The PDV (PVSS Data Viewer Application) is an industrial SCADA application, used for detector control system (DCS) operation at the Pixel detector of the ATLAS experiment. It provides a user interface to access and monitor data from the DCS subsystems.

Context and Origin of Data

The ATLAS experiment uses PVSS, an industrial SCADA application, for its detector control system (DCS). A custom driver establishes a connection to a central Oracle instance, allowing monitoring of the raw data in real-time.

Data Storage and Caching

The DCS consists of 14 DPEs, each associated with a subdetector. When a DPE is initialized, the application automatically loads its schema from the Oracle instance and caches it for subsequent use. This ensures that data can be accessed transparently to the user, regardless of the system environment or operating system.

Data Reconstruction (and recompression)

As the PDV software aims for complete transparency, automatic reconstruction of data is performed to display raw data in a format that matches the user's expectation.

Application Features 1: DPE search

The DPE Selector window allows users to search for DPEs by name, pattern, or description. Information is stored in the PvssDb tables for quick retrieval.

Application Features 2: DPE search

PDV supports data compression and decompression, allowing users to export data in desired formats, which speeds up data transport and storage.

Application Features 3: History

Users can access the history of data queries, which is stored in the PvssDb, to retrieve previous results. This feature helps in monitoring trends and analyzing the data over time.

Application Features 4: Export and Save Data

The PDV application allows users to export data in various formats, including PDF, CSV, and PNG, facilitating data sharing and analysis.

Technical Implementation

A data flow diagram outlines the architecture of the PDV application. The user interacts with the Display and DPE Selector components. The PDV application includes a front-end data viewer that displays data in real-time, allowing users to interact with the data in a transparent manner.

The PDV application is based on Eclipse IDE and uses a combination of Java and XML technologies. The source code is managed using SVN and is available on Savannah for feedback and bug tracking.

Future and Experience

The PDV application has been in use for over two years, providing valuable insights into DCS data analysis and user interaction. The team has learned that iterative development is crucial for maintaining user satisfaction.

References

The PDV application is available at http://pvss.atlascern.ch, and the source code is hosted on the SVN repository. More information can be found at http://cern.ch/twiki/bin/view/Atlas/PDV.

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