

CDF SAM-farm status

2005/03/08

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Pilot SAM-farm in production

- hardware configuration
- production status
- monitoring and debugging

Migrate to a full production facility

- software tuning
- hardware scaling

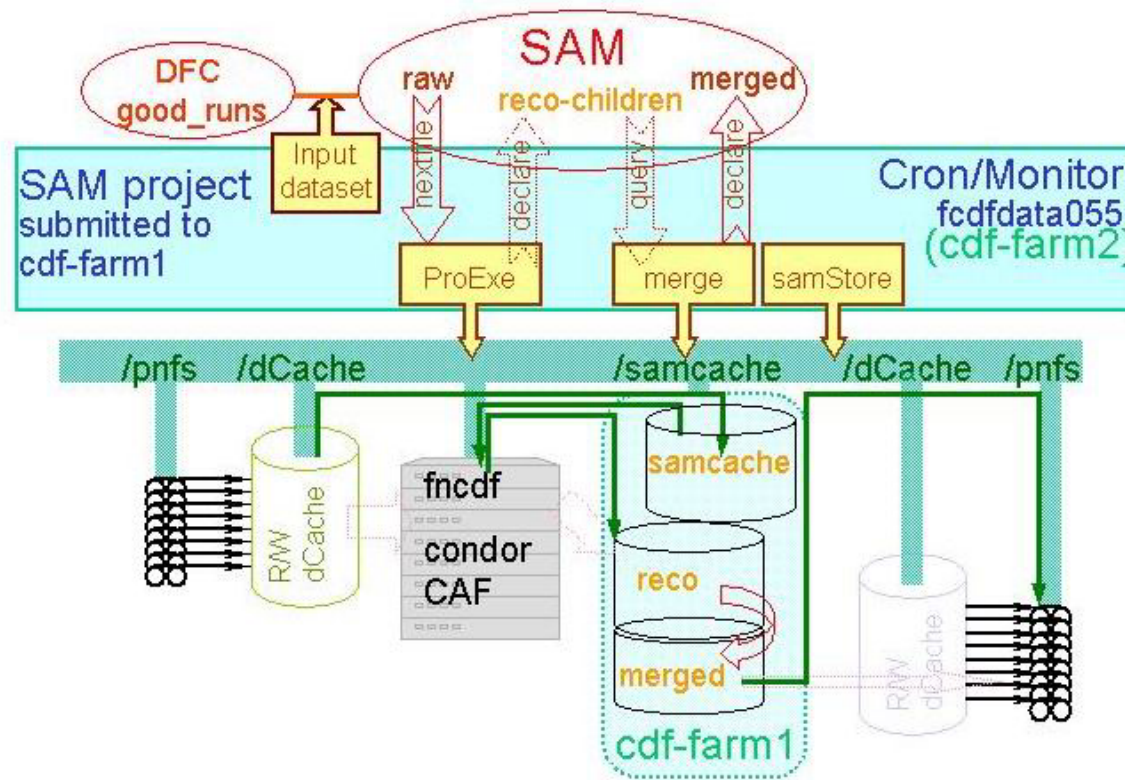
Pilot SAM-farm : Hardware configuration

- de-Centralized Condor CAF : 32 AMD worker nodes
- sam-stations : 2 dual-P4 file servers (2TB each)

Resources : SAM, condor, durable-storage

Software : cdfsoft-tarball, farm-scripts

Modular and decoupled applications : scalable and easy upgrade



Pilot SAM-farm : Production status

Beam-line Calibration :

- Read Stream-G data, output histograms
- In full function since Dec/2004 data taking
- No delay, little maintenance issue

Full production :

- Stream-A, single output
- Stream-G, 13 output datasets
- full function, Stream-A is up to date

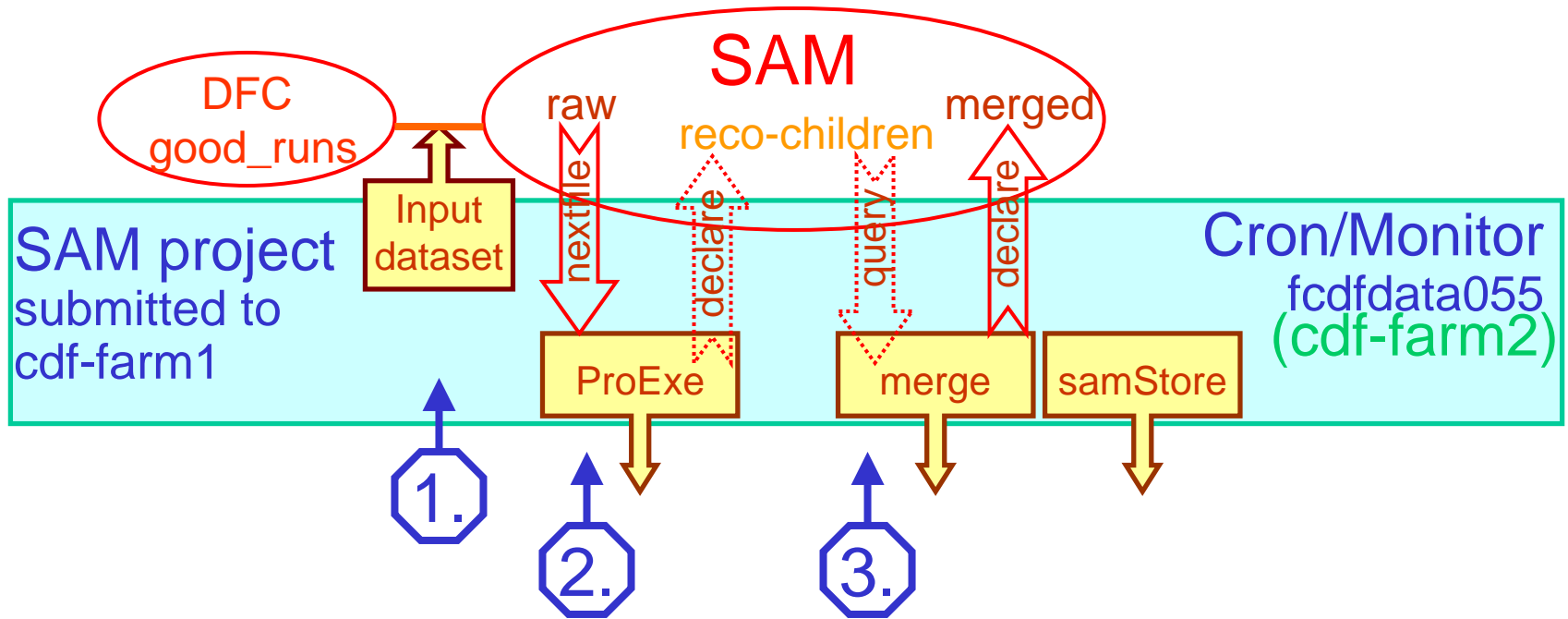
Integrity check :

- Production is in parallel with old FBS farm
- Scanning on event-by-event consistency

Pilot SAM-farm : Operation

Cron jobs running on fcdldata055 (cdf-farm2)

1. Check online DB, make same SAM input data sets
2. Submit SAM projects to condor CAF
3. Merge output files and samStore



Pilot SAM-farm : Monitoring

Cron jobs making webpage contents on fcdpdata055

<http://fcdpdata055.fnal.gov/~cdfprd>

CDF data production

Monitoring SAM projects

Alarm

Red-Band?!

SAM Deployment Plans

[SAM farm project](#) [TaskLog](#)

cdfrpd disks

```

cdfrpd disks
fcdflnx3 quota 8139024 /525000000
fcdflnx3 933G 600G 333G 65% /cdf/opr
fcdflnx3 2.0T 1.4T 665G 67% /cdf/opr2
fcdpdata057 2.0T 1.5T 827G 74% /export
fcdpdata055 1.8T 830G 1002G 46% /export
                    
```

Disk-capacity OK
21 Feb 2005 Mon 19:40:08

Monitoring SAM projects

[Samgalia](#)
[SamTV](#)
check for contents and progress

SAM at a Glance
SAM Diagnostics
[cdf-farm1](#)
[cdf-sam](#)
[cdf-telran](#)
check for live projects (green bulb)

Dataset Editor
enter eg.
Dataset name : %gphysr%
Username : tsan

Enstore Server status
see rolling tapes

[Online Diskspace](#)

SAM projects by cdfprd on all CDF sam-stations (Chicago local time)

50 processes / 5 projects

181 files / 5 projects

[caption](#)

CDF dataset list

Datasets @Work [Q&A](#)

New data since 20041207, run 190697
COT dsp since 20050208, run 193458

BeamExe5.3.1 (run190697-193398)
BeamExe5.3.1dsp [Q&A](#)
gphysr → 01

[Implementing CalibExe 610](#)

ProductionExe5.3.1 [Q&A](#)
aphysr → 0b
gphysr → 0b

ProductionExe-test
dphysr → 0e

FNCDF Condor CAF, Chicago local time

System Info

All waiting sections

Alarm
CAF waiting?!

fcdpdata057 cdf-farm1 station

fcdpdata057.fnal.gov Load last day

fcdpdata057.fnal.gov Network last day

Pilot SAM-farm : Book keeping

Cron jobs checking online, SAM control meta-data

No. of files/events traced :

1. Online run-summary
2. Delivery and consumption
3. Output to samStore

Last updated: 02/21/2005 05:32:26

Number of files processed, past 24 hours = 0

Number of files processed, past 7 days = 20

Number of files produced, all in list = 441

run number	creation time	summary events	pass	SAM dataset id	dataset creation time	No.Files processed / total	No.Events processed / stream	crash (trigger, event, raw data)	samStore
193106	2005/02/05 12:14:27	335911	17A	ProductionExe_0b_aphysr_193105_193164	2005/02/04 08:10:39	1(1) / 1	5236(5236) / 5236		0
193105	2005/02/05 12:14:27	1561921	17A	ProductionExe_0b_aphysr_193105_193164	2005/02/04 08:10:39	6(6) / 6	29644 (29644) / 29388		0
193104	2005/02/05 12:14:27	414527	17A	ProductionExe_0b_aphysr_193051_193104	2005/02/03 03:10:33	2(2) / 2	6356(5688) / 6356		0
193067	2005/02/04 09:10:39	85059	17A	ProductionExe_0b_aphysr_193051_193104	2005/02/03 03:10:33	1(1) / 1	1(0) / 880	(200, 1, ar02f22b.0001phys) (522, 1, ar02f22b.0001phys) (532, 1, ar02f22b.0001phys) (612, 1, ar02f22b.0001phys)	0
193064	2005/02/04 09:10:39	23159	17A	ProductionExe_0b_aphysr_193051_193104	2005/02/03 03:10:33	1(1) / 1	1(0) / 309	(56, 1, ar02f228.0001phys) (79, 1, ar02f228.0001phys) (258, 1, ar02f228.0001phys) (275, 1, ar02f228.0001phys)	0
193061	2005/02/03 16:12:10	380575	17A	ProductionExe_0b_aphysr_193051_193104	2005/02/03 03:10:33	1(1) / 1	3577(3577) / 3577		0
193051	2005/02/03 16:12:10	4998983	17A	ProductionExe_0b_aphysr_193051_193104	2005/02/03 03:10:33	13(13) / 13	67648 (65571) / 67648		5
193049	2005/02/03 16:12:10	18345	17A	ProductionExe_0b_aphysr_193031_193049	2005/02/01 21:10:33	1(1) / 1	273(273) / 273		1
193032	2005/02/02 09:10:28	3772827	17A	ProductionExe_0b_aphysr_193031_193049	2005/02/01 21:10:33	7(7) / 7	38956 (38956) / 38933		7
193031	2005/02/01 10:12:53	2646101	17A	ProductionExe_0b_aphysr_193031_193049	2005/02/01 21:10:33	8(8) / 8	42142 (40591) / 42142		8

Pilot production : Statistics and problems occurred

~3 months in operation

- **Beamline Calibration** : ~3600 files consumed
- **Production** : Stream-A ~600 files, Stream-G ~2000 files
- Easy recovery has been tested many time

Problems encountered

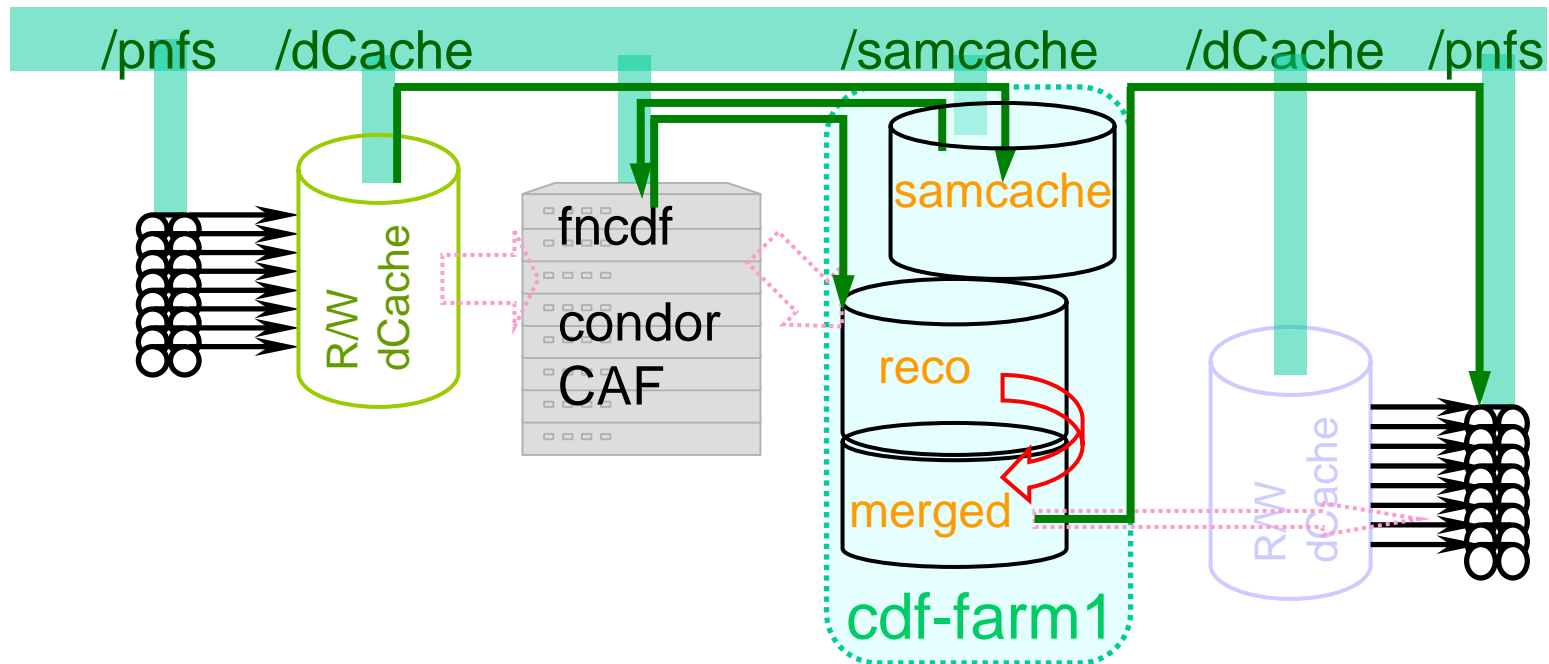
- **dcache interruption** : no impact to SAM-farm
- **network copy protocol** : configure sam-station to dcache input, encp output (2 times)
- **crc corrupted output files** : no solution yet (3 files)

Upgrade and scaling issues

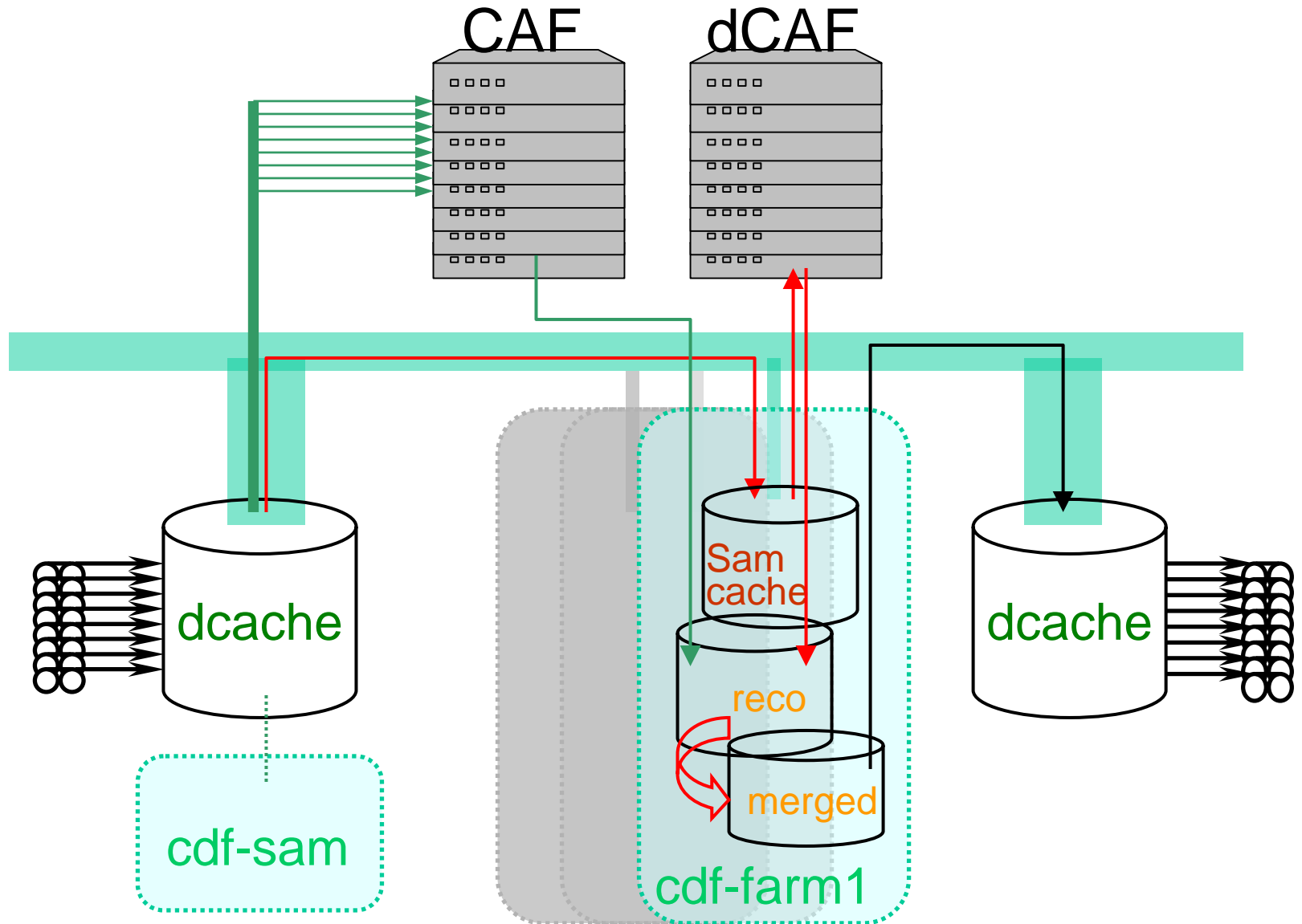
Condor CAF : 40 new worker nodes added(300GHz)

Replicate sam-stations :

- Pilot farm is IO limited : **single-port** on fcd fata057 for samcache and samStore
- Upgrade to 4 stations, >500 GB throughput /station/day



Hardware upgrade options



Summary

Pilot SAM-farm

- **Project began in Fall 2004**
- **In production mode Dec 2004**
- **Present status : burn-in and debug**

Migration and upgrade

- **Condor CAF is upgraded to 400 GHz (~1TB/day capacity)**
- **SAM-station upgrade in plan (present ~.5TB/day capacity)**
- **Integrity check on going**

