

Summer

The TJCAA Quarterly

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Enterprise Historian Applications: Storing the Past and Shaping the Future

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TJCAA's Senior Control Systems Engineer, Andrae Rauch, talks about Enterprise Historians.

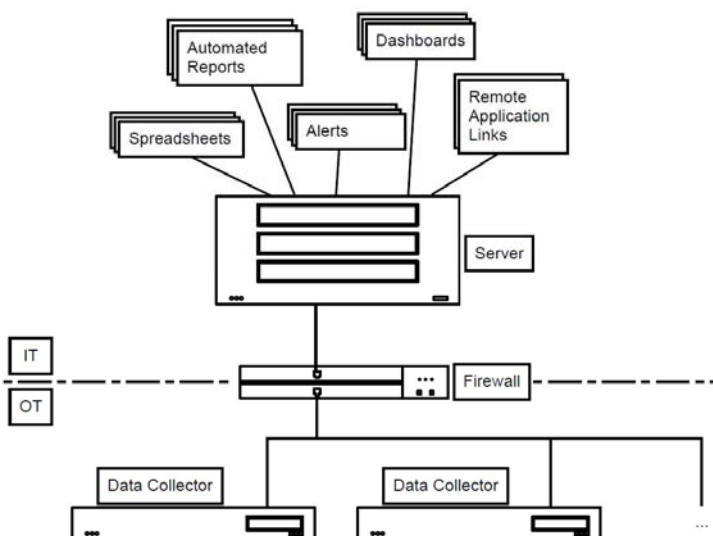
We'd like to share with you some of the exciting and useful takeaways from our review that may help you. But first, what are enterprise historian and visualization software applications?

Think of the historian application as a database that stores sampled operational data like flow, level, pressure, water quality, valve position, and pump run status values, and provides that information to other software applications upon request. Historian databases typically come with data collection software that automatically creates the data samples. The historian database stores the sampled data along with important information like the date and time of the sample.

TJCAA's Control System Programming (CSP) group recently reviewed seven different enterprise historian database and visualization software solutions for a client planning to replace their existing end-of-life system.

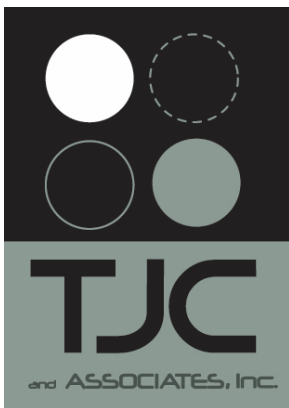
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The historian application can then easily store and access years of data samples for future analysis. The term "enterprise" refers to the scope of the historian application as it collects data from sources throughout an organization. Of course, there is no point storing data unless it is used. This is where visualization software comes into focus.

As the name implies, visualization software provides tools to see the data in meaningful ways. We all know the value of data for making good decisions. So do the developers of these software solutions. Their programmers create interactive dashboard environments (think stock market or airport flight tracking, etc.) and easy to use software tools to fill them with numeric and graphic representations of the data from the historian database and other places. These dashboards can be private or shared with people inside and outside the organization.

Now let's jump to the exciting and useful takeaways from our recent review of enterprise historian and visualization software from providers like Aspen Technology, AVEVA, Canary Labs, and GE Vernova.

- Reliable data sources, data collection, and storage are the foundation of a good system. Time series database technology is best suited for these applications and can be kept within an organization, in

the cloud, or both, depending on the solution provider.

- The historian database typically lives on the IT side of an organization, creating opportunities to use and share the data without impacting the operational side of the organization, including connecting to cloud-based providers and websites. The data collection software lives on the operational side of an organization with a secured path to communicate with the historian database.
- Historian databases can calculate and store sampling results based on other data point(s). Look for providers that can apply these custom calculations not only moving forward, but also to past data.
- Most historian applications can be configured to normalize and organize data access and present standardized names and grouping of data points to end-users for use in visualization and analysis.
- Visualization tools are designed for programmers and non-programmers alike, encouraging end-users to create their own dashboards to apply useful calculations and visualization techniques to view the data in meaningful ways and share with others. Users of applications such as Microsoft's Power BI will understand the power of this type of customization.

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- Visualization is typically implemented through a web browser, but some providers offer traditional client software.
- Visualization is not only historical but can mimic a traditional SCADA HMI with process flow diagrams and equipment symbols (but read-only), showing the most current information available from the historian database, but with slower data update rates.
- Are you a fan of Microsoft Excel? Most historian products provide a connection to Excel to leverage existing spreadsheets and/or the features of Excel.
- Historian products typically provide configurable communication methods like e-mail to send alerts based on data values and scheduled reports.
- Costs vary from almost free to pricey. Most providers charge a fee for their products based on the number of data points sampled. Some charge a fee for the number of users, while others allow for unlimited number of end-users. Some charge extra for connections to other systems and others do not.
- The software applications provide tools to store, access, and display the data, but the end-user adds meaning to the data by creating useful associations, calculations, and dashboards based on the data.

Please reach out to TJCAA if you have software evaluation needs or would like some input on an enterprise historian and visualization solution.

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