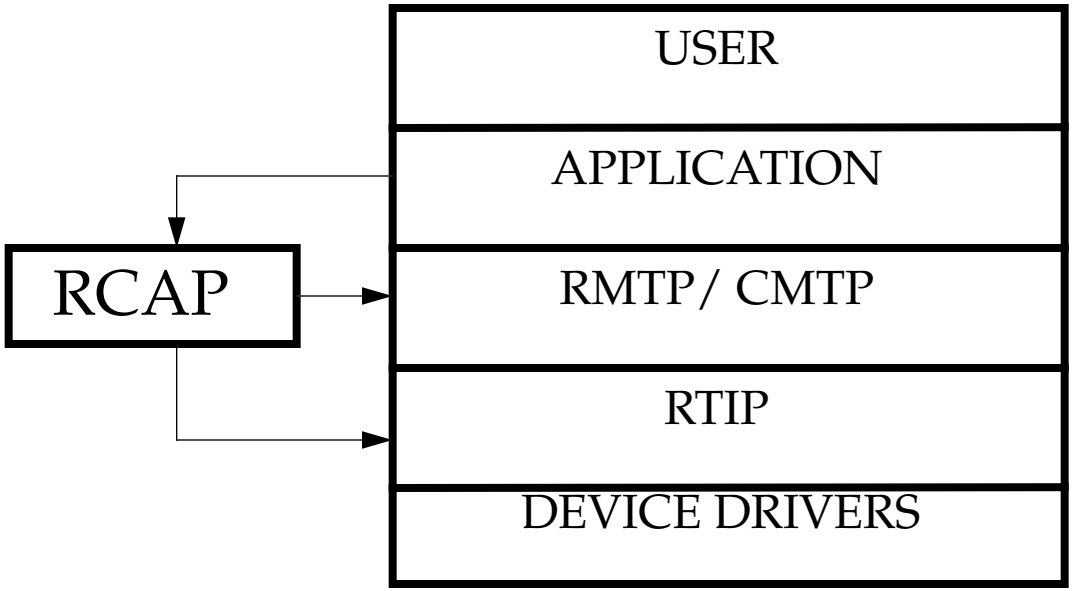
Channel Establishment

Client needs to specify the following information to the network:

- Destination address
- Service Name
- Traffic Characteristics
- Quality of Service Requirements

=> Network (signalling protocol) then allocates the resources and sets up the route.

Tenet Real-Time Protocol Suite I



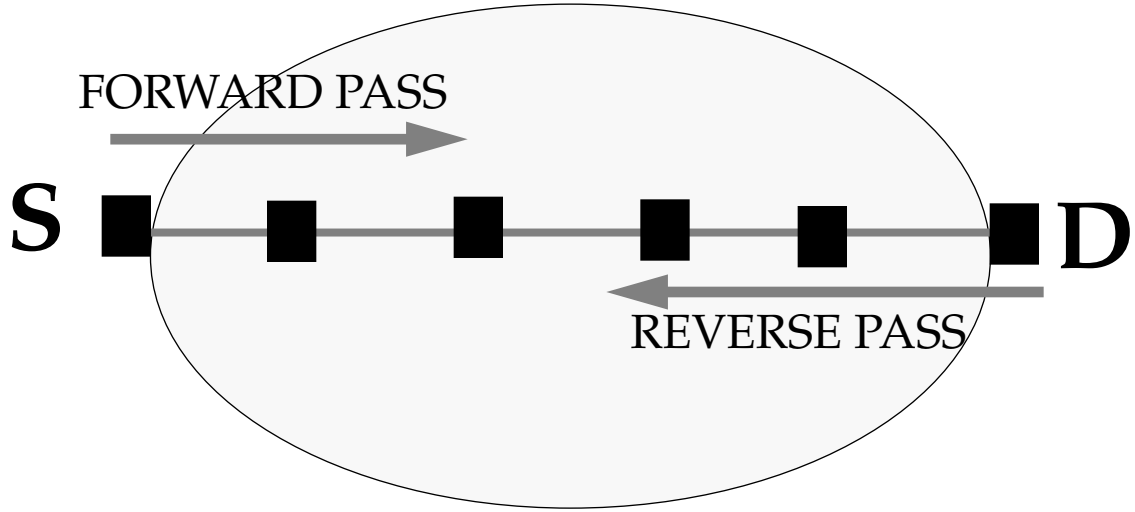
RCAP: Real-Time Channel Administration Protocol

RMTP: Real-Time Message Transport Protocol

CMTP Continuous Media Transport Protocol

RTIP: Real-Time Internet Protocol

RCAP
(Real-Time Channel Administration Protocol)



Forward Pass

Admission control and resource reservation

Reverse Pass

Relaxation of resources reserved

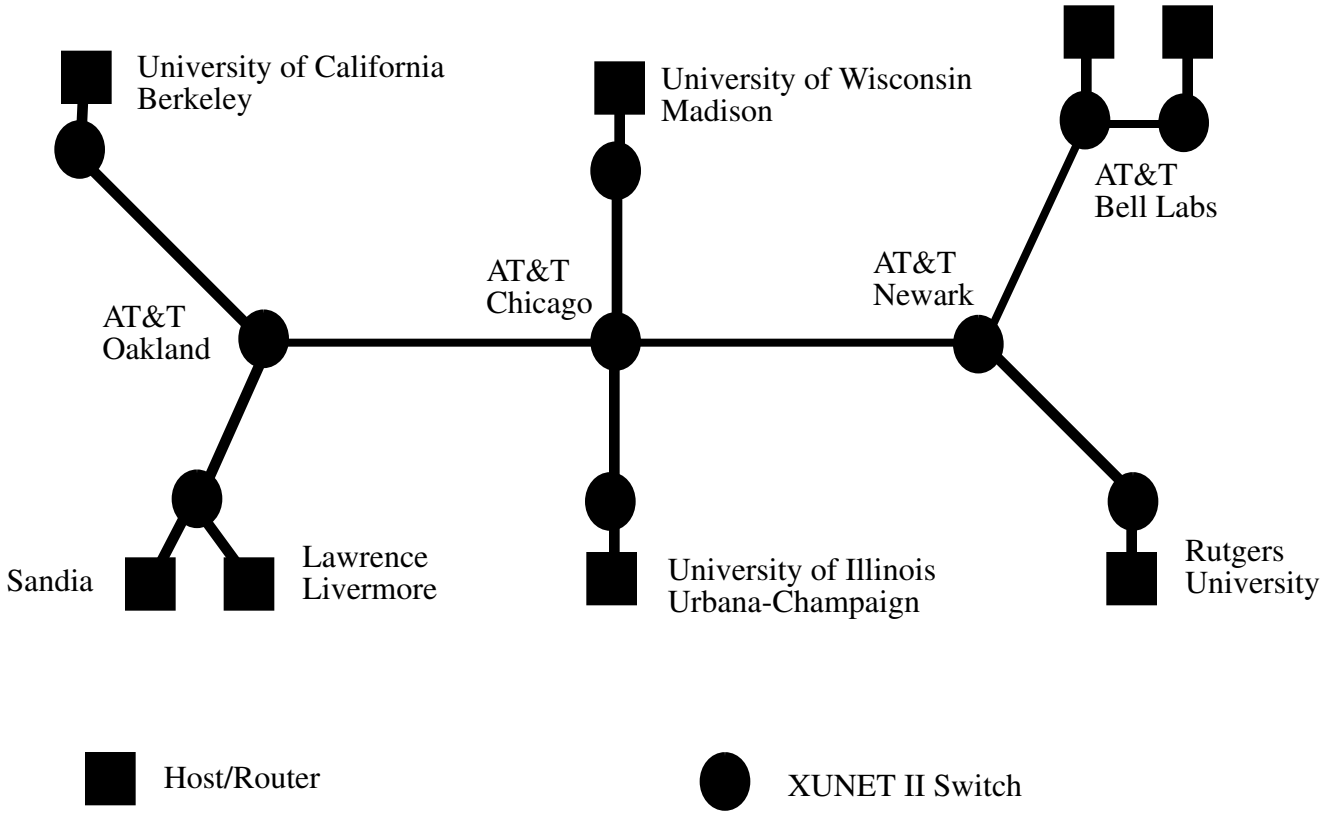
Tests at switches

- Deterministic test
- Statistical test
- Delay bound computation(EDD/static priority)
- Buffer space test

Tests at destination host

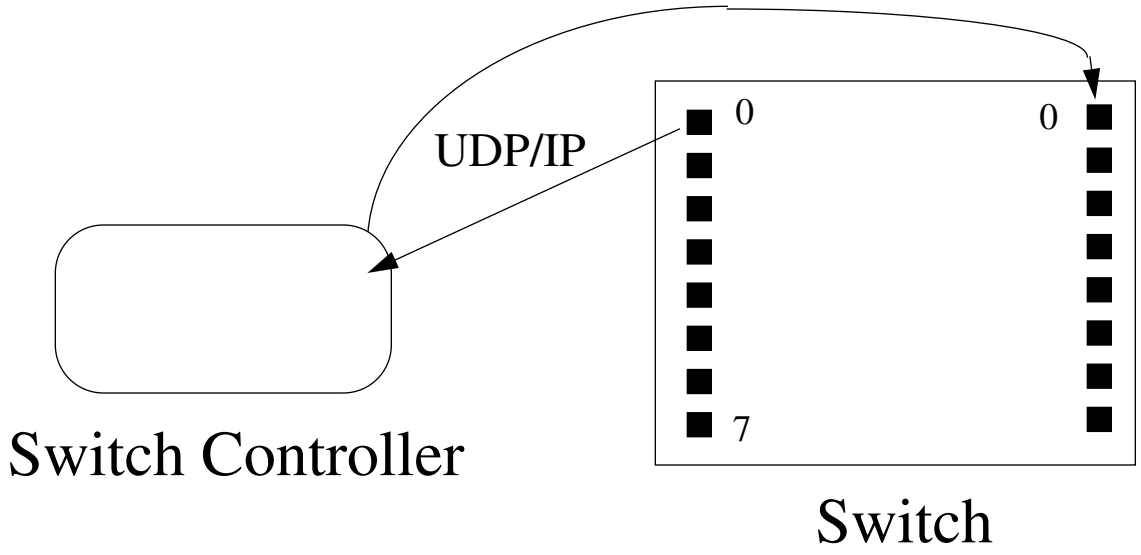
- D-test (end-to-end delay)
- W-computation
- Z-test
- d-computation
- J-test
- b-computation

The Xunet Testbed

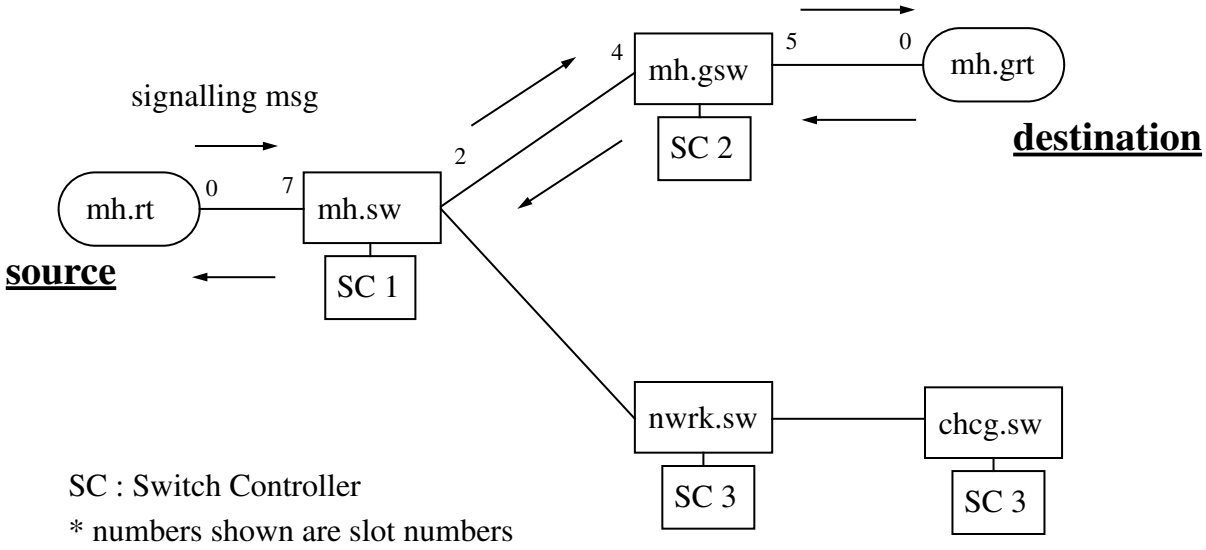


Xunet testbed components

1. Switch: shared-medium, designed at AT&T Bell Labs
2. Routers and Switch Controllers : SGI workstations



Current Signalling in Xunet



SC : Switch Controller

* numbers shown are slot numbers

Summary

(1) Xunet signalling protocol currently handles virtual circuit setup.

(2) Admission Control + Resource Allocation (RCAP) are being included in the signalling function of Xunet.