

AGIS: The ATLAS Grid Information System

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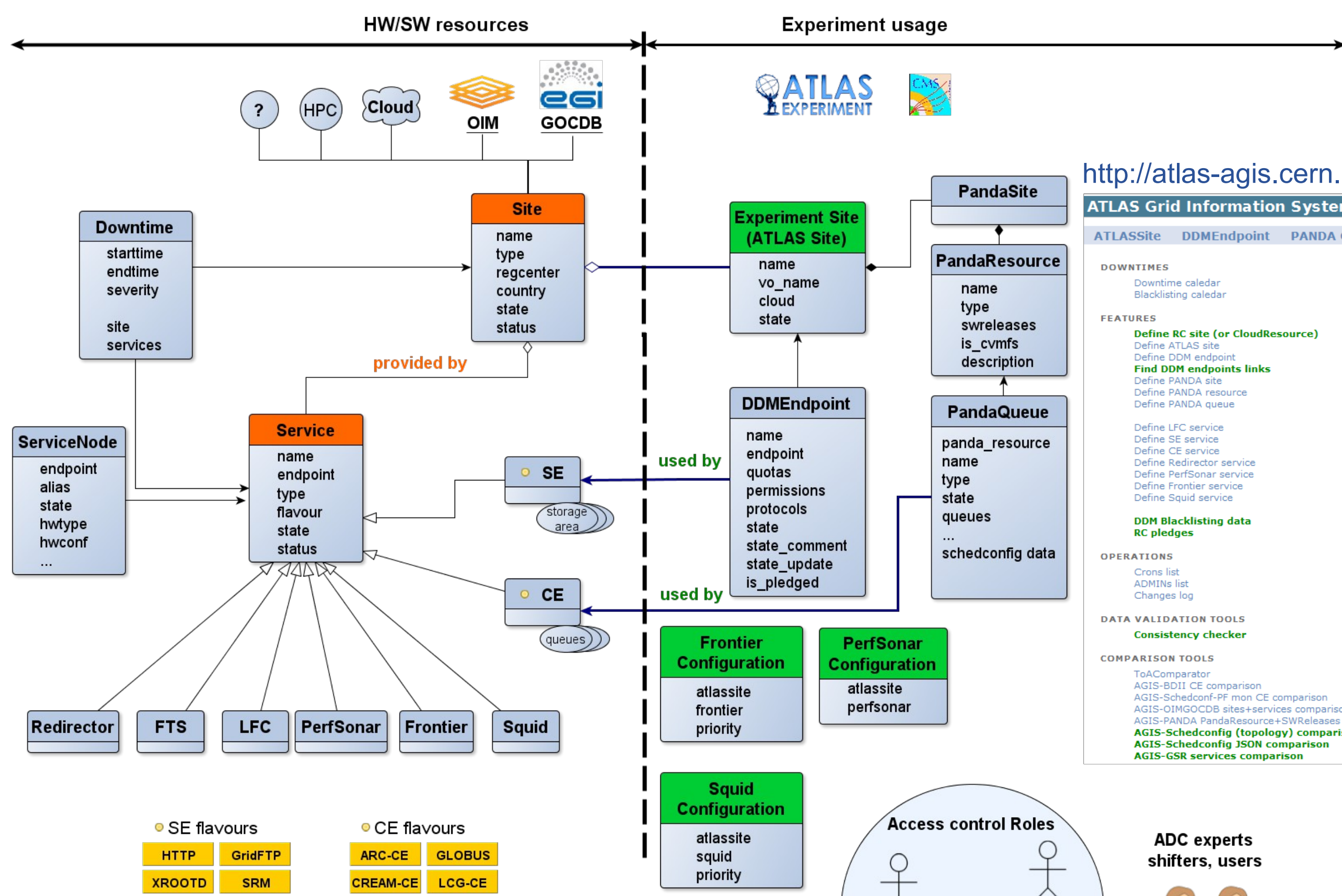
AGIS is the information system designed to integrate configuration and status information about resources, services and topology of the computing infrastructure used by ATLAS Distributed Computing (ADC) applications and services. The information system centrally defines and exposes the topology of the ATLAS computing infrastructure including various static, dynamic and configuration parameters collected from independent sources like gLite BDII (Berkeley Database Information Index), Grid Operations Centre Database (GOCDB), the Open Science Grid Information services (MyOSG).

Today AGIS is the primary source of information for all the ADC applications.

Experiment view of physical resources

The primary goal of AGIS is to facilitate, enable and define the relationships between physical computing resources **provided by** various sites and ones **used by** the experiment. Providing an abstraction layer from the physical resources AGIS allows the Experiment to define their own real organization of the resources.

The system automatically collects information required by ATLAS, caches and keeps it up to date, removing the external source as a direct dependency for clients but without duplicating the source information itself. Additional data models, object relations are introduced in the system to fit requirements of ADC applications.



FAX resources in AGIS

An example of recently implemented new data in AGIS is the FAX services organized to federate data storage resources using an architecture based on XRootD. FAX storage federation is a way to remotely access ATLAS data without necessity to know where the data files are physically stored.

AGIS provides a set of user-friendly WebUI forms to register and update FAX endpoint details, describe redirectors topology, specify and associate various access protocols with DDM endpoint and finally configure PandaQueue to enable FAX failover for PanDA Pilots. REST style application interfaces allow to retrieve FAX related data programmatically.

To support PanDA job brokerage decisions AGIS is extending data models and developing unified interfaces to integrate various site performance indicators and metrics (Sonar, PerfSonar, XrootD measurements) into common cost matrix.

Web User Interface

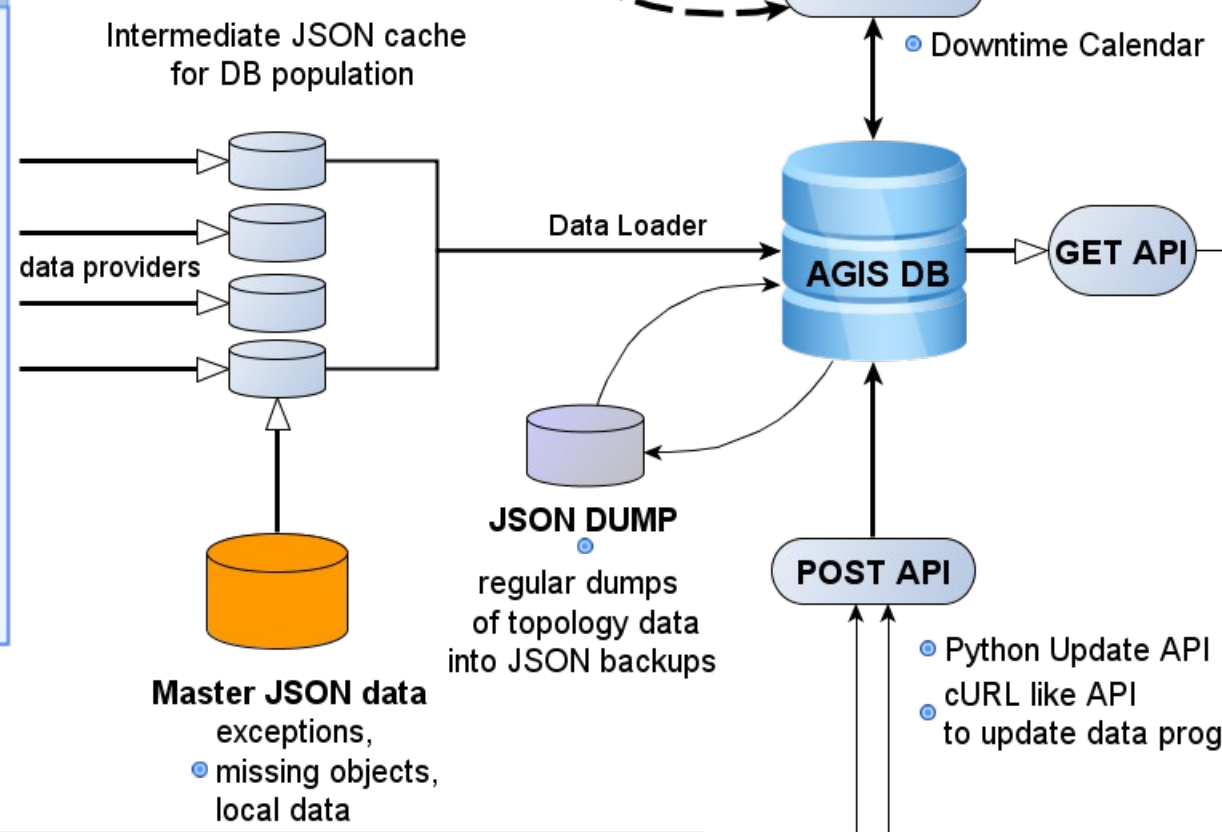
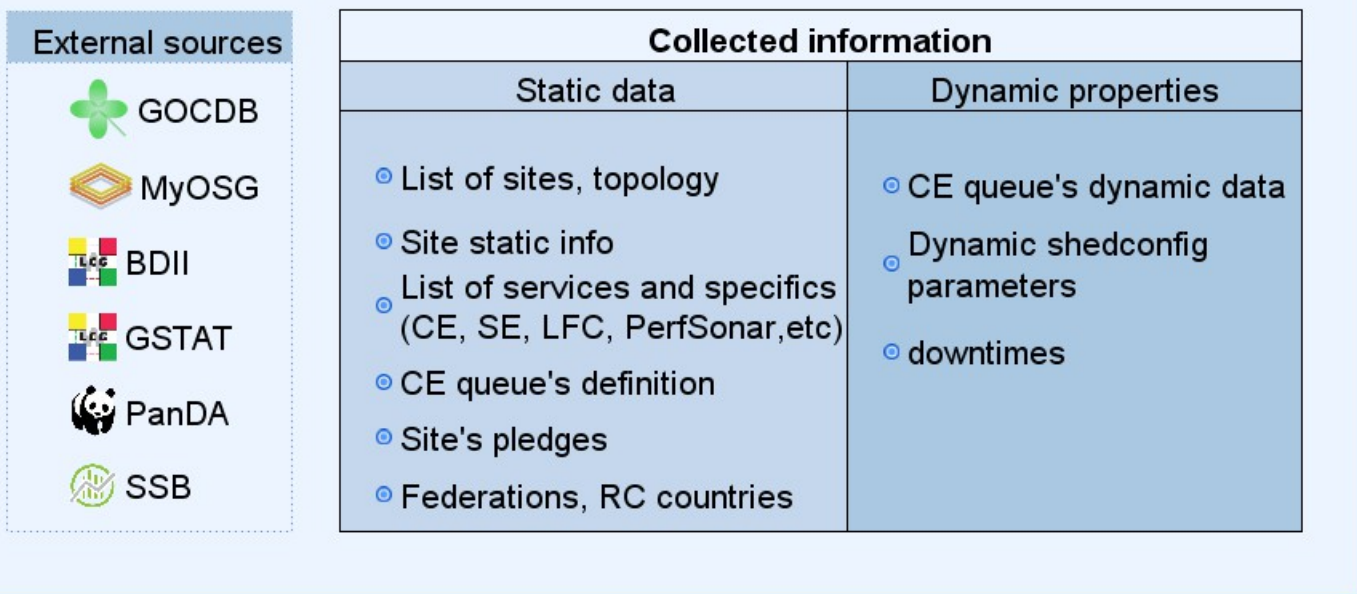
The WebUI is focused on the use by ADC community and does not require any special software development knowledge. Built-in tooltips and integrated help messages into the update information forms, completely prefilled example forms, clone object and bulk update functionalities increase usability for the majority of users.

Implemented data validation checks, auto-completion of form field values (e.g. suggestion to site name or service endpoint) enable user to quickly find and fill in form fields while browsing or updating information stored in AGIS.

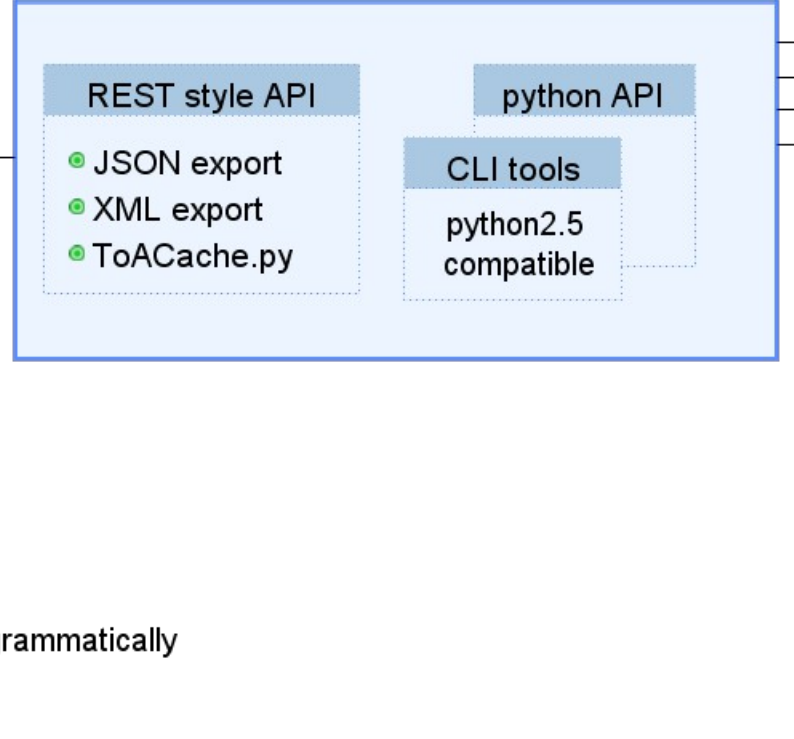
AGIS WebUI main features include:

- declare and update information related to ATLAS site topology, DDM storage elements, PanDA computing resources
- a set of interactive table views to browse the topology of ATLAS sites, its resources
- tree based hierarchical listing of site resources presented from DDM/PanDA views
- definition of Site services (CE, SE, LFC, Redirector, PerfSonar, Frontier, Squid)
- bulk updates of object properties
- Frontier-Squid configuration management
- PerfSonar configuration management
- XROOTD redirectors topology definition
- Cloud Resource, top-level RC Site definition
- comparison and data validation tools (consistency checkers, comparators used to check static info in AGIS against external sources like BDII, GOCDB, OIM)

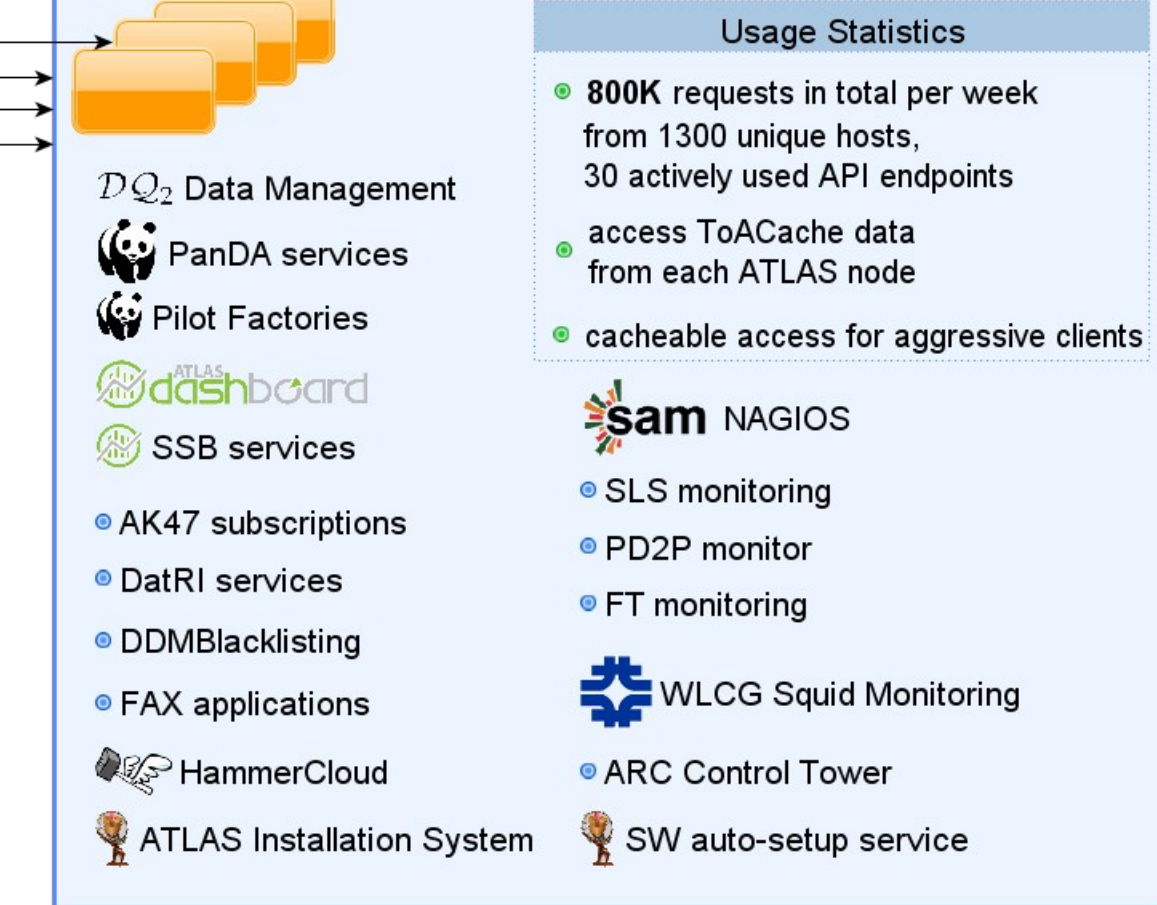
AGIS Collectors



Data Export Application Interfaces



ADC applications and services



REST style API

The goal is to achieve a flexible integration of AGIS functionality with ADC services. It mainly concerns the evolution of API front end to become REST style oriented. To meet this demand previously used AGIS python API has been migrated to REST full interfaces providing data export in JSON format. Implemented functionality to easily select and use multiple structures of output data (JSON presets suitable for specific client), filtering support and the variety of developed REST services help to increase the number of clients using AGIS in production.

AGIS functionalities allow the ADC community, experts and shifters to configure and operate production ADC systems and Grid applications.

Recently implemented AGIS updates (Cloud Resources definition and top-level (GOCDB, OIM) site objects declaration, VO separation within the system, functionality to define non ATLAS computing resources) open possibility to extend the system application for other HEP experiments. Some CMS computing resources are already defined in AGIS and used by PanDA.

AGIS is evolving towards an experiment-non-specific information system.