

CD CCF DMS – Upper Storage II

15 Minutes on DMS Upper-Storage Plans
(meeting version 1.0)

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Grid & Data Management Activities Meeting
27 July 2004

Outline

- ▶ Presumption: this mtg is oriented towards OSG-0
- ▶ Presumption: this is planning, not technical design
- ▶ No detailed schedules for the next 14 months (end FY04+FY05) to show. Budget process in progress.
- ▶ More detail on SRM (Timur) and SAM-SRM Integration (Andrew) to follow... this is CCF-DMS plans.
- ▶ Talk Outline:
 - Repeat major Storage Topics slides from June GDM
 - Notes, Questions about OSG-0? (FY05 WBS useful?)
 - CCF DMS Upper-Storage Draft FY05 WBS

SRM

- SRM = Storage Resource Manager
- The universal GRID interface to any Storage Element.
- FNAL CCF is leading developer of SRM-dCache, now adapting that work for re-use with other storage sys.

- Major dev: Space Reservation, Request Scheduler, Parameterizing the storage system (interface re-use), SRM v2.1 framework (now grafting features onto v1.1)
- Minor dev: Other SRM v2.1 features, experience-based
- Collaborate/consult: GGF, SamGrid, NeST, [everyone]
- Track/Learn: WAN
- Support: Day-to-day (support, installs), LCG

- Largest stake-holder is CMS. SamGrid may-be soon. Other GRID-oriented efforts depend on this work too.

Dcache

- ▶ dCache = Tape Library Rate Adapter, Data Cache, Virtualized File Storage System, and ...
- ▶ FNAL CCF is in collaboration with DESY to maintain, develop dCache. Now some core dCache development.
- ▶ Major dev: Tapeless Data Path, Resilient (tapeless) dCache, Core dev for operation at ever larger scales.
- ▶ Minor dev: VOAuth, Monitoring, palliatives,
- ▶ Collaborate/consult: DESY, CMS, CDF, [everyone]
- ▶ Support: Day-to-day (support, installs), CMS-UCSD
- ▶ Stake-holders: CDF, D0, CMS (T1, T2), LQCD, OSG, Minos, some STKEN users. CDF has “largest” system. CMS plans/has variety of dCaches, applications.

PNFS, Compare, WAN, Collaborate

- ▶ PNFS: Namespace for Enstore, dCache. Some tasks:
 - 64 bit PNFS (to support large underlying DBs)
 - Postgresql migration (reliability, performance)
 - Scaling: how to best accomplish
 - Internal hiding: leverage DB experience thoroughly
 - Support: day-to-day, installs, scaling consultation
- ▶ “Compare”: Learn about other caching engines and file systems that may be advantageous in various storage niches. Incomplete list: Lustre, PVFS/PVFS2, GPFS,
- ▶ WAN: Investigation of WAN/GRID Layer 5 Transport Issues. Storage components need to keep up as high rate networks “of the future” go into production soon.
- ▶ Collaborate: Participation/track models in OSG, LCG.

Questions

- ▶ What is OSG-0 functionality? Grid3+ is what?
 - ➔ SRM v1.1 w/space reservations? (details-Timur)
 - ➔ Resilient dCache in production state (risk)?
- ▶ Who will support the OSG-0 systems?
- ▶ What is even possible by Feb 2005 assuming:
 - Open-beta and scale testing in Jan 2005
 - Beta and sys function testing in Nov-Dec 2004
 - Feature/product integration testing in Oct 2004
 - What products ready before Oct 2004 (in FY04)?
- ▶ CCF-DMS has much work yet to do in FY04:
 - Maintain dev effort level in SRM parameterization
 - Integration/documentation of support with ISA
 - Validate Dcache on LTS (supported OS, CMS help?)
 - Personnel transitions....

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- DMS-US (Upper-Storage) --- Part 1/4 [8.70 FTE-years] - total program
 - DMS-US-SRM "Storage Resource Manager" [3.05] - SRM
 - DMS-US-SRM-D2D "Day-to-day operations support" [0.40] - Day-to-Day
 - DMS-US-SRM-D2D-CDF "CDF SRM operations support" [0.05]
 - DMS-US-SRM-D2D-CMST1 "CMS Tier1 SRM operations support" [0.05]
 - DMS-US-SRM-D2D-CMST2 "CMS Tier2 SRM operations support" [0.05]
 - DMS-US-SRM-D2D-D0EN "D0 SRM operations support" [0.05]
 - DMS-US-SRM-D2D-FNDCA "STKEN SRM (FNDCA) operations support" [0.05]
 - DMS-US-SRM-D2D-LQCD "LQCD SRM operations support" [0.05]
 - DMS-US-SRM-D2D-OSG "OSG SRM operations support" [0.05]
 - DMS-US-SRM-D2D-LCG "LCG SRM operations support" [0.05]
 - DMS-US-SRM-ADMINDOC "Admin documentation, procedures maint." [0.10]
 - DMS-US-SRM-PACKAGING "Packaging and installation" [0.10]
 - DMS-US-SRM-SPACERES "Space Reservation" [0.25]
 - v2.1 feature in v1.1 framework (compatibility/version issue)
 - DMS-US-SRM-REQUESTSCHED "Request Scheduler" [0.10]
 - DMS-US-SRM-ACCOUNTING "Accounting Module" [0.20]
 - DMS-US-SRM-PARAMSTORSYS "Re-use of dCache SRM w/other store sys" [0.10]
 - Highest priority now, though much work on-going in parallel
 - DMS-US-SRM-SAMCACHE "Sam-compatible cache under SRM" [0.10]
 - Coordinate with SamGrid Project
 - DMS-US-SRM-NEST "Consult w/UW to put NeST under SRM" [0.10]
 - DMS-US-SRM-GGF "GGF collaboration contributions" [0.10]
 - DMS-US-SRM-WSRF "SRM development in WSRF tech.framework" [0.10]
 - DMS-US-SRM-LCG-SUPPORT "Support for LCG program" [0.30]
 - e-mail list support, compatibility issues
 - DMS-US-SRM-SMALL "Small projects based on ops experience" [0.30]
 - DMS-US-SRM-V21 "SRM v2.1 interface/feature development" [0.60]
 - DMS-US-SRM-WAN "Features-support adv. WAN/GRID integr." [0.20]
 - esp. Starlight, Lambda station

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- DMS-US (Upper-Storage) --- Part 2/4 [8.70 FTE-years] - total program
 - DMS-US-DCA "dCache" [4.95] - dCache part 1/2
 - DMS-US-DCA-D2D "Day-to-day operations support" [0.80] - Day-to-Day
 - DMS-US-DCA-D2D-CDF "CDF dCache operations support" [0.10]
 - DMS-US-DCA-D2D-CMST1 "CMS Tier1 dCache operations support" [0.10]
 - DMS-US-DCA-D2D-CMST2 "CMS Tier2 dCache operations support" [0.10]
 - DMS-US-DCA-D2D-D0EN "D0 dCache operations support" [0.10]
 - DMS-US-DCA-D2D-FNDCA "STKEN dCache (FNDCA) ops support" [0.10]
 - DMS-US-DCA-D2D-LQCD "LQCD dCache operations support" [0.10]
 - DMS-US-DCA-D2D-OSG "OSG dCache operations support" [0.10]
 - DMS-US-DCA-D2D-LCG "LCG dCache operations support" [0.10]
 - DMS-US-DCA-ADMINDOC "Admin documentation, procedures maint." [0.10]
 - DMS-US-DCA-PACKAGING "Packaging and installation" [0.50]
 - DMS-US-DCA-PACKAGING-BASE "Basic pkg excl. monitoring" [0.10]
 - staff-intensive installation
 - DMS-US-DCA-PACKAGING-FULL "Packaging with monitoring" [0.40]
 - Includes transparent installation procedures
 - DMS-US-DCA-TAPELESSDATA "Tapeless Datapath" [0.70] -rollup
 - DMS-US-DCA-TAPELESSDATA-CDF "TDP at CDF" [0.10]
 - DMS-US-DCA-TAPELESSDATA-CMS "TDP at CMS" [0.10]
 - DMS-US-DCA-TAPELESSDATA-D0 "TDP at D0" [0.50]
 - Note: requires test stand, fall-back, platform performance
 - DMS-US-DCA-SCRATCH "Resilient (scratch,tapeless) dCache" [0.75] -rollup
 - DMS-US-DCA-SCRATCH-DEVEL "Resilient dCache development" [0.35]
 - DMS-US-DCA-SCRATCH-CMST2 "Resilient dCache support - CMS Tier2" [0.30]
 - was DMS-US-DCA-SCRATCH-CMS-UCSD, now expanded
 - DMS-US-DCA-SCRATCH-CMSWN "Resilient dCache support - CMS-WN" [0.10]
 - was DMS-US-DCA-SCRATCH-CMSHOTDOG, now renamed

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- DMS-US (Upper-Storage) --- Part 2/4 [8.70 FTE-years] - total program
 - DMS-US-DCA "dCache" [4.95] - dCache part2/2
 - DMS-US-DCA-CORE "Core dCache development" [0.10] -rollup
 - DMS-US-DCA-CORE-PRESTAGER "Redesign, implement of prestager" [0.10]
 - DMS-US-DCA-VOAUTH "Adapt to use VO Authorization module" [0.25]
 - first performant deployment, accounting,
 - interaction of grid doors (ext) and dcap doors (int).
 - DMS-US-DCA-GRIDFTP "dCache Gridftp" [0.35] -rollup
 - DMS-US-DCA-GRIDFTP-NIO "NIO mover into dCache gridftp" [0.10]
 - DMS-US-DCA-GRIDFTP-V2 "Gridftp v2.0 protocol" [0.25]
 - DMS-US-DCA-PINMGR "Pin Manager" [0.20]
 - DMS-US-DCA-DCAP "Dcap client library support,packaging" [0.10]
 - DMS-US-DCA-SMALL "Small projects based on ops experience" [0.90] -rollup
 - DMS-US-DCA-SMALL-DISKCORRUPT "Disk corruption investigation" [0.10]
 - DMS-US-DCA-SMALL-DISKPERFORM "Disk performance investigation" [0.10]
 - DMS-US-DCA-SMALL-FNALMONITOR "Monitor, plotting by FNAL" [0.10]
 - DMS-US-DCA-SMALL-PALLIATIVE "Unantic. projects to sustain ops" [0.40]
 - DMS-US-DCA-SMALL-OTHER "Feature extensions" [0.20]
 - DMS-US-DCA-COLLABORATION "Organize, participate in dCache coll" [0.20]

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- DMS-US (Upper-Storage) --- Part 4/4 [8.70 FTE-years] - total program
 - DMS-US-PNFS "64 bit PNFS, postgresql, scaling, internal hiding" [0.20]
 - DMS-US-COMPARE "Learn about other caching engines, file systems" [0.20+others]
 - DMS-US-WAN "Investigation of WAN/GRID Layer 5 file transport" [0.10]
 - DMS-US-OSG "Participation in Open Science Grid" [0.10]
 - DMS-US-LCG "Participation in LCG" [0.10]