

Empowering Windows Vista for SCADA and Remote Monitoring

Tim Donaldson, Director of Marketing
 ICONICS, Inc.

Two occurrences in information technology have recently converged, leading to the development of what is "the next generation in software automation". The first has been the steady increase in the use of 64-bit computing. The second was the introduction of Microsoft's new Windows Vista operating system, which helped bring 64-bit computing into the mainstream. The combination of these two factors has led to a profound change in industrial automation software.

64-Bit Technology

The first factor in manufacturing and IT reaching this breakthrough was the emergence of 64-bit technology. Although not exactly new (MIPS Technologies first produced a 64-bit microprocessor in 1991), 64-bit technology has caught on with a number of hardware and software manufacturers. When 32-bit systems emerged, 4 gigabytes of memory may have seemed more than enough for typical PC-based applications. Soon, however, the cost of memory fell, making higher bit processing possible. 64-bit processors, including those from AMD and Intel, are found in the latest products from all major suppliers. The 64-bit architecture increases the memory capacity to 264 addresses, equivalent to 16 exabytes (over 17 billion gigabytes) of RAM.

Currently, most software, including a great deal of what appears in industrial automation, is built as 32-bit code, not 64-bit code. Applications that take advantage of the memory and speed increase, as well as improved multi-tasking, stress testing and clustering capabilities of 64-bit technology, will be perceived as vast improvements over any 32-bit counterparts.

However, before 64-bit applications could become effective, there needed to be an operating system robust enough to handle customer expectations of those very same memory and speed boosts. Customers expected faster, feature-packed applications with captivating graphics. Simultaneously, they wanted their security concerns allayed and more intuitive data searching and organization capabilities.

Microsoft Windows Vista

Microsoft launched its highly anticipated new operating system in early 2007. Windows Vista was a long-awaited update to its ubiquitous Windows operating system platform. Customers were now able to take advantage of not only the new 32-bit technological advancements that Vista offers, but new 64-bit features, as well.

According to Microsoft, "Windows Vista increases productivity and drives business success by improving security and compliance, optimizing desktop infrastructure, finding and making better use of information and enabling the mobile workforce."

"The 64-bit editions of Windows Vista", Microsoft states on its Web site (<http://www.microsoft.com/windows/products/windowsvista/editions/64bit.msp>), "deliver premier performance, reliability and security, providing you access to the next generation of PC innovations [...] For businesses, Windows Vista 64-bit editions are ideal for engineering (CAD/CAM) work, digital content creation, scientific/technical computing, and even demanding financial analysis, all on computer systems with 64-bit processors."

The Next Generation in Software Automation

The largest cost of any automation project is in engineering the application. For an average project, this can be well over 60 percent of the total expenditure. Taking advantage of 64-bit computing can greatly reduce this effort, resulting in enormous savings and helping the bottom line.

It can be argued that the commitment by computer manufacturers to build 64-bit hardware sped up development of an enhanced 64-bit-capable operating system, or the other way around. In either case, their convergence paved the way for an industrial automation software suite that is suitable for today's cutting edge computers and takes full advantage of Windows Vista's most forward-looking capabilities.

In October 2007, ICONICS, a Microsoft Gold Certified Partner provider introduced its GENESIS64 Web-enabled OPC HMI/SCADA suite. ICONICS was on-board early in Microsoft's development of the new Windows Vista operating system, integrating the OS's features into its HMI/SCADA and business visualization solutions. The company also recently received the "Certified for Windows Vista" designation.

The GENESIS64 suite includes several solutions that allow for connectivity from the plant floor to corporate business systems. Designed from the ground up to take maximum advantage of Windows Vista, .NET and SharePoint technology, it allows plant operators and IT professionals to integrate real-time manufacturing and business information into a common, Web-enabled visualization dashboard.



"Aided by such exciting new software technology as Microsoft Windows Vista, a whole new set of applications will take maximum advantage of the new boost in raw computing power," said Russ Agrusa, President and CEO of ICONICS. "This will change everything we do at work, at home, and how we collaborate. The manufacturing, automation and building control industries will immediately feel the impact, especially those customers running ICONICS automation software."

Key features within Windows Vista are utilized to provide customers with a 360-degree view of their entire organization. Customers benefit from tie-ins to:

- Gadgets
- Sidebars
- Sideshow
- Windows Presentation Foundation with 3D Imaging
- Windows Workflow Foundation
- Windows Vista Search & Organize technology
- A Vista-enhanced Virtual Earth
- Multiple other Microsoft technologies

Gadgets and Sidebars

ICONICS created a series of automation-centric Microsoft Gadgets, designed to run in the Windows

Vista Sidebar. GENESIS64 uses Microsoft Gadget, Sidebar and Sideshow technologies through mini-applications designed to provide at-a-glance information, useful search abilities and valuable Key Performance Indicators (KPIs). Manufacturing personnel can see how a plant is performing with these useful, informative and easy to use Gadgets.

The Windows Vista Sidebar boosts productivity by providing immediate access to these gadgets, offering access to the tools needed to keep a connected plant, for instance, running at its maximum potential.

Windows Presentation Foundation and XAML

Windows Presentation Foundation (WPF) and XAML are at the core of GENESIS64 and are widely used to provide real-time visualization of plant manufacturing and business intelligence information. This new solution exploits both the 2D and 3D capability of WPF to deliver real-time data in a variety of visualization options.



Integration with WPF results in easy, but powerful, object visualization. It allows users to build scalable, vector-based graphics that do not lose details when zoomed upon. The new software also takes advantage of the Ribbons found throughout the Vista OS and within other integrated applications, such as Microsoft Office. Users can browse through galleries that provide a preview of available actions. For instance, an operator may wish to add transparency and/or shading to several objects. With just a few simple clicks, the task is easily completed, truly unleashing the power of 64-bit computing.

State-of-the-art graphic hardware acceleration is achieved through DirectX10, powered by Windows Vista. Integration with the Windows Presentation Foundation provides users with a 3D view of their plant operations. Imagine the ability to view how equipment is running, in real-time, from any angle. It's a whole new approach to visualizing operations.

Windows Vista Search and Organize

Windows Vista Search and Organize technology, integrated with industrial automation software in this particular case, users organize documents and project files in order to find needed information.

Windows Workflow Foundation

Another powerful Windows Vista technology found inside GENESIS64 is a workflow-enabled application designed around Microsoft Workflow Foundation (WF) technology. The workflow designer enables users to transfer information to and from real-time devices. This allows for a highly scalable application with a powerful shared engine for data exchange applications, report execution, script scheduling and portal documentation management.

A New Take on Remote Monitoring

Of particular interest to those involved in remote monitoring are recent tie-ins with Microsoft's Virtual Earth application. GENESIS64's EarthWorX component provides visibility for geographically dispersed assets. It interfaces with Microsoft Virtual Earth to provide a geographical context for business intelligence and manufacturing intelligence information by associating KPIs with specific geographical locations. The key technology found in Microsoft's Virtual Earth is Geographic Information Systems (GIS), a collection of hardware, software and geographic data for capturing,

Feature

managing, analyzing and displaying geographically referenced information.



The GIS tie-in provides operators with abilities such as viewing alarm conditions in specific locations, drilling down from a global or regional view to an exact spot. For instance, a user may wish to identify an alarm condition that is occurring in a plant in Boston. Within seconds, that plant can be located through Virtual Earth and the alarm information can be visualized and the correct course of action decided upon, all in real-time. In addition, with Web portal technology, that operator need not be on-site, but could be anywhere in the world with Web access and a browser.

A Full Array of Industrial Automation Software Solutions

ICONICS's latest HMI/SCADA suite is complemented by a full array of industrial automation software solutions, including the BizViz Manufacturing Intelligence/Business Visualization suite. Users are empowered with personalized role-based dashboards, configurable KPIs, automated/on-demand reporting, real-time alert notification, wireless capabilities and robust security management.

The BizViz suite, coupled with Windows Vista and the Office 2007 system, also allows customers to take advantage of key Windows Vista features such as Visualization, Gadgets, Security, Search and Organize and Workflow integration. BizViz helps to provide accurate, up-to-the-second real-time information from all enterprise systems to production line supervisors, plant managers, global supply chain managers, division leaders, CIOs and other corporate-level executives.

Customers can experience several benefits via "manufacturing intelligence," such as increased profitability. Business decision makers can take immediate action when real-time KPIs show deviation from target values. Simultaneous visibility into production rates, inventory levels and outstanding orders leads to inventory reduction and cost decrease.

An additional benefit is streamlined business efficiency. Tracking multiple Lean Manufacturing and Six Sigma KPIs helps to identify areas for business performance and efficiency improvement. Enhanced product quality reports and root-cause analysis capabilities drive manufacturing process improvement over time.

Customer loyalty can be strengthened as a direct benefit of utilizing business visualization and manufacturing intelligence. A single view of customer information, order status and product location enables customer service to respond instantly to enquires. Real-time visibility into the entire supply chain supports "capable-to-promise" and "available-to-promise" capabilities.

New Technologies Bring Big Potential to Industrial Automation

Robust HMI/SCADA integrated with Microsoft Windows Vista should give manufac-

turers reason to consider how business is presently done and how much room there is for improvement. ICONICS' new software is "64-bit-to-the-Core," leveraging rapidly progressing 64-bit technology, as well as:

- Bridges the visualization gap between the plant floor and business operations.
- Incorporates robust, secure Web-portal features.
- Introduces informative Gadgets and Sidebars into plant applications.
- Integrates powerful applications such as Visual Earth into manufacturing operations.

Results-based Relationship with Microsoft

ICONICS and Microsoft have a steadily progressing working relationship. Recently, ICONICS was presented with the Microsoft ISV 2006 Trailblazer Partner of the Year Award, presented to ICONICS President and CEO Russ Agrusa by Larry Gregory, Director of ISV Partners at Microsoft, during the Independent Software Vendor (ISV) Chief Technical Officer (CTO) Meeting held at Microsoft world headquarters in Redmond, WA. The Trailblazer award is meant to highlight an ISV that has highly leveraged the Microsoft Partner Program to create a pioneering solution based on their participation in a Rhythm this past year.

Other recent shared efforts between the two companies include ICONICS' participation in Microsoft's Windows Vista/2007 Office System launch activities in multiple locations, ICONICS' "Strategies for Operational Excellence" seminar series held in many Microsoft-sponsored locations worldwide and a print advertorial in The Wall Street Journal where ICONICS is counted among Microsoft's "Constellation of Partners".

In addition, ICONICS was named a finalist for Microsoft Corp.'s Partner of the Year Award in ISV/Software Solutions, its fourth nomination in three consecutive years.

The release of Windows Vista coincided with the launch of ICONICS GENESIS32 V9 HMI/SCADA and BizViz V9 Manufacturing Intelligence suites, putting hundreds of state-of-the-art computing tools in the hands of both companies' customers. Windows Vista increases productivity and drives business success by improving security and compliance, optimizing desktop infrastructure, finding and making better use of information and enabling the mobile workforce. ICONICS software works in unison with Microsoft technologies to provide enhanced industrial automation benefits.

ICONICS solutions, coupled with Microsoft technologies including Windows Vista, 2007 Office System and SharePoint Server 2007, enable customers to take advantage of key features such as Visualization, Gadgets, Security, Search and Organize and Workflow integration.

ICONICS has been providing industrial automation and Manufacturing Intelligence software for more than 20 years and has successfully deployed more than 225,000 solutions worldwide. ICONICS solutions meet diverse customer needs in a variety of industries including Building Management, Oil/ Gas/ Petrochemical, Security, Water/Wastewater, Utilities, Government Infrastructures and more. For more information visit them online at www.iconics.com or contact via phone at (508-543-8600)

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