

# Implementation of remote job submission over GRID with IMPALA/BOSS CMS MC production tools\*

*A. Edunov, JINR, Dubna,  
U. Gasparini, INFN, Padua University and INFN Padua  
A. Kryukov, SINP Moscow State University, Moscow,  
S. Lacaprara, INFN, Padua University and INFN Padua  
M. Verlato, INFN, Padua University and INFN Padua*

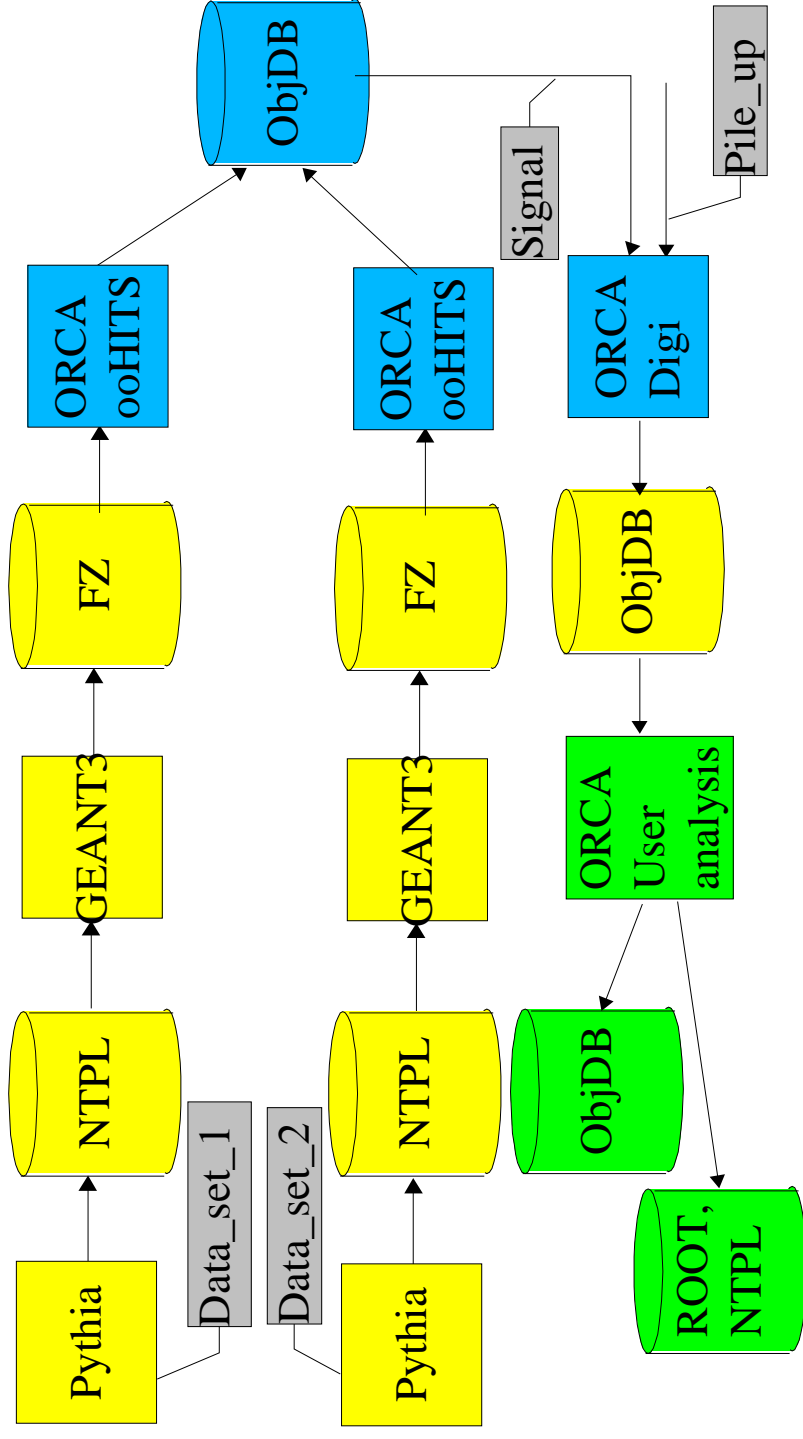
# Outline

- Introduction
- Computational model
- IMPALA/BOSS overview
- Integration of IMPALA/BOSS with GRID
- DOLLY: The package to clone of CMS  
Production jobs
- Conclusions and results

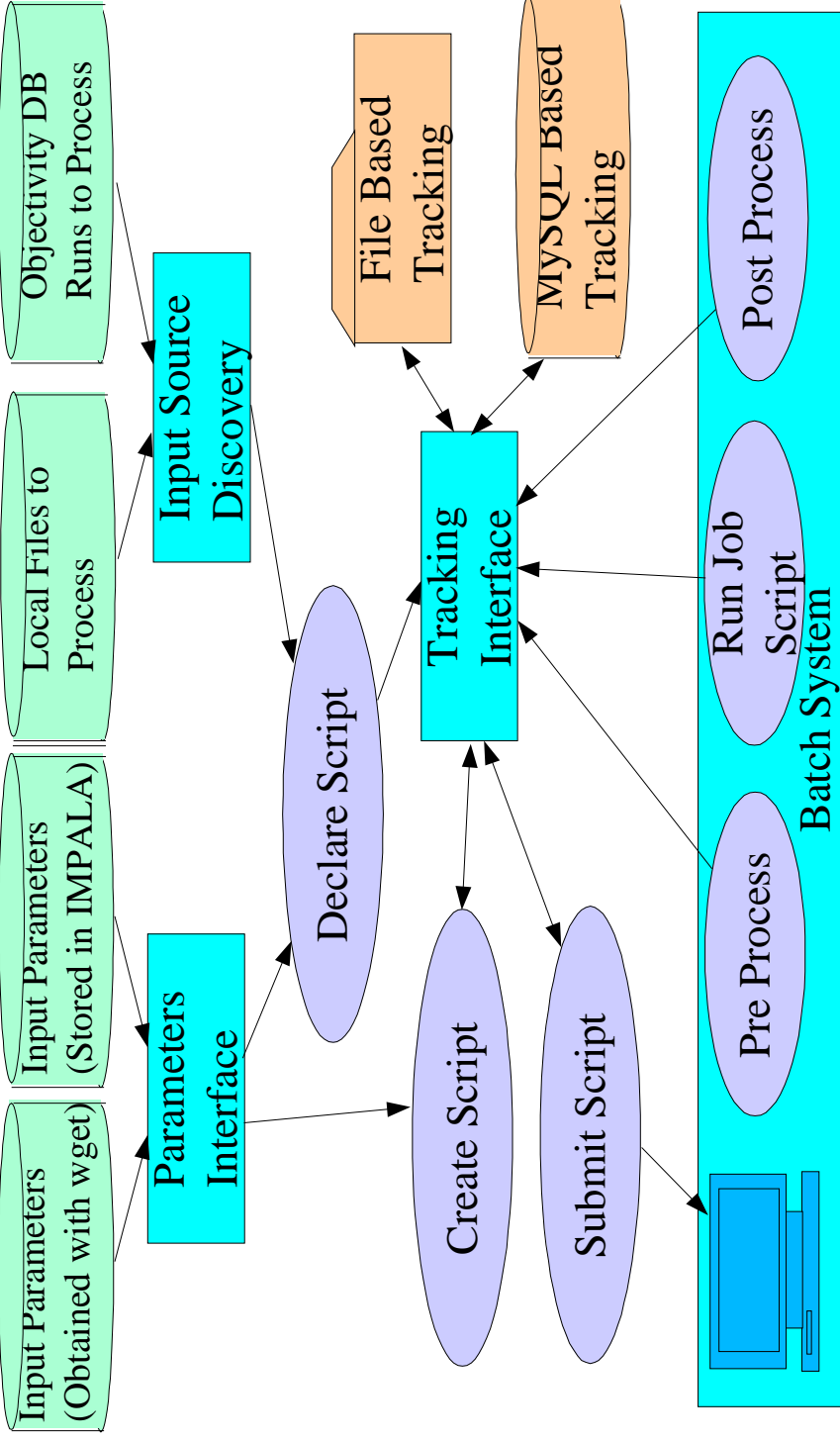
# Introduction

- CMS MC Production: SPRING-2002
  - Tools:
    - IMPALA
    - BOSS
  - Stages
    - CMKIN
    - CMSIM
    - OOHit formatting
    - Digitization

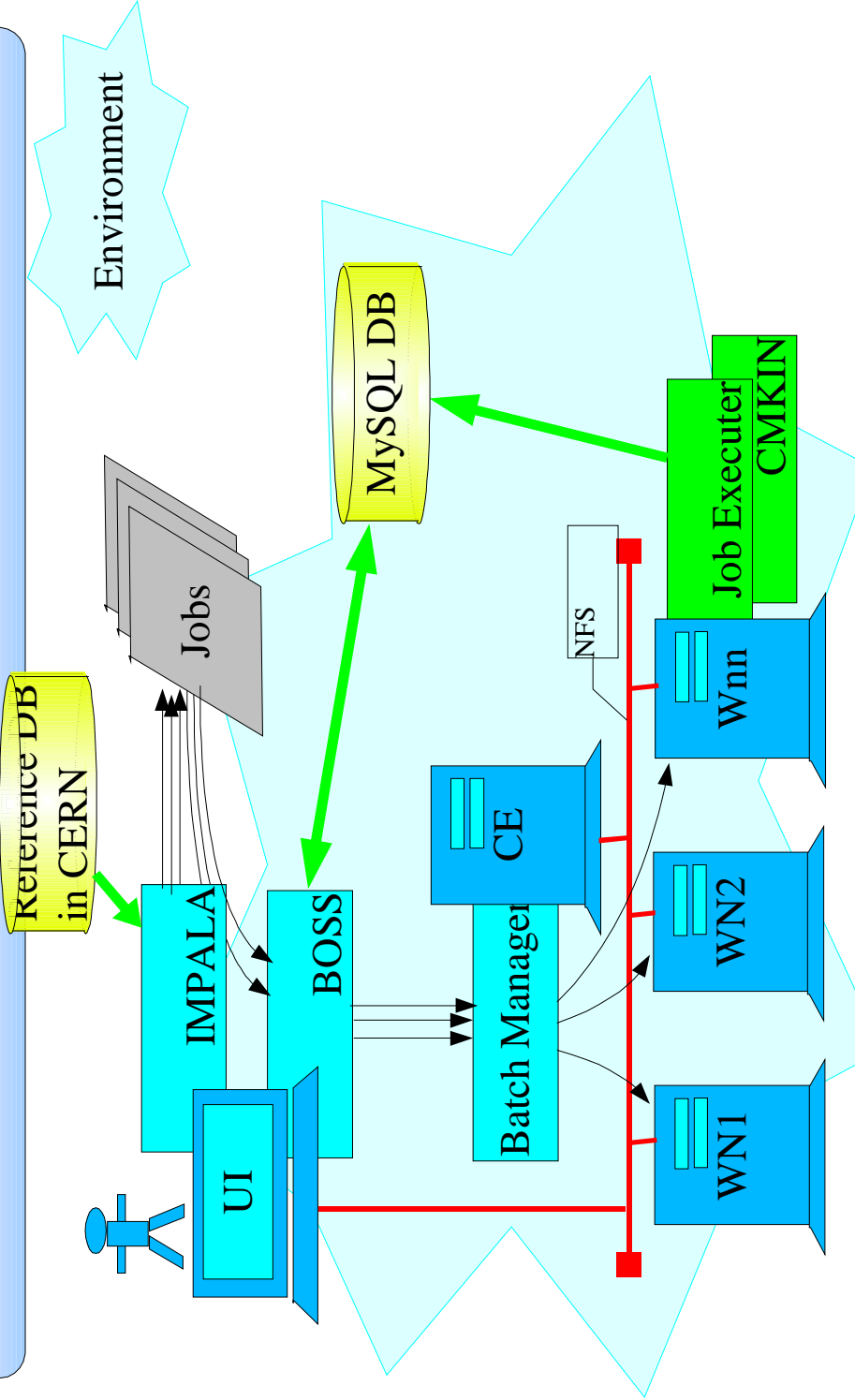
# Computational Model



# IMPALA/BOSS overview



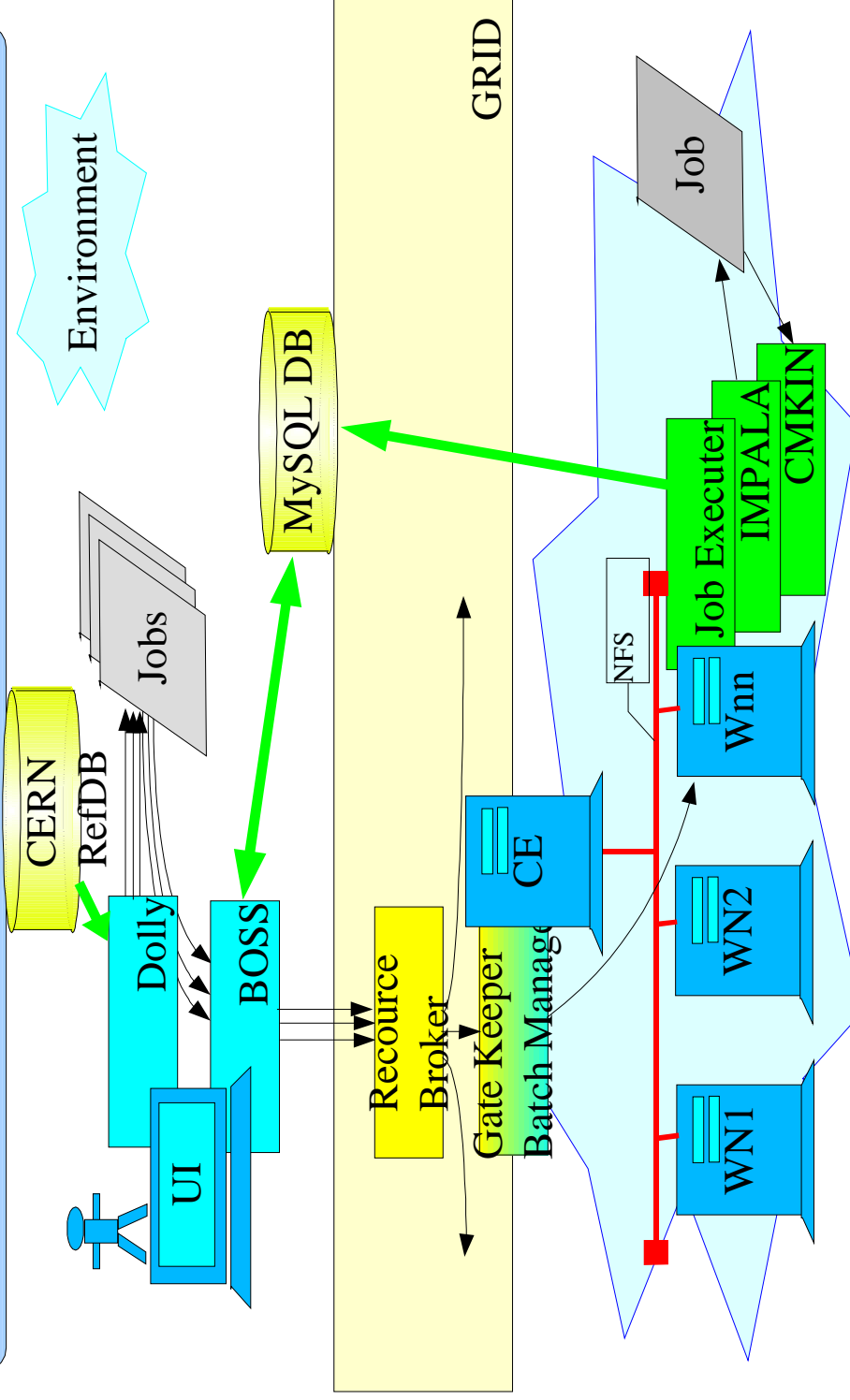
# IMPALA/BOSS integration with grid



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# IMPALA/BOSS integration with GRID (continue)



# DOLLY: The package to clone CMS production jobs

- DOLLY\_CE
  - Modified IMPALA
    - DOLLY\_CE.patch
  - DollyEnv.sh
- DOLLY\_UI
  - Modified GetXXX\_fromRefDB.sh
  - dolly
  - .dollyrc
  - Dolly-service



# DOLLY: The package to clone CMS production jobs (continue)

- Three steps:
  - Installation:
    - Just unpack: **tar xzvf dolly-xxxxxx.tgz**
  - Initialization working directory:
    - Create working directory
    - Modify of **dolly-env** and run it
    - Run **dolly-init** command
  - Running
    - Dolly commands.

# DOLLY: The package to clone CMS production jobs (continue)

- Usage (briefly)

dolly job\_type [-debug]

- **job\_type** is **kin**, **sim**, **oohit**. Oodigi in progress.

Dolly-service utilitie for reinitialized some date.

- dolly-service job\_type [-clean] [-r run\_number]  
[-j job\_number] [-s set\_name] [-o newowner\_number]

Some additional utilities for retrieving data and  
monitoring jobs.

## Conclusions and results

- There was designed and development new scheme of integration of IMPALA/BOSS production tools with GRID
  - Minimal modification in IMPALA.
  - Standard BOSS (version 3.x).
- The set of scripts (DOLLY) to clone the CMS production jobs on the UI side was developed.
- Two steps of production (CMKIN and CMSIN) was tested completely.
- The oodigi formatting step is under development

## Conclusions and results (continue)

- IMPALA problems
  - Single user application
    - Require the write access to impala directories
    - Use fixed names for temporally files (like /tmp/xxxx)
  - Two ways to pass initial data and parameters.
    - Through the files (pythia cards, ...)
    - Through global environment
- BOSS
  - Direct access to MySQL DB in the world.

# JDL file

```
#####  
#####  
#####  
#  
# ---- kin_2006.jdl ----  
#  
#####  
#####  
Executable = "kin_2006.sh";  
StdOutput = "kin_2006.out";  
StdError = "kin_2006.err";  
InputSandbox = {"kin_2006.sh", "kin_2006.tgz"};  
OutputSandbox = {"kin_2006.out", "kin_2006.err", "kin_2006_out.tgz"};
```

# Script file

```
#####  
#####  
#####  
#  
# ----- kin_2006.sh -----  
#  
#####  
#####  
  
tar xfz kin_2006.tgz  
  
export defaultCMKINNumberOfEventsUI=10  
export CMS_ProdData=CMS_ProdData  
./DollyCMKINJob  
  
tar cfz kin_2006_out.tgz *
```

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# Job file

```
#!/bin/sh

#Globals:

export DATA_SET_NAME=PD_MB_test

export REGIONAL_CENTER=PD_INFN_TEST

export DATA_SET_DIR=`pwd`/${CMS_ProdData}/tracking/$REGIONAL_CENTER/cmkin/$DATA_SET_NAME

export RUN_DATA_DIR=`pwd`/${CMS_ProdData}/rundata

export IMPALA_ROOT=/home/impalabo/cms/impala

export PROD_RESOURCES=/home/impalabo/cms/impala/scripts

export ROOT_OF_WORK_PATH=`pwd`/${CMS_ProdData}

export PATH=$PATH:$PROD_RESOURCES

if [ -z $defaultCMKINNumberOfEventsUI ]; then

    export defaultCMKINNumberOfEventsUI=500

fi

export EDGUpdate=true

mkdir -p $DATA_SET_DIR

DeclareCMKINJobs.sh -v $DATA_SET_NAME 1

CreateCMKINJobs.sh -v $DATA_SET_NAME 1

RunJob.sh -v -j cmkin $DATA_SET_NAME 1
```