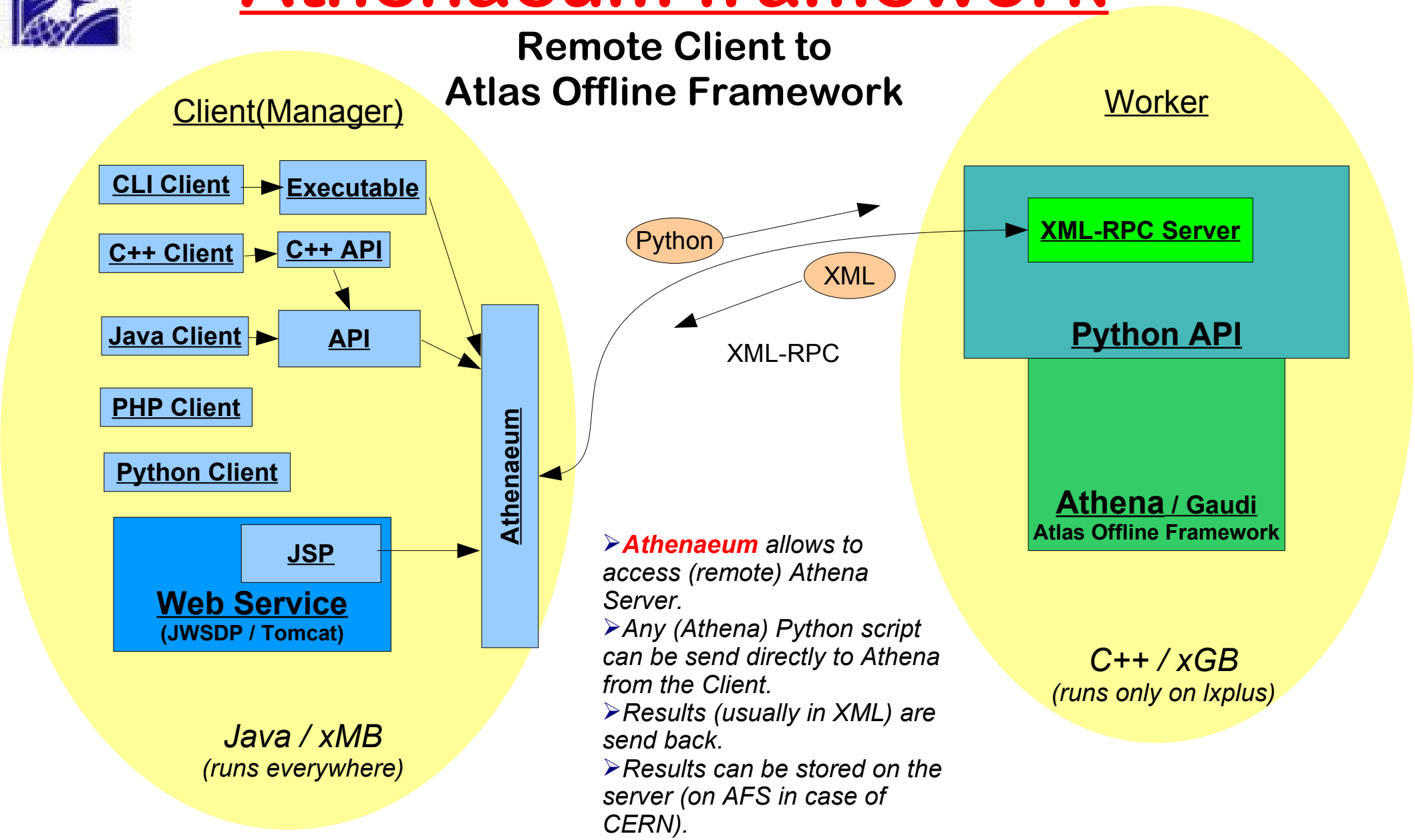
TAG Services

- *Extract/Skim Server – remote access to Athena*
  - *Athenaeum*
  - *Manager*
  - *Worker*
- *Interfaces*
  - *http (accessed from ELSSI)*
  - *Web (Server Management)*
  - *CLI (direct user access, testing)*
  - *XML-RPC (internal)*
- *Histo Server – SQL2Histo Web Service*
- *Distribution*
  - *How to install/update/configure/keep up*
  - *Where it already runs*

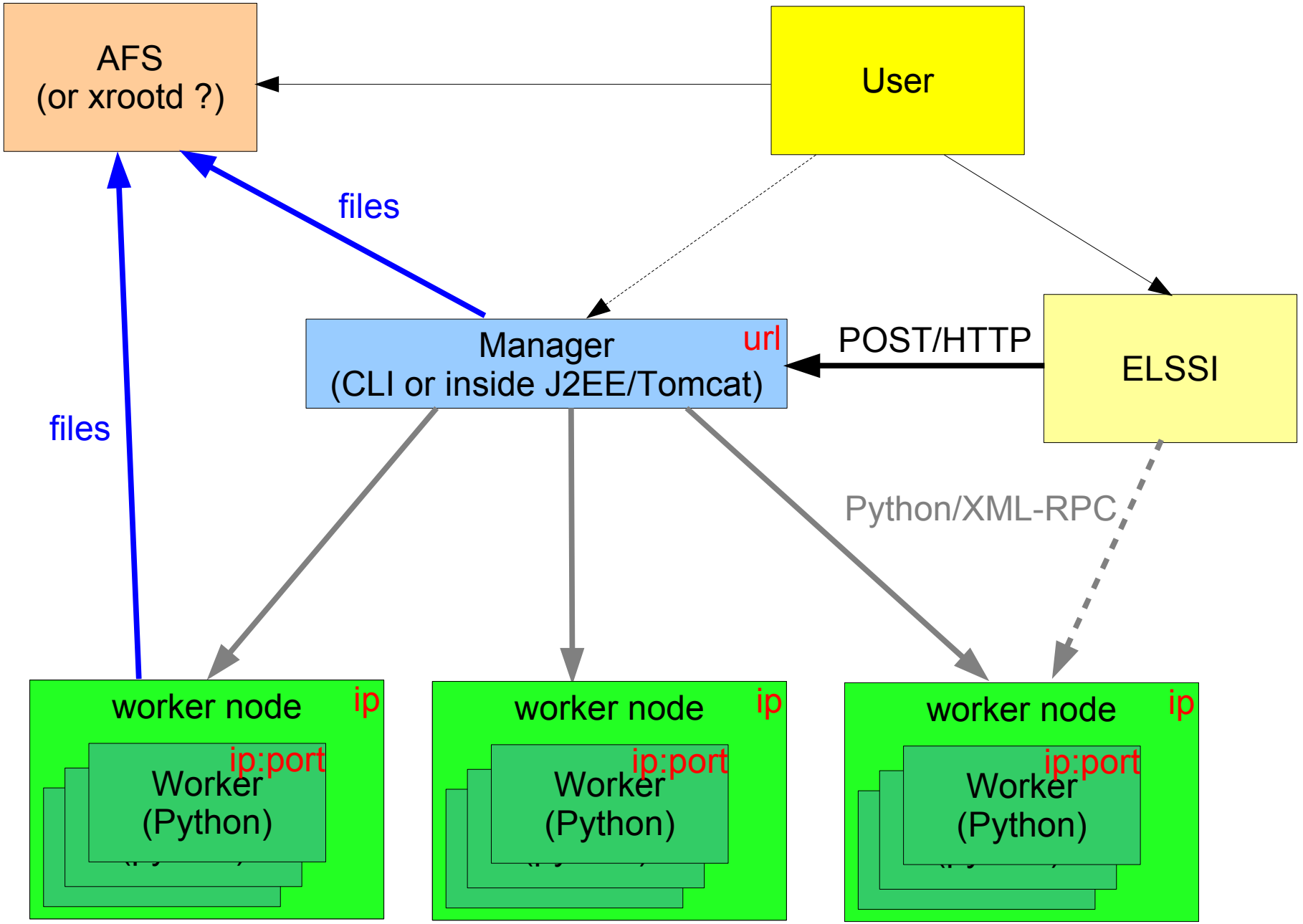
Athenaeum framework

Remote Client to Atlas Offline Framework

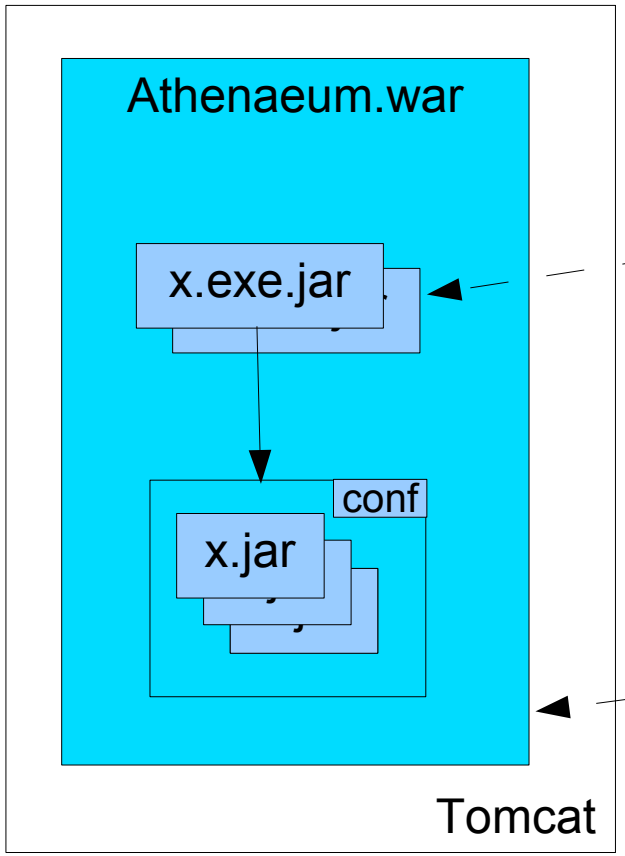


- ***Athenaeum*** *allows to access (remote) Athena Server.*
- *Any (Athena) Python script can be send directly to Athena from the Client.*
- *Results (usually in XML) are send back.*
- *Results can be stored on the server (on AFS in case of CERN).*
- *Special Python scripts are provided to present some Athena data.*
- *Several Clients exist.*

Extract Server Architecture



Manager

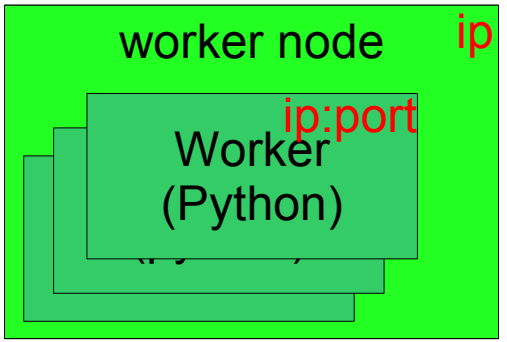


- x.exe.jar *files are directly executable*
- *they are aliased to commands* **athenaeum** *and* **extract**
- *those commands are used to*
  - *test*
  - *re-issue extraction (user gets a command line with all options in the mail, it is also available from the monitoring web page)*
- *all this can be used on any machine (any OS) as long as firewalls to workers are opened – just get* Athenaeum-dist.tar.gz

- Athenaeum.war *can be installed on any Tomcat, JWSDP or similar container – as long as you have proper rights*
- *the service can then be used*
  - *calling appropriate URL (like from ELSSI)*
  - *using simple Web GUI (for testing and server management)*

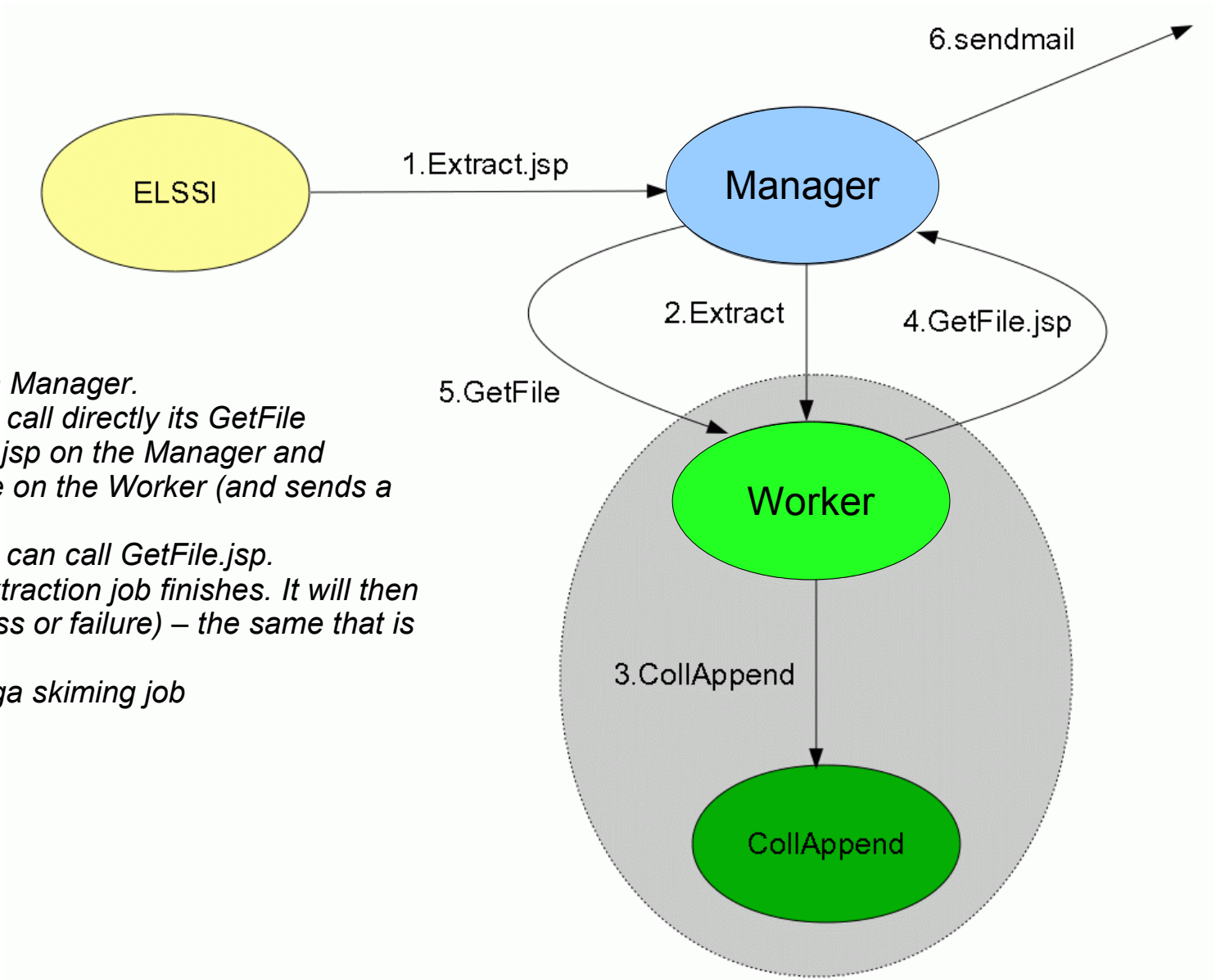
- *Manager is trivial to install and will work out-of-box everywhere*
  - *Known sides are treated in a preferential way by filling their characteristics into Athenaeum configuration (list of available worker nodes, email for monitoring/debugging,...)*
- *When inside Tomcat, it is isolated from the environment*
  - *=> it can't do any harm*
  - *=> it doesn't depend on local configuration (which is difficult to control in distributed environment)*
- *=> I try to put as much as possible functionality on the Manager*
- *Workers method calls pass often via Manager (even when they could go just within a Worker) because a Manager has global overview and control over whole node (load-balancing, monitoring,...)*
- *Manager uses Twitter to inform about problems (***atlastags** *account)*

Worker



- *Each worker node contains:*
  - *Python implementation with Athenaeum-aware XML-RPC server*
  - *A set of scripts to start/stop/restart/inspect running services (should be locally customized to handled needed services on designed ports and to fit in local environment)*
  - *A cron job to monitor running servers and restart them if needed to fit in local environment)*
  - *A set of testing scripts*
  - *A directory for monitoring files*
  - *A complete Athena able to run* CollAppend
- *Distribution is done via Atlas SVN*
- *Manager can*
  - *inspect running server (their configuration, history, status)*
  - *restart running server*
  - *clone running server*
- *All tasks run in independent threads, identified by unique pid*

Extract Server Architecture



- *All important actions pass via Manager.*
  - *This way, Worker doesn't call directly its GetFile method, but calls GetFile.jsp on the Manager and Manager then call GetFile on the Worker (and sends a notification mail).*
- *A user (directly or via ELSSI) can call GetFile.jsp. GetFile.jsp will loop until the extraction job finishes. It will then return the job summary (success or failure) – the same that is sends in the notification email.*
- *Extraction can submit a Ganga skiming job*

Server Management

Athenaeum JSP @ CERN

Server URL: http://lxvm0341.cern.ch:10001

Get Status of Standard Servers

Get Help

Generic Functions

Run Script on Server

Specific Functions

Browse Cool DB (connect to any/recent database)

Browse Cool DB (choose from standard databases)

Extract Tag file

Information and Documentation

Get Server Info

Get Server Help

See latest log

See server running jobs

See server accumulated statistics

List parallel Servers

Server Management

Restart Server

Start new Server

Athenaeum JSP Global Help

1. Select *Athena Server URL* and *key* (key value is not filled in to prevent Robots from flooding the Server. Use the standard Atlas password as a key).
2. Select action to be performed on the Server:
   - **Run Sc**
   - **Get Se**
   - **Get Se**
   - **Restart** in the S request
   - **Start n** impleme sending
   - **Family** impleme
   - **Browse** DB usin connection parameters. The most recently used parameters are filled in as default.
   - **Browse Cool DB (choose from standard databases)** allows to browse Cool DB using Athena Server. You can choose from the set of standard databases. The most recently used database is shown on the top of the page.
   - **Extract Tag file** allows to extract Root Tag file by consulting Tag SQL database..
   - **Get Status of Standard Servers** tests all Standard Server.
   - **Get Help** gives this help.
   - **See latest log** gives the latest server log.
   - **See server running jobs** gives status of the running and finished tasks. All servers (running on all ports) are shown.
   - **See server accumulated statistics** gives statistics about finished tasks. All equivalent servers are shown.
3. Some Actions will require more input on the right frame. In such case, fill in the

Demo: http://cern.ch/Athenaeum

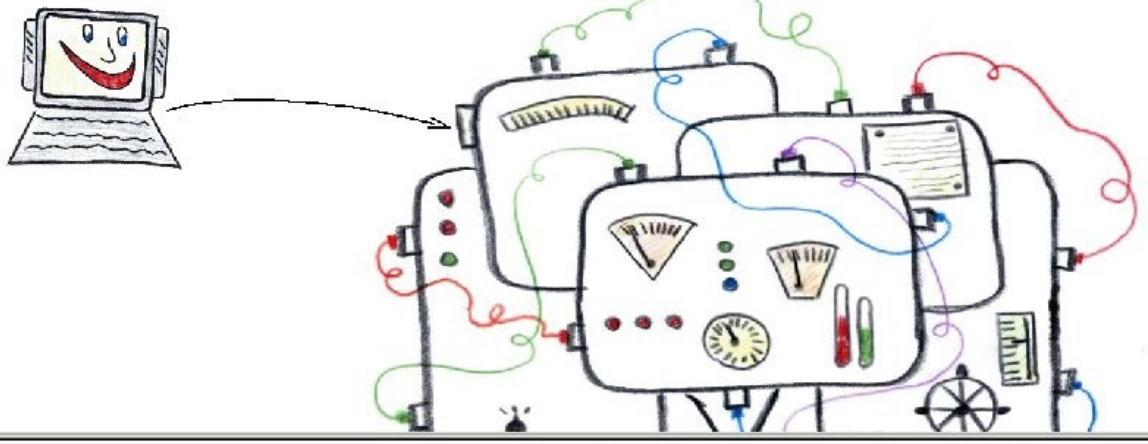
The same tasks can be performed by athenaeum *command*

- Server statistics is available.
- Tag Extraction is available as a standard function, including in the Web Service.

- Support for JAS3 client has been stopped.
- Access to server log files is available.
- voatlas16 server has replaced lxgate01 server
- athenaeum command is available on CERN AFS.
- SQLite databases (readable from CERN AFS) are supported.
- When you get `org.apache.xmlrpc.XmlRpcException: I/O error while communicating with HTTP server: Connection refused` exception, it means (almost certainly) that Athena has crashed. It that case, try another server (port) or wait for server restart (which should happen within an hour).
- JAS3 with integrated Athenaeum client is available with one-click instalation procedure using WebStart. The only requirements is the correctly installed Java (1.5 or 1.6) on the local machine.

Launch

- JAS3 Plugin can access Athenaeum Servers behind firewalls via SSH tunnels.
- Tag extraction servers are supported..



progress bar not (yet) started 0% STOP

CLI

setup environment,
should be customized outside of CERN AFS

```
$ source /afs/cern.ch/sw/lcg/external/Java/bin/setup.sh
```

can do anything on the server
useful for management tasks

```
$ aaaaaaaa
Aaaaaaaa <url>:<port> <key> <task> [<options>] # executes <task>
Aaaaaaaa <task>                                # shows    <task>
available tasks: Cool Dummy Event Extract Fork Info Restart Help Log Statistics Family
```

tuned to extract-like tasks
concrete form given to a user when her job finishes

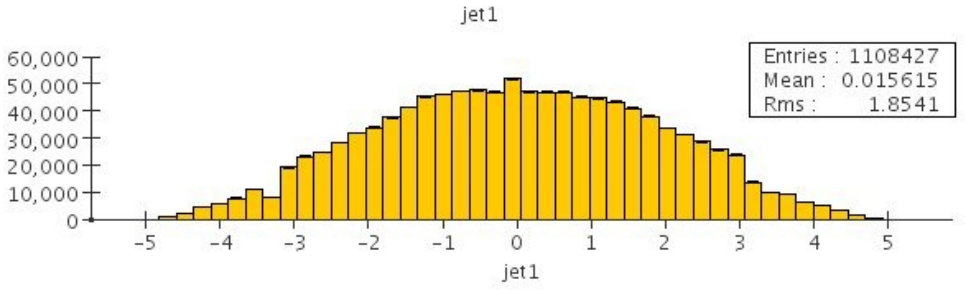
```
$ eeeeeee
eeeeeee or java -jar Eeeeeeee.exe.jar
        -manager [CERN|CHICAGO|BNL], default = CERN
        -python <Python options file>
        -url <worker ip:port>, default = http://lxvm0341.cern.ch:10001
        -key <insider key>
        -execution [extract|skim|prun], default = extract
        -output <output Root file>, default = test_<random>.root
        -query <sql query>
        -collname <collection name>
        -lumi <luminosity>, default = Unknown
        -release <release>, default = Atlas,takeFromEnv
        -conn <connection string>
        -target <target directory>, default = .
        -atts <requested attributes>, default = RunNumber,EventNumber
        -proxyname <skimming proxy>
        -stream_type <type of stream>
        -athena_jo <athena JO>
        -user_jo <user JO>
        -outputdata_type <type of output data>
        -utility <POOL Run utility name>, default = CollAppend
        -params <xml parameters file for utility>
        -email <notification email>
        -d, debug
```

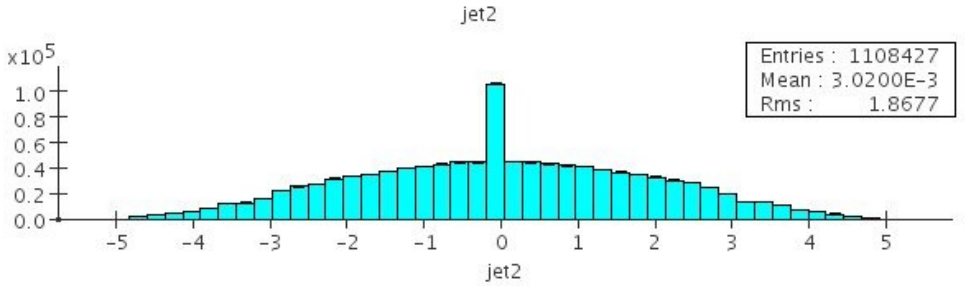
Histo Server

- *Many technologies tried (PHP, JS,...)*
  - *It is easy just to draw a graph when you have a set of numbers*
  - *But two problems:*
    - *Our view of a histogram is very special => we have to implement ourselves all data management (accumulation, statistics, binning, limits,...) and create a set of (x,y) to draw*
    - *The drawing of axis, ticks and legends is not trivial and not handled by available packages*
- *Decision to use the standard histograming web service package – **AIDATLD**, JSP library on top of AIDA together with standard JDBC access to Oracle*
- *As a byproduct, JSP* context.xml *file is created from* tnsnames.ora *to allow transparent Web Service access to Oracle data*

Histo Server

- *ELSSI sends request to SQLTuple*
  - *SQLTuple calls Oracle to get data and shows them as histograms*
- *A user can access the service directly:* http;//cern.ch/SQLTuple/Histogram.jsp *with appropriate parameters*
- *Testing page accessing all known data sources with various options:* http://cern.ch/SQLTuple/HistogramTest.html
  - *Google etc. does testing for us (a human monitor is notified by an email if anything fails)*
- *Service is distributed as* SQLTuple.war *file, which can be easily deployed to any Tomcat/JWSDP/... container*
- *A user can choose log/lin y axis and limit accumulated data*
  - *Other functionality can be added (choice of histo style, colors, 2d-histos, writing created histos to AFS,...)*





Download: (*vector*) eps svg pdf swf ps , (*bitmap*) jpg png ppm gif

13.2s spent - All available events analysed

Redo analysing max 0 events (**0** means no limit)

scale: lin log

How to install/update/configure/keep up

- *Manager:*
  - *Tell me*
    - *email of a human monitor to be notified about problems*
    - *available smtp server (otherwise gmail is used)*
    - *ip:port of all workers*
    - *local directory and URL to store config files to make them available to others*
  - *Deploy* Athenaeum.war *on local Tomcat container (re-do when new version becomes available)*
  - *Untar* Athenaeum-dist.tar.gz *on local filespace (re-do when new version becomes available)*
- *Worker:*
  - *Install Atlas software*
    - *including* Database/TagPoolServices
  - *Modify* scripts/*.sh *to reflect local configuration and desired servers*
  - *Submit monitoring cron* scripts/cron.sh
- *Histo Server:*
  - *Just deploy war file to any Tomcat container*
- *Make sure firewalls are opened*
- *Manage using Manager Web Service*
- *Read notification/error emails (if configured)*

Where it already runs

- *@CERN*
  - *Manager*
    - *Web Service on central J2EE server (very well managed): http://cern.ch/Athenaeum*
    - *CLI on AFS (memoryless):*
      - source /afs/cern.ch/sw/lcg/external/Java/bin/setup.sh
      - extract .... # to perform extraction/skimming/prun
      - athenaeum ... # to perform a management task
  - *Workers (Extract, Skim, PRUN) on lxvm0341 (dev) and voatlas18 (prod)*
  - *Histo Server*
- *@Chicago: Manager + Worker installed and died*
- *@BNL: Manager + Worker*