



StorNextFS, a global Filesystem in the IT-R&D Environment at Forschungszentrum Karlsruhe

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Motivation for the project CampusGrid

- heterogenous IT-environment: vector-, SMP-, cluster-, blade-systems, SAN, NAS, Unix, Linux, Windows, Solaris, SuperUX,
- global view by the user
- only one user management (ADS from Microsoft)
- one job management
- metacomputing (MPI, ..), “real-time” applications
- access data for visualisation at the local workstation
- global accounting
- seamless integration into different projects and middleware concepts like gLite, LCG, D-Grid, Unicore, .. à we have seen in the NEC HPC strategy talk it's the NEC interest too!



Ideas and solution

- testing of different global filesystem solutions à StorNextFS from ADIC seems to be the best
- AFS for world wide access
- integration of Infiniband, iSCSI and FC-SAN
- Globus Toolkit 4 (GT4), gLite/LCG and UNICORE as the middleware solution in the project
- Ressource Broker (local solution!)
- security à Kerberos 5 integration
- accounting à should be solved by D-Grid and GridKa



Parts of the CampusGrid Projekt



watercooled Infiniband cluster with 32 SUN V20z and 32 FSC RX220 nodes



Infinicon 9100, Infiniband switch, MPI latency 4.0 μ s between nodes



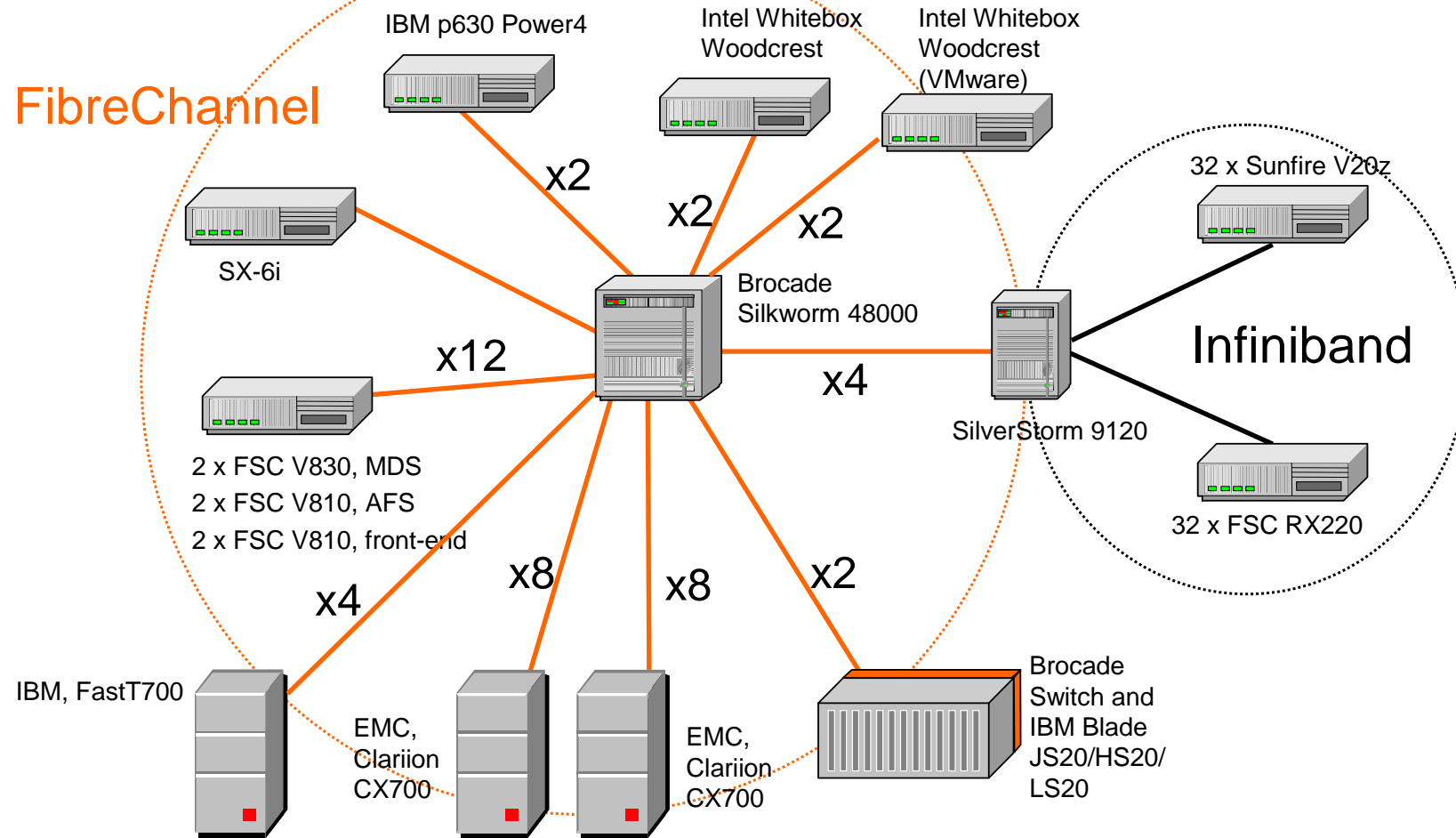
StorNextFS 2.7 beta from ADIC

- testing of LDAP/ADS integration next month
- performance tests among different platforms (AIX, Linux, Solaris) and a 4 Gbit Brocade director are running now
- integration of InfiniBand for the beta version is on the road
- NEC SX-6i as a test system should be integrated as soon as possible



The SAN CampusGrid environment

(under construction!)





The existing hardware environment

- 128 Opteron processors (V20z, RX220, 2.2 GHz)
- Intel Whiteboxes, Woodcrest, Xen and VMware tests
- IBM BladeCenter with JS20, HS20 and LS20
- 2 x V830 from FSC (Opteron, dual prozessore, dual core, 16 GByte, 2 x HBA) à MDS
- 2 x EMC Clariion CX700 systems using FC and S-ATA disks
- IBM FastT700
- 2 x V810 for AFS
- 2 x V810 as front-end server
- NEC SX-6i



Invitation for Tenders

- vectorcomputer
- Integration in the CampusGrid environment
- 500 GFlop/s peak and 500 GByte main memory
- Only 10 TByte local Raid-5 disks
- Integrated in the StorNextFS filesystem from ADIC
- ddt as the CampusGrid wide debugging front-end must work
- GT4, gLite/LCG and Unicore as Grid-Middleware should be a project in cooperation with the winner of the invitation for tenders