

# PROTO-GRID

## Status of Grid-enabled UTA

### McFarm software

*Tomasz Wlodek*

*University of the Great State of Texas*

*At Arlington*



## A reminder:

- The UTA group Linux MC farms use McFarm - a custom made batch system, designed specially for D0 Monte Carlo generation
- McFarm is very convenient in use
- We are willing to share it with anyone who wants to contribute to the MC production effort.

**Several groups in D0 have expressed interest in our software and plan to install it on their farms**

- LTU
- Boston
- JINR Dubna
- Brazil
- Oklahoma
- Manchester
- Tata, India

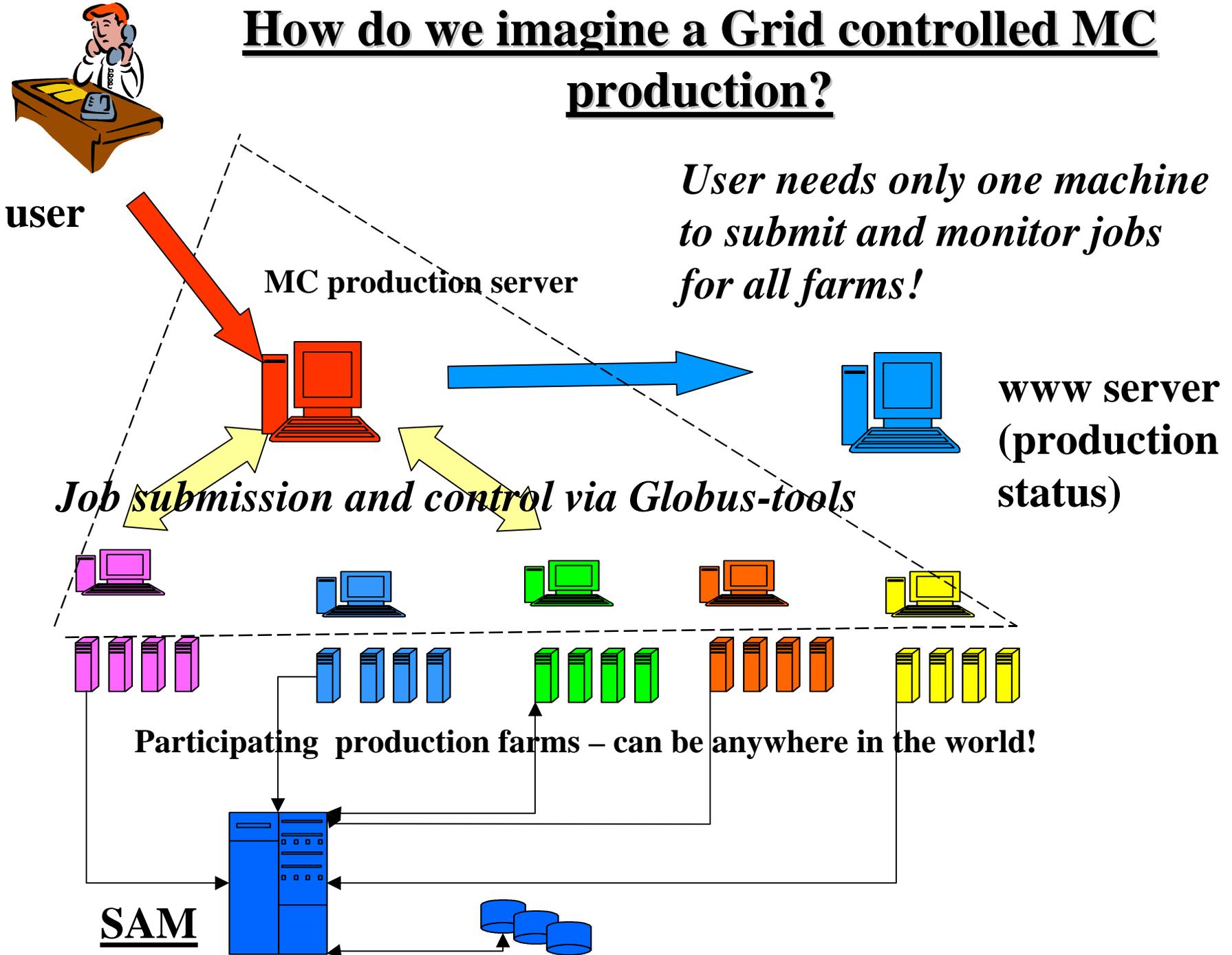
**We will release export version of McFarm soon.  
We will provide installation assistance to groups willing to use it.**

**Currently we are looking for 2 groups who want be the first ones to install it.**

# Problem:

- **It is easy to run MC production on a dedicated farm**
- **It is harder, but possible, to manage 2 farms (we can do it at UTA with our farms)**
- **It is hard to manage production on N farms when  $N > 2$  and the farms are spread all over the world.**
- **We need a Grid-based remote MC production control**

# How do we imagine a Grid controlled MC production?



# What do we need to be able to run McFarm at a dozen of farms?

- Three tools are needed:
- The ability to submit (and if necessary – delete) jobs to remote farm (*the submitter*)
- The ability to monitor the production progress and publish the results so that users can easily access them (The *bookkeeper*)
- The ability of obtain fast information about number of jobs waiting, running, errored, done on a given farm and the number of active nodes on that farm (*the intelligence provider, or CIA*)

Let me describe those 3 tools one after another

# How does a MC run look like?

Generator job (pythia, isajet,...)

D0gstar

D0gstar

D0gstar

D0sim

D0sim

D0sim

D0reco

D0reco

D0reco

recoA

recoA

recoA

One generator (parent) job  
spawns 10-100 DSRA (children)  
jobs

We submit generator job first  
If it completes successfully we  
submit children DSRA jobs

# The submitter

- **We have scripts which can submit the jobs (both generator and DSRA) to remote farms either by using *globus-job-run* calls, or via Condor-G**
- **We can remotely monitor, and if needed – kill, jobs as well**
- **Anand, one of our students is currently working on interfacing the submitter to DAG-Man, so that instead of submitting hundreds of individual jobs we can submit entire runs at once.**

# The bookkeeper:

- **A globus/Condor-G bookkeeper already exists and is used by UTA**
- **It sends status inquiry to remote farms, receives response about the status of jobs, compiles it and publishes results on www.**
- **You can see it on**

<http://www-hep.uta.edu/~mcfarm/mcfarm/main.html>

- **D0-Grid team has suggested interfacing Bookkeeper to MDS, a Grid status gathering tool**
- **I have already written code which exports production jobs status from McFarm to MDS**
- **An MDS based bookkeeper will be released next week.**

# Future of the bookkeeper:

- **I would like to write an MDS standard for storing information about jobs in progress. If this standard is widely accepted then our bookkeeper could monitor production in other centers, not only those using McFarm**
- **I would like to interface Bookkeeper to MySQL, to store information about MC runs in a database.**

# Status of CIA

- **The idea was to use MDS for intelligence gathering**
- **I've written MDS function which allows us to receive information about number of errored jobs on a farm from MDS**
- **we need to add few more variables: number of nodes on farm, number of jobs waiting, running, size of empty scratch area on disks**
- **Once ready it will publish status of farms on WWW in a table:**

# CIA-Status of farms

Farm	Njobs wait	Njobs run	N proc	...	...	
UTA	243	42	42			
Boston	124	32	23			
???	???	???	???			

**A WWW page for CIA will be released before end of this week**

(Btw, if you have a better name than CIA, let me know)

# OK - What next?

- Imagine that we have the submitter, bookkeeper and CIA up and running. They allow us to run remotely jobs at selected farms. What do we do now?
- On top of the three components we will build another layer: GEM (Grid Enabled McFarm).
- GEM will take request from operator. It will inquire CIA which farm is best to run. Then it will let submitter to send run to this farm via Condor-G/Dagman. Then bookkeeper will take care for rest - publishing the result and list of MC files for interested users.

# The long term plan

