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The Internet and the World Wide Web are subjects of enormous interest and excitement. But what do they really mean to the world of asset maintenance?

There is no doubt that web enablement offers enormous potential for improvements in performance in almost all aspects of business. But how are real and sustainable benefits for maintenance professionals identified? Maintenance of durable assets is a central driver of these computerized systems-- enterprise asset management (EAM) systems, computerized maintenance management systems (CMMS), or enterprise applications for asset management--which assist organizations in managing the complete asset lifecycle.

The benefits of web-enabling enterprise applications for asset management can be grouped into several categories of increasing sophistication:

Web enabled--Users can access the EAM system via a web browser through either the Internet or an intranet.

These systems facilitate the ease of use for casual users as the browser is familiar to most people. They also facilitate easy deployment and prove a lower cost of ownership.

But a browser interface does not mean an EAM system is e-business enabled. It is essential that the system can be accessed across the Internet and can pass easily through firewalls. The EAM system also must provide access to other Internet devices--for example, wireless application protocol (WAP) devices and personal digital assistants (PDA), especially for a mobile work force.

E-commerce enabled--The ability to exchange transactional data via the Internet.

This allows business processes such as procurement to be automated using the Internet. When coupled with the maintenance planning and procurement capabilities of an EAM system, e-commerce capability can reduce administrative work, ordering lead times, and inventory

levels, increasing profitability.

C (collaborative)-commerce enabled--The ability to collaborate with suppliers and business partners via the Internet.

This improves predictive maintenance capabilities and problem solving, reducing costs and maximizing asset life and availability. For example, operating statistics from assets can be fed real-time via the Internet to manufacturers who then send back maintenance recommendations. Similarly, in a repair situation, the manufacturer or contractor can use the Internet to access asset history data to conduct collaborative analysis and problem resolution with the organization.

EAM architecture
Several issues are important to understanding the importance of EAM system architecture:

Scalability. Scalability describes how an application can adapt to increases in business transactions and user populations while maintaining acceptable performance. Scalability impacts the ability of an organization to expand its use of its EAM system and to protect and leverage the investment. Traditionally, growth in the use of EAM systems was driven by growth in the size of the organization. Now, the big wildcard for scalability is the Internet and the increasing adoption of e-business.

Organizations need an architecture that can incrementally grow as the use of e-business grows. The benefits of e-business are realized by opening up the EAM system to integrate with other organizations, such as suppliers and business partners. To achieve these benefits, EAM systems should scale to handle much larger volumes of transactions.

The Internet. The EAM system should offer true e-business capabilities to enable interaction via the Internet for both e-commerce (transactional) and c-commerce (informational) exchange with other organizations. An example of c-commerce is using the Internet to request quotes for maintenance contracts, to exchange information with potential bidders, to select the successful bidder, and to disseminate work requirement information.

A contractor can directly access the EAM system to start work and record progress, saving time and automating many administrative tasks. Scheduling asset downtime for maintenance can be managed remotely through the Internet to ensure optimal use of maintenance resources and maximize asset availability. Again, the scalability issue is essential to ensure the EAM system can deliver these business benefits.

Multi-tier architecture. Maximum flexibility and scalability is achieved through an EAM with a multi-tier web architecture where each of the 4 layers (presentation/Internet device, web server, application server, and database server) is loosely coupled and can be deployed on separate computing devices, implementing the most appropriate technology to do the job for each layer. A multi-tier architecture allows each layer maximum productivity--meaning DBMSs manage data, application servers execute business logic, web servers issue HTML/DHTML/XML, and the presentation/Internet device operates in a true thin client model.

This model also allows the EAM system to provide e-services. These services allow other portals and applications to access data and business logic from the EAM system across the Internet using HTTP and XML.

Two-tiered applications have a number of limitations, including limited application deployment flexibility and significantly restricted scalability.

Other system capabilities

A tailored information portal gives the user the ability to have relevant information from many sources presented in a single browser form (or webtop), greatly simplifying and speeding the interaction between the user and the job requirement data. The information displayed should be able to be tailored to the needs of individual users. For example, a maintenance planner may have his personal portal display the details of top priority work orders from the EAM system, and use decision support tools and links to key web sites such as contractors and manufacturers.

The right technology is essential to realizing the benefits possible through the Internet. But equally important is selecting an EAM provider that has the ability to understand your entire business and add real value to your business.

To provide gains in productivity and profit margin to asset-intensive organizations, a

web-architected EAM system is essential. However, it is not enough to fully realize the benefits of e-business. It is equally essential to have a platform to integrate an organization's application systems, EAM, and other systems into a comprehensive enterprise solution. Additionally, it requires the ability to go further by integrating systems with solutions from suppliers and partners into a single, extended enterprise across the Internet. **MT**

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