Poznan Supercomputing & Networking Center

DEACON

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Agenda

- Deacon overview
- Control protocol
- Summary

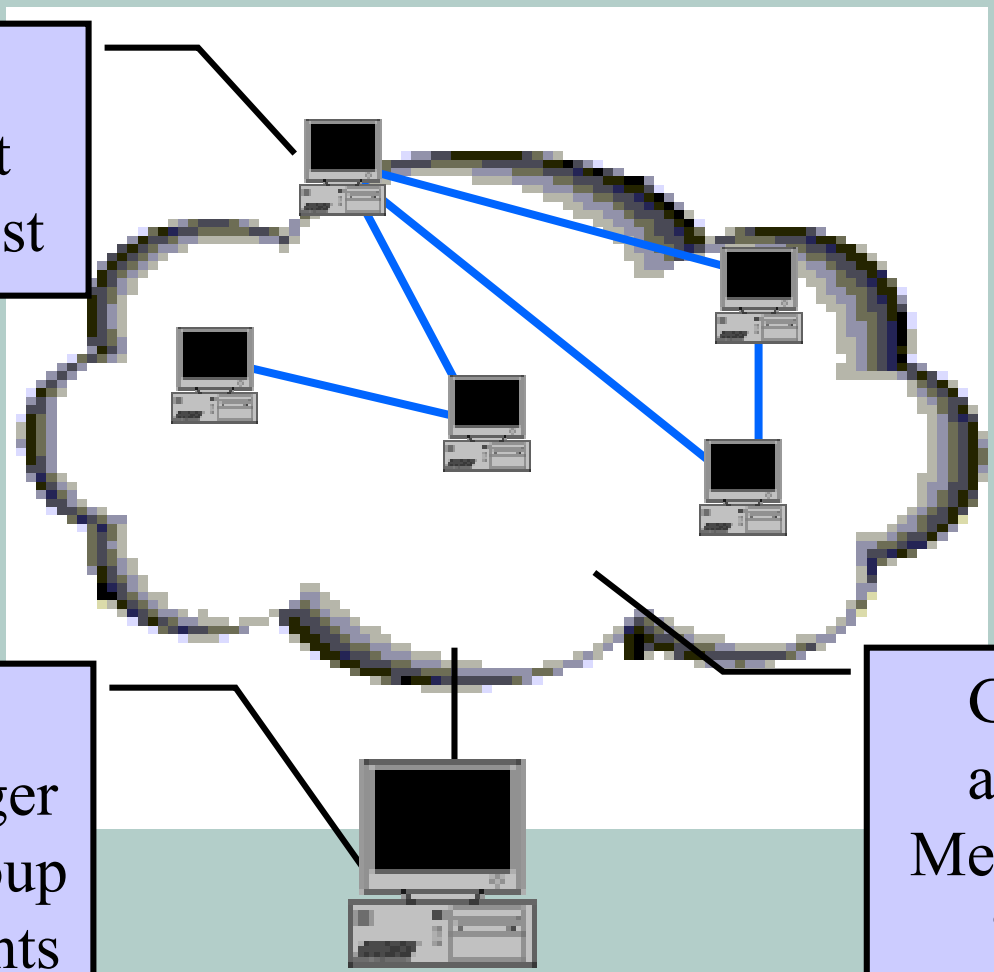
Deacon

- New proposal of comprehensive measurement tool
- The idea derived from Multicast Beacon
- International efforts involved

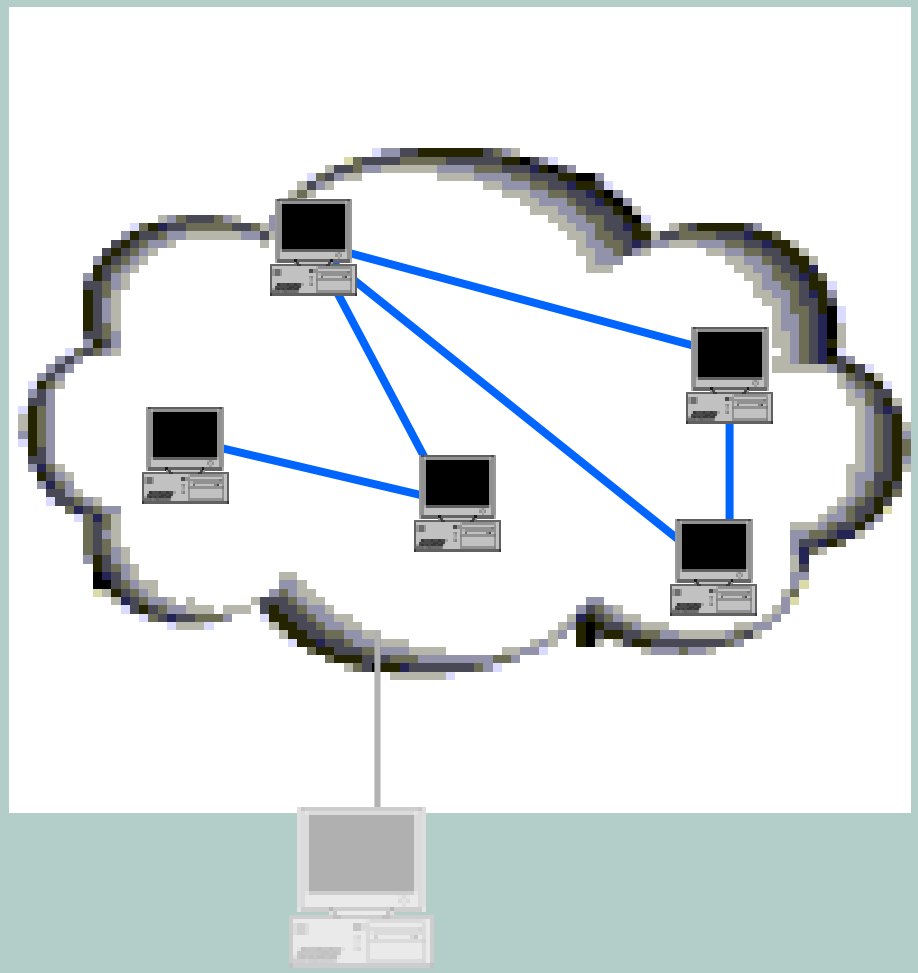
Deacon objectives

- Distributed measurements (mesh of agents)
- Involves various measurement techniques
  - ICMP, UDP or TCP
  - Unicast & multicast
  - Traceroute
  - One- and two-way measurements
- Centralised management

Deacon architecture

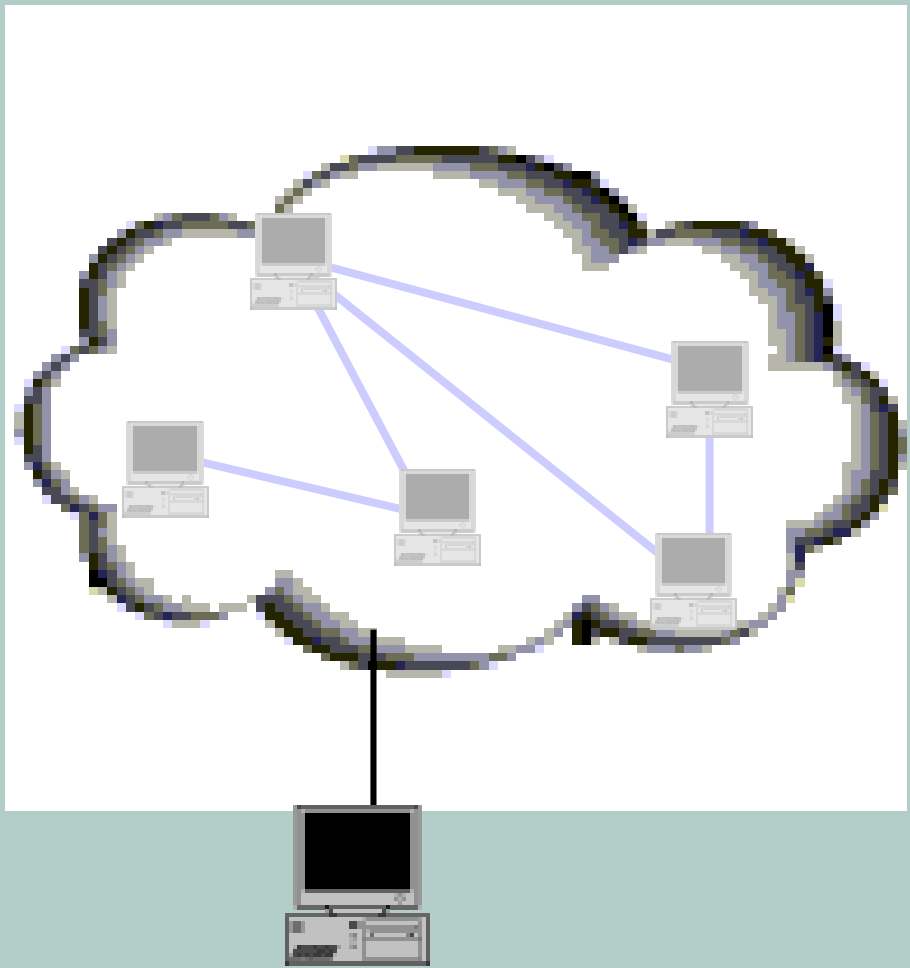


Deacon architecture - agents



- Send & receive probe messages
- Collect QoS data
- Send reports to the manager
- Participate in many test sessions

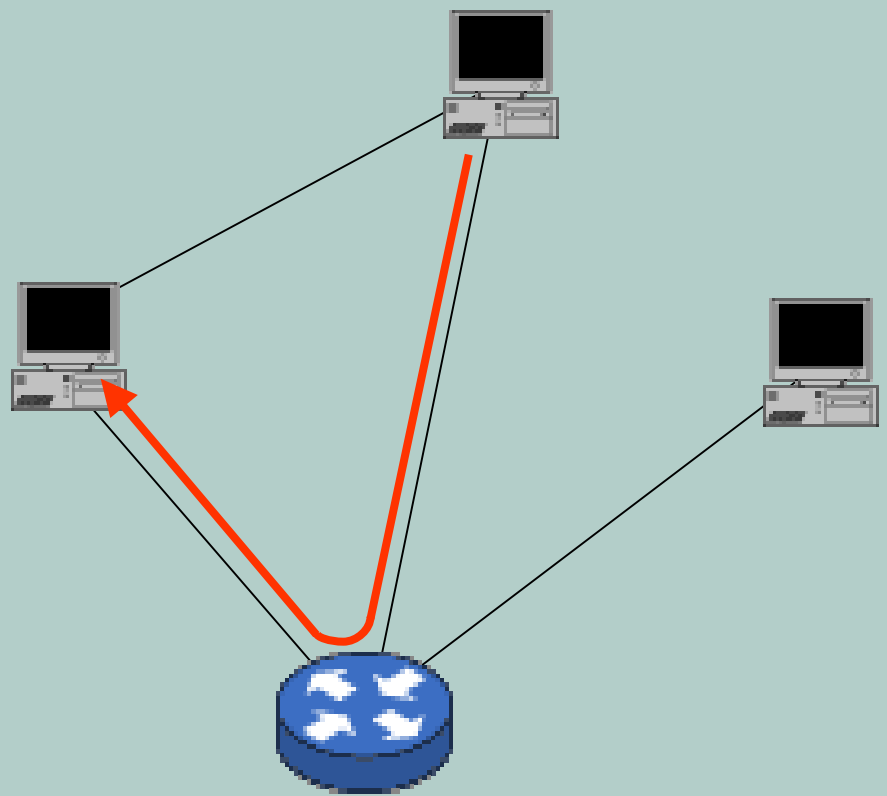
Deacon architecture - manager



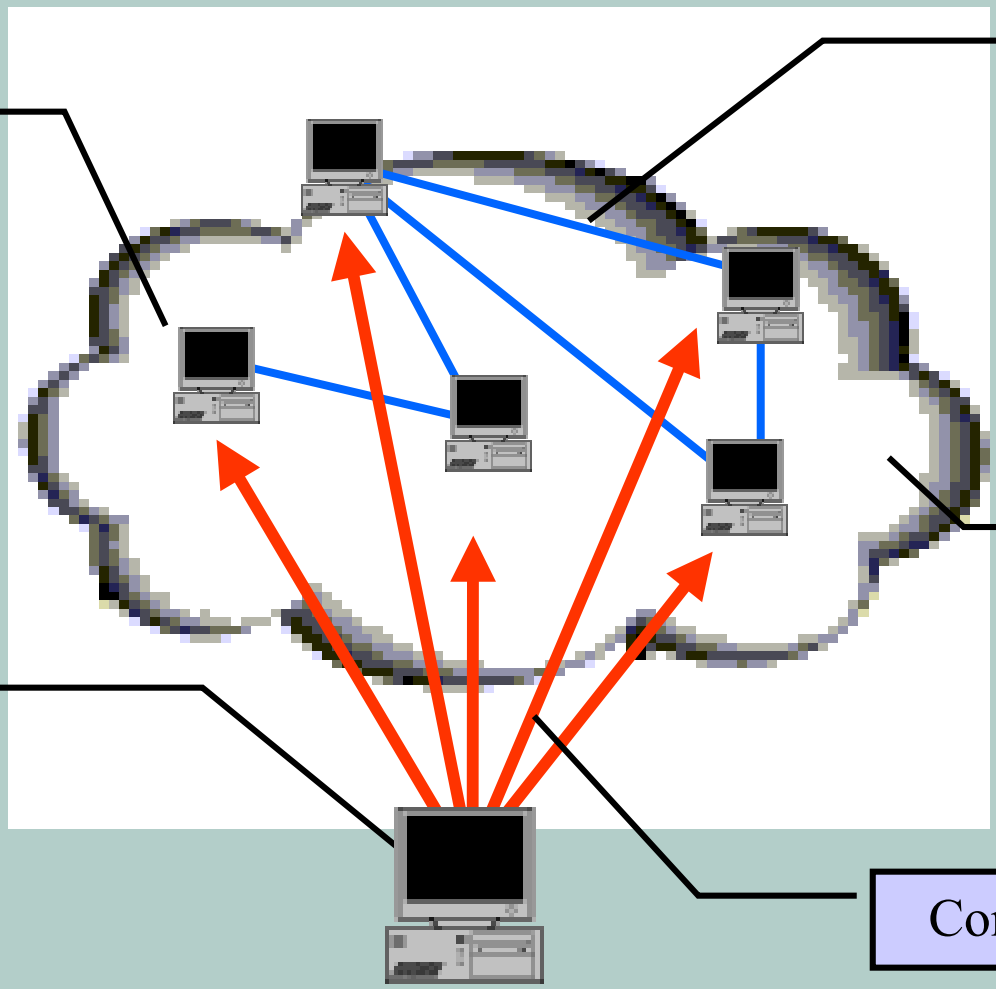
- Creates & configures measurement tests
- Collects QoS reports from agents
- Stores & presents statistics

Measurement approach

- Point-to-point measurements
- Active measurements
- QoS parameters
  - Delay
  - Jitter
  - Packet loss
  - Duplicate packets
  - Out of order
  - ...



Communication in Deacon



Control protocol

- Defines format of the packets used in conversation between agents and manager
- Defines a set of commands and messages
- Provides remote control over distributed agents
- IPv4/6 support
- Security is important

Control messages

- New agent connection
- New session creation
- Starting/stoping/suspending session
- Failures/success reporting

New agent connection

- Every new agent has to be authorised to connect and communicate with either manager or agents
- New registered agents are ready to accept and participate in new sessions and report the results
- Agent initiates TCP session with the manager sending init packet
  - results in unique agent ID assignment

New session creation

- Measurement session is created between at least 2 agents, which communicate each other with specified protocol, according to session specification
- Manager sends message to agents
- Defines
  - one way/two way measurements
  - test protocol
  - packet size
  - number of packets
  - transmit period, etc.
- To modify existing session it has to be suspended

Starting/stopping/suspending session

- Start message
  - follows session setup or session stop
  - defines start and run times
- Stop message
  - closes or suspends session
- Session may start and stop at a specified time and its duration is not limited
- The administrator can also suspend session to restart it later for some reason

Failures/success reporting

- Agents and manager should be notified in case of any failure or success events
  - Info message

Security

- Symmetric DES algorithm used for message coding
- MD5 checksum calculated for all messages
- Unique identifier for each control packet

Summary & future

- Early stage of the Deacon project
  - designing phase and the beginning of the implementation
- Other internal protocols are being designed
  - testing
  - reporting
- International cooperation (PSNC, Cesnet, Dante)
  - Other volunteers...

Q&A

Deacon web page:

http://staff.cesnet.cz/~lhotka/Deacon/

Deacon mailing list:

http://www.liberouter.org/mailman/listinfo/deacon/index.html

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