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The requirements



The goal

- Provide the management with information about <u>installed capacity</u> (per VO).
- Provide the management with information about <u>resource usage</u> (per VO).
 - This info can also be used by VO operations people in order to "monitor" their usage of the resources

Main focus

- Storage resources
- Computing resources

Dynamic view

- Information should be retrieved as dynamically as possible in order to be reliable
- The information will be made available through the WLCG accounting system



The documentation



The technical specifications are available in the CCRC twiki in the SSWG section:

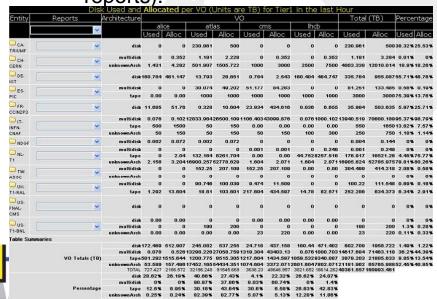
https://twiki.cern.ch/twiki/bin/view/LCG/WLCGCommonComputingReadinessChallenges#Storage_Solution_Working_Group_S

- Storage only:
 - The documentation available reports on the conclusions reached during focused meetings with developers and information providers
 - Specific solutions found to cover dCache internal specialized buffers and avoid double counting
- The document has been agreed by storage developers, storage information providers, data management developers, ...



The Storage Resources

- Current accounting harvests data from BDII
 - ... but many errors in data.
 - combination of Glue1.2 and 1.3
- Need to improve information providers and configuration.
- Existing Reports
 - Current status (last hour)
 - Monthly Report (like manual Tier1 reports).





			Jan- 08	Feb- 08	Mar-08	Apr-08	May- 08	Jun-08	Jul- 08	Aug- 08	Sep- 08	Oct- 08	Nov- 08	Dec- 08	Total TB- months
Disk Space - TBytes	ALICE	Allocated	1340	861	4500	17178	12884	1105	0	0	0	0	0	0	37868
		Used	1043	573	1500	8589	6442	149	0	0	0	0	0	0	18296
	ATLAS	Allocated	1644	1133	5188	25768	25768	8124	0	0	0	0	0	0	67625
		Used	945	845	2119	12884	12884	3542	0	0	0	0	0	0	33219
	CMS	Allocated	1055	756	2764	21474	21474	5945	0	0	0	0	0	0	53468
		Used	649	608	1246	10737	10737	2371	0	0	0	0	0	0	26348
	LHCb TOTAL	Allocated	608	397	3519	17178	17178	3061	0	0	0	0	0	0	41941
		Used	311	116	1509	8589	8589	649	0	0	0	0	0	0	19763
		Allocated	4647	3147	15971	81598	77304	18235	0	0	0	0	0	0	200902
		Used	5896	4284	12748	81598	77304	13422	0	0	0	0	0	0	195252

Storage Solutions

			Jan- 08	Feb- 08	Mar- 08	Apr- 08	May- 08	Jun- 08	Jul- 08	Aug- 08	Sep- 08	Oct- 08	Nov- 08	Dec- 08	Total TB- months
Tape Space - TBytes	ALICE	Used	0	0	0	2147	2147	500	0	0	0	0	0	0	4794
	ATLAS	Used	500	500	500	2147	2147	500	0	0	0	0	0	0	6294
	CMS	Used	500	500	50	2147	2147	500	0	0	0	0	0	0	5844
	LHCb	Used	500	500	500	2147	2147	500	0	0	0	0	0	0	6294
	TOTAL	Used	1500	1500	1050	8588	8588	2000	0	0	0	0	0	0	23226

The Storage Resources

GlueSA class

- Online resources only. GlueSAs do not overlap.
- Shared spaces as one GlueSA with multiple GlueSAAccessControlBaseRule
- GlueSAReservedOnlineSize
 - Space physically allocated to a VO (or a set of VOs) <u>Installed capacity</u>
- GlueSATotalOnlineSize (in GB = 10⁹ bytes)
 - Total Online Space available at a given moment (it does not account for broken disk servers, draining pools, etc.)
- GlueSAUsedOnlineSize (in GB = 10⁹ bytes)
 - Size occupied by files that are not candidates for garbage collection <u>Resources usage</u>
- \blacksquare GlueSAFreeOnlineSize (in GB = 10 9 bytes)
 - Free = Total Used
- GlueSACapability
 - Key/value pair to publish agreed characteristics of Storage Area, i.e. access=read, network=WAN-LAN, etc.





The Computing Resources

- Expressed in terms of KSI2000 per federation in current Megatable
- APEL provides already the information about <u>resources usage</u>
- Ongoing work to make information published about <u>installed</u> <u>capacity</u> more reliable (see presentation of Steve Traylen at GDB)
- GridMap already provides the information per region. Ongoing work (in collaboration) to provide a view per federation and an interface to retrieve data.
- Proposal: Publish static pledges and the dynamic view in the current Megatable format (by federation) provide APEL plug-in
 - It allows for easily spotting discrepancies

LCG

Profit of the presence of a technical student who will be at CERN till the end of August.

Storage Solutions

The schedule

Storage

LCG

Dynamic information providers for CASTOR

already available by J. Jensen

- They will be installed at CERN
- Few minor corrections needed
- Dynamic information providers for dCache available by R. Trompert
 - Need to verify with dCache developers that pinned files usage info is available, and other details
 - 2-3 weeks to implement the proposal
 - The changes will be reflected also in the new official dCache information providers by P. Millar
- Dynamic information providers for DPM available
 - A few weeks to implement the proposal
- Information already available for StoRM
 - Probable minor additions for VOInfoPath

Computing resources

Provide a working prototype by the end of July 2008?







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