

Networking Research

www.science.uva.nl/~delaat

www.science.uva.nl/research/air

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Contents of this talk

- DAS - II

- <http://www.cs.vu.nl/das>
- <http://www.cs.vu.nl/das2/>

- WP7

- <http://www.gridpp.ac.uk/wp7/index.html>

- FUTURE

- http://science.uva.nl/~delaat/home.html#Recent_talks

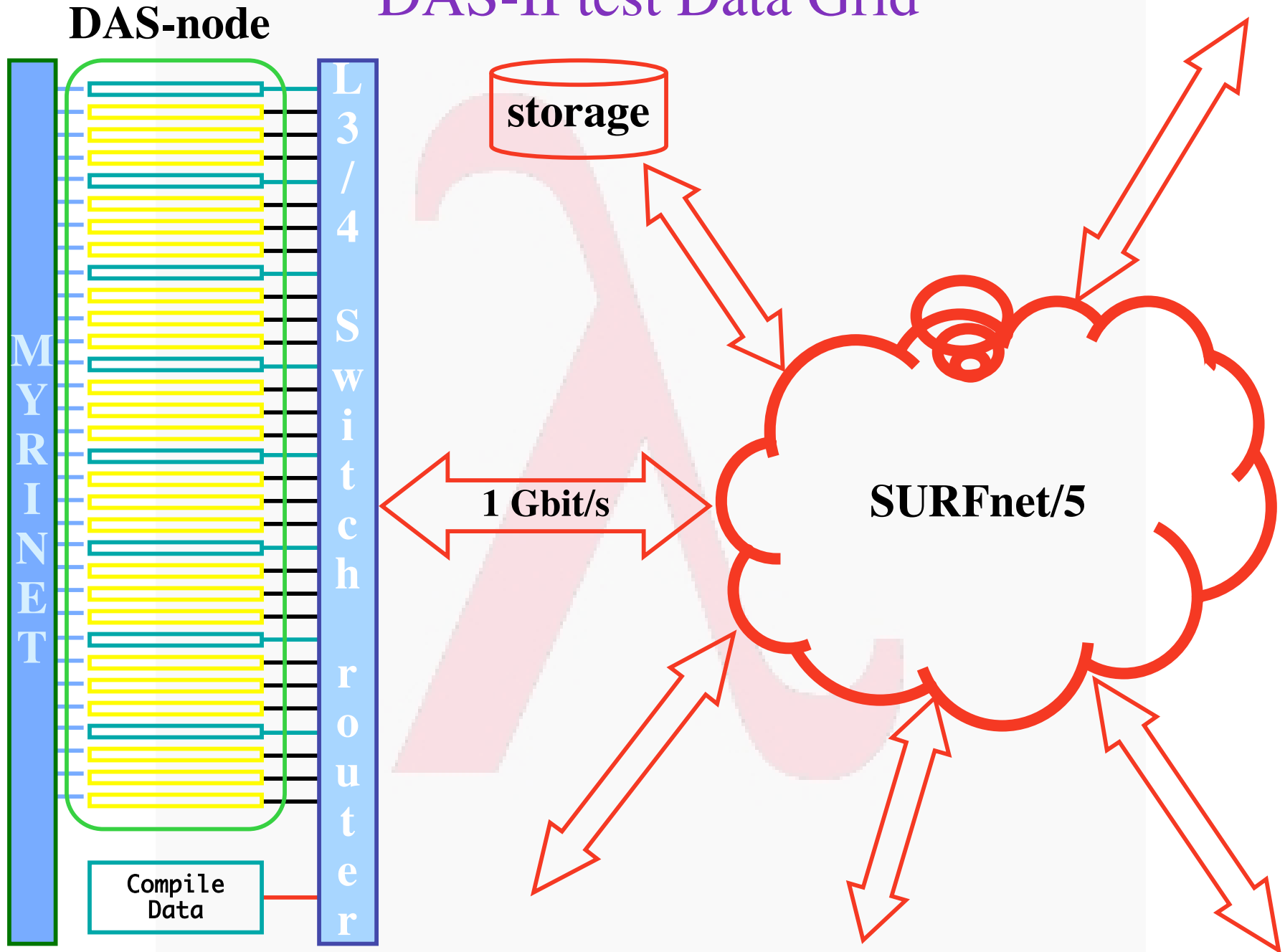
DAS - II

- ASCI-onderzoeksschool
- Leiden, Delft, UVA, VU, (Utrecht)
- Utrecht in DAS-I voor Netwerken (ATM), nu volwaardig
- DAS-II NWO subsidie
 - (project totaal 2 Mfl, 75%)
- 5 clusters of computers

Configuratie

- IBM, Rack based, basic 32 nodes xSeries 330
- Server
- Pentium - III
 - Dual processor
 - 1 Gigahertz
 - 2 PCI slots, 33 Mhz, 64 bits slots, full + half size
- Myrinet-II
- 100 Mbit Ethernet
- Extreme 48-I switch/router
 - $48 * 100 + 2 * 1000$ Gbit/s

DAS-II test Data Grid



Data Grid Test facility

- Features
 - 1 Gbit/s uplinks to national backbone
 - Non blocking access to other DAS nodes
 - Computing and networking speed same order of magnitude
 - Location of data visualization and computing independent
 - 4 layers of inter-process communication
 - Shared memory
 - Myrilink (2 Gbit/s) in user space
 - 100 Mbit/s and Gbit/s locally switched Ethernet (kernel space)
 - 1 Gbit/s routed Internet connectivity (kernel space)
- Many unique research degrees of freedom
- Infrastructure requirements
 - Heavy switches/routers for 1 Gbit/s uplink capability
 - 1 Gbit/s Ethernet interface for uplink
 - Private fibers to NRN backbone ?

WP7

- Network services for Dutch/Data-Grid/Tag
 - Metering
 - Monitoring
 - Security (David, Leon)

Monitoring

- What?
 - Ping times
 - Routes
 - Available bandwidth
- Why?
 - Keep those nerds from the street
 - Route flaps
 - What to expect when starting a job
 - Optimization of resources

Tools

- Pinger
 - <http://gridmon.sara.nl/>
- RTPL
 - http://grid.sara.nl/~hblom/rtpl/wp7/Table/net_data.html
- Ripe boxes
 - <http://www.ripe.net/cgi-bin/gttm/pod>
- Forecasting
 - <http://ccwp7.in2p3.fr/cgi-bin/pageQueryChoose.cgi?ns=ccwp7.in2p3.fr:8090>

Metering

- Why
 - Resource tracking
 - Billing
 - ai, ai, ai
- How
 - In applications
 - Adapt apps
 - In network
 - Intelligent switches, networks

Security

- Integrity
- Confidentiality
- Authentication, Authorization, Accounting
- CAS server Grid Forum Architecture
- IRTF AAAARCH research
 - (<http://www.aaaarch.org>)