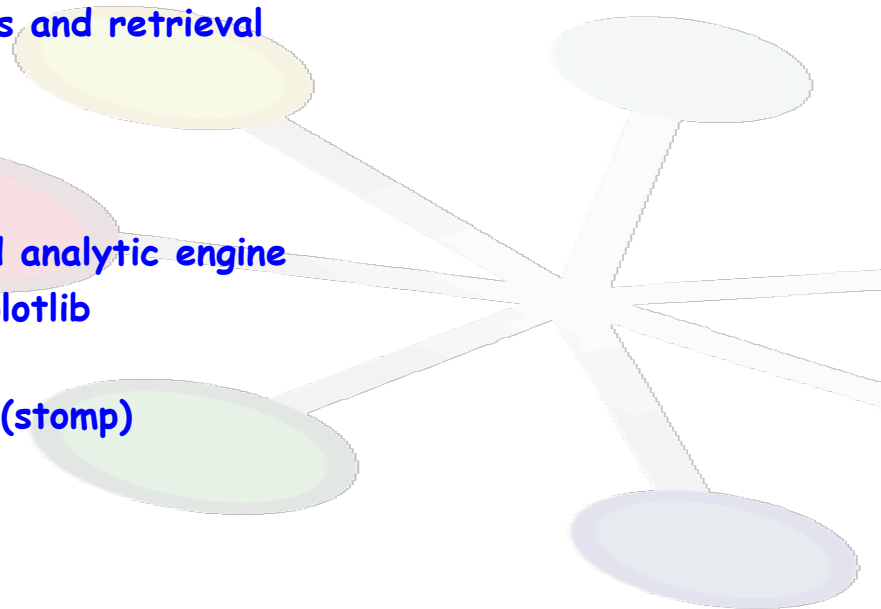




- Based on DIRAC framework and designed for:
 - Real time monitoring (WMS jobs, DIRAC components, etc.)
 - Managing semi-structured data (in our case JSON)
 - Efficient data storage, data analysis and retrieval
 - Provide good quality reports
- Use the following technologies:
 - Elasticsearch distributed search and analytic engine
 - DIRAC Graph library based on Matplotlib
 - DIRAC web framework
 - Messaging queue system as failover (stomp)





- Dedicated Plotter for each Monitoring type
- ReportGenerator based on DIRAC Graph library used to create the plots using the appropriate Plotter
- Plots are created on the service side using two level caching mechanisms:
 - DataCache: data used to create the plots kept in memory
 - FileSystem: plots stored in the file system
- The DIRAC web framework provided all functionalities used to visualize the plots (see [CHEP2015 paper](#)):
 - Does not require to learn external tools
 - Very simple selectors
 - Use of existing tools
 - Customization
 - Good quality plots
 - Authentication and authorization
 - Plot sharing/export mechanism

