

# *BaBarGrid @ GridPP9*

Roger Barlow

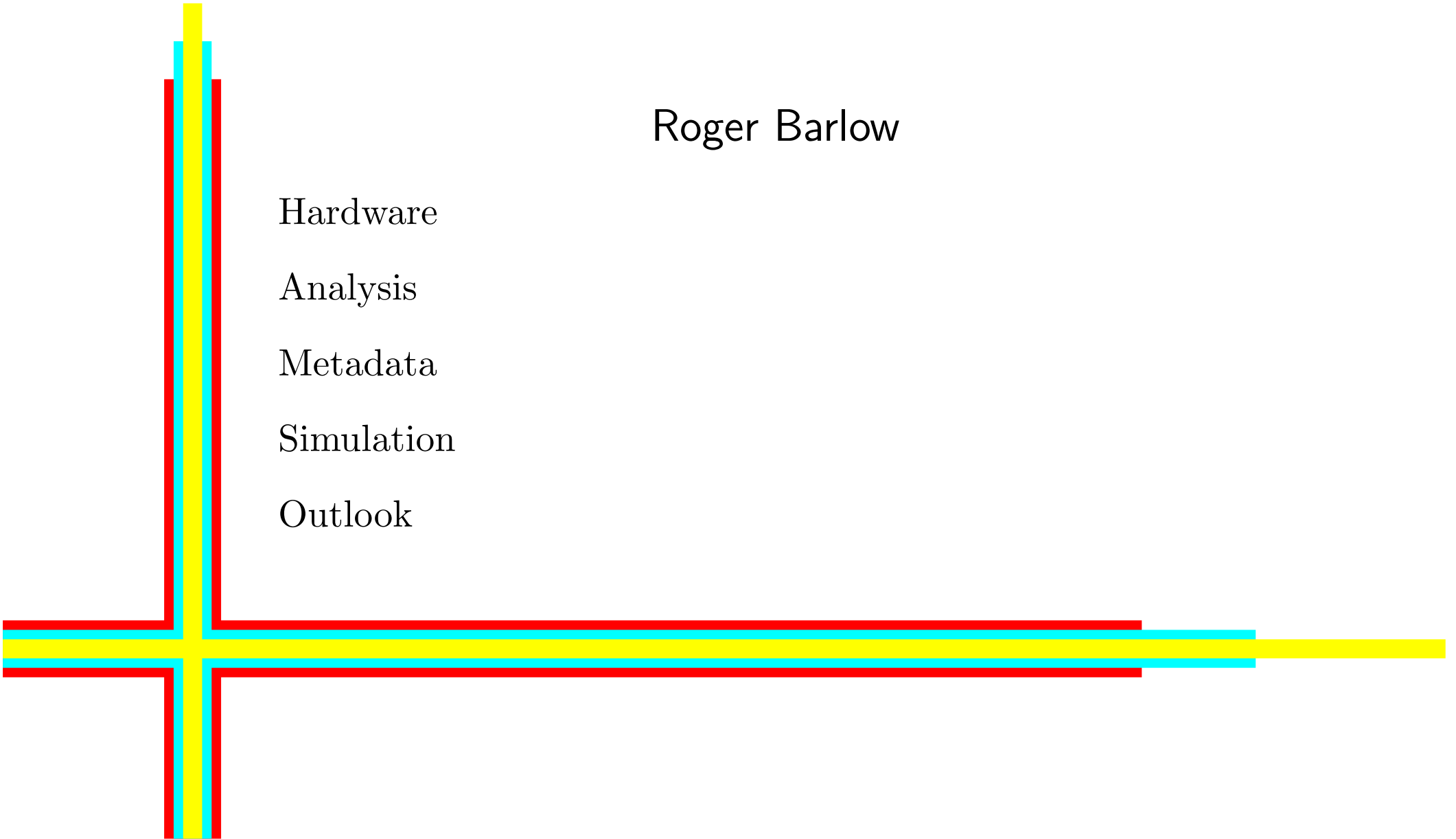
Hardware

Analysis

Metadata

Simulation

Outlook

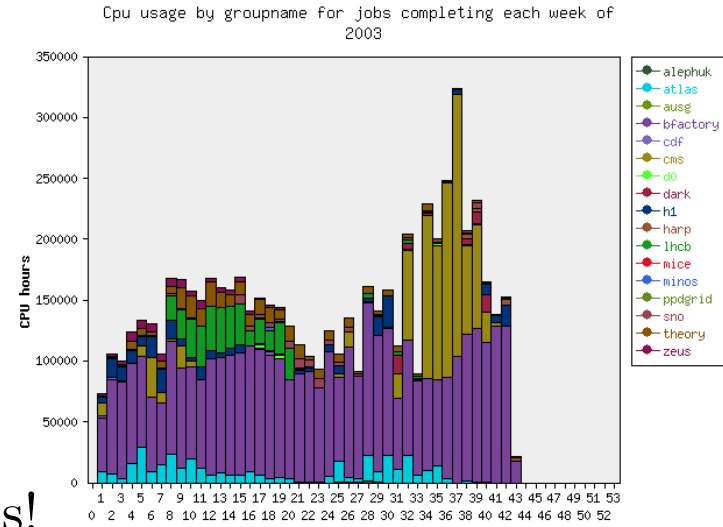


# Hardware

Tier A centre at RAL  
continues to thrive

Distributed computing works!

MOU plans for growth to continue



Year	2002	2003	2004	2005	2006	2007	2008
Disk(TB)	20	20	30	40	80	116	136
CPU	200	300	450	500	640	962	996

CPUs are at 30 Specint 95 = a 700 MHz CPU

# Other hardware

Farms at Birmingham, Bristol, Imperial, Liverpool, Manchester, QMUL, RHUL, also Brunel and Edinburgh

JREI - large ( $\frac{1}{2} \rightarrow 1Tb$ ) RAID disk + SUNs

JIF - 40 node (dual CPU) farms

+  $1Tb$  cheap disk servers

these are evolving into tier 2 centres

# Monitoring

Ganglia

being

increasingly

used



# Job Submission (Analysis)

Prototype `gsub` command enables user to submit generic babar analysis job across sites

- Babar VO and generic accounts in use - no need for userid
- afs (`gsiklog`) used for input and output sandboxes
- minimal requirements on host system (Compatible RH but not compiler, libraries, BaBar specific software environment)
- works as demonstrator Manchester to Manchester, RAL, Bristol

Goal: release for general use by grid-enabled Babarians

# New features

(Mike Jones)

Job monitoring

Site monitoring

Contact URL	Stages						Exit Status	Action
	Submitted	Confirmed	Started	Running	Finished			
https://bfh.hep.man.ac.uk:50380/13270/1075674659/	Sun Feb 1 22:30:47 2004	+14 s	+42 s	+43 s	+44 s	0	N/A	
Interactive	Sat Jan 31 17:41:18 2004	+2 s	+39 s	+41 s	+42 s	0	N/A	
https://bfh.hep.man.ac.uk:50370/12559/1075570408/	Sat Jan 31 17:33:21 2004	+9 s	+39 s				N/A	
https://bfh.hep.man.ac.uk:50353/8688/1075426185/	Fri Jan 30 01:29:39 2004	+12 s	+37 s				N/A	
https://bfh.hep.man.ac.uk:50335/17829/1075327079/	Wed Jan 28 21:57:47 2004	+14 s	+44 s				N/A	
https://bfh.hep.man.ac.uk:50326/24804/1075218592/	Tue Jan 27 15:49:45 2004	+9 s	+35 s				N/A	
https://bfh.hep.man.ac.uk:50323/19224/1075199907/	Tue Jan 27 10:38:20 2004	+9 s	+34 s				N/A	
https://bfh.hep.man.ac.uk:50320/17011/1075197113/	Tue Jan 27 09:51:46 2004	+9 s	+32 s				N/A	
https://bfh.hep.man.ac.uk:50319/21347/1075073/								
https://bfh.hep.man.ac.uk:50316/27305/1074994/								
https://bfh.hep.man.ac.uk:50316/24810/1074987/								
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https://bfh.hep.man.ac.uk:50286/9070/10748577/								

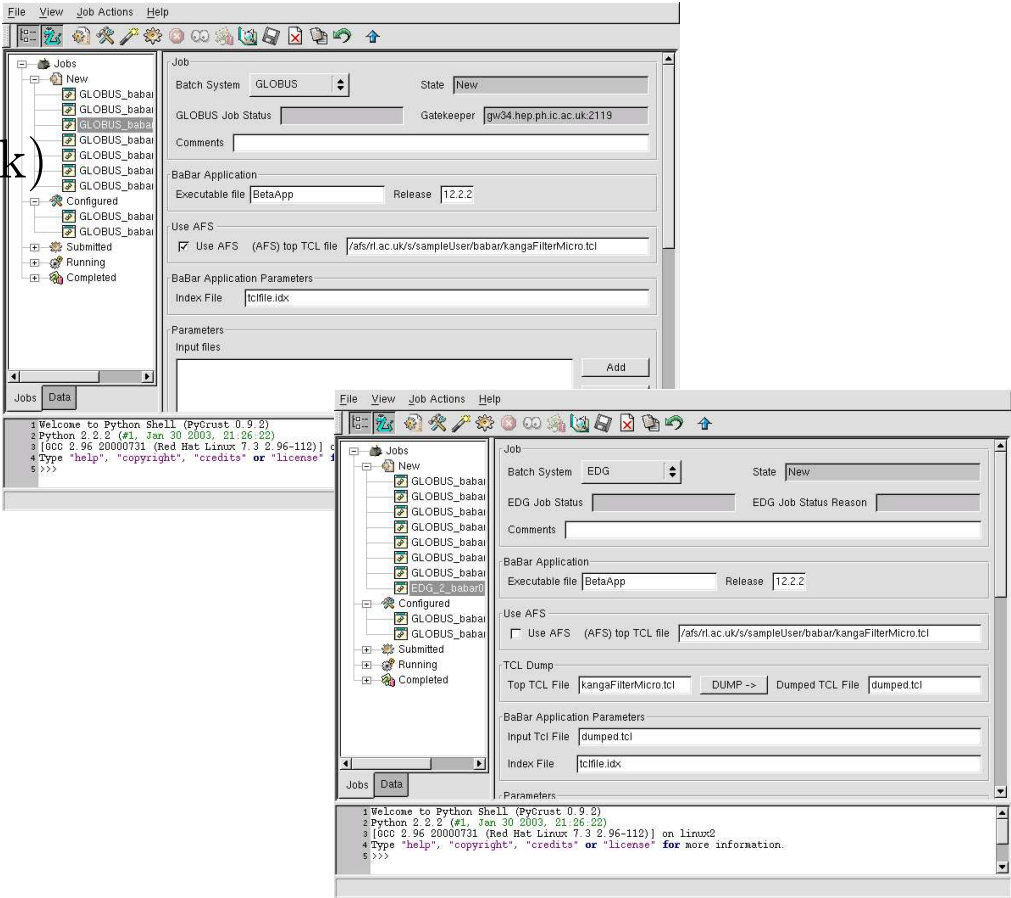
**Alibaba**

This is the Alibaba control and query script. It is designed for authenticated gsub commands, or human readable site status. To see the status of a site click on the map or submit the form below.

Tests built upon "Grid Resource Interoperability Tests" are run frequently on known gatekeepers in the UK Babar Grid. The most recent results can be found here [BFtests.html](#).

# Ganga interface

(Janusz Martyniak)



# Fail to get running

Deliverable not delivered! Why?

- Persistent reliability problems (globus versions, CA changes, on top of usual difficulty of making experiment software work.)

Unusable by local babarians - not worth trying the wider community

- Not clever enough for software experts.

Does not use all the Grid features!

Input sandbox solution deemed 'too easy'

Irrational dislike of afs by SLAC computing people

Not in the spirit of EDG/LCG (not enough acronyms)

# Where next?

- Work on reliability
- Expand to run from more sites to more sites
- Establish system with clear, obvious advantages
- Build up core team of users
- Map out and make clear the upgrade path from afs to slashGrid

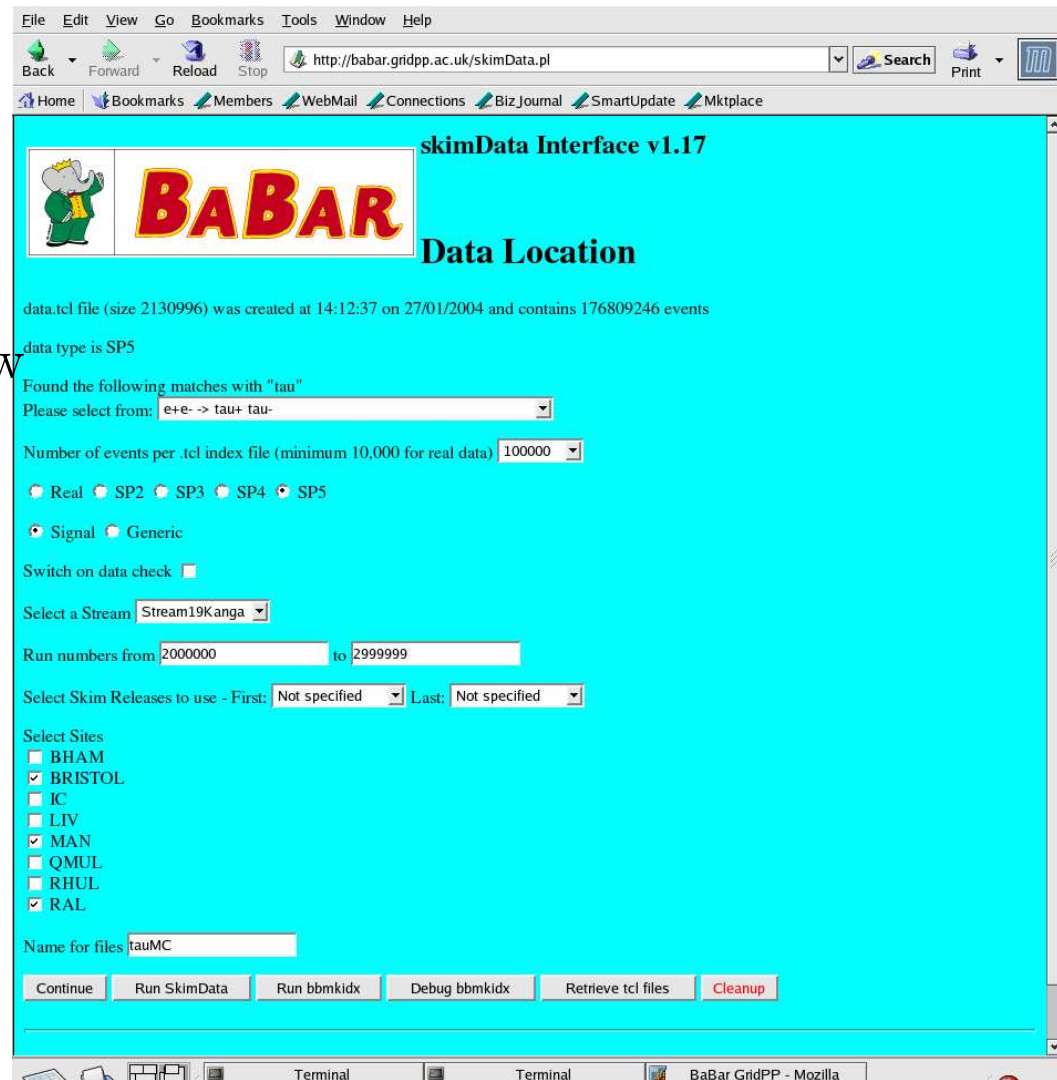
# metadata

BaBar (UK) sites know  
what data they have

(Alessandra Forti)

Table kept centrally

Can be queried



# Metadata and the 'New Bookkeeping System'

'New Computing Model' - CM2. Single data format, based on ROOT

'Runs don't mean anything.' What matters are collections

Collections contain various files. What files these are may be different

SLAC knows all about all collections

All Tier A centres copy this information from SLAC

Tier A centres know what they have - there is a local "I've got it" table

# Distributing the metadata

Who knows what other centres have?

How does a Tier 2/B (or 3/C) centre know where to send its jobs?

How does the resource broker (or whoever) know?

We are talking millions of files here.

Looks hopeless. People are giving up. But google can do it!

# Simulation production

UK has provided a lot of Monte Carlo data for BaBar  
(impressive slide promised by Fergus for here)

Other groups are now catching up

- we need to become more efficient

Aim: generate 20M events/week ( $\sim \frac{1}{3}$  of experiment)

using  $\sim 5$  full farms : 240 CPUs ( $\sim 480$  doing the other  $\frac{2}{3}$ )

and  $\sim 2$  people (probably  $\sim 12$  doing the other  $\frac{2}{3}$ )

# Productivity through Grid tools

Site monitoring (GANGLIA) (individual jobs will not be monitored)

Remote job submission (globus)

Jobs write back to one site (RAL) using globus-url-copy (files are  $\sim 20MB$  each)

Merged (dedicated machine at RAL) and sent to SLAC

Should start any day now.

# Bar UK SP6Grid

(Chris Brew)

Integrating grid tools into BaBar MC production tools: streamline MC generation

- Stage 1 - Walking:

- 1 Globus frontend to the existing software on the farms and globus tools available on the worker nodes
- 2 Use globus to submit jobs to sites on round-robin basis
- 3 Use GridFTP to return data to RAL for merging and forwarding to SLAC

- Stage 2 - Running:

- 1 Replace globus gateways with LCG access to current farms
- 2 Publish software availability and versions in Grid information system
- 3 Use LCG Resource Broking to direct jobs to farms

- Stage 3 - Flying:

- 1 Use SE system to return data to RAL for merging and to send it to SLAC
- 2 Instrument BaBar SP Code to publish status and progress to Grid Information System
- 3 Utilize non-BaBar resources by grid distribution of BaBar SP code.

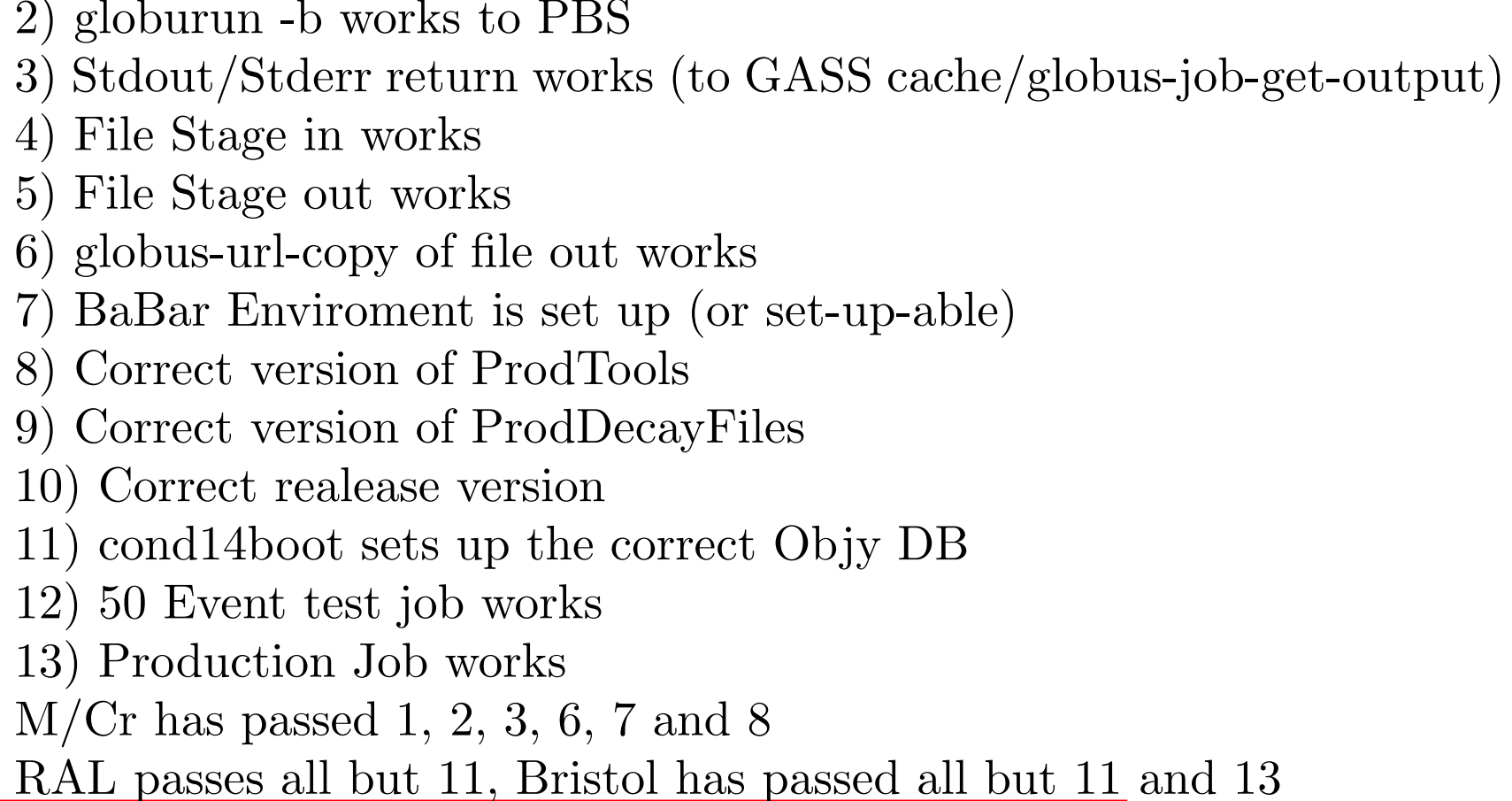
## present status

Globus pseudo-batch system implemented for BaBar MC production tools

Globus submission working at RAL and Bristol, testing starting at Manchester

Data return working from RAL, being debugged at Bristol

Round-Robin Pseudo RB code under development

- 
- 1) globus-job-run <ce> /bin/echo Hello World
  - 2) globurun -b works to PBS
  - 3) Stdout/Stderr return works (to GASS cache/globus-job-get-output)
  - 4) File Stage in works
  - 5) File Stage out works
  - 6) globus-url-copy of file out works
  - 7) BaBar Enviroment is set up (or set-up-able)
  - 8) Correct version of ProdTools
  - 9) Correct version of ProdDecayFiles
  - 10) Correct realease version
  - 11) cond14boot sets up the correct Objy DB
  - 12) 50 Event test job works
  - 13) Production Job works
- M/Cr has passed 1, 2, 3, 6, 7 and 8
- RAL passes all but 11, Bristol has passed all but 11 and 13

# Future Possibilities



Exploiting all the BaBar clusters

Exploiting non-BaBar computer clusters

Exploiting other architectures: validation

# People needed

- Replacment for Alessandra Forti + anotherpost
- Grid job submission for physics analysis (AliBaBa)
- metaData, and New Computing Model metadata
- Simulation production gridification
- Maintaining Babar software in a Grid (LCG) environment

# Babargrid thru GridPP2

Local farms will evolve to Tier 2 centres

Use of Grid tools for Monte Carlo - SP6 and beyond

Increasing Monitoring

Distributed Physics analysis

- evolving from present system

- or from new system

More reliability, more features, portal, glossy packaging all → wide use  
→ exploitation of Tier 2 centres by whole BaBar community