.NET
and the Future of
Enterprise Asset Care

As enterprises begin to embrace the Internet architecture and deploy their mission critical applications with new technologies, the Internet is fast becoming the preferred platform for delivering solutions for complex business processes. The obvious benefit of Internet applications is the familiarity with the user interface, resulting in ease of use and rapid training. For the enterprises, the elimination of many deployment issues and making the solutions available to employees, partners and suppliers result in improved productivity and profits.

The leading technology companies, IBM, Microsoft, Sun and several others, have announced Internet initiatives and products for development, deployment and support of enterprise solutions. Microsoft has named its Internet initiative .NET. We believe .NET will have a greater appeal for the larger IT organizations as most of their customers will be already familiar with Microsoft products because of what they have on their desktops. The cost of the technology and the availability of trained personnel will also be important considerations in selection of the tools. Here again, we feel Microsoft will have an edge over its competitors.

What is .NET?[1]

Basic Elements of .NET

.NET is a set of Microsoft software technologies for connecting information, people, systems, and devices. It facilitates easy software integration through the use of XML Web services, which are defined as small, discrete, building-block applications that connect to each other—as well as to other, larger applications—via the Internet. .NET technology enables the creation and use of XML-based applications, processes, and Web sites as services that share and combine information and functionality with each other.

.NET is infused into the products that make up the Microsoft platform, providing the ability to quickly and reliably build, host, deploy, and utilize secure and connected solutions using XML Web services. The Microsoft platform provides a suite of developer tools, client applications, XML Web services and software necessary to form a connected enterprise.

[1] www.Microsoft.com

.NET Framework

The Microsoft .NET Framework is an environment for building, deploying, and running XML Web services and other applications. It consists of:

1. The .NET Framework programming model that enables developers to build Web-based applications, smart client applications and XML Web applications for deployment over a network using standard protocols such as SOAP and HTTP.
2. Developer tools, such as Microsoft Visual Studio® .NET, which provide a rapid application development environment for programming with the .NET Framework.
3. A set of server software, including Microsoft Windows® 2000 operating system, Microsoft SQL Server™ data base and Microsoft BizTalk® Server, that integrates, runs, operates and manages XML Web services and applications.
4. Client software, such as Windows XP, Windows CE and Microsoft Office XP, that helps developers deliver solutions across a family of devices and existing products.

XML Web Services

XML Web services are the fundamental building blocks in the move to distributed computing on the Internet. Open standards and the focus on communication and collaboration among people and applications have created an environment where XML Web services are becoming the platform for application integration. Applications are developed using multiple XML Web services from various sources that work together, regardless of where they reside or how they were implemented.

XML is changing the way we build and use software .The Web revolutionized how users talk to applications. XML is revolutionizing how applications talk to other applications—or more broadly, how computers talk to other computers—by providing a universal data format that lets data be easily adapted or transformed:

XML Web services let applications share data, and invoke capabilities from other applications without regard to how those applications were built, what operating system or platform they run on, and what devices are used to access them. While XML Web services remain independent of each other, they can loosely link themselves into a collaborating group that performs a particular task.

XML Web services also make it possible for developers to choose between building all pieces of their applications, or using XML Web services created by others. This means that an individual company doesn't have to supply every piece for a complete solution.

XML Web services are invoked over the Internet by means of industry-standard protocols including:

1. SOAP (Simple Object Access Protocol), an XML-based messaging technology
2. XML, the universal language of Internet data exchange and
3. UDDI (Universal Description, Discovery and Integration). UDDI is a public registry, offered at no cost, where one can publish and inquire about Web services.

What .NET means to Enterprise Asset Management (EAM)

With .NET software and services, businesses can realize improvements in the time and cost associated with developing, implementing and maintaining their EAM solutions designed to optimize their physical assets such as employees, equipment, facilities, vehicles and parts. They will also benefit from empowering employees with the ability to act on vital information anywhere, from any smart device. Here are some of the benefits of Internet based EAM system:

Integration

With the modular aspects of .NET based EAM, an enterprise's maintenance processes can interact with other applications hosted internally, as well as with other remote systems, allowing businesses to quickly and economically create specialized solutions that meet unique business needs. With the advent of .NET EAM, the communication problems encountered between engineering, production and maintenance should be a thing of the past.

Integrating Within

XML Web services offer great value to organizations. They present the opportunity to bridge applications and information written in different programming languages and residing on differing platforms. In this manner, applications from departments such as HR and Accounting can integrate information as XML with .NET based EAM, sharing information to create a comprehensive solution.

Integrating with Partners

Not only can companies more easily integrate internal applications, they can also access services offered by other businesses. By combining XML Web services exposed on the Internet, companies can create a wide variety of value-added applications. For example, .NET based EAM could integrate with a supplier's inventory control and fulfillment mechanisms, and purchase order tracking to create a comprehensive supply chain management system.

Collaborative Asset Care

.NET EAM will promote new collaboration opportunities between suppliers and users. For example, both parties will be able to share equipment data and be able to act on it anywhere, anyplace, and at anytime. Users will work closely with suppliers to implement best practices and optimum solutions for asset care, thereby improving the equipment performance and life span.

eProcurement

Creating XML Web services and exposing them on the Internet also provides another key advantage: it greatly expands the number of business partners that can come in contact with a business's services. A large maintenance department could expose an XML Web service of its MRO parts, services and supply needs and delivery schedules. The pre-approved vendors, connected to the company's .NET EAM, can review this information and provide competitive bids to meet the MRO needs of the enterprise. Such a process will optimize spare parts inventory, and improve purchasing efficiencies.

Rapid Development

.NET Framework empowers EAM users to demand new features to extend their solutions quickly and easily. The users now understand that applying rapid application development techniques to Web applications and services increases developer productivity, saving both time and money. Seamless deployment, as well as the ability to use existing XML Web services, presents substantial savings opportunities for the corporate IT department, making it easier to meet the demands of the users

Ease of Deployment

The .NET Framework makes it easier than ever to deploy and update applications. EAM system can be installed on a single server, with users accessing the application on the Internet. The enterprise can deploy the solution either on their server or can have it hosted with an Application Service Provider. This approach would reduce the Total Cost of Ownership substantially as the company does not have to invest in servers and server software. The cost of administering and maintaining the application are also eliminated.

Empowering Employees

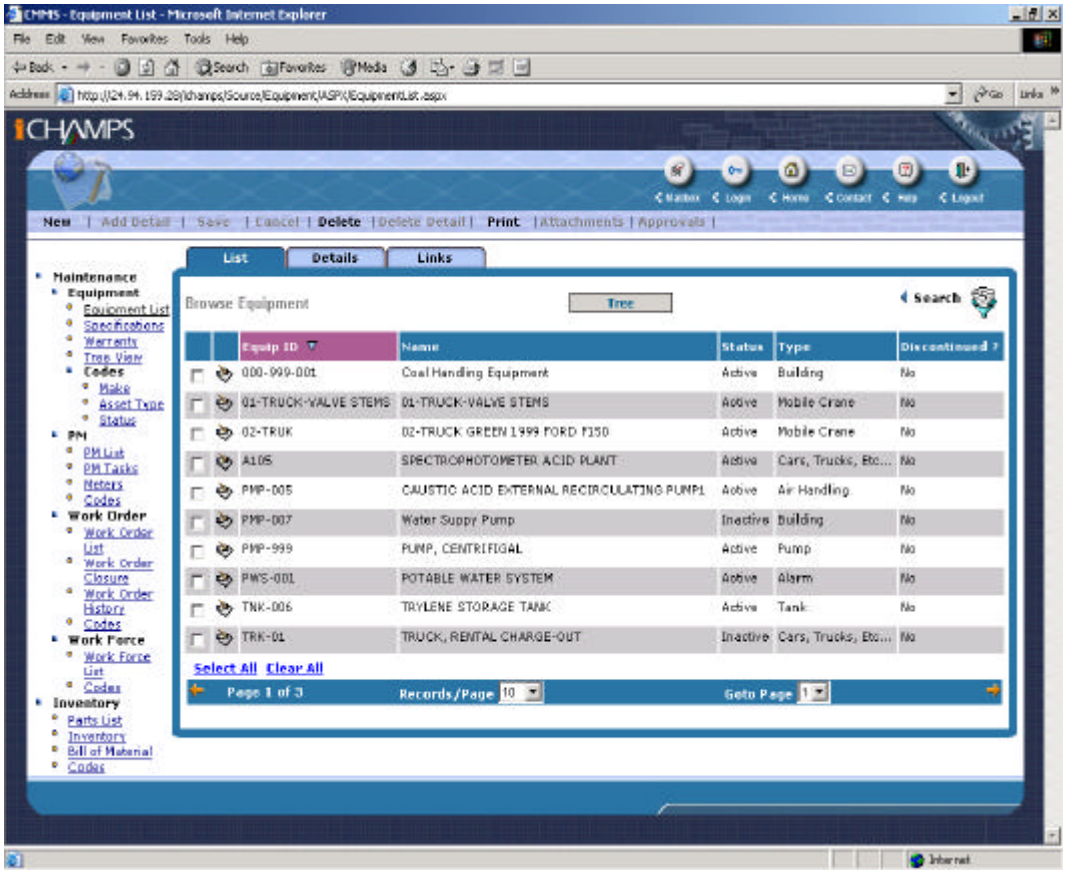
.NET delivers on the promise of allowing employees to act on the appropriate information where and when they need it. It facilitates better decisions by giving people in the field and at the office the information they need in a suitable and useful form. Important maintenance information on an isolated server can now be accessed and acted on by a field service person on a handheld computer.

iCHAMPS

Champs Software, Inc, a pioneer of the Computerized Maintenance Management System (CMMS), has initiated the development of iCHAMPS, a pure Internet based solution being developed with .NET Framework. iCHAMPS features and functionality are based on over 20 years of CMMS implementation experience and constant input from users that include some of the world's largest enterprises.

.NET architecture will make it possible for iCHAMPS to be easily integrated with other plant systems, including:

Inventory
eProcurement
Condition Monitoring
Process Control
Safety



.NET architecture also makes the application accessible by mobile devices in remote locations, enhancing the productivity of the field personnel. iCHAMPS has advanced search capabilities and user interface that allow the users to navigate the application intuitively. Easy integration capabilities support strategic collaboration between users, suppliers and partners.

Conclusion

The Internet has changed the way we get and use information. It is also changing the way commerce and business are conducted. Microsoft's .NET initiative will accelerate the proliferation of business solutions that will further alter the ways in which enterprises optimize their revenue producing resources. The old ways of doing business will give way to new Internet processes that foster collaboration and optimization. This, together with creating new levels of operating efficiencies and cost savings, will be the value proposition of Internet based EAM systems.

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