

CDF@CNAF (Tier1)

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Outline:

- Tasks and Goals
- CAF@CNAF
- The analysis (physics)
- Resources Needed

Tasks and Goals

- Goal: Transferring most of analysis performed in Italy from FNAL to CNAF

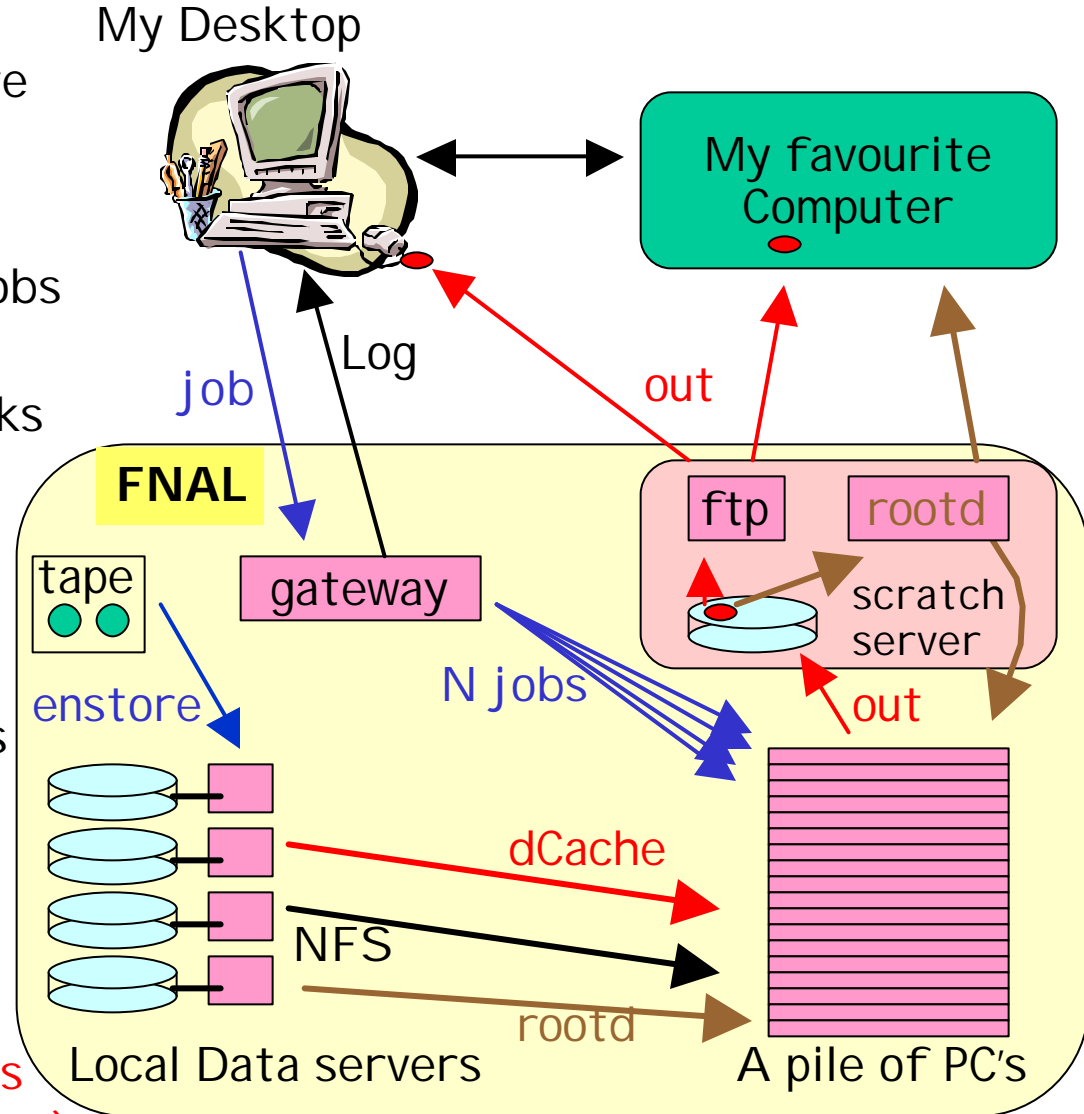


from last year Stefano talk

- Start with one real physics analysis in Italy. Debug(2003)
- Task Management CDF Italy-CNAF (e.g. which users enable, scheduling priorities, schedule analysis to perform)
- Expand to more hardware and data analysis. (2004)
- Export in Italy (2005?)

CDF Central Analysis Farm

- Compile/link/debug everywhere
- Submit from everywhere
- Execute @ FNAL
 - Submission of N parallel jobs with single command
 - Access data from CAF disks
 - Access tape data via transparent cache
- Get job output everywhere
- Store small output on local scratch area for later analysis
- Access to scratch area from everywhere
- **IT WORKS NOW**
- **Remote cloning: DONE! works now at **Tier1** (and other 5 places)**



CAF@CNAF

- 30 days of work in Jan/Feb (Rosso, Sidoti, Belforte)
- 3 2x2GHz machines (vs. 5 promised last year):
 - 2 WorkerNodes + 1 HeadNode (batch manager)
- DiskServer 1TB (OK)
- Administration work completed:
 - System: RH, disk partitions, users (cdfcaf, cafuser, cafmon, cdfdata)
 - Kerberos (use FNAL.GOV KDC), Fbsng
 - CAF software (several FNAL-specificness fixed)
- Not installed yet
 - Monitor (esp. for batch system)
 - User's disk space for temp. storage (need more disk)
- CAF@CNAF is working!(Thanks to Felice)

Monitoring via FBSNG: job details

CAF@TIER1



FBSNG on the web

Farm: CDF CAF at CNAF
Time: Tue Feb 11 13:01:16 2003
Report: Section **50.sidoti_90** status

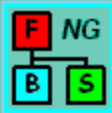
- [Queues](#)
- [Jobs](#)
- [Nodes](#)
- [Process](#)
- [Types](#)
- [Graphs](#)

ID: 50.sidoti_90 User: cdfcaf
Queue: sidoti Process Type: short
NProc: 1 Status: **running**
Need: 0 Depends:
Submitted: 02/11 10:27:54 Started: 02/11 12:09:02
Real time limit: 4h00m
CPU time limit: 2h00m
Proc Rsrc: cpu:100 disk:15 Sect Rsrc:
Command: /fbsng/caflocal/v3.01/CafExe cdfcaf@wn-04-26-a.cr.cnaf.infn.it:/home/cdfcaf/CafSetup/cafin/sidoti_%.tgz sidoti@cdfsgi2.fn.
Other sections: [sidoti_80 \(done\)](#) [sidoti_81 \(done\)](#) [sidoti_82 \(done\)](#) [sidoti_83 \(done\)](#) [sidoti_84 \(done\)](#) [sidoti_85 \(done\)](#) [sidoti_86 \(done\)](#) [sidoti_87 \(done\)](#)

Processes

Process #	Node	Status	CPU Time	PID	
1	wn-04-27-a	running	38m14s	22972	CafExe cdfcaf@wn-04-26-a.cr.cnaf.infn.it:/home/cdfcaf/CafSetup/cafin/sidoti_%.tgz sidoti@cdfsgi2.fn.
			38m09s	23090	ele_cent_CNAF.sh 90
			38m09s	23317	PITopFind2 ele_cent.tcl

Monitoring via FBSNG: queues and nodes

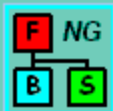


FBSNG on the web

Farm: CDF CAF at CNAF
Time: Tue Feb 11 13:00:05 2003
Report: List of queues

Queues	Name	Status	Default Process Type	Share	Prio	Waiting	Ready	Running	Total
Jobs	belforte	OK	short	1.00	0	0	0	0	0
Nodes	msn	OK	short	1.00	0	0	0	0	0
Process Types	sidoti	OK	short	1.00	0	1	6	4	22
Graphs									

CAF@TIER1



FBSNG on the web

Farm: CDF CAF at CNAF
Time: Tue Feb 11 12:56:58 2003
Report: List of farm nodes

Queues	Node name	Class	Status	Processes
Jobs	wn-04-26-a	mailer	OK	
Nodes	wn-04-27-a	worker	OK	50.sidoti 90.1 50.sidoti 93.1
Process Types	wn-04-28-a	worker	OK	50.sidoti 92.1 50.sidoti 94.1
Graphs				

Snapshot of Monitoring

Netscape: FBSWWW - nodes @ CDF CAF at CNAF

Location: <http://cdfhead1.cnaf.infn.it:8080/fbswww?action=listNodes>

FBSNG on the web

Farm: CDF CAF at CNAF
Time: Tue Feb 11 14:29:14 2003
Report: List of farm nodes

QUEUE	Node name	Class	Status
Jobs	wn-04-26-a	mailer	OK
Nodes	wn-04-27-a	worker	OK
Process Types	wn-04-28-a	worker	OK

100% Document Done

CAF1@FNAL

Netscape: CAF User Monitor

Location: <http://cdfcaf.fnal.gov/cgi-bin/caf/users/monitor>

CAF User Monitoring

Global Status

Starting date:
Ending date:

Active Queues

All Queues

Current Status:

- Queues
- Jobs
- Nodes
- Process times

Active queues in the last 24 hours

Percentage of used CPUs

Legend: rakette, azz1, gto10, leonardo, cmu, test, nagora, sluca, istivalese, reid, ylk, ekaya, castre, fernand, fernandj, tob, yilet, italy, ashwansk, campanel, ceballos, maruyama, lucchest, vivek, matthias, peas, daranco

Updated: Feb 11 07:30:38 2003

Built using RRDTool

CAF@TIER1

Installation and Set Up

- CDF software (and batch system) installed on AFS
- AFS goes down, the farm stops.
 - local install possible if needed, hope not
- Users compile their code at home
- Authentication using kerberos (FNAL.GOV realm)
- Users added to farm as queues, no sys.man.

Intervention necessary, no passwords

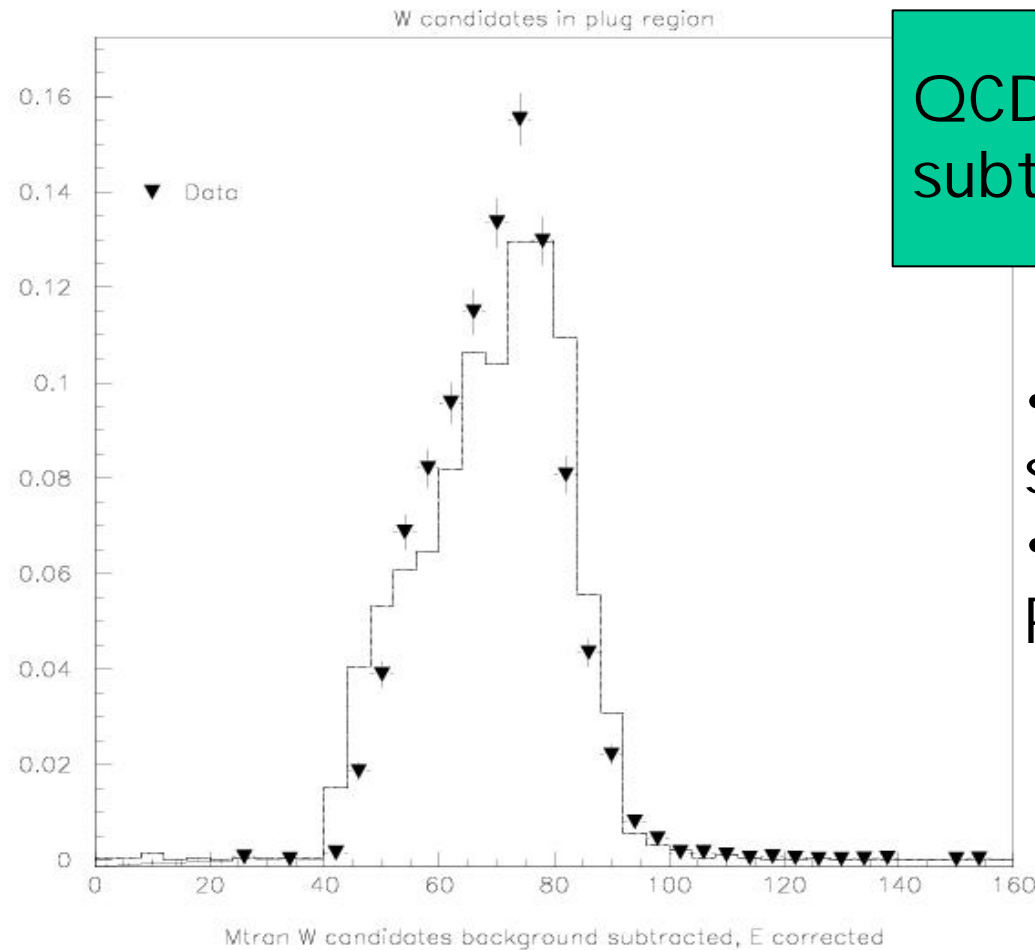
- Security of headnode still less than FNAL requires
 - should at least try to fully kerberise it
 - keytab files on headnode permit access to FNAL machines → security critical machine
- -> Adding worker nodes should be easy, need to try

From prototype to “real” work: Physics Analysis

- $W \rightarrow e \nu$ at high pseudo-rapidity
- “Natural” follow-up of work on I SL construction and commissioning
- The whole group (~4 people) in Pisa
- Datasets relatively “small”
- Can have physical results NOW!
- “PR” Plots (March)
- $\sigma \times BR$ (April-May)
- W Asymmetry (Summer)

Transverse Mass $W \rightarrow e \nu$ ($1.1 < |\eta| < 2.8$)

2002/12/12 13.46



QCD background
subtracted

- No $Z \rightarrow ee, W \rightarrow \tau \nu$ subtraction
- NO improved Plug EM corr.

Resource estimate

- **Data** until January TeV shutdown ($\sim 80 \text{ pb}^{-1}$):
 - Central electrons ($\sim 420 \text{ GB}$)
 - Plug electrons ($\sim 660 \text{ GB}$) (will be reduced with quality selection)
 - \rightarrow expect $O(700 \text{ GB}) + \text{Output}$

• CPU

- approx $1 \text{ h} \times 1 \text{ GHz} / \text{GB}$ (1 GB typical filesize)
- Present System: $\sim 1 \text{ pass/user/week}$ (**Not great**)
- 5 worker nodes: $\sim 1 \text{ pass/user/day}$ (**OK!**)
 - Starts being appealing with respect to FNAL ($\sim 300 \text{ nodes}$ vs $\sim 100 \text{ s aggressive users!}$)
- MC needed to test different PDFs (for W asymmetry) \rightarrow summer

Importing Data

- Crucial aspect. Only real disadvantage *wrt* to CAF@FNAL
- For the moment used parallel ftp or rcp to copy data from FNAL.

- Populating CAF@CNAF (poor performance so far 4 MB/s, probably limited by server at FNAL)
- Still investigating...

Conclusions

- Perform a physics analysis using CAF@CNAF is possible.

- Need more CPU (3 more nodes) to make jobs run faster in Italy than at FNAL. Help us preserve the enthusiasm in this project !

- Disk space for coming luminosity (x3 by summer):

- Expect to use compressed data format

- Another TB this summer probably useful

- Would like to expand to other analysis groups after summer

- Optimistic scenario: in 2004 buy hw at Tier1 not FNAL

- plan in June, write in July, discuss in September

Slide Lasciata vuota