

DCS Status and Amanda News

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Introduction

- This talk focuses on DCS archival and Amanda server
 - General description of PVSS data handling was presented several times, please check slides from previous workshops or contact DCS team
- Report on general DCS status will be given by Andre this afternoon
 - DCS computing infrastructure in place
 - Currently tuning the load balancing in the detector cluster

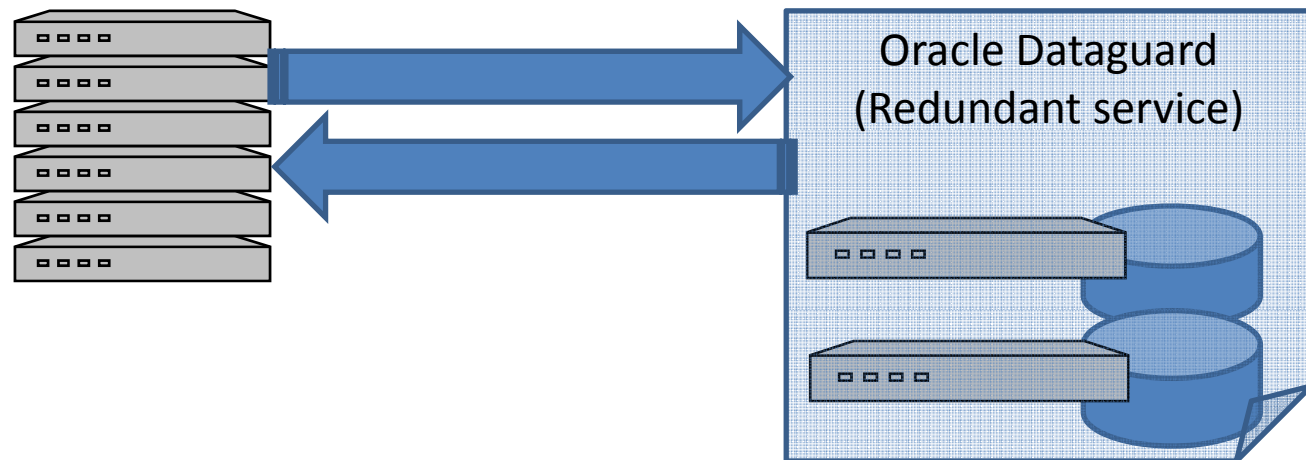
DCS Databases Services

- 3 main services:
 - **DCS lab** for debugging , commissioning and performance tests
 - **IT service**, used mainly for performance tests, to be dropped soon
 - **CR3 servers**, used for comissionig

Present DCS Database service in CR3

Redundant DB service configured as ORACLE Dataguard is available

Used both for configuration data and data archival



DB usage status

DETECTOR	E-mail	IT	Lab	P2	[MB]	FERO[M B]	FWcfg[M B]	FERO[M B]	FWcfg[MB]	PVSSarch[MB]	TOTAL [MB]
SPD	Y	Y	Y		1.25	5.13	13.81				20.19
SDD											0.00
SSD	Y		Y			0.88					0.88
TPC	Y	Y	Y	Y	55.44	88.19	3.38	71.10		14482.62	14700.73
TRD	Y	Y	Y	Y		2.56		4.69			7.25
TOF				Y						414.56	414.56
HMPID	Y	Y		Y						38869.50	38869.50
PHOS/CPV	Y	Y			0.19						0.19
MUON	Y			Y					3.38	246.56	249.94
FMD	Y			Y					3.38		3.38
T0					6.25						6.25
V0	Y			Y					3.38		3.38
PMD	Y	Y			6.63						6.63
ZDC											0.00
EMC	Y	Y									0.00
ACORDE	Y	Y		Y	3.38				3.38		6.76
DSS	Y			Y					1.25		
Trigger				Y					3.38	1513.56	
HLT											
DAQ	Y		Y								
DCS		409G B			3.31					4593.5	
		~2.2e9 rows								~315e6 rows	
TOTAL [MB]					76.44	96.76	17.19	75.79	18.15	60120.30	

Final Database Service architecture

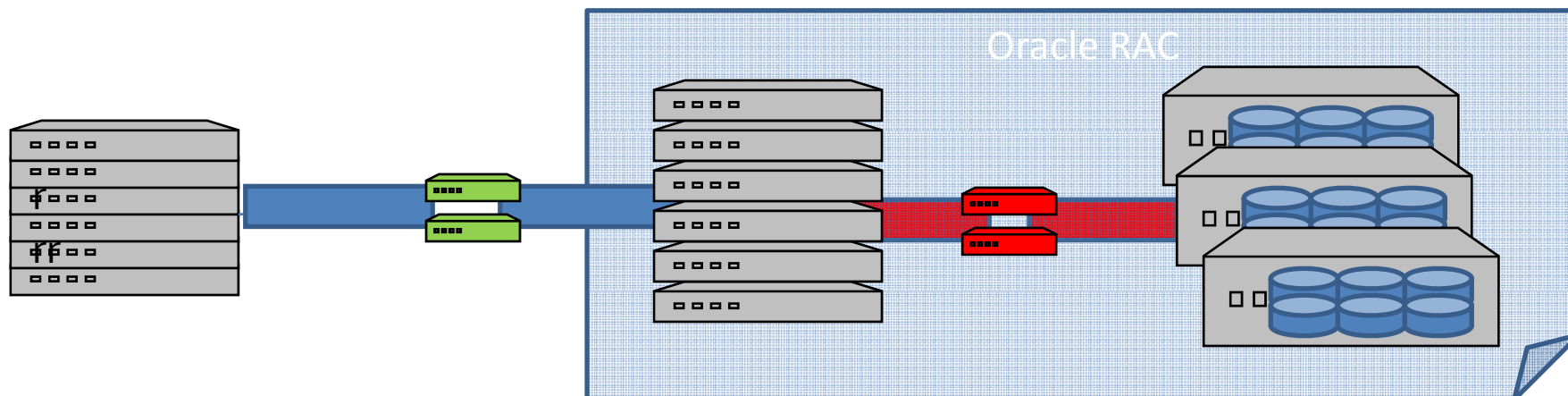
Status:

HW installed

SW installation by DCS and IT ongoing
(schedule was not clear in July)

Service agreement between IT and
experiments under discussion

- ORACLE RAC
 - 6 nodes
 - RAID, redundant power supply
 - Dual dual-core Xeon 5160 per node, 4 GB RAM
- 3 disk arrays
 - Infortrend Eonstor A16F-R2431
 - 16 disks each
 - 20 TB in total
- SAN infrastructure
 - Based on SANbox 5600 switched in redundant configuration



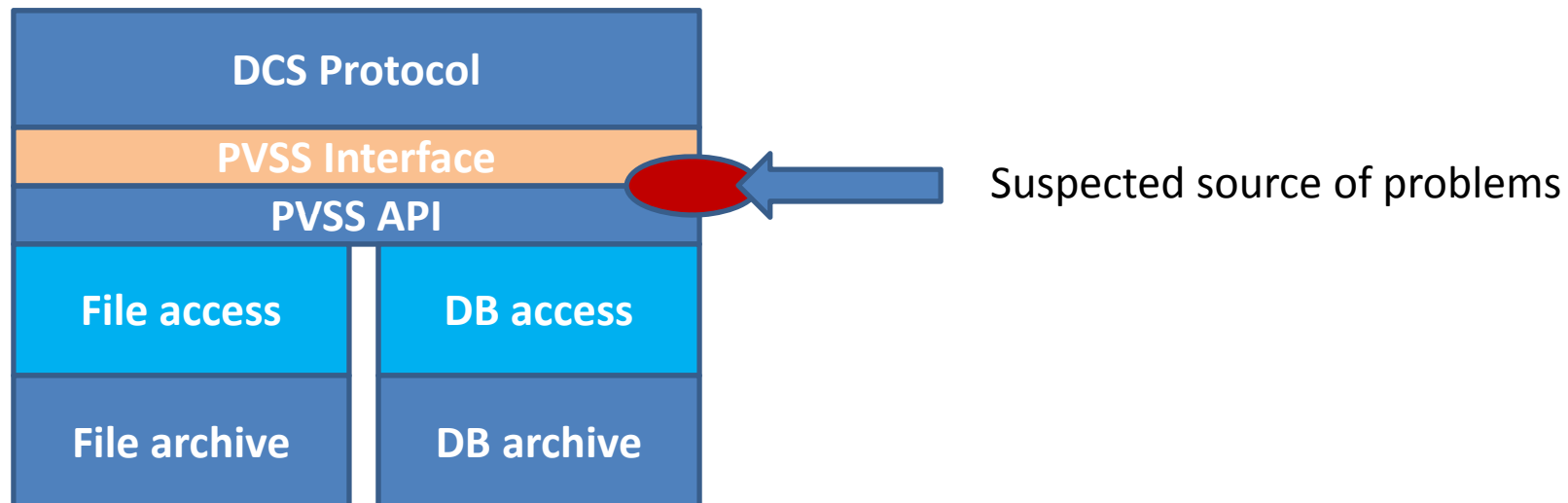
Interface Between DCS and Offline

- FES
 - Infrastructure in place
 - Framework used by SPD to transfer data from DAQ to DCS
 - First systems to use DCS FES: PHS and GMS (end October)
- Amanda server retrieval of data from DCS archive
 - PVSS API-based version at limits
 - New server being implemented (see next slides)

Comments on Amanda problems

Status as of July 2007

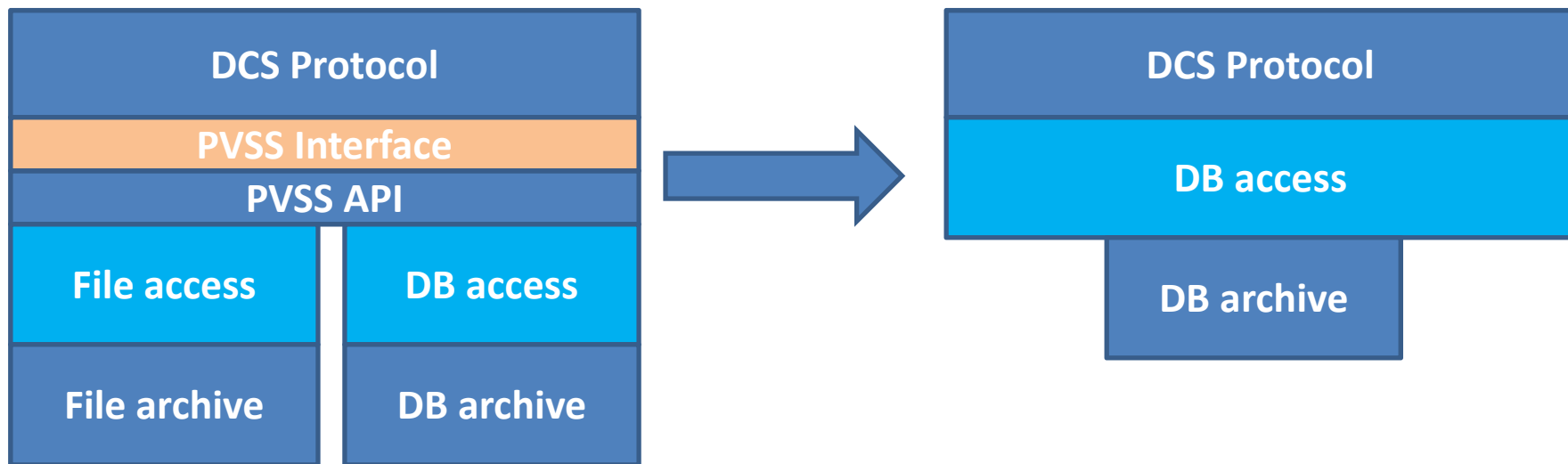
- Two functionalities of AMANDA server:
 - Single DP request (one DP per connection)
 - For example used for analysis of TPC commissioning data
 - Stability problems, otherwise working fine
 - Multiple DP request (several DPs per connection)
 - Reasonably faster
 - Instabilities (memory leaks) to be solved
 - Some requests caused crashes



- In July we promised a quick fix in case that the problems come from our code
- Deeper investigation showed, that the source is in API (commercial code)
 - Long DP aliases and aliases containig ‘/’ were not correctly handled
 - Large amounts of data caused timeouts in watchdog service (PVSS API is not thread safe)
 - Internal serialization of data requests in PVSS API causes performance limits which cannot be solved in our code

AMANDA upgrade

- New AMANDA independent on PVSS being commissioned
 - Code exists (both Amanda server and local client for tests) – within the timescale promised in july
 - First tests done this week
 - **Release during next week (scheduled for Monday 15th)**



Consequences of Amanda Upgrade

- ADMP protocol (communication protocol between Shuttle and Amanda) needs to be modified (due to database architecture)
 - Changes already discussed with offline team, proposal submitted in written
 - Working towards elimination of most inconvenient changes
 - (DP types are not stored in the database, but directly in PVSS, hence unreadable for new Amanda)
 - Workaround being tested

Implications Coming With New Amanda

- Amanda server sees all data produced in DCS
 - no need to run one Amanda per detector
 - Offline will be served by one Amanda
 - Several servers can be installed in case performance is not sufficient
- Amanda can serve only data from database
 - Detectors must use Oracle archiver – which is also a DCS policy

Preparing for FDR

- Full simulation running
- Number of simulated datapoints changed from ~70000 down to ~17000
 - PHS changed the request
- DCS infrastructure:
 - Oracle database available in CR3 for detectors installed in cavern
 - Oracle database available in DCS lab for detectors installing on the surface (no access to CR3 possible)

Present Limitations

- Offline expects that all datapoints are available in the queried PVSS system
 - This is satisfied for simulation but
 - might create problems for real data:
 - The DPs are created once the device is installed and integrated into the system
 - DPs do not exist for missing devices – incomplete detectors will have incomplete set of datapoints
 - Workaround:
 - Use simulator for missing data
 - Do not request data which is not measured