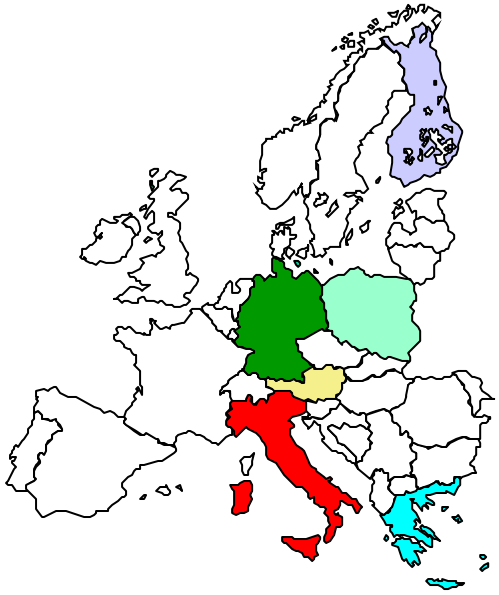
AQUILA (IST-1999-10077)

Adaptive Resource Control for QoS Using an IP-based Layered Architecture



SEQUIN Workshop
Amsterdam, Feb. 1, 2002

Dietmar Katzengruber — Jet2Web Telekom

Bert F. Koch — SIEMENS

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Consortium

Siemens, Germany

Bertelsmann, Germany

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Salzburg Research, Austria

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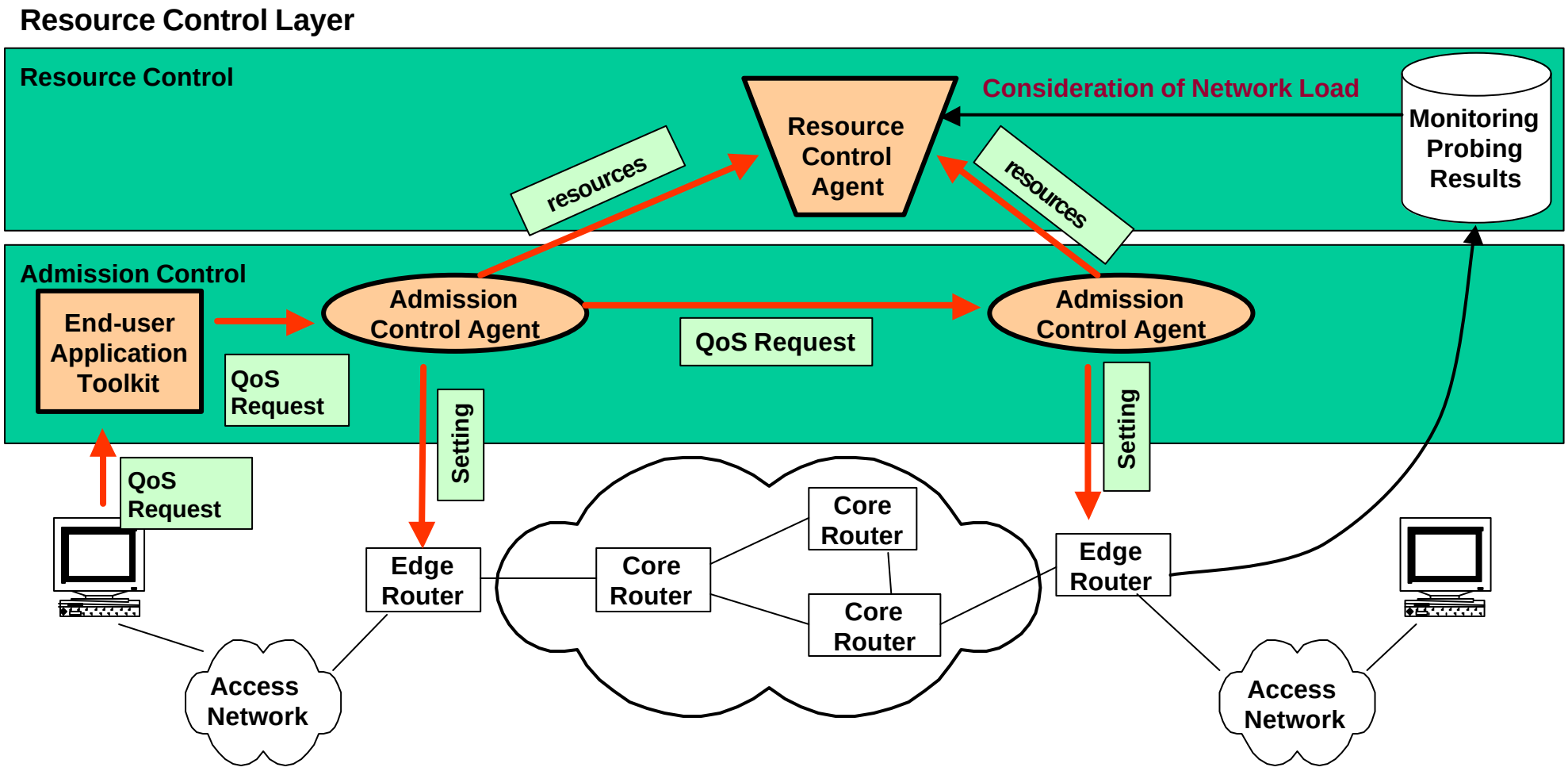
Outline

- Main objectives
- AQUILA architecture and the background
- Testing areas of the 2nd trial
- QoS applications used in the 2nd trial
- Overall topology
- Time schedule for year 2002

Main Objectives

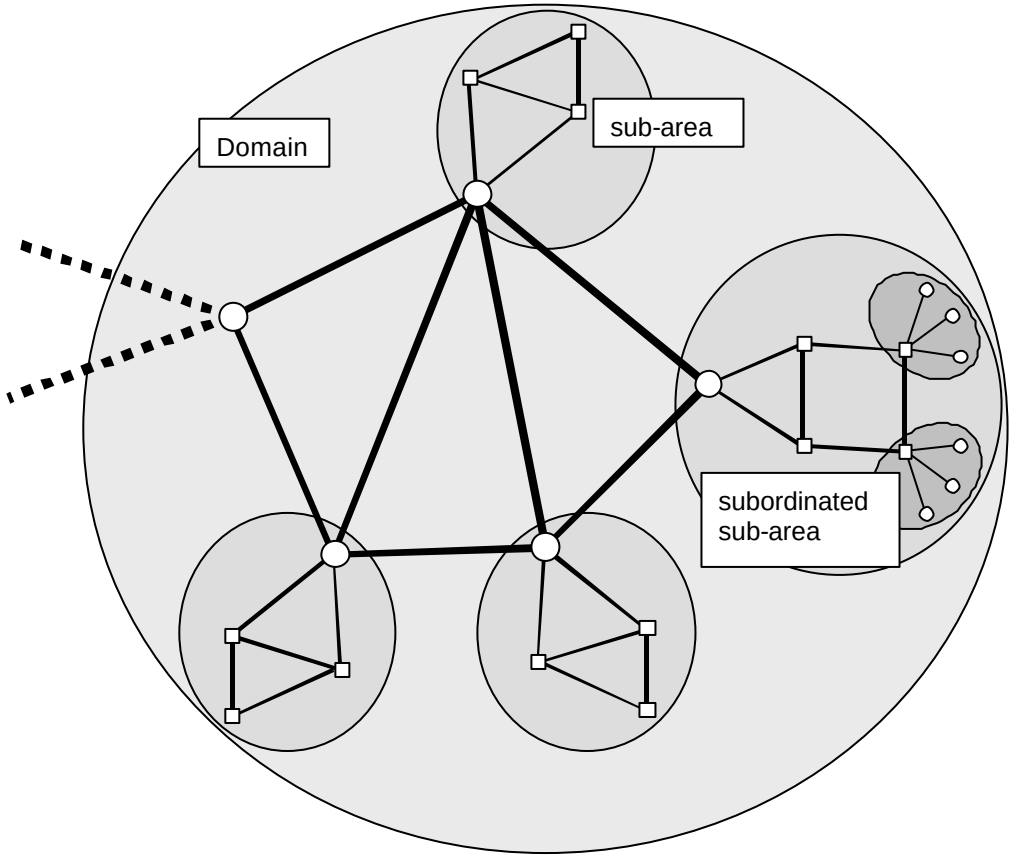
- Investigate dynamic end-to-end QoS Provisioning in IP Networks
- Implement Prototypes of a QoS Architecture for a Carrier Grade DiffServ Core Network
- Support a wide Range of Applications by providing a QoS Toolkit / API
- Continuously analyse Customer Requirements, Market Situations and Technological Trends and develop Business Models
- Contribute to Standardisation Bodies like IETF, ITU, ETSI, etc.

Architecture

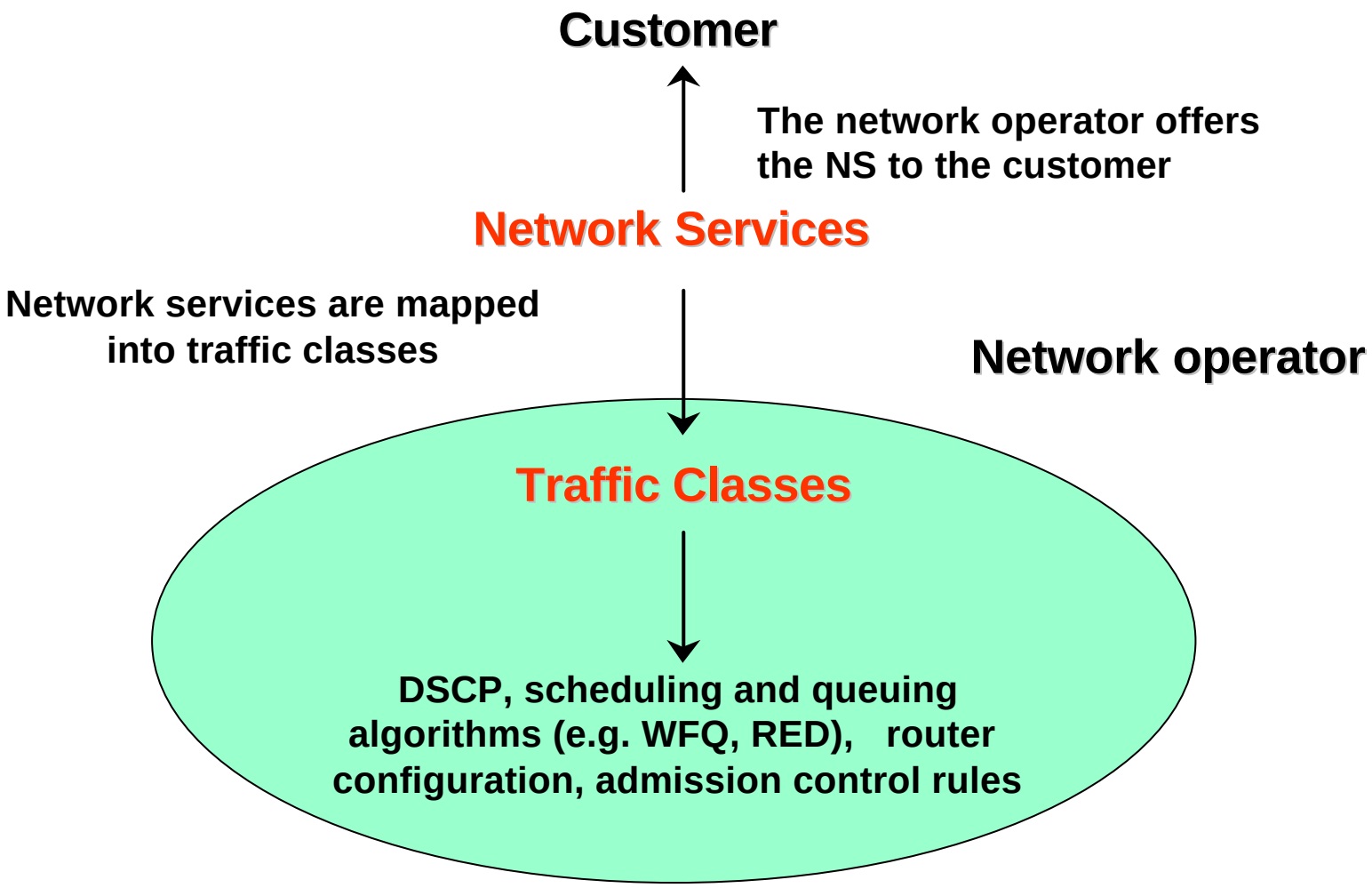


Resource Pools

- **Resource Limits**
  - Limit amount of QoS traffic from each edge router
- **Group neighboured Routers**
  - Limit amount of QoS traffic from each group
- **Dynamic Distribution**
  - Dynamically shift resources within group
- **Hierarchical Structure**
  - “Groups of groups”



Traffic Classes

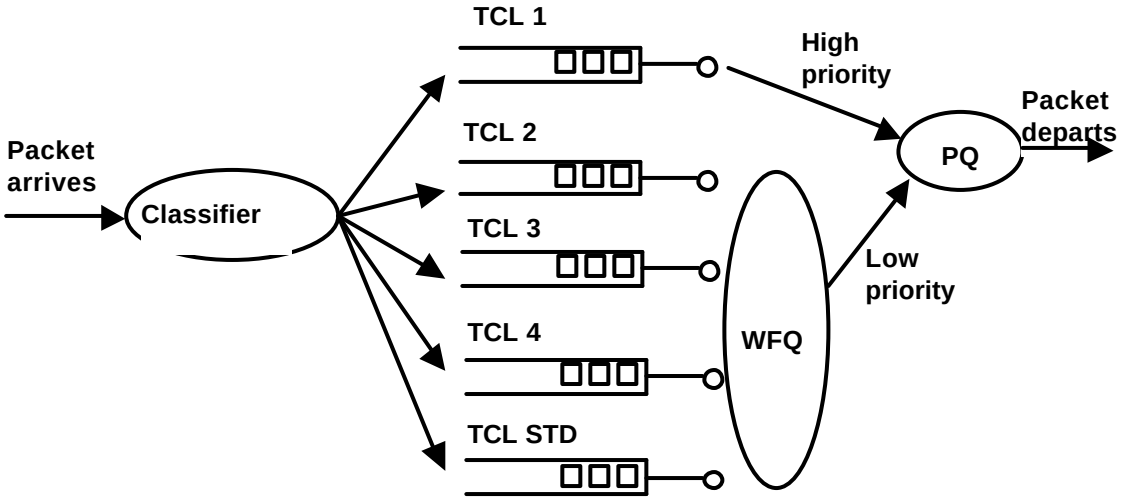


Traffic Classes

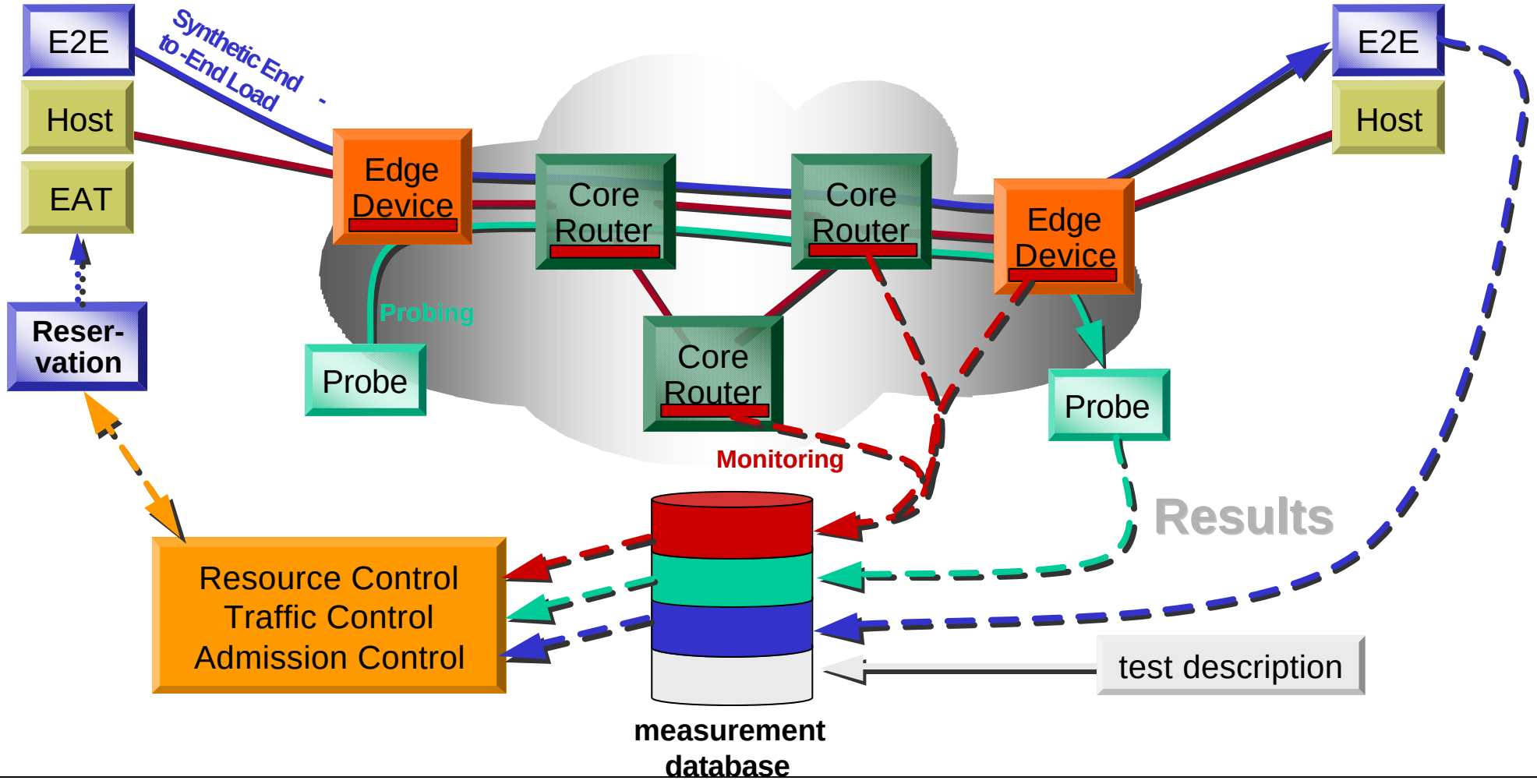
- **Five Traffic Classes have been specified**

Network service	Premium CBR	Premium VBR	Premium MultiMedia	Premium Mission Critical	Standard
Traffic class	TCL 1	TCL 2	TCL 3	TCL 4	TCL STD

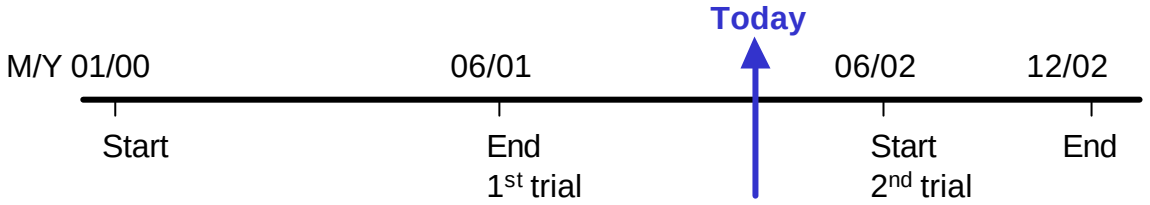
- **… as well as the related Traffic Control Mechanisms in the Routers**



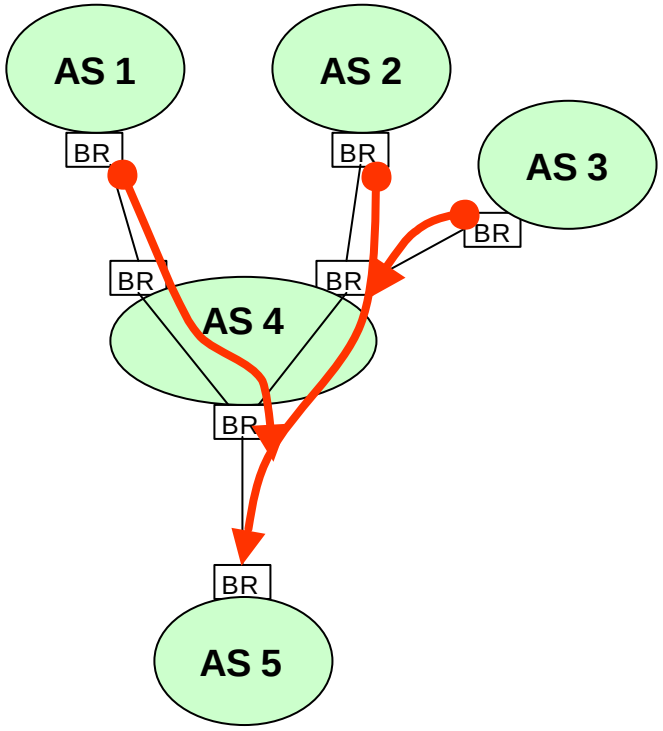
Measurements



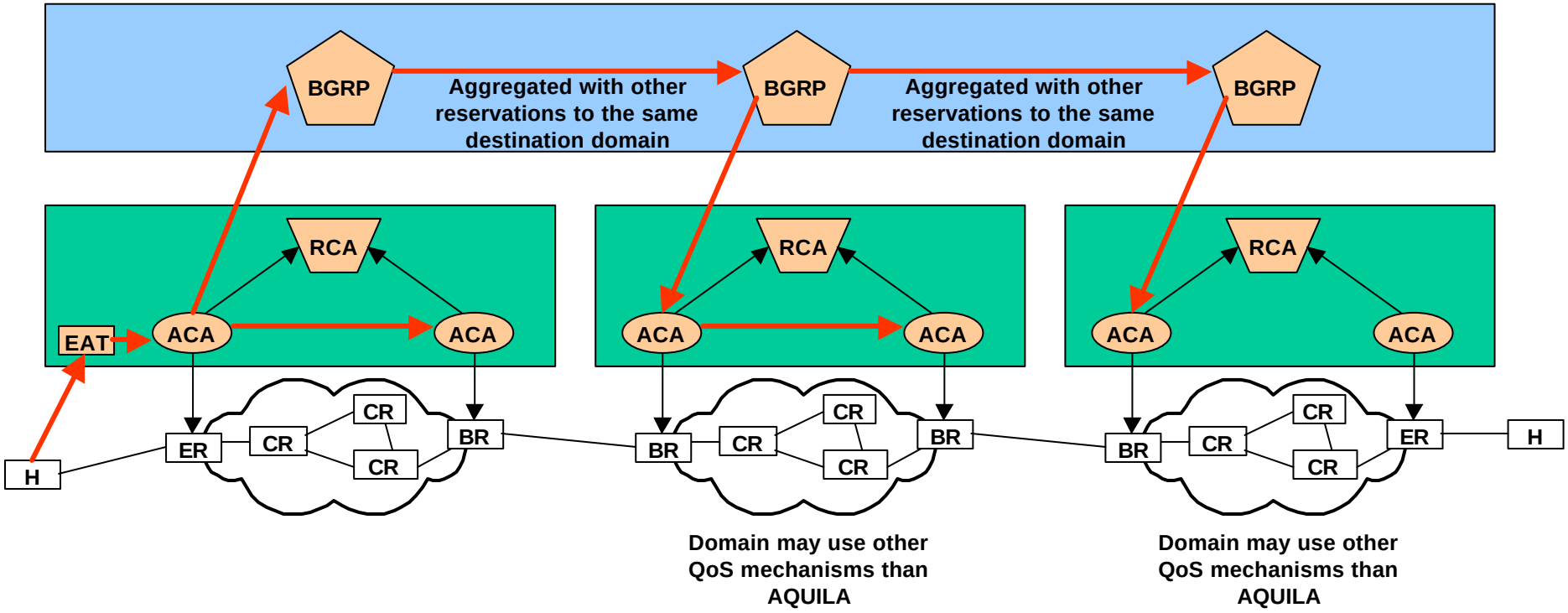
Current Work



- **Resource control in the 2nd trial (closed loop)**
  - Measurement Based Admission Control (MBAC)
  - Provisioning Control Loops (PCL)
- **Inter-domain resource allocation**
  - BGRP aggregates reservations along BGP sink trees
  - BGRP limits the number of active reservations at each node

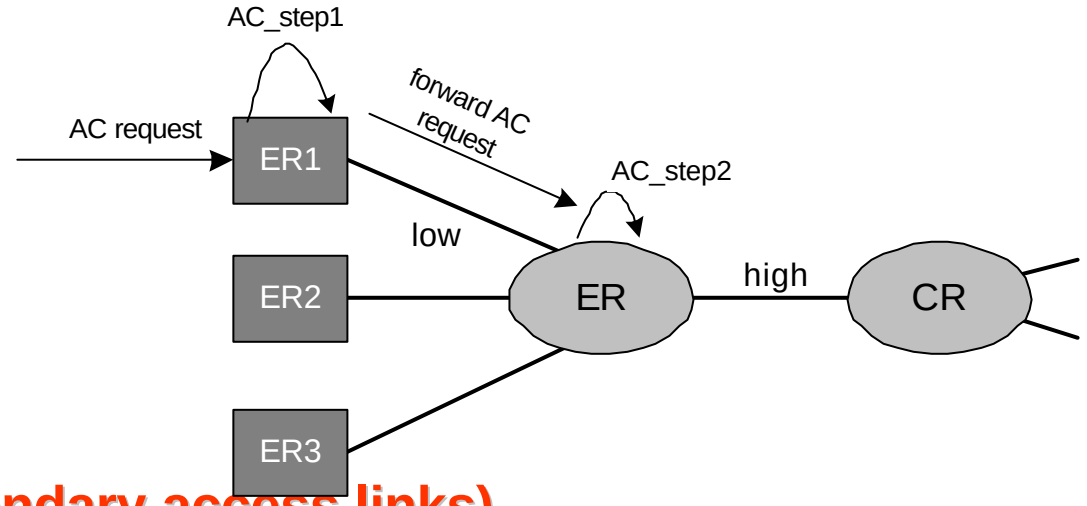


Inter-domain Resource Control



Testing areas of the 2nd trial

- **Trials of network services**
  - Evaluation of Measurement Based Admission Control
  - Evaluation of Joint AC (intra-TCL sharing)
  - Focus on ingress-egress reservations
- **Trials with real users**
  - Functionality tests
  - Subjective measurements
- **Signalling performance**
- **Resource pools**

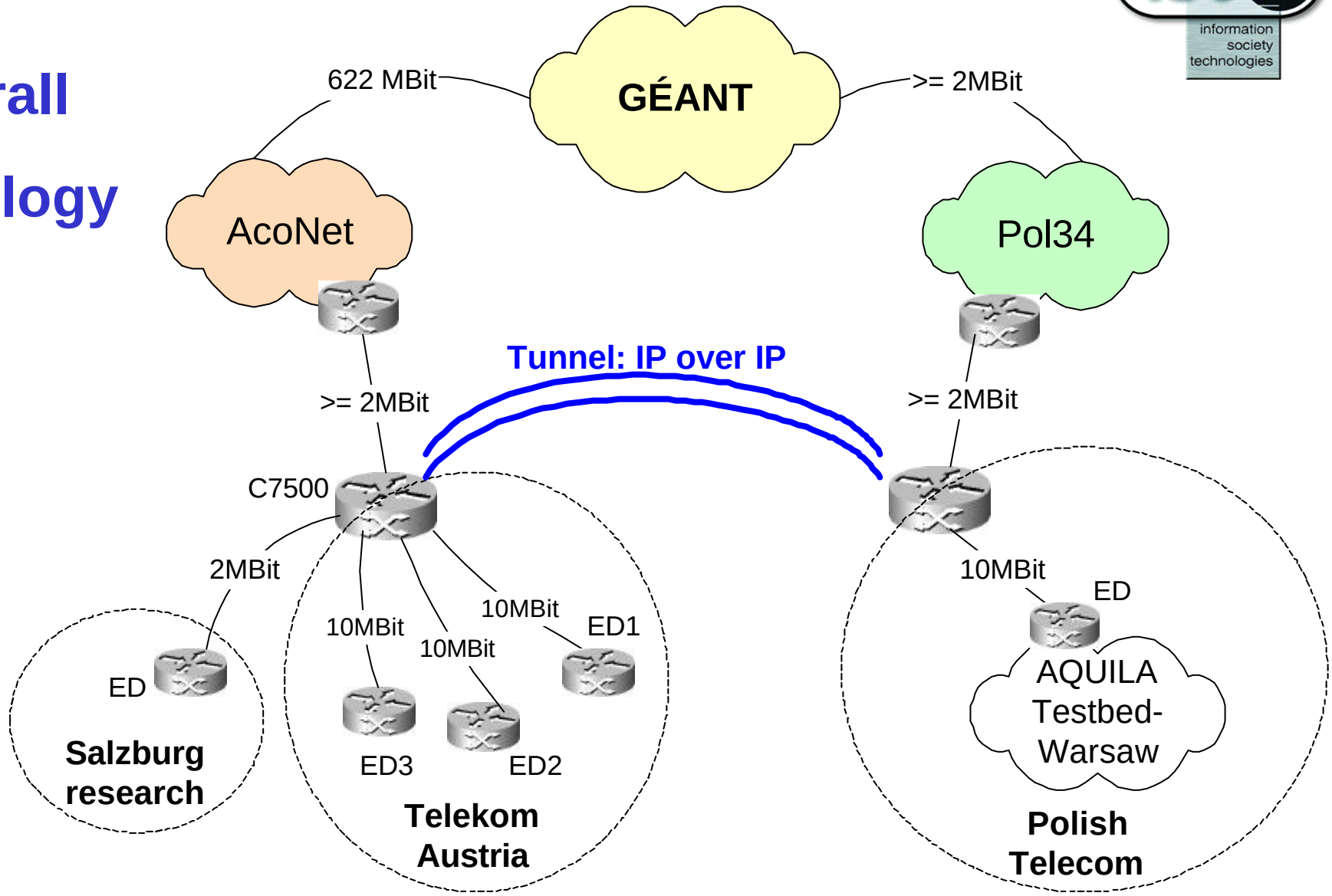


- **Low bandwidth links (secondary access links)**

QoS applications used in the 2nd trial

- **NetMeeting**
- **SIGMA (Sip-based IntelliGent Multimedia Application)**
- **Mediazine**
  - IP based Internet / TV application
  - Different multimedia broadband services:
    - video / audio on demand
    - games
    - news
    - email
    - chat
    - e-commerce

Overall topology



Time schedule for year 2002

- **January - March**
  - Integration of Salzburg-Research
  - Elaboration of detailed trial scenarios
- **April - June**
  - Global integration
  - Integration-meeting (1st week of April 2002)
  - remote configuration of the other trial sites
- **June - October**
  - 2nd trial
- **End of December**
  - Final trial report

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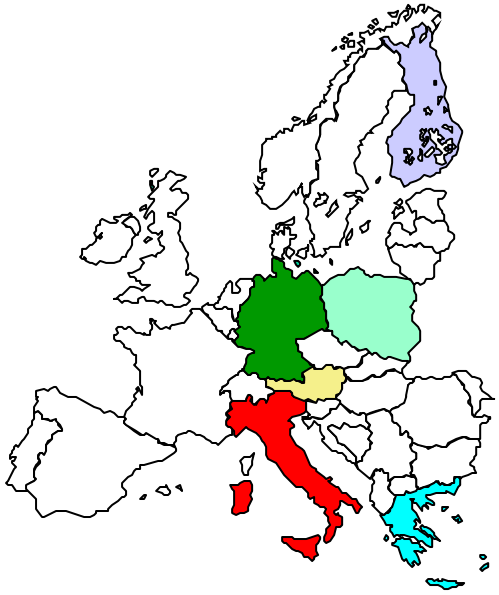

Thank you for your attention !

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