

## INDUSTRY WATCH

# Big Data or Big Confusion?

BY SCOTT AFFELT, PRESIDENT, XMPLR ENERGY LLC

**D**uring POWER-GEN Natural Gas in August, there was a lot of discussion about Big Data and data analytics. Although data analytics was a hot topic, few seemed to understand what exactly it is, how it adds value to generation assets and how it fits with predictive asset health management and condition-based maintenance initiatives. Additionally, there was confusion about how data analytics is being offered in the marketplace – via a platform, a solution or an application?

For starters, data analytics combines domain knowledge, advanced statistical techniques and computing power to examine large data sets and uncover hidden patterns, unknown correlations, trends and other useful business information. Data analytics add value because they can improve the performance, efficiency or reliability of generation assets. Condition monitoring and Advanced Pattern Recognition (APR) solutions were the earliest applications of data analytics in the industry to identify potential faults in turbines and other rotating components.

Since then, lower sensor costs and better computing capability have contributed to many advancements in data analytics. For instance, leading-edge APR solutions can now detect anomalies earlier and more accurately than before, diagnose the cause of the anomaly and predict the remaining useful life (RUL) of the asset. More accurate identification of these anomalies prevents the dreaded “false alarms” that once plagued previous generations of APR solutions. Furthermore, cause diagnosis and RUL prediction optimizes the performance and reliability of these assets and allows the move to condition-based maintenance programs.

Most major industry players now offer

data analytics as part of their portfolio but varying business models are being used to offer these solutions, and this is causing further confusion.

## THE PLATFORM APPROACH

GE recently introduced its Predix enterprise platform, which includes built-in data collection and analytics capabilities such as the SmartSignal APR software. Most of these capabilities aren't new, but GE has integrated several of them into a common platform and suite of applications. Third party developers can also create applications or “Apps” on the Predix platform and offer them directly to customers. This is very similar to the Apple iOS platform approach that has both built-in Apps and third-party Apps. In some cases, the third-party Apps are actually better than those offered by Apple. The advantages of this platform approach are seamless integration, greater communication across the enterprise applications and a vibrant platform for new App development.

## THE STAND-ALONE SOLUTION APPROACH

Schneider Electric has taken a more traditional approach, offering several stand-alone solutions including its PRISM APR software. PRISM uses data analytics as part of a solution to a specific problem: Asset reliability. This approach is analogous to Windows' Office Suite of Word, PowerPoint and Excel. Each package addresses a specific issue, but all have a common look and feel. This model results in a focused, robust and very effective solution set instead of the tightly-integrated enterprise applications of a platform. Still, it allows users to select the best solution for each problem.



## APPS AND/OR EMBEDDED SOLUTION APPROACH

The real advancements in data analytics are being driven by specialty companies focused on data analytics. With more advanced analytic techniques, you can achieve more accurate anomaly detection and fewer false alarms. Additionally, with robust diagnostics and prognostics, users get more value than simply detecting the anomalies.

These companies offer stand-alone analytics solutions, and some can even integrate their analytics capabilities into other vendors' platforms or solutions. For example, developers can create APR applications for the Predix platform that offer better or more flexible functionality than current offerings. Alternatively, APR “engines” that offer leading-edge capability can be embedded into more established legacy solutions to enhance functionality. For instance, Expert Microsystems' SureSense software is offered as both a stand-alone APR + diagnostic + prognostic solution or as an APR “engine” that can be embedded into other control systems, asset management or remote monitoring solutions. This approach provides a more flexible architecture to customize solutions for both customers and major enterprise solution providers that do not have in-house expertise.

Despite the potential confusion on how data analytics is offered in the power market, it's clear that data analytics will play a major role in improving the reliability and utilization of generation assets. Whatever approach works best for your needs, make sure you have the most advanced capabilities in your data analytics solutions in order to see the best results. **pe**