CDF Distributed Computing

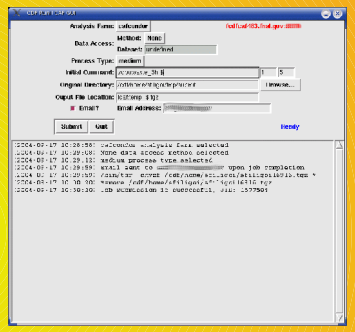
- Moving from dedicated resources to the Grid world
- Supporting existing applications
- Minimizing the impact on the users

CDF CAF model

Develop, debug AND submit from personal PC

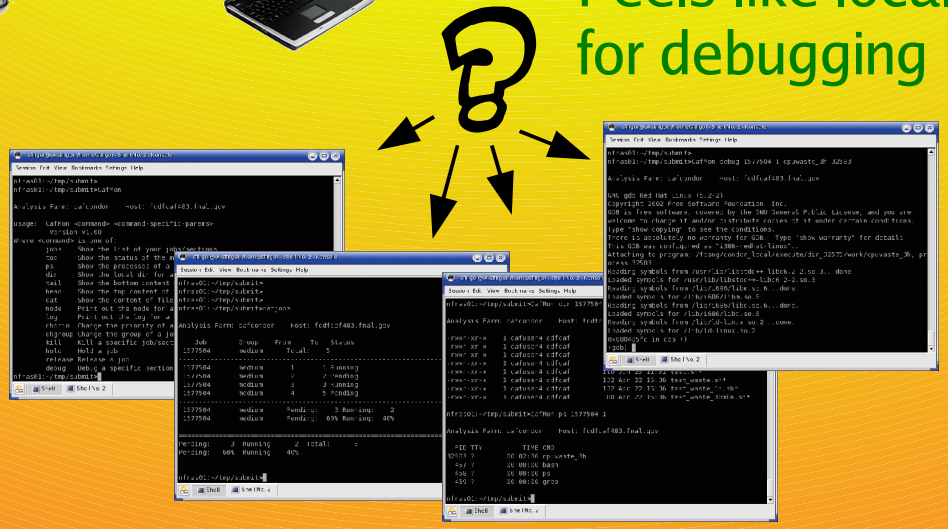
No need to stay connected

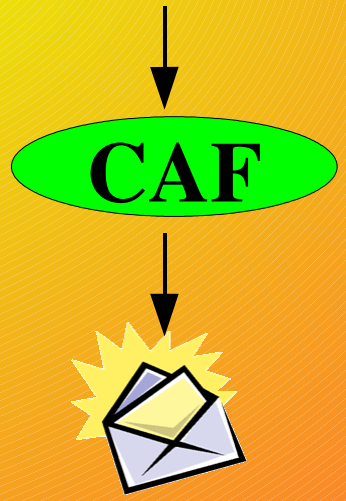
Submit and forget until receiving a mail



Output to any place

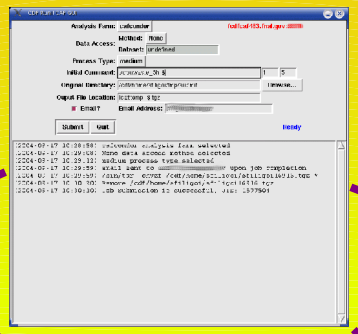
Feels like local for debugging





CDF dCAF model

Still
develop, debug
AND submit from
personal PC



User decides
where to run

Japan

Canada

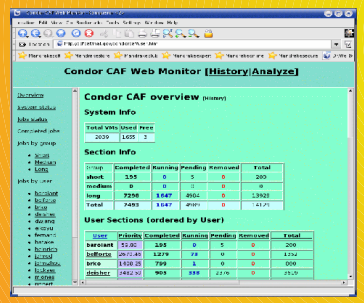
Chicago

Italy

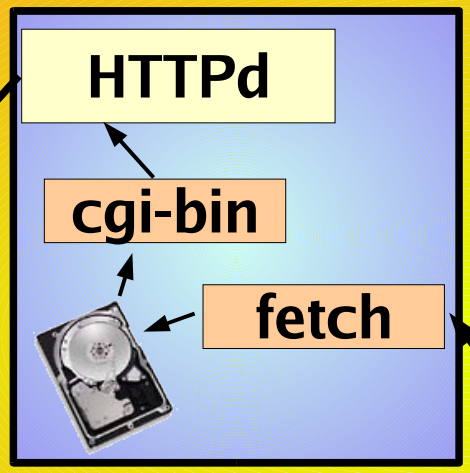
San Diego

Output to
any place

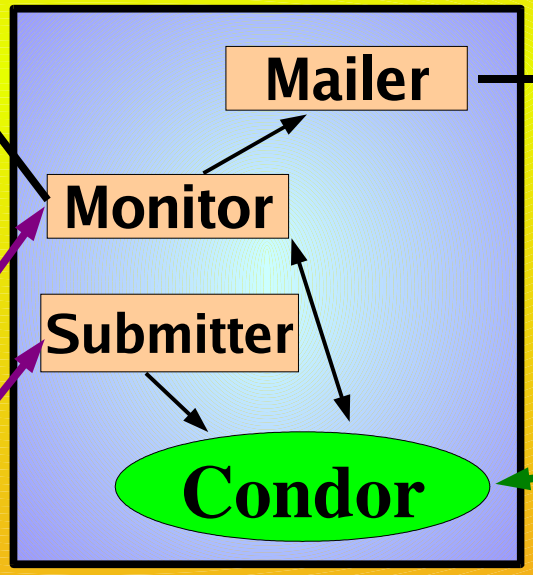
CAF internals

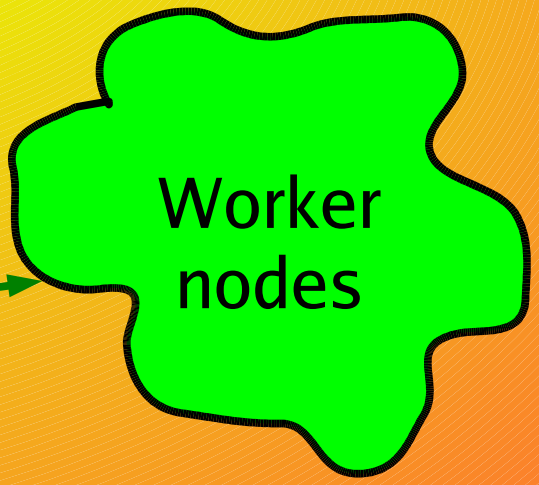


Most monitoring via regular Web interface

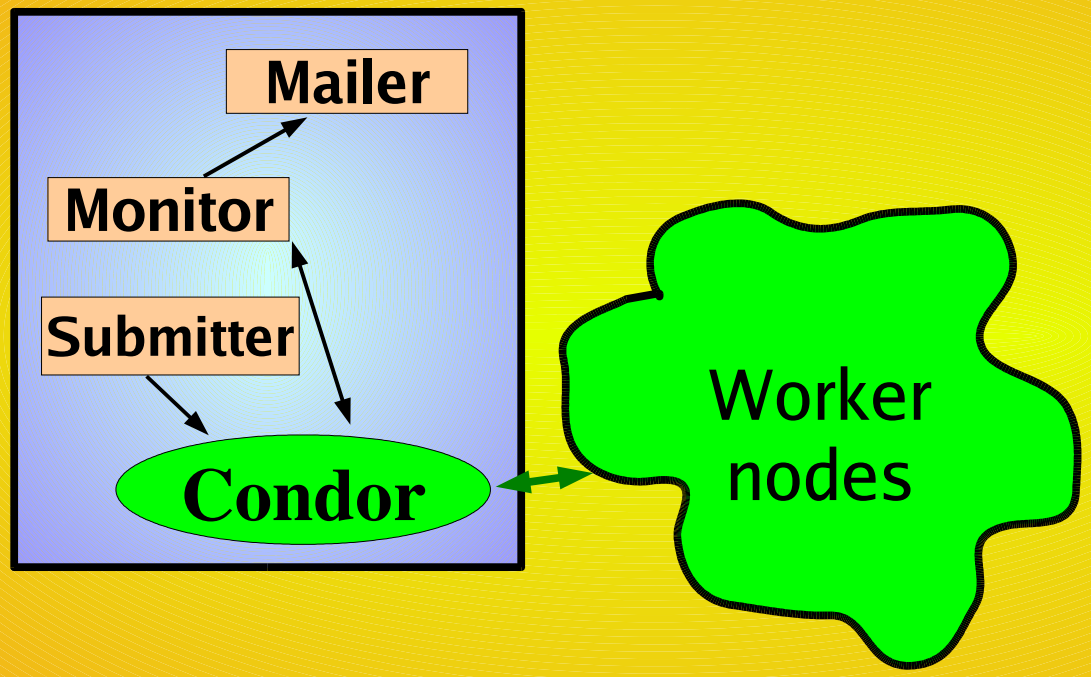


The CAF is just a portal



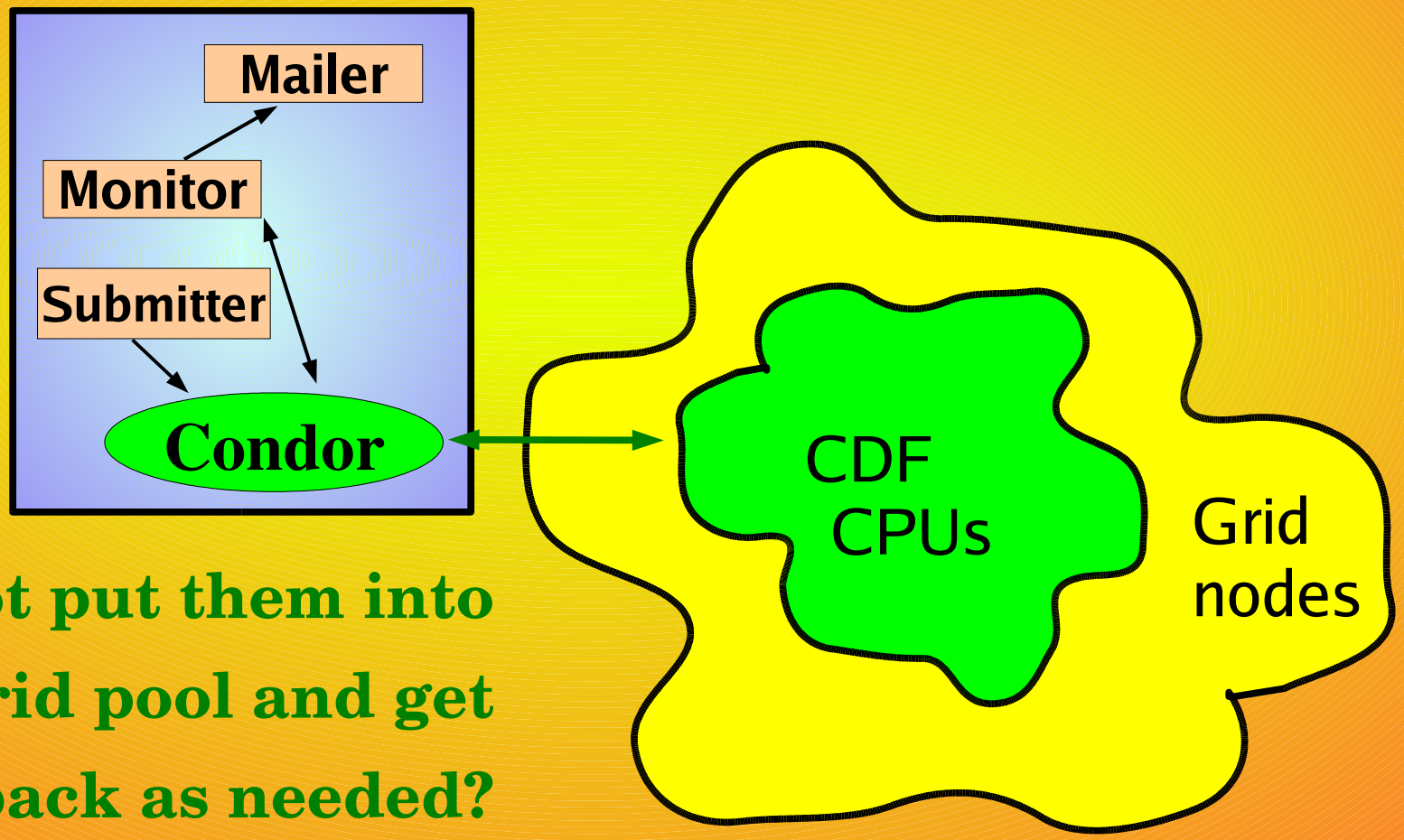


CAF evolution was needed(1)



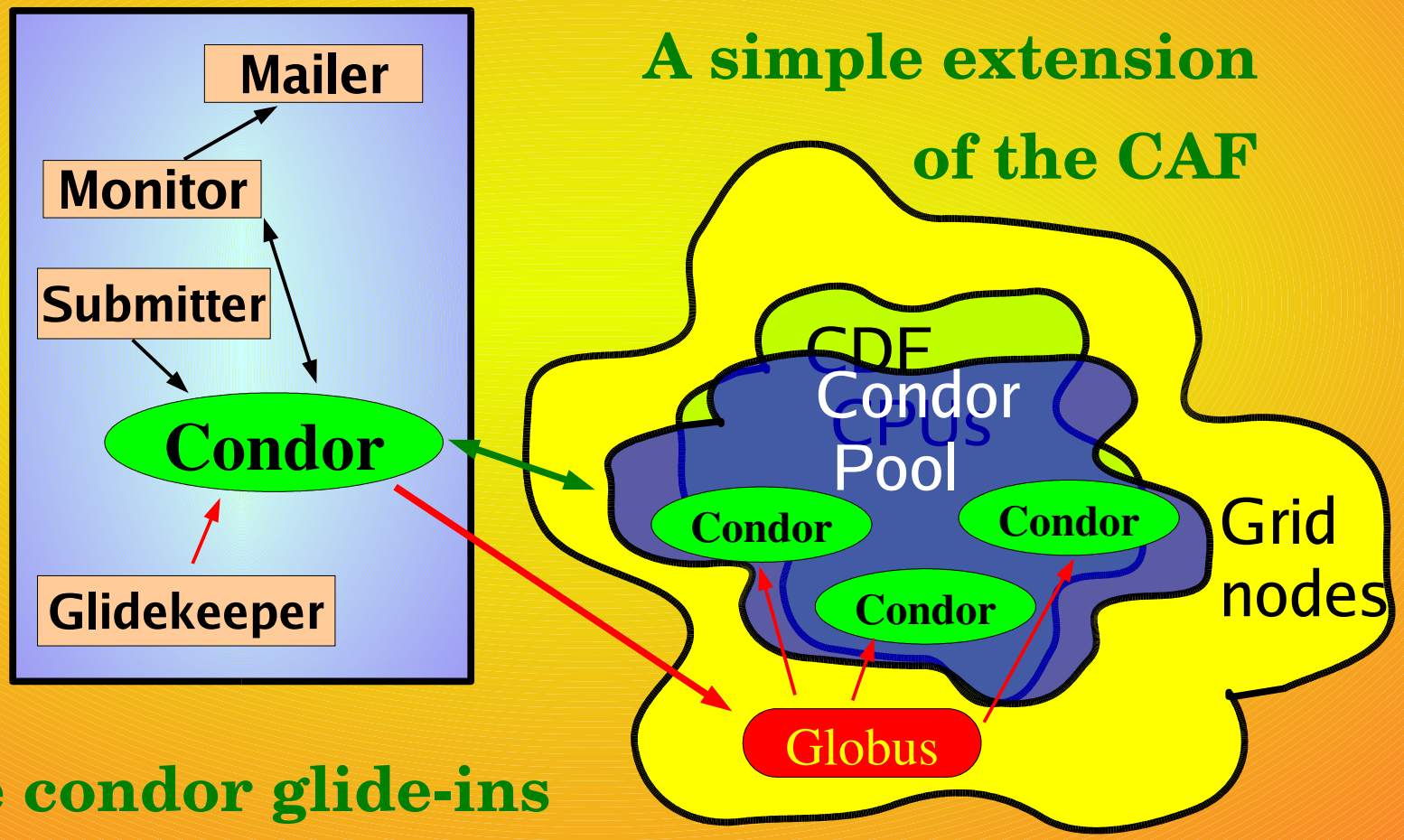
Dedicated resources not viable anymore

CAF evolution was needed(2)



Why not put them into a Grid pool and get them back as needed?

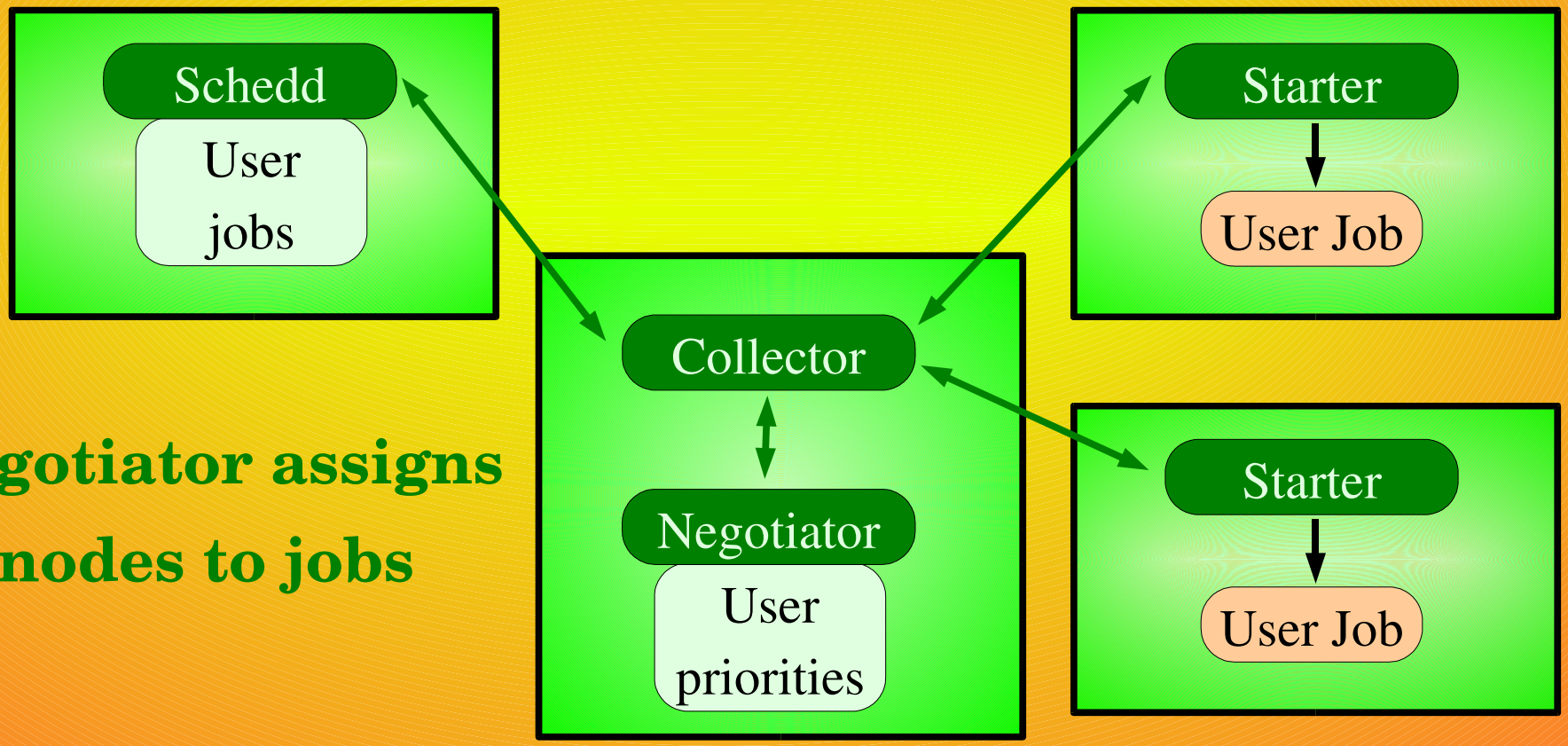
GlideCAF was born



A simple extension of the CAF

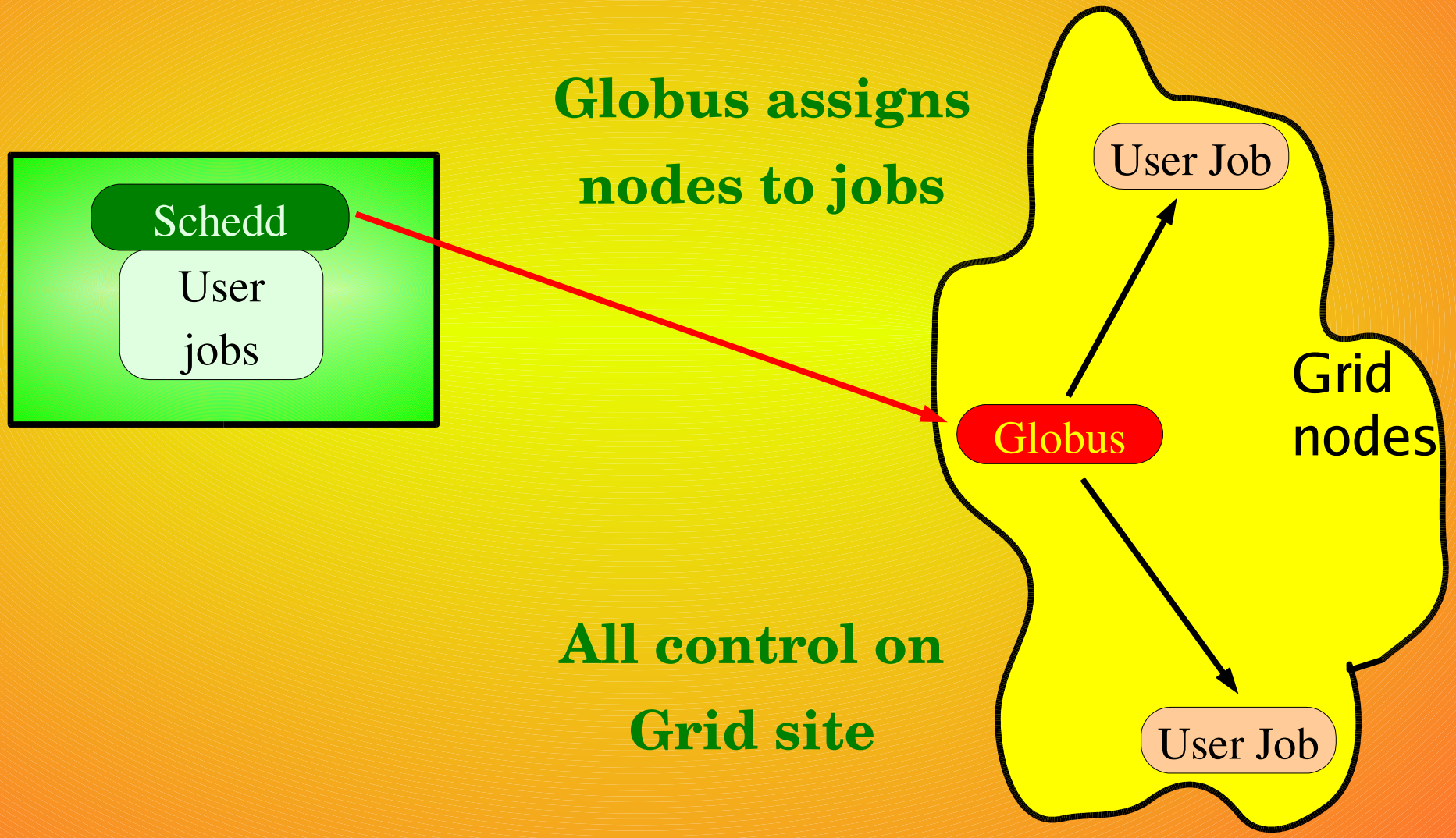
Use condor glide-ins

Condor system - Dedicated

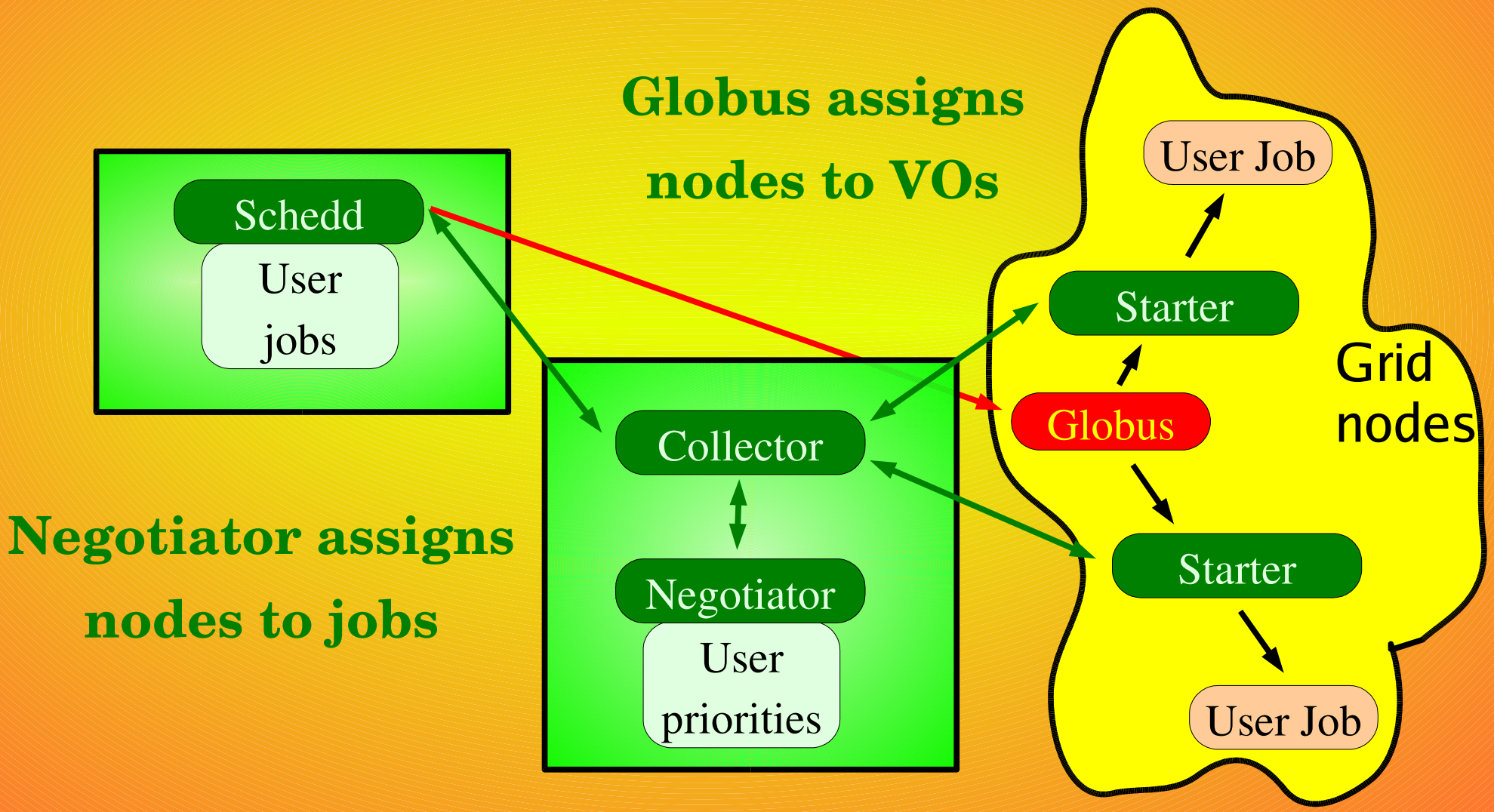


Negotiator assigns nodes to jobs

Condor system - Grid



Condor system - Glide-Ins

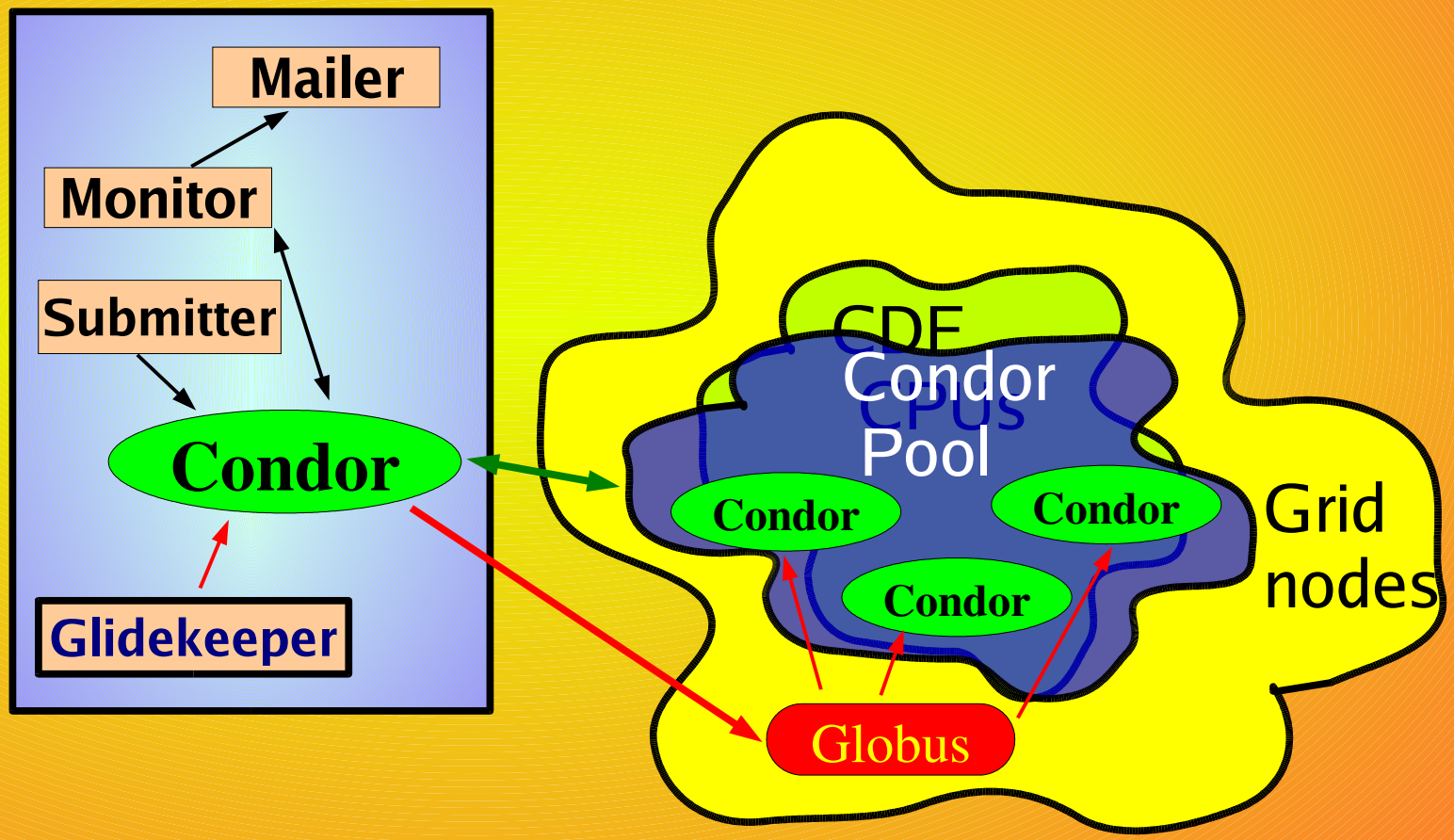


Advantages of Glide-Ins

- Two level negotiation
  - VO level at Grid site
  - Fine grained user level in Condor for each VO
- Late binding of resources
  - Better matching of resources to jobs
  - Black holes don't kill user jobs (just the glide-ins)
- Full Condor environment

GlideCAF

Glidekeeper fills the Condor queue with glide-ins as needed



Several dCAF, some Glide-based

CDF dCAF farm overview - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

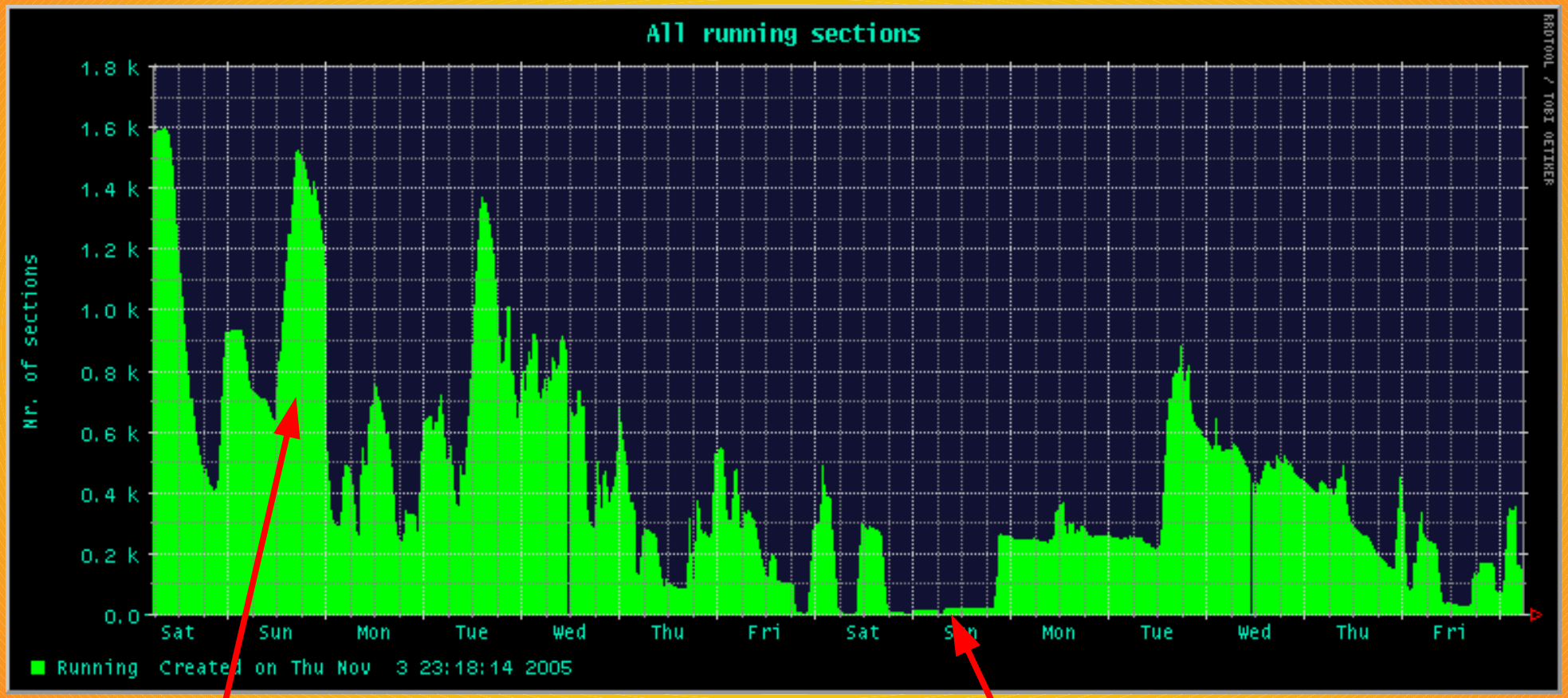
CDF dCAF farm overview [History]

System Info

Farm	Usable CAFMarks	Total VMs	Claimed	Load=0	Load<30	Assigned	Free	Load	
ASCAF	54.6k	97	63	2	3	0	0	57	System status
CAF	1443.9k	1678	913	28	18	29	213	602	System status
CNAFCAF	227.5k	689	165	18	7	0	17	166	System status
CondorCAF	1164.1k	1812	1375	159	13	17	7	1077	System status
FermiGrid	19.4k	26	13	0	0	0	0	13	System status
JPCAF	320.6k	356	289	1	4	0	1	223	System status
KORCAF	162.3k	162	132	0	19	0	0	61	System status
LyonCAF	0.0k	1	0	0	0	0	0	0	System status
MITCAF	142.5k	244	167	0	11	0	58	203	System status
RUTCAF	96.5k	144	58	0	3	0	38	55	System status
SDSCCAF	19.4k	34	3	3	0	0	15	0	System status
TORCAF	269.0k	348	231	3	0	0	1	242	System status
Total	3919.8k	5591	3409	214	78	46	350	2697	

Done

GlideCAF size changes with time



Using more than owning

Giving back when others need it

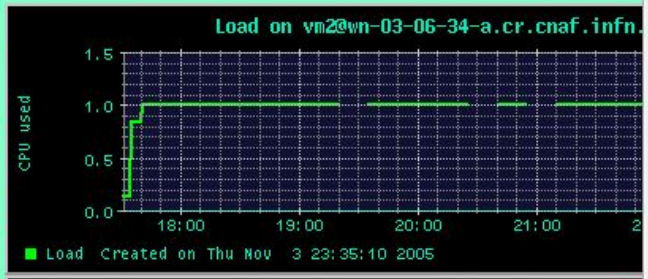
All CAF monitoring preserved

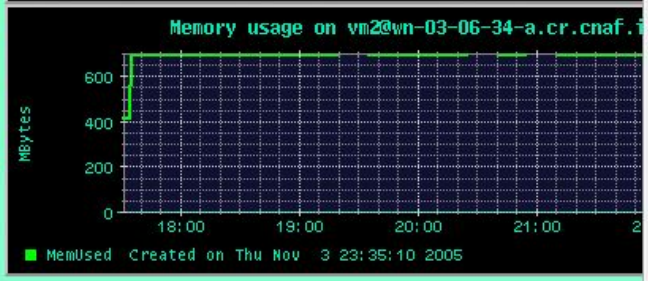
CondorCNAF Section <a>538969/1082 - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

CondorCNAF Section 538969/1082

User:	bab	**Length:**	long
Accounting User:	common.bab		
Input Source:	MCGen		
Status:	Running	**Load:**	1.22
Submitted:	Nov 03 17:13	**Ready:**	Nov 03 17:22
Started:	Nov 03 17:31		
Used time:	6h	**Limit:**	72h
VM:	vm2@wn-03-06-34-a.cr.cnaf.infn.it		
Condor ID:	539004	**Schedd:**	cdfhead.cnaf.infn.it





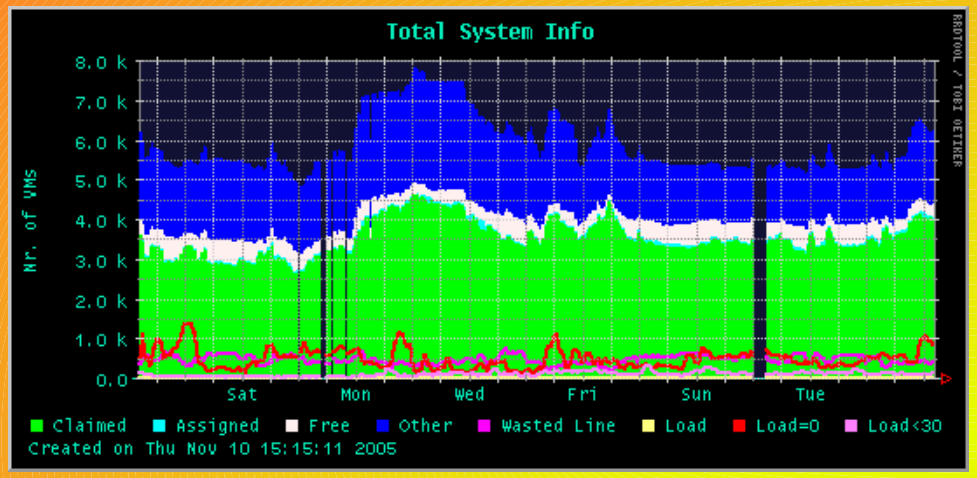
Processes [Hide]

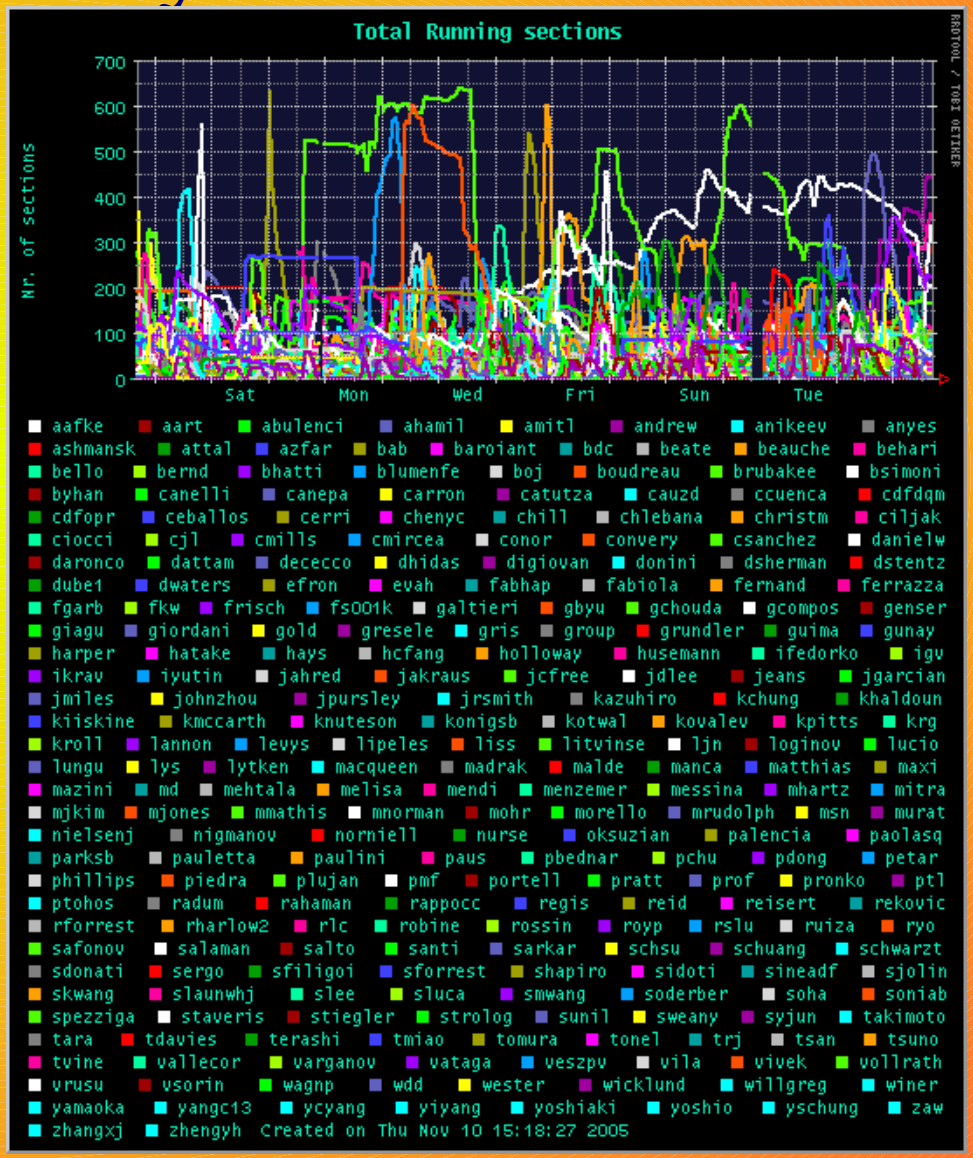
```
  PID  STARTED %CPU   VSZ CMD
31727 17:31:17  0.0  2956 /bin/csh ./submit_BMC mc101/mc101.jobs 1082 signal_lbl
32074 17:31:20 99.0 685400 cdfSim mc101/Simulation_mc101.tcl
10613 23:35:13  1.0  2136 bash -c /bin/ps -u `id -u -n` -o pid,start,pcpu,vsz,cm
10620 23:35:14  0.0  2608 /bin/ps -u cafuser2 -o pid,start,pcpu,vsz,cmd
```

Done

Including CoD based interactive monitoring

A production system





Ask for a real-life presentation