

ADAM Project – A generic web interface for retrieval and display of ATLAS TDAQ information.

This paper describes a new approach to the visualization of stored information about the operation of the ATLAS Trigger and Data Acquisition system.

ATLAS is one of the two general purpose detectors positioned along the Large Hadron Collider at CERN. Its data acquisition system consists of several thousand computers interconnected via multiple gigabit Ethernet networks, that are constantly monitored via different tools. Operational parameters ranging from the temperature of the computers, to the network utilization are stored in several databases for a posterior analysis. Although the ability to view these data-sets individually is already in place, there currently is no way to view this data together, in a uniform format, from one location.

The ADAM project has been launched in order to overcome this limitation. It defines a uniform web interface to collect data from multiple diversely structured providers. It is capable of aggregating and correlating the data according to user defined criteria. Finally it visualizes the collected data using a flexible and interactive web front-end system.

Structurally, the project comprises of 3 main levels of the data collection 'cycle':

The Level 0 represents the information sources within ATLAS. These providers do not store information in a uniformed fashion. The first step of the project was to define a common interface with which to expose stored data. The interface designed for the project originates from the Google Data Protocol API. The idea is to allow read-only access to data providers, through HTTP requests similar in format to the SQL query structure. This provides a standardized way to access this different information sources within ATLAS.

The Level 1 can be considered the engine of the system. The primary task of the Level is to gather data from multiple data sources via the common interface, to correlate this data together, or over a defined time series, and expose the combined data as a whole to the Level 2 web interface.

The Level 2 is designed to present the data in a similar style and aesthetic, despite the differing origins of the data. Pages can be constructed, edited and personalized by users to suit the specific data being shown. Pages can show a collection of graphs displaying data potentially coming from multiple sources.

The project as a whole has a great amount of scope thanks to the uniformed approach chosen for exposing data, and the flexibility of the Level 2 in presenting results.

The paper will describe in detail the design and implementation of this new tool. In particular we will go through the project architecture, the implementation choices and the examples of usage of the system in place within the ATLAS TDAQ infrastructure.

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