SAMGrid and D-Zero developments

GridPP9 Edinburgh
4-5 Feb 2004

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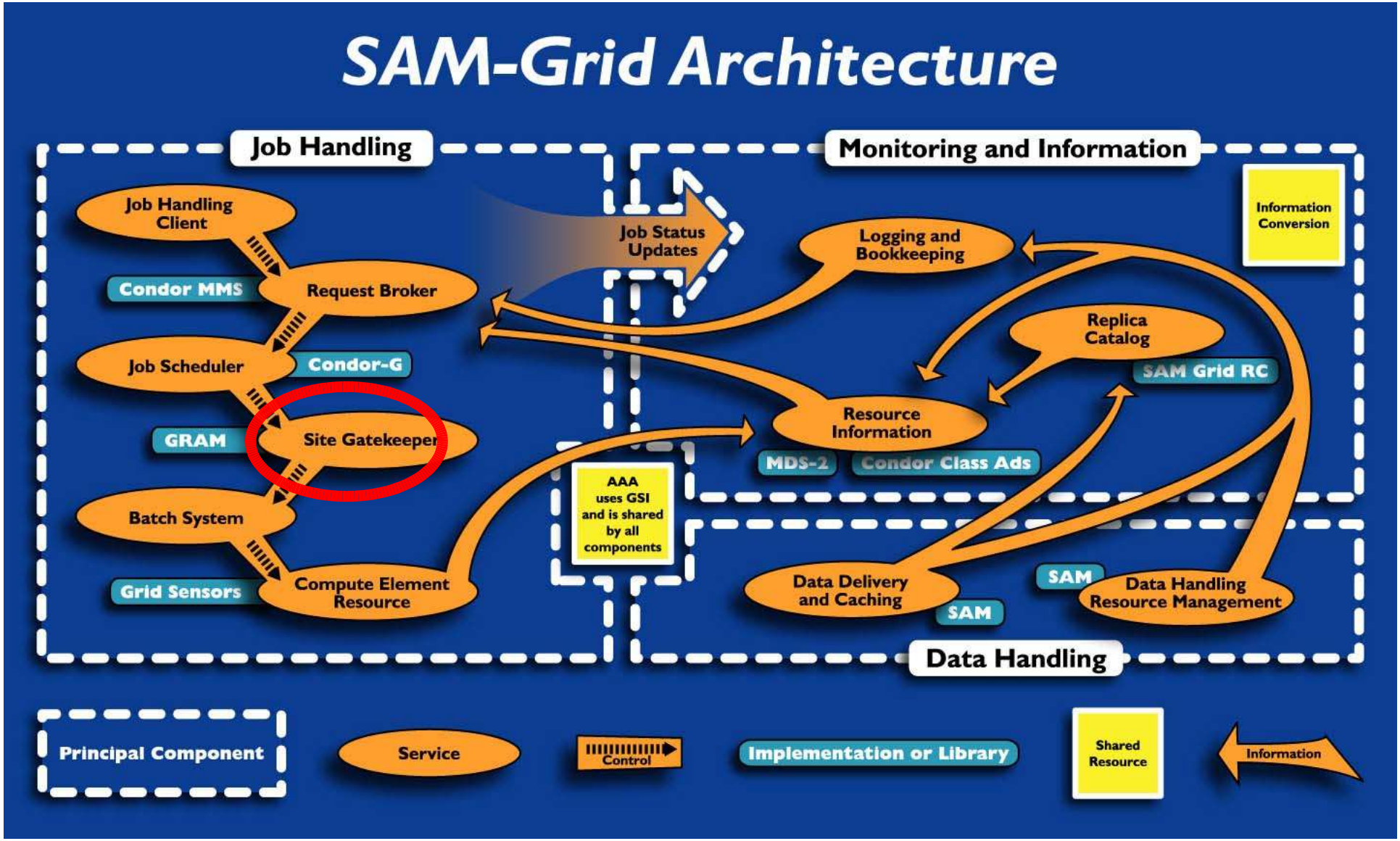
SAMGrid

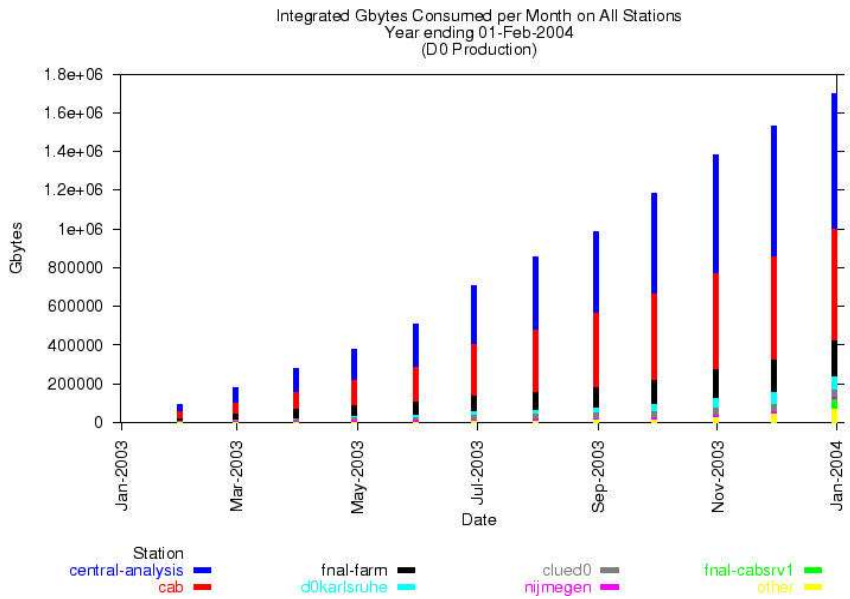
- SAM - Data Handling system used at D-Zero for last seven years
- JIM–Job and Information Management
- JIM packages submit and monitor
- SAM DataGrid + JIM -> SAMGrid computational grid
- www-d0.fnal.gov/computing/grid/



UPD install 1 afternoon (with experts on hand)

XMLDB storage of configuration

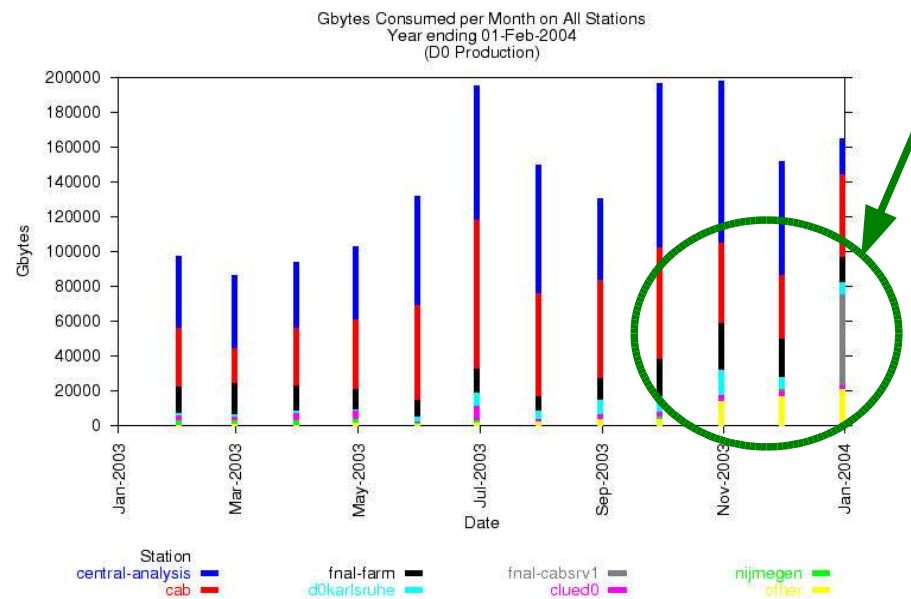
http://d0db.fnal.gov/sam/plots-and-stats.html



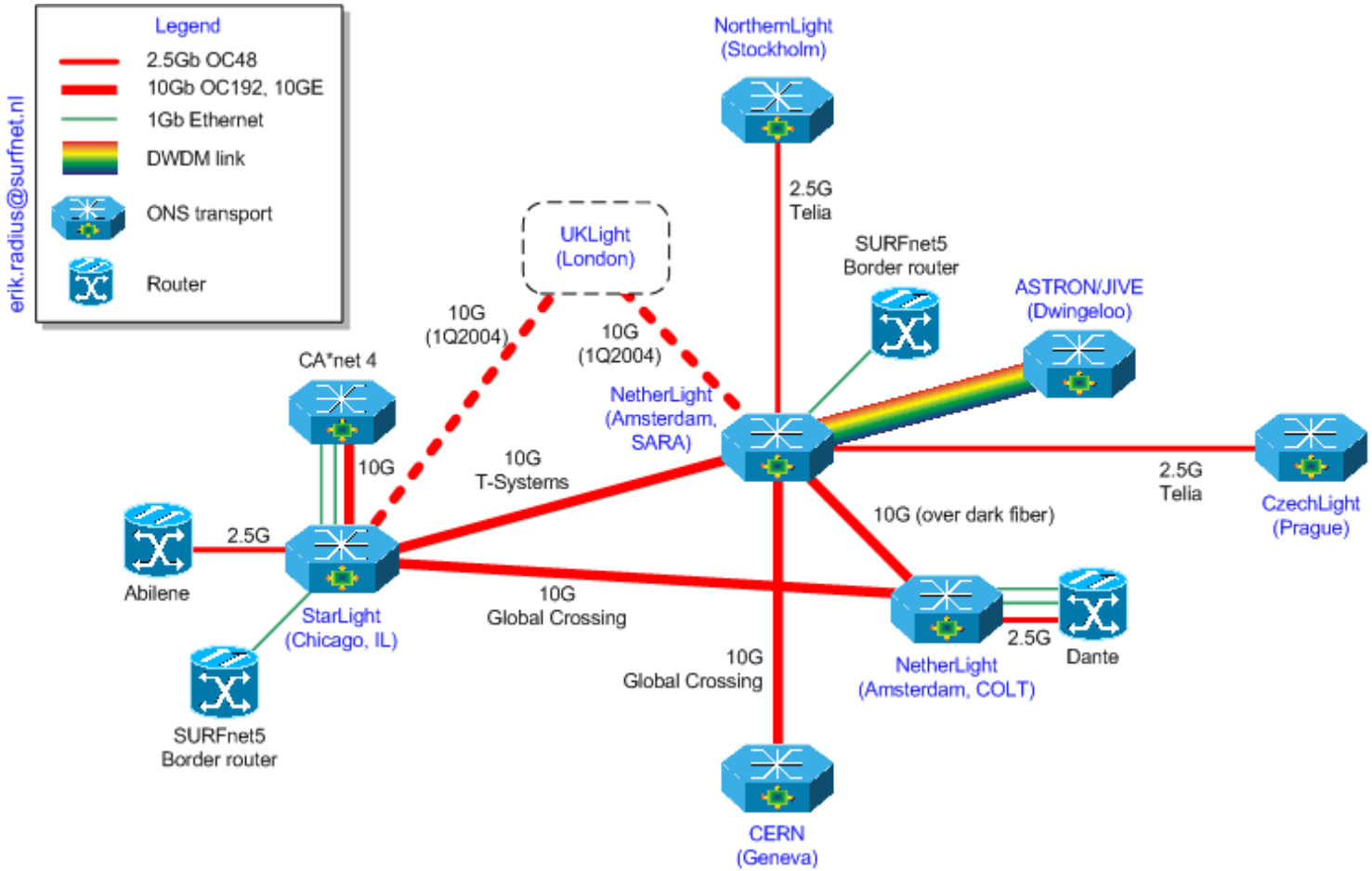
1.8 Pb for 2003

Reprocessing

200 Tb peak months



UKLight - 10Gbit/s



Monitoring

- Job status via JIM
  - pending, idle, running etc
- Runtime tools
  - task info published to XMLDB
  - specific executable info, num events processed etc.
- Output retrieval via web and SAM

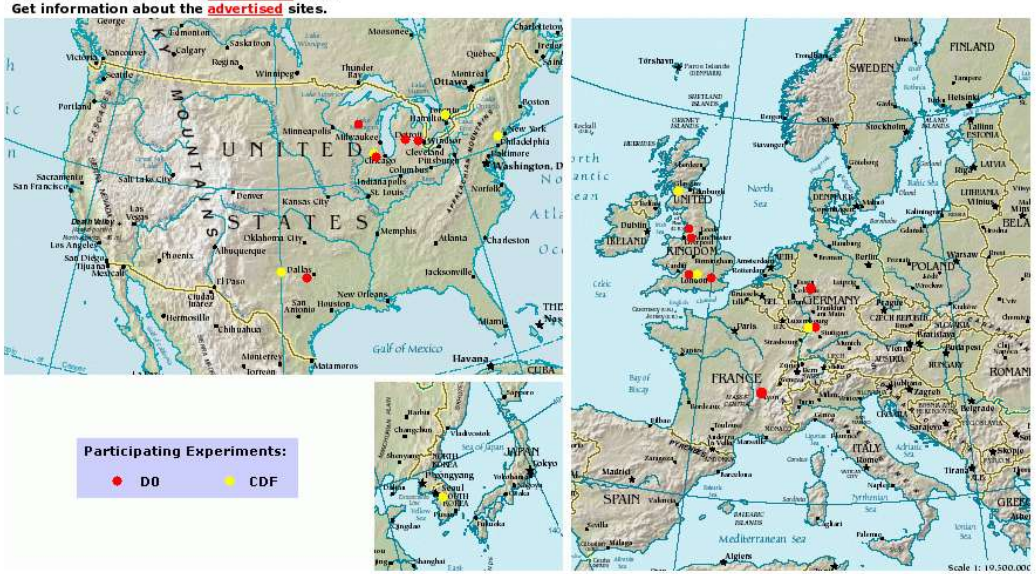
http://samgrid.fnal.gov:8080/

File Edit View Terminal Go Help

```
executable = /home/farm/projects/mystuff/Req2Mac.macro
job_type = mc_runjob
runjob_requestid = 7658
runjob_numevts = 1
sam_experiment = d0
sam_universe = prd
log = mctest.log
group = grid
instances = 1
```

Launching the Monitoring System:

Please click at the map to monitor the execution sites.
Get information about the submission sites
Get information about the advertised sites.



SAM Grid List of Resources

Station Name	Type	Site	Universe
d0karlsruhe	SamAnalysis	GridKa	d0
d0rutherford	Monte Carlo	RALd0	d0
d0rutherford	SamAnalysis	RALd0	d0
lancs	Monte Carlo	LANCS	d0
lancs	SamAnalysis	LANCS	d0
imperial-test	Monte Carlo	imperial	d0
imperial-test	SamAnalysis	imperial	
d0-wisconsin	SamAnalysis	Wisconsin	
cdf-scotgrid-2	SamAnalysis	scotgrid-glw	
manhep	Monte Carlo	manchester	
manhep	SamAnalysis	manchester	
wuppertal	SamAnalysis	wuppertal	

Please try clearing your browser cache and reloading the page if the information does not seem current.

SAM Grid Projects at a Submission Site

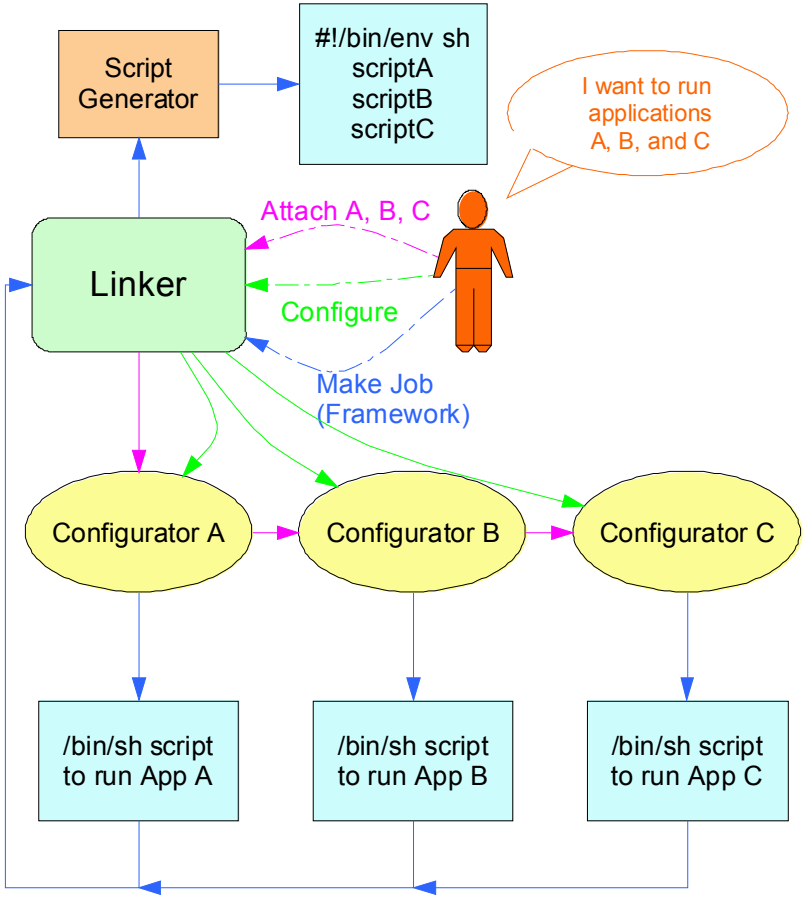
Projects submitted from fal000phys03.lancs.ac.uk

For projects that have been matched with a resource, information becomes available about the execution site, the station and the project's process/consumer details.

Global Job ID	Owner	Status	Type	Execution Site	Station	Universe
farm_fal000phys03.lancs.ac.uk_111545_23540_0	farm	Removed	sam_analysis			
farm_fal000phys03.lancs.ac.uk_124433_20707_0 (BS)	farm	Held	mc_runjob			
farm_fal000phys03.lancs.ac.uk_120624_13491_0 (BS)	Peter_Love	Idle	mc_runjob			
farm_fal000phys03.lancs.ac.uk_121009_13764_0 (BS)	Peter_Love	Idle	mc_runjob			
farm_fal000phys03.lancs.ac.uk_121908_14772_0 (BS)	Peter_Love	Idle	mc_runjob	RALd0	d0rutherford	prd
farm_fal000phys03.lancs.ac.uk_192058_18467_0 (BS)	Peter_Love	Idle	mc_runjob			

Please try clearing your browser cache and reloading the page if the information does not seem current.

mc_runjob


Script Generator
#!/bin/env sh
scriptA
scriptB
scriptC
I want to run applications A, B, and C
Attach A, B, C
Linker
Configure
Make Job (Framework)
Configurator A
Configurator B
Configurator C
/bin/sh script to run App A
/bin/sh script to run App B
/bin/sh script to run App C

mc_runjob developments v06

- New runtime tools
  - threaded execution and monitoring
  - task health monitoring
  - runtime metadata completion
- New configuration system
  - rc-style system and user settings
- Continued support of user needs

Current MC Production

- Via global request system
  - Farmers chose and run a request
  - Request defines mc_runjob macro
  - Results stored into SAM, request marked finished
- One farmer per farm, inefficient

SAMGrid MC Production hurdles

- Tested at Wisconsin, Manchester, Lyon
- Using request system and jobmanager-runjob, specify ReqID, NumEvents
- MinBias and Dzero software installation, now retrieved via SAM
- Need mc_runjob fixes to handle all MC production requests – fault tolerence
- Temp storage in SAM, merging

File Edit View Go Bookmarks Tools Window Help

http://samgrid.fnal.gov:8080/resource_details.php?station=lancs&jobmanager=jobmanager-runjob&jimEnv=

Home | Bookmarks | box | doss | fnal | grid | lancs | lang | linux | lists | news | readme | rec | shop | utils | delme | mc_runjob

SAM Grid Resource Classads

Attribute	value
MyType	"Machine"
TargetType	"Job"
Requirements	TRUE
gatekeeper_url_	"fal000phys03.lancs.ac.uk:2119/jobmanager-runjob"
sam_nameservice_	"IOR:000000000000002a49444c3a6f6f632e636f6d2f436f734e616d696e672f4f424e616d696e67436f6e74657874
Name	"lancs.d0.prd.jobmanager-runjob"
DbURL	"http://fal000phys03.lancs.ac.uk:7080/Xindice"
d0software_cardfiles_v00_02_07	"Installed"
d0software_cardfiles_v00_03_15	"Installed"
d0software_cardfiles_v00_04_06	"Installed"
d0software_cardfiles_v00_04_38	"Installed"
d0software_cardfiles_v00_04_29	"Installed"
d0software_cardfiles_v00_04_53	"Installed"
d0software_D0RunII_p14_03_00	"Installed"
d0software_cardfiles_v00_01_02	"Installed"
d0software_cardfiles_p09_02_00	"Installed"
station_name_	"lancs"
station_experiment_	"d0"
station_universe_	"prd"
jobmanager_name_	"jobmanager-runjob"
gatekeeper_location_	"fal000phys03.lancs.ac.uk:2119"
cluster_architecture_	"Linux+2.4"
cluster_name_	"SamGrid"
schema_version_	"1_0"
site_name	"LANCS"

advert not needed now – dynamic install

Done

First remote reprocessing

P14 Reprocessing Status as of 29-Jan-2004 (all sites)

Total Raw Events	524794747	
Processed Events	519112208	
Sites	fnal ccin2p3 gridka nikhef uk westgrid	

P14 Reprocessing Status as of 29-Jan-2004 (Remote sites only)

Processed Events	97295974	
Sites	fnal ccin2p3 gridka nikhef uk westgrid	

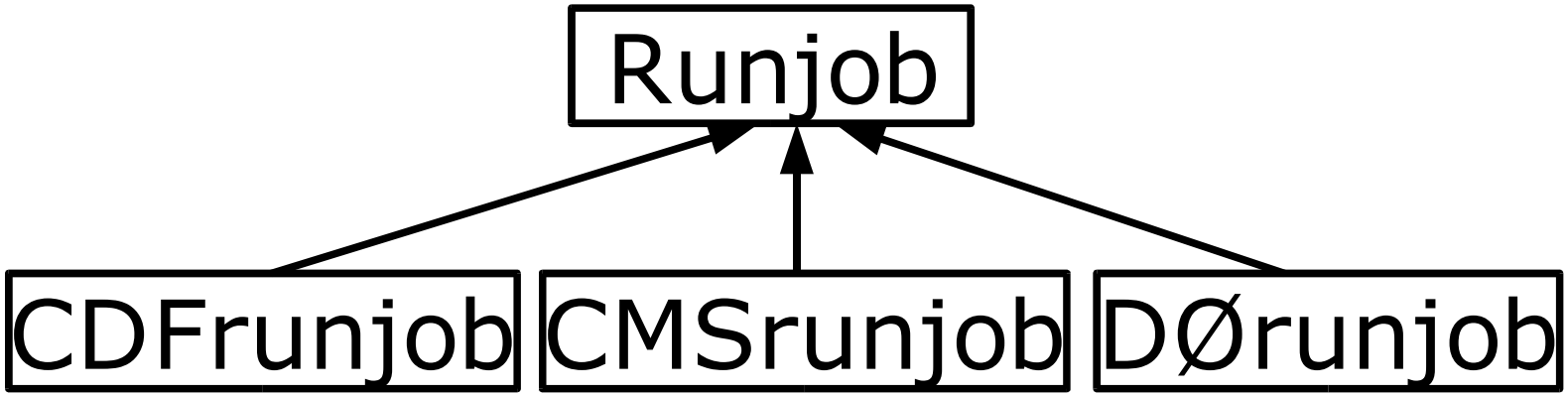
http://www-d0.fnal.gov/computing/reprocessing/

20% reprocessed off-site, of that ¼ in UK

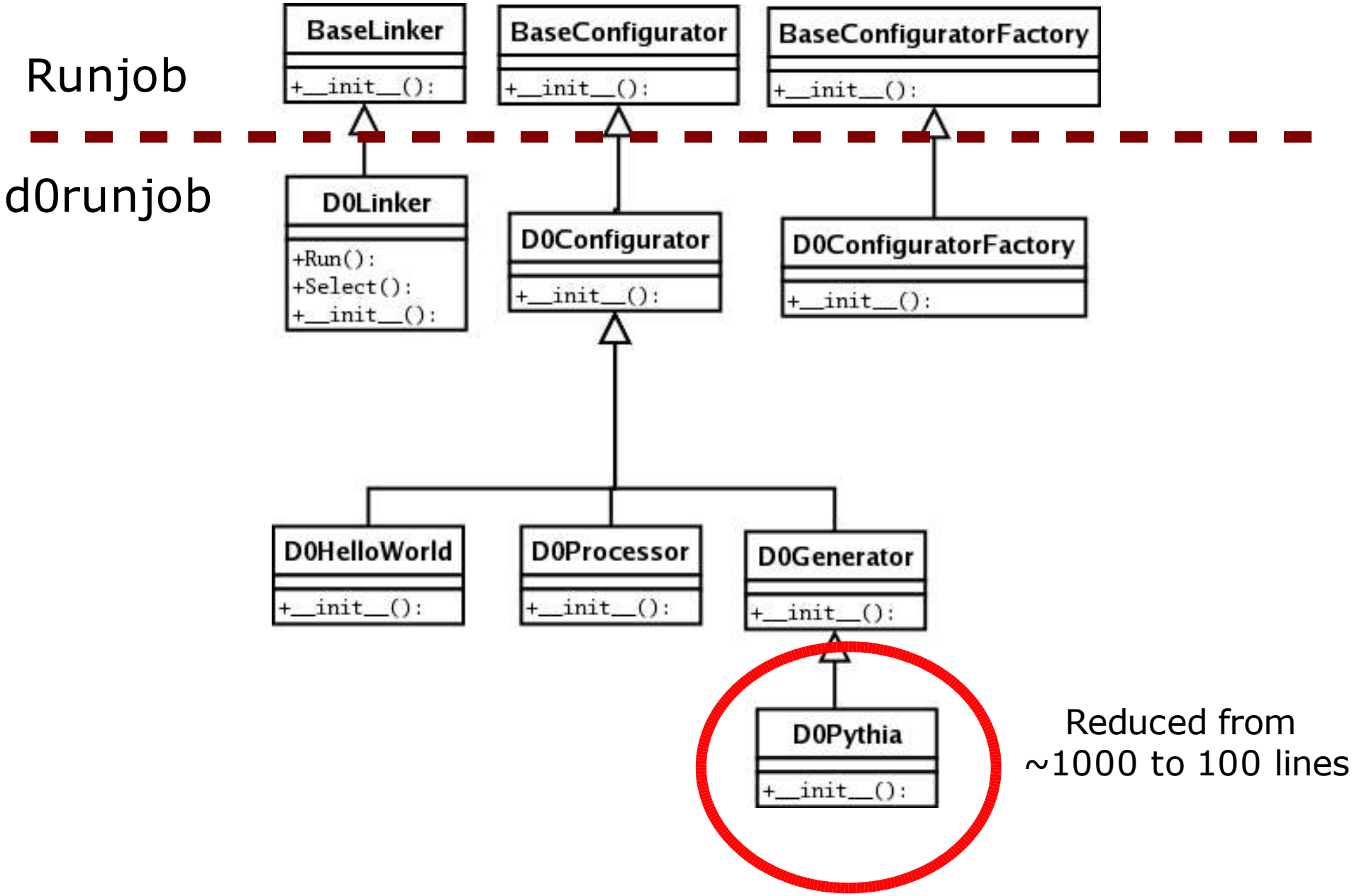
Nikhef *test-run* using LCG at Karlsruhe, RAL, etc.
Data Handling with SAMGrid,
JIM submit/monitoring not used, priority to get remote reprocessing functional

dØrunjob v07 – the re-write

- Joint FNAL-CD/CDF/CMS/DØ project
- Base classes from Runjob package



Example generator inheritance



D-Zero Status

- Remaining deliverables
  - 3.6.9 SAMGrid operating for expert users...done, March 1st deadline
  - 3.6.11 Robust system for all users Q4,2004
- Expert users will be running:
  - MC Production (in shifts)
  - Reprocessing
- General user wait for d0runjob v07