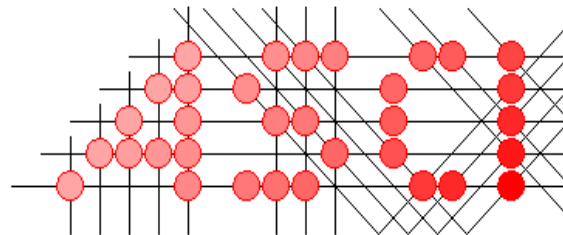


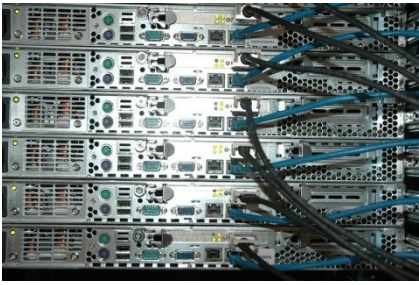
The First 16 Years of the Distributed ASCI Supercomputer

Henri Bal

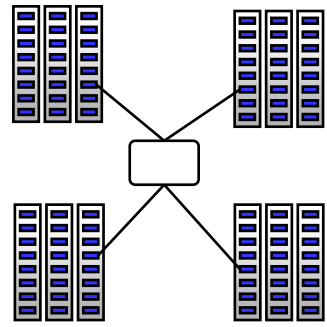
Vrije Universiteit Amsterdam



Advanced School for Computing and Imaging



DAS



- Shared distributed infrastructure for experimental computer science research
 - Small, interactive, controlled, distributed computer science experiments
 - Hard to do on production systems



DAS-1



DAS-2



DAS-3



DAS-4

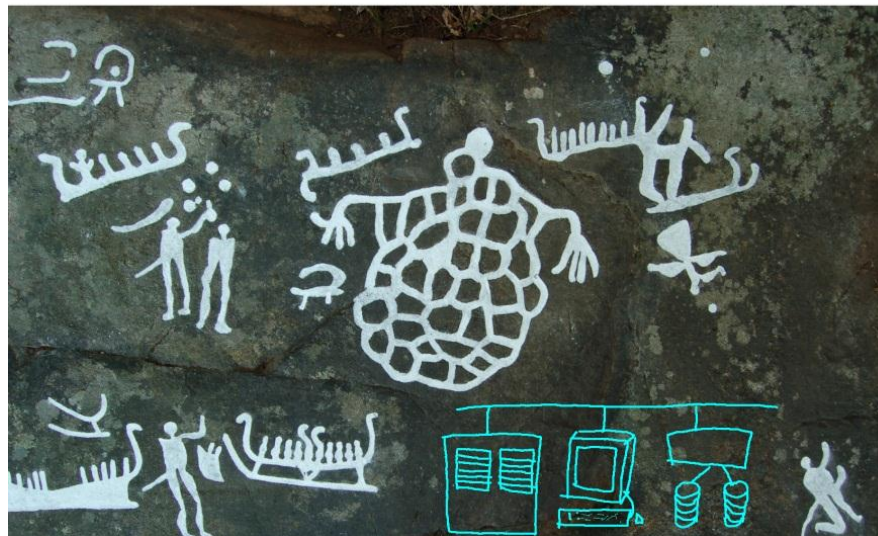
DAS history

- Pre-DAS: Cluster computing
- DAS-1: Wide-area computing (1997)
- DAS-2: Grids & P2P computing (2002)
- DAS-3: e-Science & optical Grids (2007)
- DAS-4: Clouds, diversity & green IT (2011)



Pre-history

- Andy Tanenbaum already built cluster in 1984
 - Pronet token ring network, 8086 CPUs
 - Amoeba processor pool
 - (no pictures available)

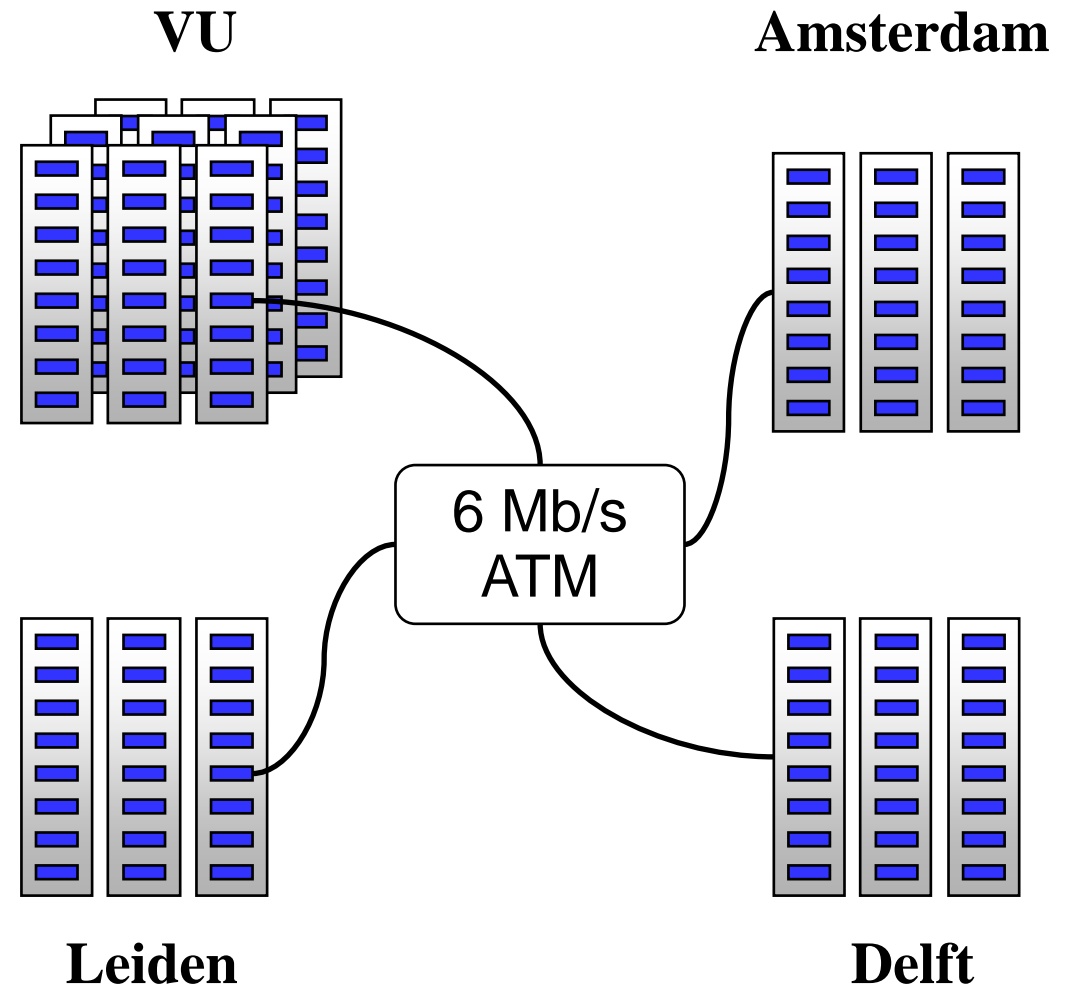
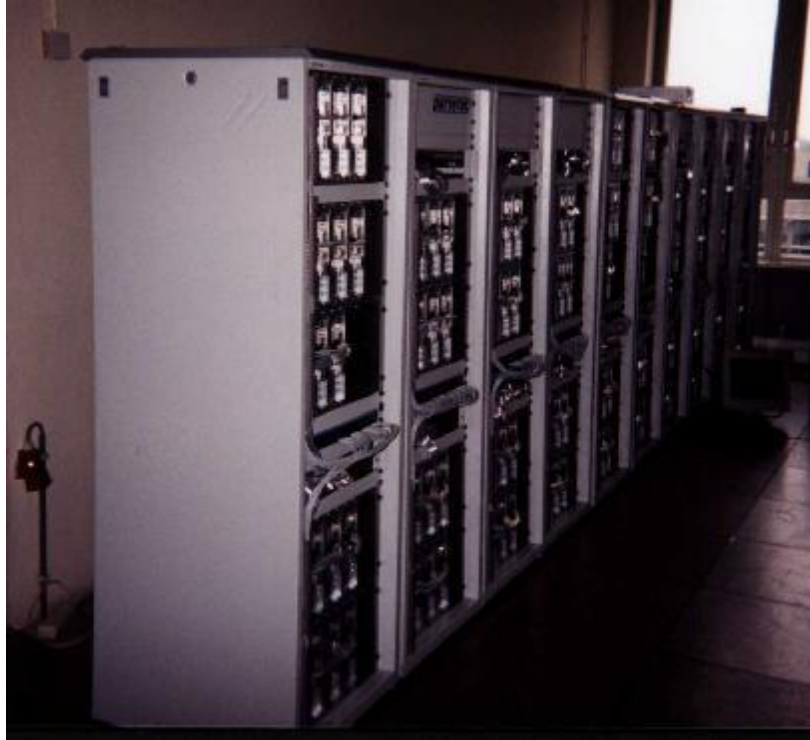


DAS-1 (1997-2002)

A homogeneous wide-area system



200 MHz Pentium Pro
128 MB memory
200 nodes
Myrinet interconnect
Built by Parsytec



› [ACM SIGOPS 2000] (paper with 50 authors)

DAS-4 (2011)

Testbed for clouds, diversity & Green IT

Dual quad-core Xeon
24-48 GB memory
Infiniband
Various accelerators (GPUs)
Bright Cluster Manager
Built by ClusterVision



ASTRON

VU

UvA / MultimediaN

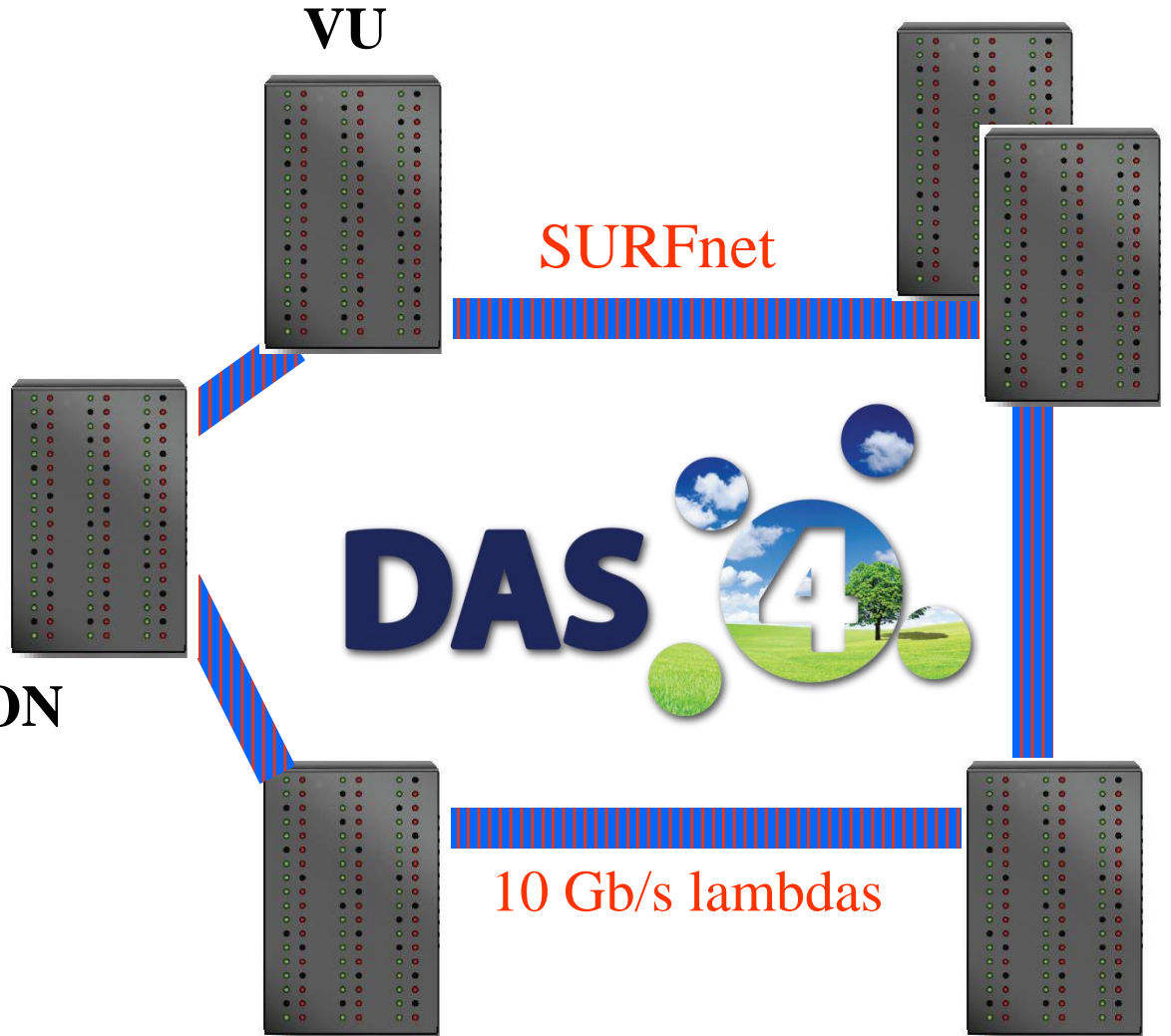
SURFnet

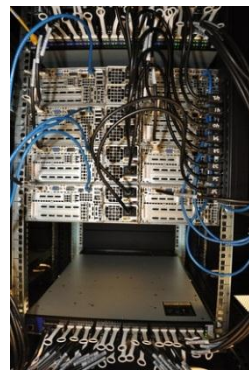
DAS 4

10 Gb/s lambdas

TU Delft

Leiden



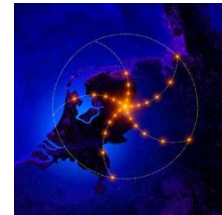


DAS research

- Many large research projects used DAS:
 - VL-e, MultimediaN, Gigaport, LOFAR, COMMIT
 - Many EU projects
- Numerous NWO/STW projects
- About 100 Ph.D. theses used DAS
- Collaboration SURFnet on DAS-3 & DAS-4
 - SURFnet provides dedicated 10 Gb/s light paths



GigaPort



COMMIT/

DAS enables award-winning research

- IEEE SCALE challenge 2008 & 2010
- Several TRECVID challenges
- 2 NWO VENI's, 1 VIDI
- EYR3 Sustainability Prize
- Netherlands Prize for ICT Research 2012



Organization

DAS Steering Group:

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Dick Epema
Cees de Laat
Cees Snoek
Frank Seinstra
John Romein
Harry Wijshoff

System management:

Kees Verstoep et al.

Support/operation:

ClusterVision
Bright Computing
TUD/GIS
Stratix
ASCI office

DAS grandfathers:

Andy Tanenbaum
Bob Hertzberger
Henk Sips

Funding:

Speakers

- Renato Figueiredo (University of Florida)
- Erik Huizer (SURFnet)
- Alexandru Iosup (TU Delft)



- Cees Snoek (University of Amsterdam)
- John Romein (ASTRON)
- Clemens Grelck (University of Amsterdam)
- Ana Varbanescu (TU Delft)
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