AstroLabNet

How to give everyone the AstroLab functionality !

- ➢ **A**stroLab **A**rchipel **A**rchitecture
- ➢ Apache **LIVY**
- ➢ What about others ?

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AstroLab Archipel Architecture

Livy

AstroLab Plugins

FileServer
(RootIO,GridIO,...)

Catalogs

Meta Catalog

FITS,...

Sparc & comp.

➢ Network of principal and private AstroLab elements.
➢ Easy to connect to an existing server or to install a local one (with a limited subset of data or data streams/subscriptions).
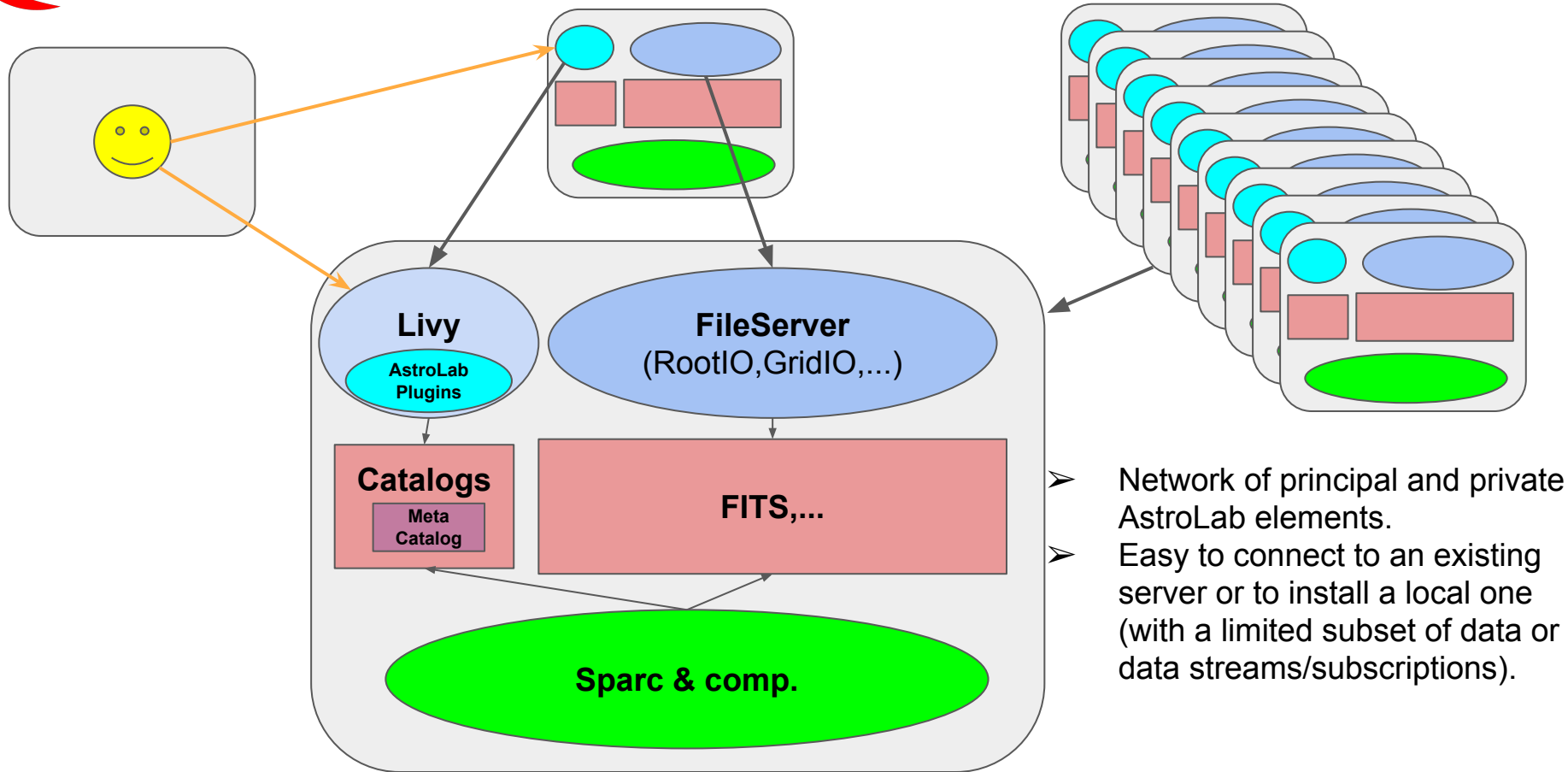
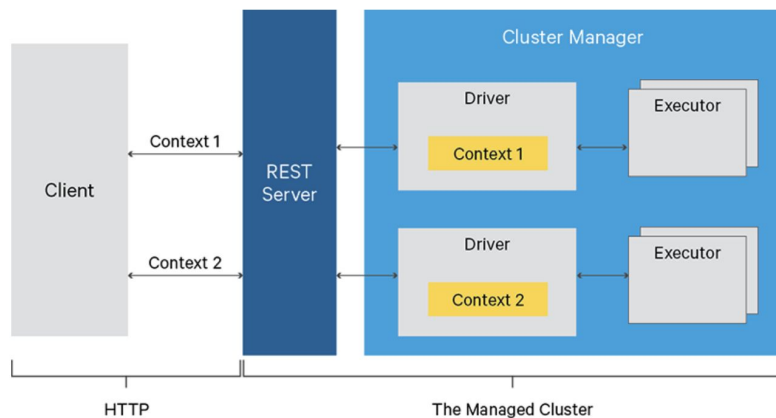# *Apache LIVY*

No modification needed on the cluster
(except for the security).

Apache Livy is a service that enables easy interaction with a Spark cluster over a REST interface. It enables easy submission of Spark jobs or snippets of Spark code, synchronous or asynchronous result retrieval, as well as Spark Context management, all via a simple REST interface or an RPC client library. Apache Livy also simplifies the interaction between Spark and application servers, thus enabling the use of Spark for interactive web/mobile applications.

+ Caching, MultiContext, Security,....

Risk: Apache LIVY is quite mature and under active development, but still under 'incubating' status.
Fallback: It would be possible to develop/maintain something like LIVY ourselves (which was my original idea anyway).

AstroLab Island

- ➢ Part of **AstroLab Archipel**.
- ➢ Simple use:
  - ○ JS or CLI access without any local installation.
- ➢ Advanced use:
  - ○ Full local AstroLab installation.
  - ○ Subset of data (full MetaCatalog).
  - ○ Requests/job can
    - ■ be send to other servers
    - ■ schedule data replication and local execution
- ➢ The same GUI/API for both usage patterns.
- ➢ Specific AstroLab plugins for LIVY or to make LIVY a plugin of something else (Guy ?).
- ➢ Data replicated lazily using other protocol (XRootIO, GridIO, HTTP,...).
- ➢ Possibility for replication subscription - streaming (i.e. to get all new data with some characteristics as they appear).
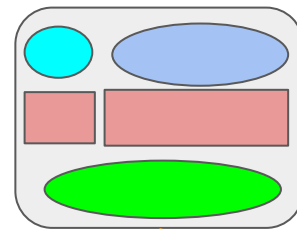
AstroLab & Others

- ➢ To provide effective data replication
    - ○ We need a coherent architecture of an AstroLab island
    - ○ Do we have anything ? Document ? Prototype ?
- ➢ What is the goal of the AstroLab, after all ?
    - ○ To integrate with the mainstream framework
    - ○ Or to develop an alternative ?