Cloudy with a 100% Chance of Enhanced Operational Efficiency
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Software as a Service (SaaS), also commonly referred to as "cloud computing" or "on-demand services," is sweeping through enterprises in just about every industry. With SaaS, a customer licenses an application for use as a service on demand, either through a time subscription or a "pay-as-you-go" model rather than purchase the hardware and software to run a standalone application on their own. In a SaaS model, customers need only a computer or a server to download the application and Internet access to run the software. While there is a considerable amount of hype around on-demand services, there are some very real advantages plants can leverage to enhance operational efficiencies, improve reliability and drive ROI up from their predictive maintenance and condition monitoring programs.

The catalyst behind increasing interest in on-demand services in manufacturing is plants' requirements for services that deliver reliable information and analysis, accessible anywhere in the world 24 hours a day, 7 days a week. SaaS technology enables this "always on" business culture and removes the responsibility of implementing and maintaining IT infrastructure, which require hardware investments, software licensing and support costs. Rather than spending time managing an IT network, plant managers are free to take on critical projects that will help them reach their reliability and uptime goals.

The Cloud is Accessible to Everyone

One of the primary benefits of cloud computing is that only minimal PC and technical components are necessary because cloud computing resources remain on the remote data center site. In many cases, the web services deliver content to a thin client machine via a web browser. The client computer resource requirements are low, needing only a decent Internet connection to the data center and basic Windows components such as a Remote Desktop client and modern web browser.

The first question many manufacturing companies have when it comes to adopting a new technology like SaaS is whether it will require major up-front capital investments. Oftentimes, even if the application or operating systems itself isn't expensive, plants will need to prepare their current infrastructure for the new product's integration, which can lead to unforeseen costs. SaaS, however, is not one of those technologies.

Look Beyond Cost-Savings to Business Benefits from the Cloud

Though SaaS has considerable cost benefits, plants that rely on the cloud solely for that reason are selling the technology short. The first, and most important reason, plants should evaluate SaaS for their IT infrastructure is because it enables managers and employees to better share the results of their maintenance and reliability efforts. Rather than sharing information amongst a small group in the engineering department, general machine condition health information can be accessed by all stakeholders in the enterprise or local plant. This way, the condition monitoring program does not operate in a bubble and is accessible to personnel from operations, management, maintenance and engineering who are then in a position to make informed decisions that affect plant production and outage planning. This ensures the plant runs smoothly and managers outside of the condition monitoring program always have the most current machine condition information.

For example, Australia's Bearing Supply Company (BSC) leverages the SaaS IT model to promote collaboration. BSC's Engineering Services provides manufacturing companies with complete reliability programs using a variety of technologies and services – many of them delivered via Azima DLI's WATCHMAN Reliability Portal. Rather than collect data from individual field engineers and compiling

them into reports, information is uploaded to a centralized area where the information can be accessed and acted upon by both BSC personnel and its clients. The seamless integration of experts, data collection technicians and customers that are on opposite sides of the globe creates a 24/7 data cycle that allows the company to improve its client service.

Remote access greatly enhances condition monitoring data analysis practices. Cost-cutting and lean manufacturing have led to a more distributed workforce including many remote employees. In this scenario, SaaS can have great benefits because isolated employees need only an Internet connection to perform a review or analyze work. For instance, ordinarily a technician would collect machinery health information on a data collector and download information at the end of the day to a terminal where it would then be stored for analysis. In a cloud computing environment, the worker can upload the information using a wireless network so remote engineers can review the data in near real-time as well as store and retrieve data history and reports, giving them the ability to accurately assess the situation on the ground rather than having to re-deploy a technician to fix a problem after they have come back from the field.

Tackling Fear of the Cloud

Fear of cloud computing has been widely publicized within the media. In fact, according to the ISACA IT Risk/Reward Barometer survey, nearly half of the 1,809 US IT professionals surveyed said that the potential risks associated with cloud computing outweigh its benefits and that 25 percent of respondents do not plan to use the cloud for any IT services. This data is misleading because SaaS is a relatively new technology for the manufacturing industry and the benefits and risks have not been clearly defined as of yet. The technology is maturing but is still in its relative infancy and many companies are currently evaluating the technology to see how it fits within their IT infrastructure. Much of the claims made against SaaS are groundless and rooted in a fear of the unknown. With the right education and partner, a plant can easily become more comfortable about the safety, security and reliability of its data in the cloud.

The key to alleviating cloud fears is to evaluate the potential SaaS partner's network and security model and see how well it maps to the plant's infrastructure. The customer's IT department should be directly involved in these discussions from the start. They are truly the experts and have a specific set of criteria for their own enterprise network. Here is a quick list of questions you should be asking that are helpful in appraising a cloud vendor's security model:

- Do you clearly understand how the cloud computing offering works from the SaaS vendor?
- Does the vendor meet the IT security model of your plant?
- Does your plant have the delegated ability to control access to their system?
- Will your plant have clear lines of communication with the vendor for sales and technical support needs? Does the vendor have a structured change management and patch management process?
- Can I obtain a copy of my data if I need to?

Flexible Cloud Deployment Models

An underreported benefit to deploying cloud computing within your IT infrastructure is the flexibility it offers. While many companies wring their hands when thinking about sharing their sensitive information

with a third party, SaaS technology has matured to the point where manufacturing organizations can put as much, or as little, data in the cloud as they are comfortable with at any one time.

ACME Industrial Services is an integrated plant reliability maintenance company that uses the cloud to centralize all of its field engineers who are stationed all over the world. ACME's central facility in Hyderabad, India is fully integrated with the field engineers by using a predictive maintenance SaaS solution hosted by Azima DLI on the other side of the globe in Tukwila, Washington. At the central facility, engineers provide machine condition analysis support and the results are published within the cloud. Customers can then view detailed condition information for their machines within their local plants rather than relying on spreadsheets delivered by email or other analog channels. In this example, the cloud provides an infrastructure that allows an Indian services company to streamline its workflow and better serve its clients from a central location.

An Australian premium provider of bearings, Continental Bearing Company (CBC), also leverages the cloud in a customer-facing application. CBC utilizes the Azima DLI cloud to connect their customers and field services technicians to Azima DLI analysts located throughout the United States. The analysis is executed on servers in the cloud allowing the results to be published instantly via Azima DLI's WATCHMAN Reliability Portal. This value added is branded with CBC's logo so the service is transparent to the Australian industrial market and helps establish CBC as a one-stop shop for Australia's bearings market.

Admittedly, cloud computing is still at nascent stages of adoption for predictive maintenance and condition monitoring initiatives, so we strongly recommend "doing your homework" along with implementing a thorough evaluation of a potential SaaS partner. Customer support, uptime and security protocols should be at the forefront of your discussions when evaluating vendors, especially if this is your first foray into the cloud. A good SaaS partner is critical as it will be the key in helping your plant achieve the performance and budget goals that will catch the eye of senior management and keep your predictive maintenance and condition monitoring programs running smoothly.