An HTTP ecosystem for HEP data management

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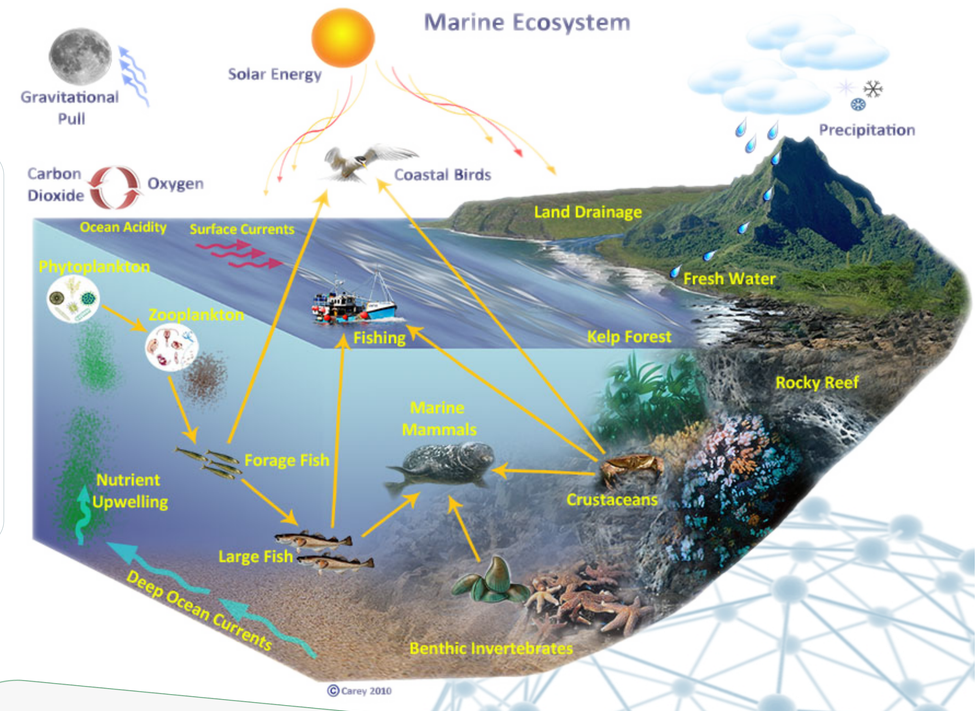
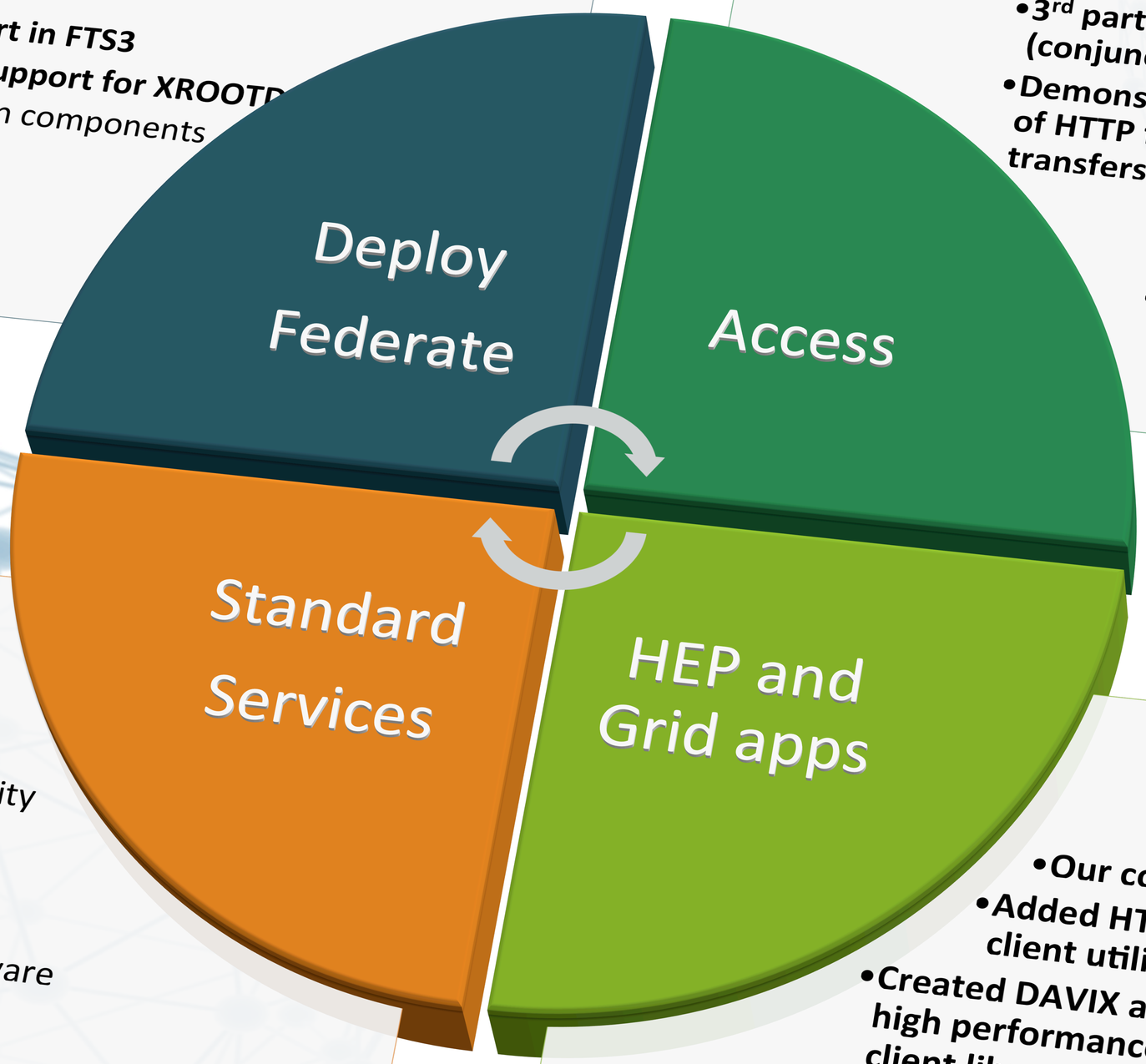
A critical mass of services and applications that use open standards and that support each other in giving services and access.
We contribute to this self-sustaining ecosystem using HTTP and WebDAV



- **Our contribution:**
  - **HTTP/DAV on DPM and LFC**
  - **High performance Dynamic Federations**
  - **HTTP support in FTS3**
  - **HTTP/DAV support for XROOTD**
- *Deploy common components*
- *Virtually Unlimited Scalability*

- **Our contribution:**
- **3rd party copy on DPM (conjunction with dCache)**
- **Demonstrated the performance of HTTP for HEP, also for WAN transfers**
  - *Performance*
  - *Robustness*
  - *Ubiquity*



- *Interoperability*
- *Cloud storage compatibility*
- *Browsers*
- *Use standard distros*
- *Grid Storage Elements can build on standard software like Apache*

- **Our contribution:**
- **Added HTTP support to the client utilities**
- **Created DAVIX a full-featured high performance HTTP/DAV client library**
- **TDavixFile in ROOT 5 and ROOT 6**

- The strenghts of HTTP and WebDAV are interactivity, flexibility, scalability.
- Use your browser to see your data, use WGET to download, use DAVIX for everything else
- Compatible with the ATLAS Rucio Data Management. Being used in production now.
- HEP Data Management services can be enhanced with HTTP and WebDAV without changing the existing functionalities, jobs can be run towards HTTP services as well.

- *Support the sophisticated data management requirements of HEP. Site independence, GRID collaborativeness, direct random access analysis*
- *Use the sophisticated HEP applications like ROOT*
- *Use DAVIX for full features + high performance*
- *Let vanilla stuff (e.g. browsers, curl) always work*

- Our contribution fills the gaps to support the advanced things of HEP
- **Converge with the requirements that other communities may have**
- **Head to long term sustainability**