DESY Site Report
Update on Unix and NT

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Outline

- Installed Systems Overview
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- DESY Linux and Linux File Servers
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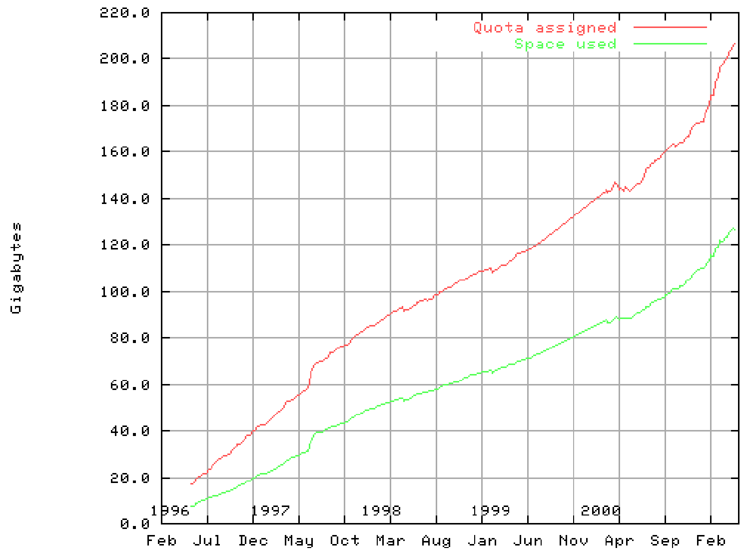
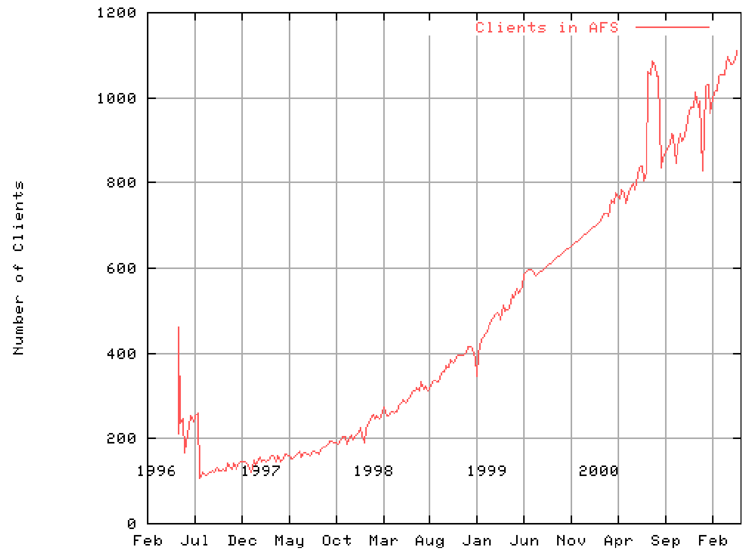
Installed Systems Overview

	Hamburg	Zeuthen	Sum	Trend
Linux	738	163	901	↑
Solaris	134	34	168	↗
HP-UX	45	18	63	↘
IRIX	31	1	32	↘
AIX	27	0	27	↘
NT	ca. 1600	ca. 170	ca. 1770	↗
XTerm	380	80	460	↓

The table includes machines registered, installed, and supported by -IT-. For several years now, we see the trend to replace X-terminals and Unix-stations with PCs running NT or Linux.

AFS





AFS Disk Space

Number of clients

- We recently doubled our AFS cell's capacity (now 500 GB) and will extend further (another 500 GB planned for this year)
- Started using OpenAFS clients on Linux with 2.2.18 kernels
- We need to increase our AFS competence since IBM are losing their's; considering OpenAFS for servers as well

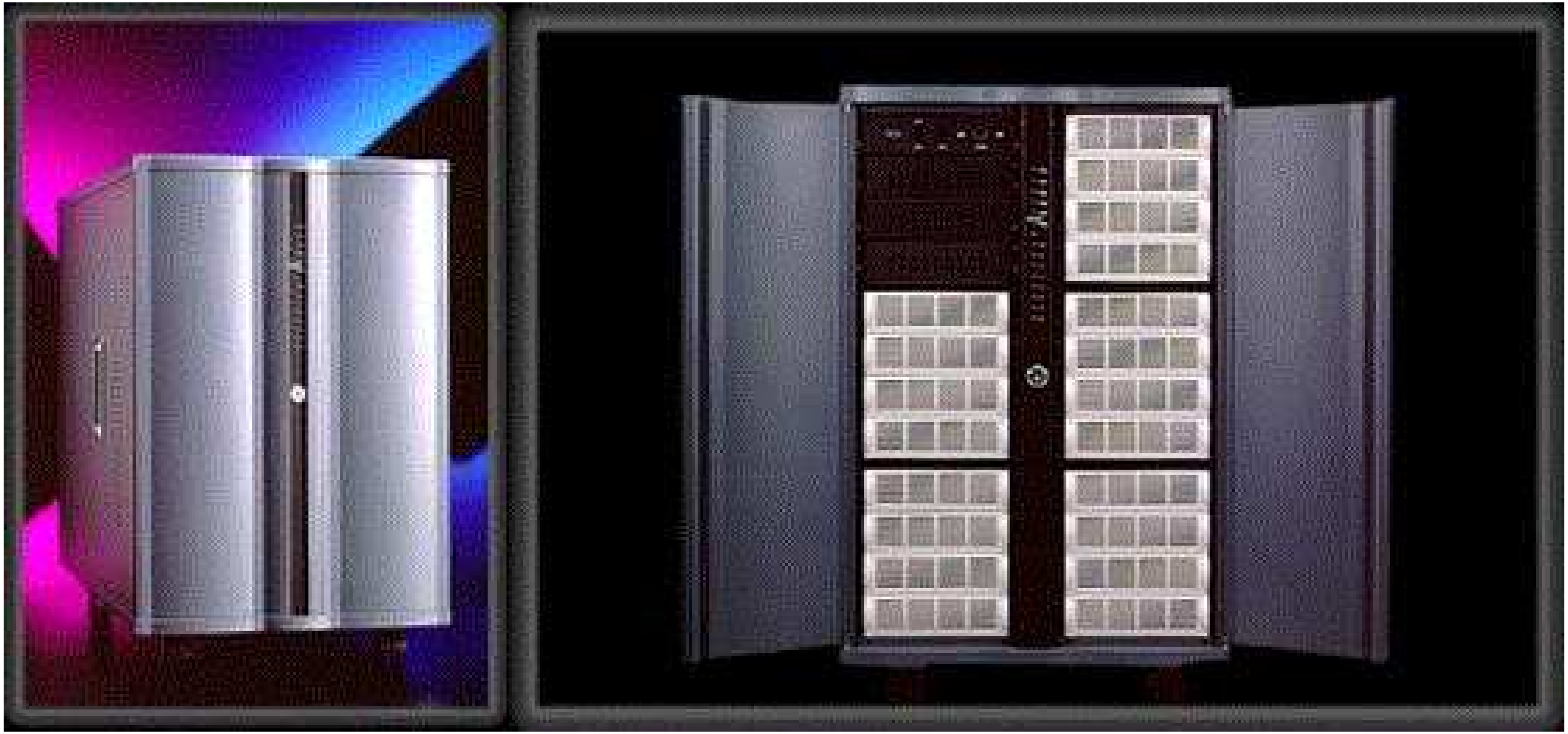
DESY Linux

- Current production system is still DESY Linux 3, based on SuSE 6.3, glibc 2.1.2
- Next production system is DESY Linux 4, based on SuSE 7.1, glibc 2.2; currently under certification
- First major DESY Linux 4 installation is a new 60 PC batch farm at Zeuthen (with kernel 2.2.18 and NFS V3) which will run Codine's successor GRD as batch system.
- DESY-SuSE project on advanced autoinstallation and Linux site management frozen in alpha stage since Christmas due to work overload at DESY
- Structures for automated updates from ftp repository under study
  $\rightarrow$ Wolfang Friebel (for Peter Jung) on Thursday

Linux Server Hardware

- We established a Linux server standard last fall based on a fileserver model developed at CERN by Fabien Collin
- Core components are Intel L440GX+ mainboard, 3Ware Escalade IDE RAID controllers and IBM DTLA IDE disks in hot swap bays
- Fat server (DELFI3) has 3x3Ware Escalade 6800 and 20x75GB disk capacity in in Chieftec JS 2000 case. JBOD for < 1 Cent/MB
- Small server has 1 controller and up to 8 disks in 19" rackmount
- Currently about 12 DELFI3 and 25 DELFI1 installed at DESY.
- High serviceability (hot swap disks and fans, hardware monitoring) and stability (redundant power, mirrored system disks)
- Technology transfer: You can now buy these servers in shops.

Linux IDE Fileserver



Network News

- Continuing to build the DESY Gigabit network
  - Structured cabling, gigabit ready
  - Routers and switches from Cisco
  - 10/100 Ethernet to end device, gigabit backbone
  - Redundant routers
- Zeuthen has 100% structured cabling for some time already
- Hamburg project will have $>$ 5000 switched fast ethernet ports
- 4100 10/100 ports wired so far ($>$ 3000 in active use)
- 200 Gigabit ports in use (150 backbone, 50 servers)
- About 75% coverage at DESY Hamburg, more to follow

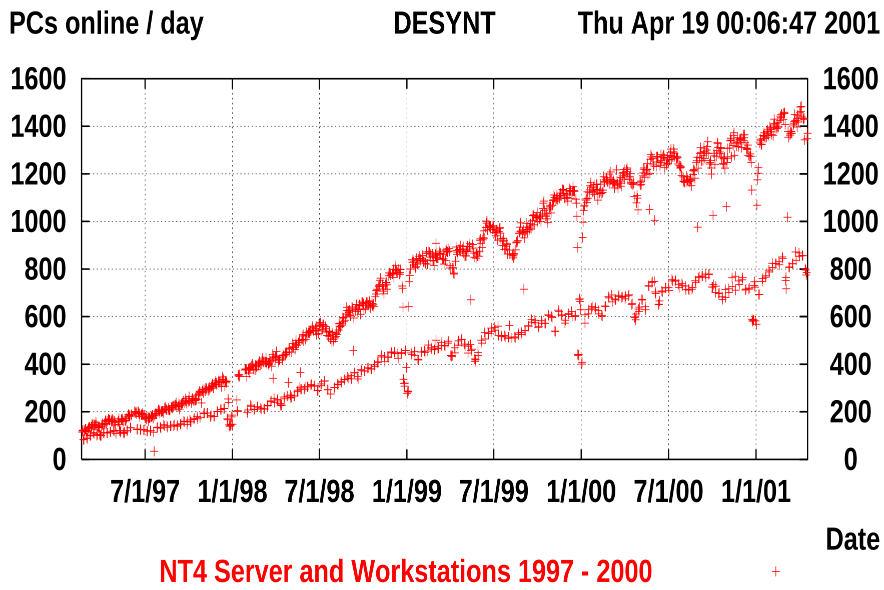
Network News (2)

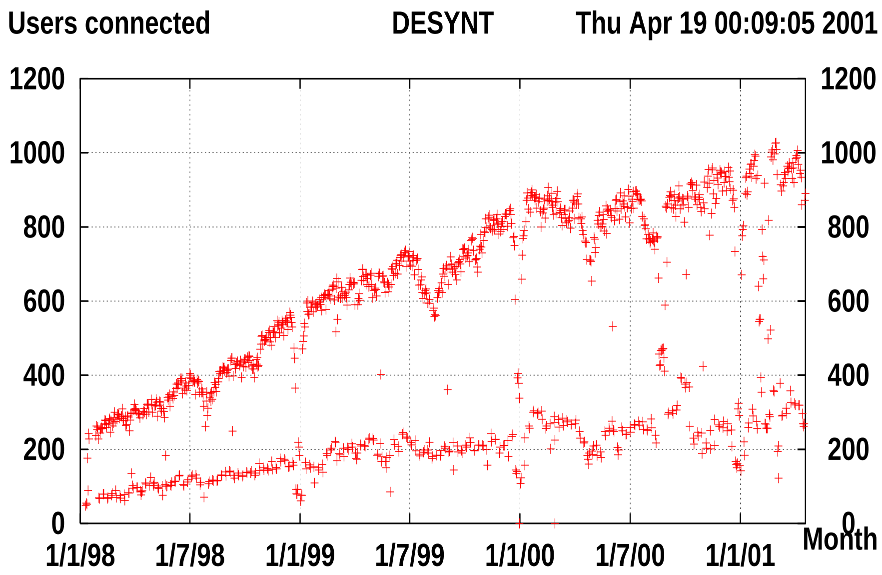
- Hamburg switched to 155MBit GWIN external connection in October.
- Currently 3.5 TB/month incoming traffic, rising at about 0.4 TB/month.
- DESY firewall allows H.323 video conferencing since January
- Introduced dynamic VLANS in Feburary
  - This allows easy relocation of registered equipment
  - There is a class C 'guest' subnet with DHCP for non-registered MAC-adresses (e.g. your laptop)
- Zeuthen switched to 34MBit GWIN connection in March
- Investigating wireless LANs

Mass Storage News

- Remaining STK 3490 silos have been dismantled
- Grau Robot (Ampex drives) still in operation
- Now two STK Powderhorn silos in regular operation
  - 10 fibre channel drives type 9840 ('Eagle')
  - up to 450 exchanges per hour
  - single SGI Origin 2000 as server (O3000 has been ordered)
- Third Powderhorn silo on loan for testing; our first one had serious mechanical problems under full load.
- Disk Cache project is progressing $\rightarrow$ Patrick Fuhrmann on Thursday

The DESY NT Domain





- Single domain spanning Hamburg and Zeuthen
- 1400 workstations online per day, about 1800 registered nodes, growth rate is flattening out.
- Win2K migration schedule has been outlined (→ Martin Köhler on Tuesday)

Unix / Windows Integration

Need to redesign services for better integration of Unix and Windows:

- User registry: Today, user information is splattered across qddb, Oracle, NIS, LDAP, Kerberos ... — We need to streamline distribution mechanisms, e.g. LDAP instead of NIS ($\rightarrow$ Wolfgang Friebel on Monday) and Kerberos 5 for single sign on.
- Mail: Still running seperate servers for Unix and NT mail, plus PMDF for external gateway. *There can be only one ...*

In general, the need to integrate Unix and Windows at infrastructure level requires to move towards standardized protocols which Microsoft supports. LDAP and Kerberos 5 seem to do the job.

People

- Thorsten Kleinwort left DESY in December
- Karsten Künne left DESY in January
- Christian Caro (aka Trachimow) left DESY in March
- Andreas Gellrich joined the unix team in February
- Peter van der Reest joined the unix team in March

We suffer from significant loss of expertise, but we have highly qualified and motivated new colleageus.

Trends

- Linux host count still doubling once per year
- Linux PCs now also in critical fileserver and soon HA applications
- Solaris is still our main platform for central services (mail, WWW, Oracle, SAP, printing, console management, network monitoring, time, news, DNS, ...); some of these are administered externally
- SGI niches are getting smaller, Challenges will be gone soon
- NT 4 domain stable and growing slowly, Win2K at the doorstep
- Network upgrade allows for new services (VLANs, video, ...)
- Moving towards industry standard infrastructure services