The DeltaV™ System Overview

DeltaV

EMERSON
Process Management

Contents

The DeltaV Digital Automation System

To develop and maintain a competitive advantage, it's time to take your plant digital, with the first fully digital automation system– the DeltaV™ system. From a suite of digital busses, to precision advanced control, to easy enterprise integration and optimization, the DeltaV system delivers precision control and predictive maintenance– easy.

Digital plants made easy

PlantWeb® is a proven digital plant architecture that delivers revolutionary results, and the DeltaV system makes it easy. It's a proven blueprint for delivering solutions that optimize plant performance. Designed with this new architecture in mind, the DeltaV system fully integrates "smart plant" capabilities including HART®, FOUNDATION™ fieldbus, high-speed discrete busses, and embedded advanced control. This seamless, intelligent field integration provides the infrastructure for advanced applications such as Asset Management Solutions (AMS) for quick, easy device re-ranging, configuration and diagnostics. The results are better process efficiency and reduced process variability.

Any size you want

The DeltaV system is scalable in both size and functionality. It's the first fully digital system to offer you a single architecture with full functionality from a few to tens of thousands of I/O, so you can cost-effectively implement applications of any scope. You pick the functions that work best for your application across the entire system size. The DeltaV system integrates easily with your existing automation systems to provide you a path forward to benefit from the latest cost-saving technologies.

Leading the way

The DeltaV system has delivered a host of industry firsts– including simple plug-and-play OPC and XML integration, FOUNDATION fieldbus, batch, and advanced control technologies. Being first with these technology innovations has made our users pacesetters in their industries. But more important, it's delivered dramatic operational improvements: the kind of improvements you can start profiting from today.

Rock solid

The DeltaV system is designed and tested for your toughest applications. Along with state-of-the-art technology, the DeltaV system is backed by over 2000 years of real-world operating experience in mission-critical applications around the globe.

Results that deliver

In the following pages, you'll see how the DeltaV system is expanding the boundaries of process automation, improving your project cycle time and your operational performance– from installation and start-up, to maintenance and operations– easy!

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A New Approach

The DeltaV system, a key component of the PlantWeb architecture, is the world's first digital automation system.

Built with today's technologies like PC workstations, Ethernet, digital busses, OPC and XML, the DeltaV system delivers more precise control, predictive maintenance, and it delivers that information where and when it's required.

Unlike other systems, the technologies were built from the ground up into a digital automation architecture, not bolted on after the fact. That's what makes the DeltaV system easy to learn, easy to use, easy to maintain, and easy to connect to your existing automation.

Security
While the DeltaV system is built with quality components, many customers seek further assurance— like the demands of increased uptime.

You can choose the level of redundancy your application requires, including:
- Redundant Ethernet network communications
- Redundant controllers
- Redundant power supplies
- Redundant H1 FOUNDATION fieldbus interface and bus power
- Redundant digital HART I/O
- Redundant MODBUS and other RS485 serial communications
- Redundant workstations

Rugged control and field interfaces
Built to mount anywhere— minimizing your installation costs and ensuring safety. Meets:
- Class 1, Div. 2
- Zone 1* and 2
- Intrinisically safe options
- G3 corrosion resistance
- -40 to 70°C*.

HSE Device*

Digital HART

H1 Fieldbus

Digital precision throughout the architecture.

Commercial off-the-shelf technologies

Proven, low-cost, easily integratable commercial technologies are the fundamental building blocks of the DeltaV system: technologies proven across many industries and known by a wide pool of professionals.

- Windows workstation and server-based PCs
- Ethernet technology
- Bus standards

High Speed Ethernet (HSE)

Linking Device*

H1 Fieldbus
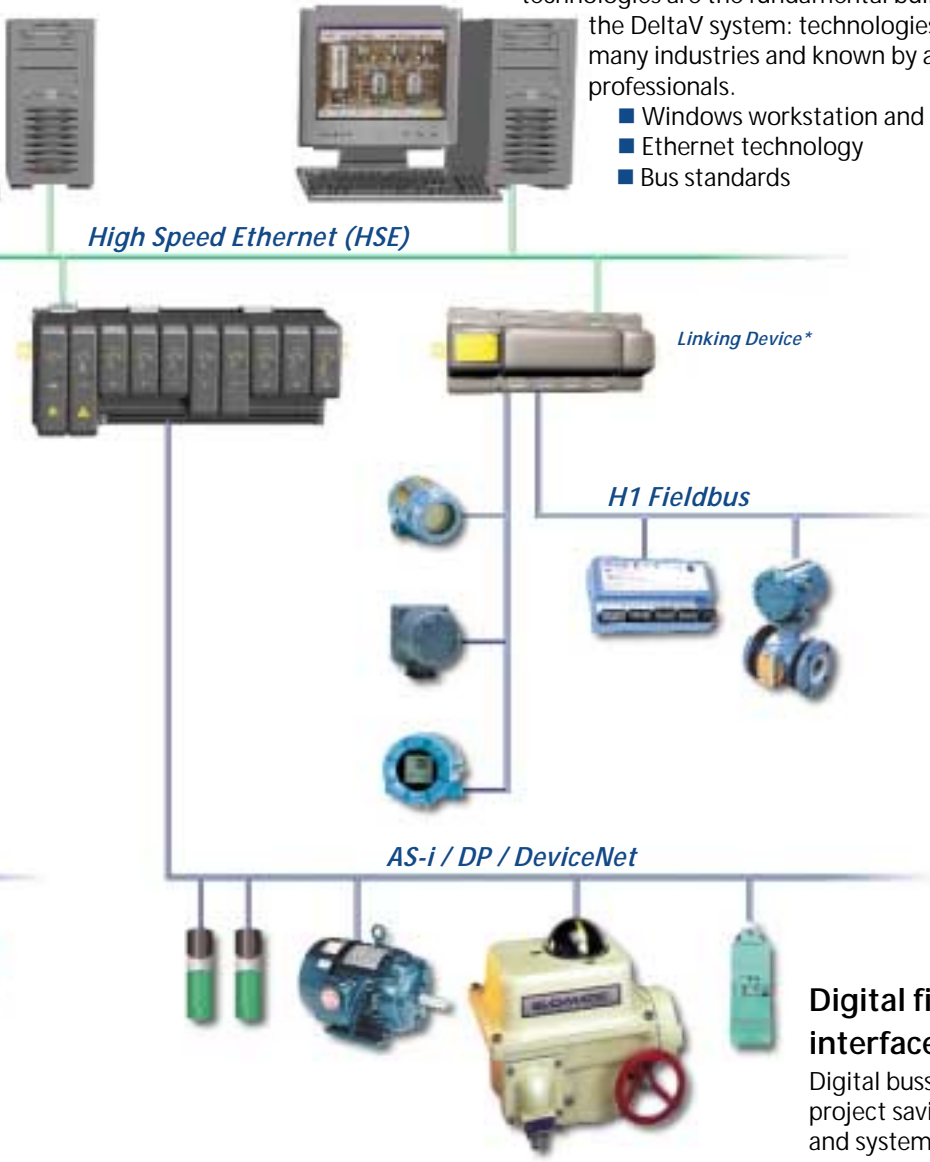
AS-i / DP / DeviceNet

Digital field interfaces

Digital busses deliver big project savings in wiring and system footprint. Digital communications include:

- FOUNDATION fieldbus
- AS-i
- DeviceNet
- Profibus
- HART

*Call factory for availability of expanded specifications and functionality.

"The unique design of the DeltaV digital automation system simplifies the installation and commissioning process, enabling us to complete the project five months ahead of schedule....The quality of the gas is better than the standard of the Grade A specification."

– Mr. Liu Yi
Changquing Oil Field Company

DeltaV Software

You're faced with many options for automating your plants. What separates the DeltaV digital automation system?

Key system services built into the DeltaV software include:
- Peer-to-peer communications
- History services
- Event services
- Alarm services
- Time handling
- Hot expansion services
- Tag look-up services
- Diagnostic services
- On-line upgrades.

Peer-to-peer awareness

The DeltaV system keeps a real-time database available to all connected PCs and controllers. Functions difficult or impossible to implement in component based solutions easily done in the DeltaV system include:
- System-wide alarm management
- Global security by user and function
- System and device diagnostics
- Fast tag reassignments to new controllers.

Precision time keeping

Across all PC workstations and controllers, precise time can be synchronized to the atomic clock. Time synchronization is available with full redundancy. Precision time means:
- Accurate, system-wide history
- Faster root cause analysis
- Sequence of events is builtin, not a 3rd-party add-on.

## Time-stamped and validated at the source

Digital automation systems, like the DeltaV system, are built to receive, store and use data time-stamped in digital field devices (where supported). With the addition of a GPS time clock, these time stamps are within 1msec. Goodness of the information comes with status passed by these devices and propagated throughout the DeltaV system.

For your traditional field devices, the DeltaV system offers digital Sequence of Events (SOE) interfaces that provide time stamping in the SOE cards to 1msec resolution.

User security

Built on Windows workstation security, the DeltaV system provides easy, flexible, system-wide security management for all users including operators, engineers, technicians, and other automation users. Based on user login, these keys control both system functionality and span of operator control. Examples of security settings include:
- Operating span of control by plant area
- Alarm limits, tuning parameters change privilege
- Security by both user and by physical location.
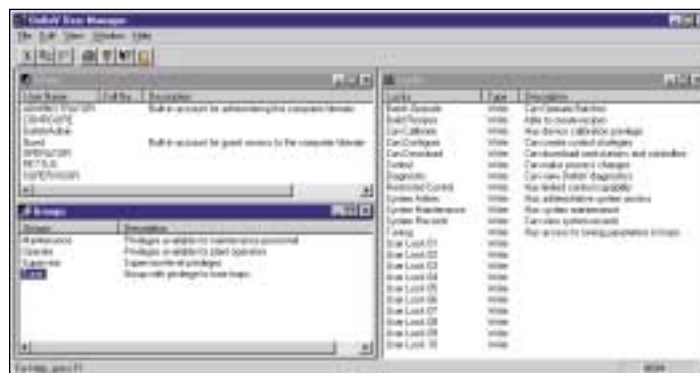
The DeltaV software provides easy, flexible system-wide security management.

Accurate, secure and precise.

"The DeltaV system was easy in commissioning fieldbus instruments because the system was very user friendly, very intuitive and straightforward."

**—Eric Tan
Mobil Oil
Singapore**

Modular Hardware

The DeltaV control hardware delivers big savings in the installation process. The compact, modular design allows you to cost-effectively meet your process needs.

Flexible installation
DeltaV control hardware is built rugged and flexible to mount almost anywhere. It's built for:
- Class 1, Division 2 areas
- CENELEC Zone 1/2* areas
- ISA-S71.04-1985 Airborne Contaminants Class G3

The DeltaV control hardware has many mounting options available to reduce your installation costs. Some options include:
- DIN rail field junction box
- High-density cabinet mount
- DIN rail wall mount
- Skid mount

Hot swappable
Unlike other automation solutions, system components including controllers, I/O, field devices and workstations can be added and removed while the system is powered and running. You can expand and upgrade your system on-the-fly with *no downtime*.

Classic field interfaces
The DeltaV system also supports a full range of analog, discrete, thermocouple, and RTDs for your existing field devices.

Intrinsically safe
The DeltaV instrinsically safe field interface subsystem connects intrinsically safe field circuits and field devices into Class 1, Division 1, Zone 1, and Zone 0 hazardous areas, for most standard analog input, analog output, discrete input, and discrete output applications.

Field power injection
Unlike most existing automation systems, the DeltaV system injects field power right at the field interface terminations, significantly reducing installation cost by:
- Eliminating marshalling wiring
- Reducing cabinet or junction box footprint
- Reducing labor for additional terminations.

Grow your system on-the-fly with no downtime. Rugged, redundant, reliable.

Built for digital busses

In one integrated field interface subsystem, the DeltaV system supports the following busses:

- FOUNDATION fieldbus
- HART
- AS-i Bus
- DeviceNet
- Profibus

Control Redundancy

Reliability and increased system availability is built in throughout the DeltaV control hardware. Redundancy options are available for:

- Control and field interface power
- Controllers
- Controller Ethernet communications
- H1 FOUNDATION fieldbus interface
- H1 FOUNDATION fieldbus power
- MODBUS/RS485 Serial Interface
- Many classic field interface cards.

"We were able to reuse an existing room, converting it from a storage closet to a controller rack room. To build an equivalent control room housing 1,700 I/O with a traditional DCS would cost about $250,000."

—Keith Bellville
Advanced Chemical Engineer, Texas Eastman Div. of Eastman Chemical, USA

The Digital Advantage

Unlike yesterday's imprecise analog and hybrid automation systems, the DeltaV system delivers precision control, predictive maintenance and enterprise optimization for better plant performance using bi-direction digital communication with intelligent field devices. And the savings are astonishing.

Footprint savings

The notion of I/O disappears in the digital bus environment. The "I/O" is in the field device. Cabinet and junction box footprint is significantly reduced, slashing your footprint and installation costs.

Pick the best bus combination for your application in one integrated controller.

Wiring savings

All digital busses reduce your wiring costs by providing multiple devices on a single pair of wires. Fewer wires mean less installation costs, lower ongoing maintenance costs, and fewer drawings to create and maintain.

Easy to add– live

Add digital busses devices, bus segments, bus interfaces, other field interfaces, controllers, and workstations, while the DeltaV system continues to control your process.

Reactive vs. predictive

Digital busses range in the amount of information they can transmit between intelligent field devices and digital automation systems. The amount and quality of information determines whether reactive or predictive maintenance can be performed.

Sensor busses– AS-i bus offers low-cost, simple installation discrete devices, like pushbuttons, on/off valves, and proximity switches. Neither standard diagnostic nor validated information is automatically available.

Device busses– DeviceNet and Profibus DP typically connect motor starters, drives, and other more complex devices. They offer some level of diagnostics.

Before

After
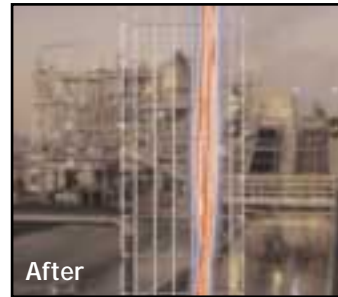
Limitations in the standards create extra engineering efforts by users to take full advantage of diagnostics and operating information.

Fieldbus– FOUNDATION fieldbus and HART provides the most intelligence and ability to predict maintenance problems before they occur. FOUNDATION fieldbus devices provide predictive alerts, millisecond data capture, validated data, field-based control, diagnostics, and asset information bi-directionally with the digital automation system.

Reduce wiring, footprint, engineering and maintenance– easy.

Redundant H1, Redundant Discrete, Redundant Analog
and Redundant Serial—at work—together in the
same controller.

Devices are automatically
recognized by the DeltaV system
as they are added. Your
engineering and commissioning
efforts are dramatically reduced.

Get the complete story on digital
automation in the *"We Do Smart
Plants"* brochure.

*"With FOUNDATION fieldbus
for our process control
and Profibus DP for our
motor control, we have
better information to
optimize our process."*
—Tom Shaw
Automation Manager
Cargill, USA

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Engineering

The DeltaV suite of engineering tools handles configuration management, both locally and remotely, for all aspects of the DeltaV system and intelligent field devices.

Global, centralized configuration database

The DeltaV system coordinates all aspects of automation engineering:
- Control strategies
- Process graphics
- History
- Events
- Change management

Unlike hybrid and component-based automation systems, operating faceplates and history collection are built automatically as you assemble your control strategies– easy.

DeltaV Explorer

You already know Microsoft's Explorer, so you already know the DeltaV Explorer– it's that easy. To reduce your engineering costs, the DeltaV Explorer provides:
- Library of proven, pre-defined control strategies
- Library of stress-tested digital bus devices files
- Context sensitive help
- Drag-and-drop configuration
- Right mouse click for easy discovery of available options
- Self-documenting control strategies.

System-wide plug and play

All DeltaV hardware is automatically recognized as it's plugged in. No dip switches to mess with and consume your valuable resources. And, intelligent field devices like FOUNDATION fieldbus are automatically recognized as well.
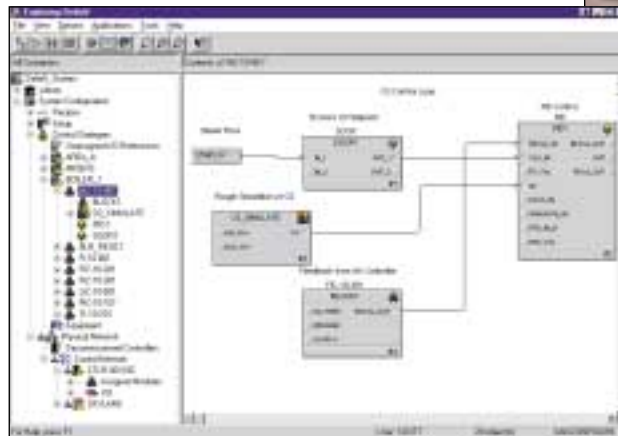
Faster engineering of big systems

For those really large or tight deadline projects, the DeltaV system's multi-client architecture provides you:
- Off-line configuration
- Bulk import from third-party software, including InTools.
- Bulk editing in spreadsheet mode.
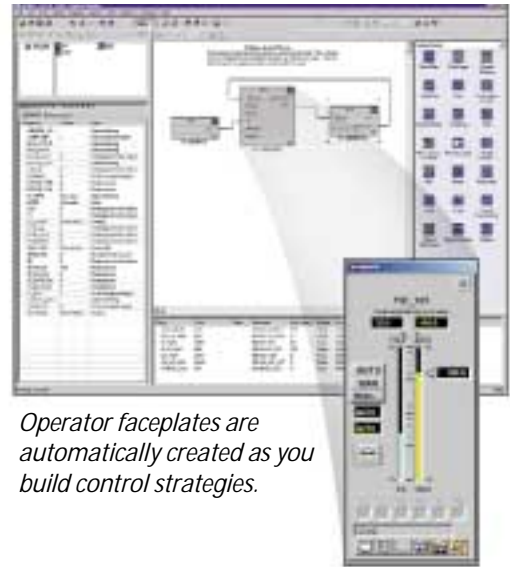
Operator faceplates are automatically created as you build control strategies.

Easily explore your control strategies.

# Intuitive, integrated engineering tools.

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DeltaV Control Studio

Built on IEC1131-3 control languages, including function block diagrams, sequential function charts and structured text, Control Studio provides a drag-and-drop palette to easily design and document your control strategies. Types of control you can develop include:

- Logic
- Regulatory
- Sequential
- Advanced control.

Sequential function charts are built with drag-and-drop ease.
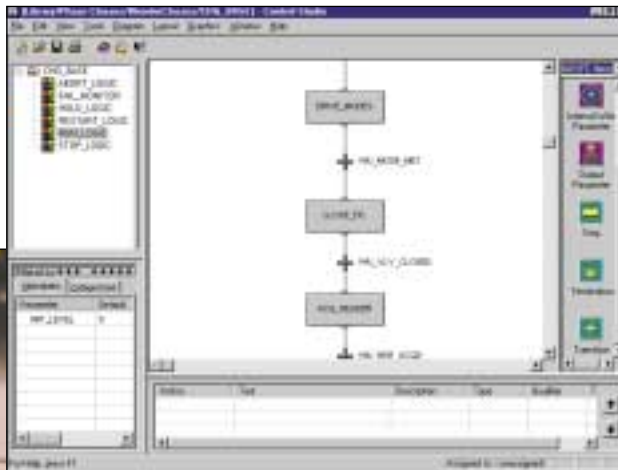
"The solution to all the complexity in the control system is DeltaV. I am totally convinced that DeltaV is much easier in operation, configuration, and commissioning."

—Said Al-Maashri
Petroleum Development
Oman LLC

Intuitive Operations

The DeltaV operations software provides an easy-to-use environment for process operations and information access. All operations applications are fully remotable for access anywhere on your plant Ethernet network or via modem.

Easy to learn, easy to use

Operator graphics are easy to learn and use. DeltaV users around the globe report cutting their operator training costs in half or more.

One-click access to alarms, alarm summaries, trends, display navigation and on-line help: these come pre-engineered, reducing the cost of engineering the system compared with component-based automation systems.

Additional DeltaV simulation capabilities provide single PC and multi-node training systems to get operators familiar with the process before it goes on-line.

Secure environment

DeltaV Flexlock security restricts access to the underlying Windows workstation operating system. No more games, accidental file deletions, activities that take hours to repair, or unscheduled outages.

Premier alarm management

Digital automation systems receive validated data, displaying quality, status, and diagnostics from intelligent field devices. This is the foundation of precision alarm management. The DeltaV system ends the arguments of process problems versus device problems by reporting the actual facts.

The DeltaV system embeds state-of-the-art graphical components of iFix by Intellution.

Alarm suppression

Alarm management is built on EEMUA 191, developed by a consortium of leading process industry automation users and suppliers, designed to eliminate nuisance alarms.

Supporting EEMUA 191 standards, the DeltaV system allows:
- Operator suppression of alarms
- Time-stamp and history of suppressed alarms
- Removing suppressed alarms from alarm banner and alarm summary
    - Maintaining a suppressed alarm summary.

The Process History View provides continuous trends and event views.

Built on EEMUA 191, nuisance alarms are easily suppressed.

Better, easier plant management.

Conditional alarming

What used to require complex control logic to address is now simply filtering for each alarm. Many nuisance alarms can be eliminated with a simple time-in-condition filter.

Smart alarms

With every control strategy you can easily create smart alarms, like "filter clogged" instead of ones which must be deduced like "pressure low". Other systems required layered, expensive applications to achieve this level of sophistication.

Remote operations

Across your plant Ethernet network, via satellite, or via web browser, your operating screens are available to those with privileged access. Anywhere, anytime, you're in touch – when you need to be.

"We had a 60% reduction in operator training costs. We were able to train 8 operators in just 8 hours."

– Mark Garnett
Uniroyal Chemical
Canada

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History

Embedded history means easy setup and maintenance. Just click and drag plant areas in the DeltaV Explorer onto a workstation, and all modules within the area are automatically historized.

Each control module– the fundamental building block of control strategies– maintain its own continuous historical configuration information. All of the module parameters are available for historical collection. Event history is automatically collected– it's easy.

Process History View

The Process History View provides continuous trends, event views and batch views to intuitively present these different types of historical information. View your operation's real-time and historical information integrated into a single view, helping you pinpoint trends and events affecting plant operation.

The DeltaV system was the first to integrate continuous and event information into a single view. You can easily see a user change– whether an operating or tuning change affected the process.

Configuration Audit Trail

Tracking all the engineering changes is critical for your regulatory compliance efforts. DeltaV Configuration Audit Trail does this automatically for you. The bigger your process, the more value this audit trail is as an analysis tool to

identify who changed what, when and why. In addition, users may deploy AMS Device Audit Trail for tracking field device changes.

With device audit trail, you have a complete history of your device maintenance records, reducing your maintenance costs over typical paper-based systems.

This software suite facilitates FDA 21 CFR Part 11, OSHA, and ISO 9000 compliance.

Configuration tracking is easy. Blue type indicates deletions, and green type indicates what's been added.
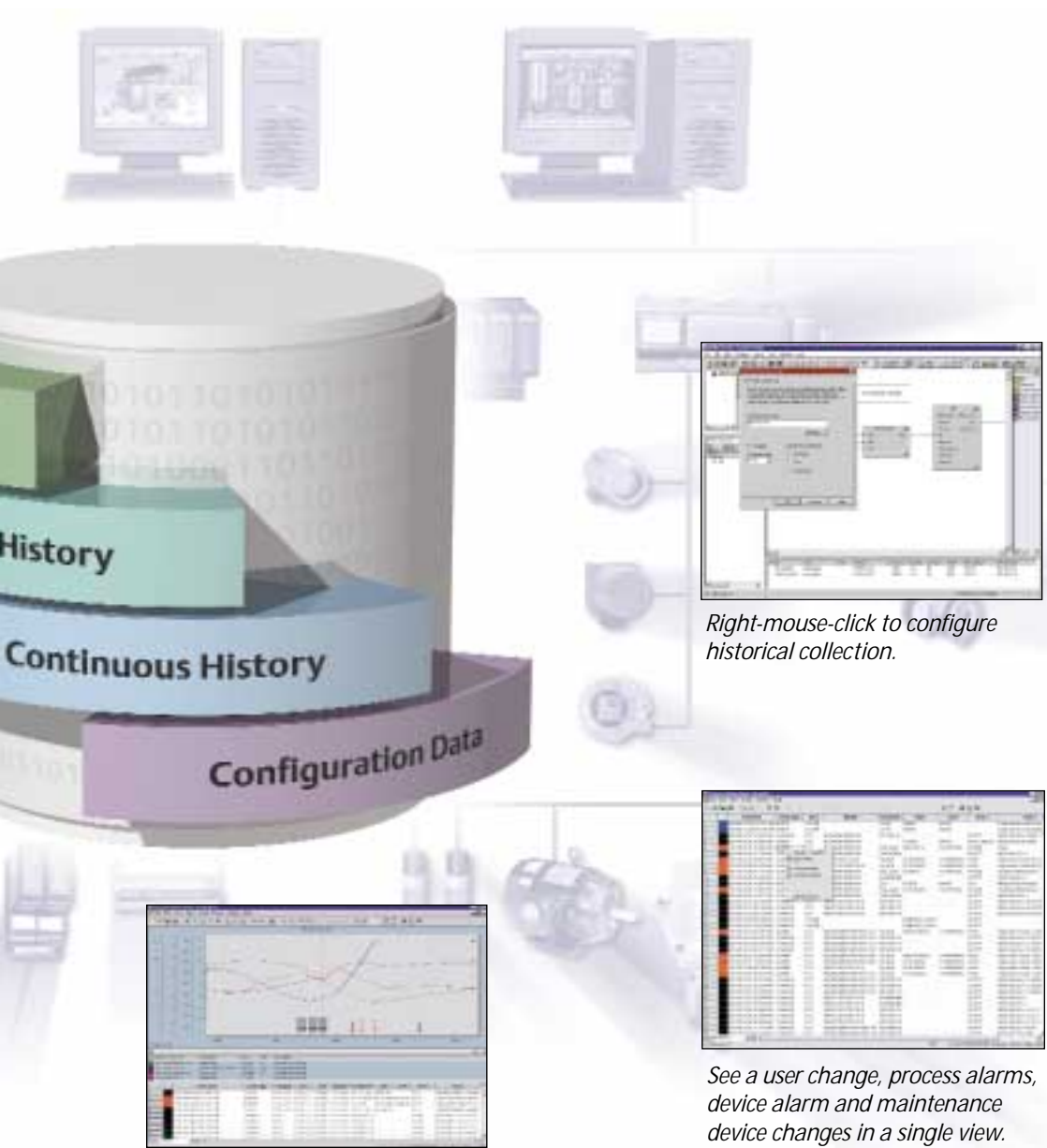
Easy enterprise connectivity

Since the history database is a full, embedded PI database from OSIsoft, you can add PI components like RLink, the PI System Gateway to SAP R/3 for enterprise optimization and PI DataLink for easy Excel integration, to name a few options. Visit *www.OsiSoft.com* for more information.

Totally integrated history– easy.

Right-mouse-click to configure
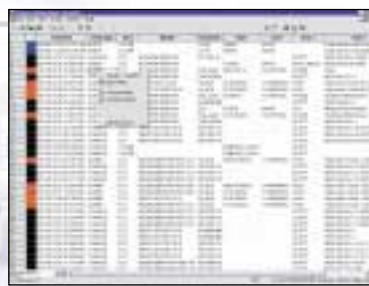historical collection.

Process History View integrates
continuous and event information
in a single view.

See a user change, process alarms,
device alarm and maintenance
device changes in a single view.

*"The trending
kicks butt– it
does!"*
**Norm Rowe
Purdue University
USA**

Predictive Maintenance

Only digital automation systems, and the PlantWeb architecture, are built to turn the wealth of diagnostic data in intelligent field devices into focused, actionable information. Instead of seeking out process problems, or having unexpected shutdowns, the DeltaV system with AMS helps you move from preventive and reactive maintenance to predictive maintenance.

Predictive alerts

Alerts generated by the intelligent devices report impending problems to the DeltaV system: alerts like excessive valve stem travel, plugged impulse lines, and impending sensor failure. These alerts are reported to the operator with the suggested corrective actions to take; to the maintenance work order system; and even to pager, phone, or email if the critical nature of the device warrants it.

Prioritized variability reduction

DeltaV Inspect provides your maintenance staff a complete list of opportunities for process improvement, sorted by the potential they have to reduce the variability of the process. The prioritized list includes:

- Uncertain device input reported
- Loop mode not in auto
- Control limited
- Excessive loop variability

This summary of improvements can be reported via email, web page, or via the DeltaV Inspect application.

AMS inside the DeltaV system

AMS inside DeltaV provides easy access to vital device information for calibration, configuration, device audit trail, and advanced diagnostics for predictive maintenance.

For more information about the PlantWeb digital architecture, visit *www.PlantWeb.com* .

Alerts, like plugged impulse lines, are reported to the operator along with the corrective action. Prioritized alerts can be sent to the right people, in time to avoid upsets.
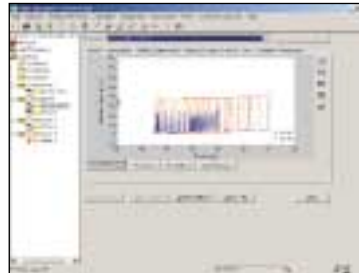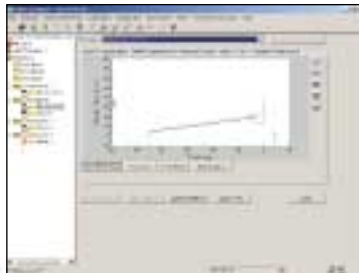
Predictive maintenance reduces unplanned shutdowns.

Valve Link

Run diagnostic tests while the valve is in service from the Station Operator to determine if maintenance is required. Compared with past practices of pulling valves out of service on a preventive schedule, your maintenance costs can be reduced dramatically, and unplanned shutdowns avoided.

Sticky valve...

...after maintenance.

AMS snap-ons like ValveLink for further device diagnostics. For a complete list of snap-ons available, visit www.emersonprocess.com/ams .

The corrective action reporting provides in-depth troubleshooting for smart field devices.

"Approximately 60% of valves are removed for maintenance unnecessarily. Savings arise from being able to selectively diagnose and remove only those valves requiring overhaul."
—Allan Haining
BP International Ltd., UK

Precision Control

The DeltaV suite of embedded advanced control products gives you the capability to develop the right control strategies for your plant automation needs, at a fraction of the traditional cost. Designed for use by any process engineer, advanced control has never been easier.

It starts in the basement

Precision control begins with validated, time-stamped data from intelligent field devices. Equipment health information is passed directly to the advanced control algorithms and applications so that the appropriate control action can be taken while equipment issues are addressed.

DeltaV Inspect

Loop by loop, DeltaV Inspect seeks out excessive variability and recommends how to eliminate it. Additionally, it reports any intelligent device problems or incorrect loop modes– greatly improving your plant's efficiency.

Inspect summarizes poor performing loops and equipment automatically.

Advanced regulatory control

Advanced control begins with better regulatory control. DeltaV PID control surpasses all other automation systems.

DeltaV Fuzzy

Fuzzy logic, embedded in the DeltaV engineering environment, gives you fast response time little overshoot, and it has a greater tolerance for noisy signals than classic PID control.

DeltaV Tune

An easy-to-use auto-tuning application for your PID and fuzzy logic loops is included with every system.

DeltaV Neural

DeltaV Neural is ideal for modeling noisy and non-linear processes. Neural networks run right in the secure DeltaV controllers. DeltaV Neural includes automatic pre-processing, design, training, and verification.

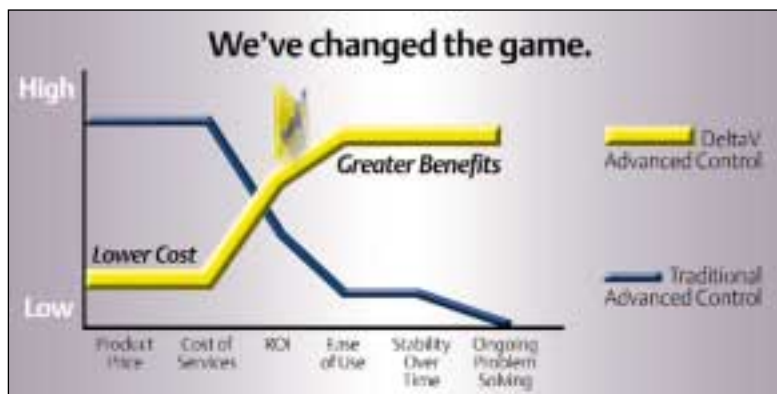### Advanced optimization

Once you have achieved stable and sustainable regulatory control, DeltaV Advanced Control helps you optimize your plant.

DeltaV Predict

Like PID and fuzzy logic DeltaV Predict is:
- Easy to deploy and maintain
- Fast– runs at once per second
- Secure– runs in DeltaV redundant controllers.

Advanced regulatory control, optimization and simulation– smart and easy.

Additionally, DeltaV Inspect monitors Predict, continually checking for equipment problems or the need for model tuning.

e-fficiency.com*

A proven internet-based service enables you to access your equipment performance data over the internet to improve process availability and reduce your equipment maintenance costs. Applications include boilers, compressors, turbines, heat exchangers and others. For more information visit *www.e-fficiency.com* .

Real-time optimization[+]

Once e-fficiency has helped you pinpoint performance issues, you can use RTO+ to determine and manage your critical units at optimal efficiency— maximizing your margins.
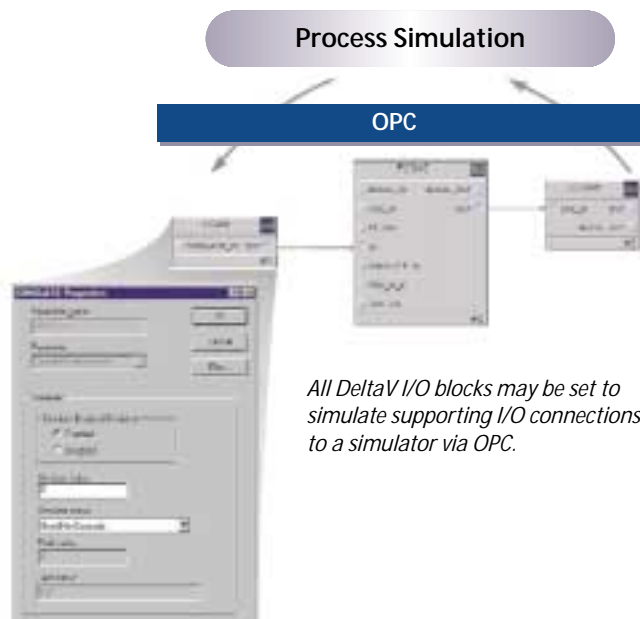
Simulation
DeltaV Simulate

All DeltaV software may be run in a Windows PC. And, all DeltaV I/O function blocks can be set to simulate mode, allowing the control strategies to be read and written to from OPC. A complete 6000 I/O DeltaV system may be created and tested using only three PCs. And, the strategies created and tested are exactly the same as those that run in the plant.

You can use this unique simulate capability to perform operator training. Tie the control to HYSYS.Plant, a process simulation package from HyproTech, and the

trainer can get both the soft DeltaV controller and HYSYS.Plant— now, running faster than real-time for precise operator training. For quick and easy system checkout, mimic™ software performs auto-configuration with DeltaV, instantly establishing loop tie backs. mimic offers I/O simulation enabling you to perform a Factory Acceptance Test, simulating I/O, controller and FOUNDATION fieldbus devices. One of a kind!

And all this is scalable— all running in a single laptop or in a multi-PC networked system.

For details on the advanced control, simulation and optimization suite, refer to the "*DeltaV Advanced Control*" brochure.

All DeltaV I/O blocks may be set to simulate supporting I/O connections to a simulator via OPC.

*Products of Emerson Process Management's MDC division.

"We were able to cut our checkout time in half with DeltaV Simulate and process modeling software"
—Greg McMillan
Senior Fellow
Advanced Control Engineering
Solutia Inc.
USA

Advanced Unit Management

Advanced Unit Management adds class-based units and phase logic used for batch processes and complex sequences in continuous and hybrid processes. With this class-based approach, you get reusable equipment control strategies– saving you time. Additionally, the state transition diagram logic built into the phase class provides you with multiple phase states, automatic state switching, and failure monitoring– all pre-engineered.

The phases and units executing in the controller support aliasing and dynamic referencing for your most demanding applications. And the phases may be orchestrated by the DeltaV recipe management and execution software, including the use of recipe parameters and history collection.

Unit management and batch control

If your process application requires complex batch processing, the DeltaV system's *'built for batch'* architecture is the answer. This architecture provides a comprehensive set of easy-to-use tools for designing and implementing cost-effective batch control solutions.

The DeltaV Batch solution has been built on the S88.01 standard, and addresses the entire scope of functionality identified in the S88.01 Control Activity model including:

- Device control
- Unit supervision and management
- Process management
- Recipe management
- Production scheduling
- Production information management.

For more details consult the "*DeltaV Built for Batch*" brochure or visit *www.EasyDeltaV.com.*
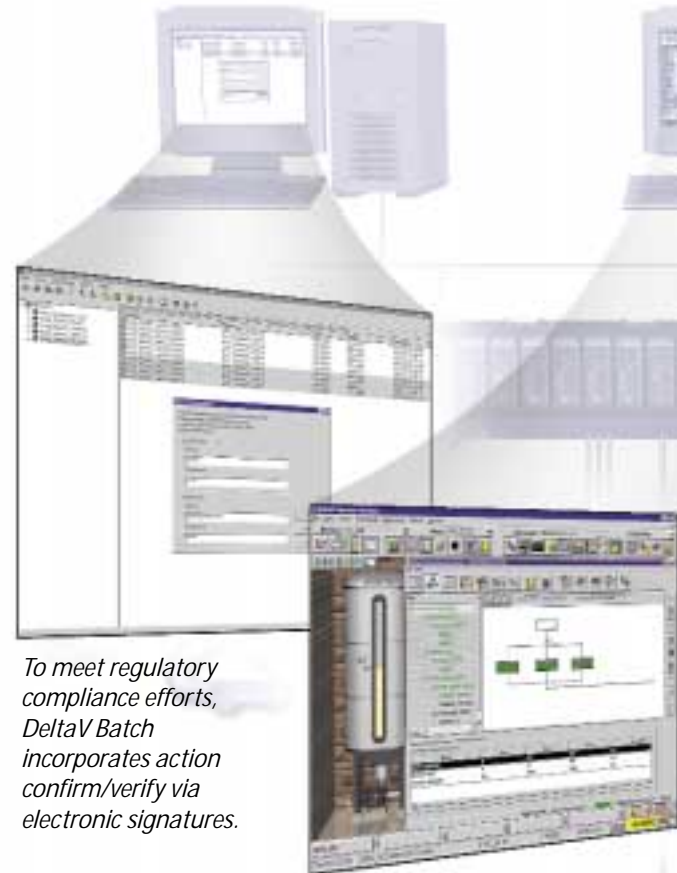
To meet regulatory compliance efforts, DeltaV Batch incorporates action confirm/verify via electronic signatures.

The DeltaV Operator Interface provides a simple yet powerful set of tools to control your process.

Completely integrated – ready to deploy.
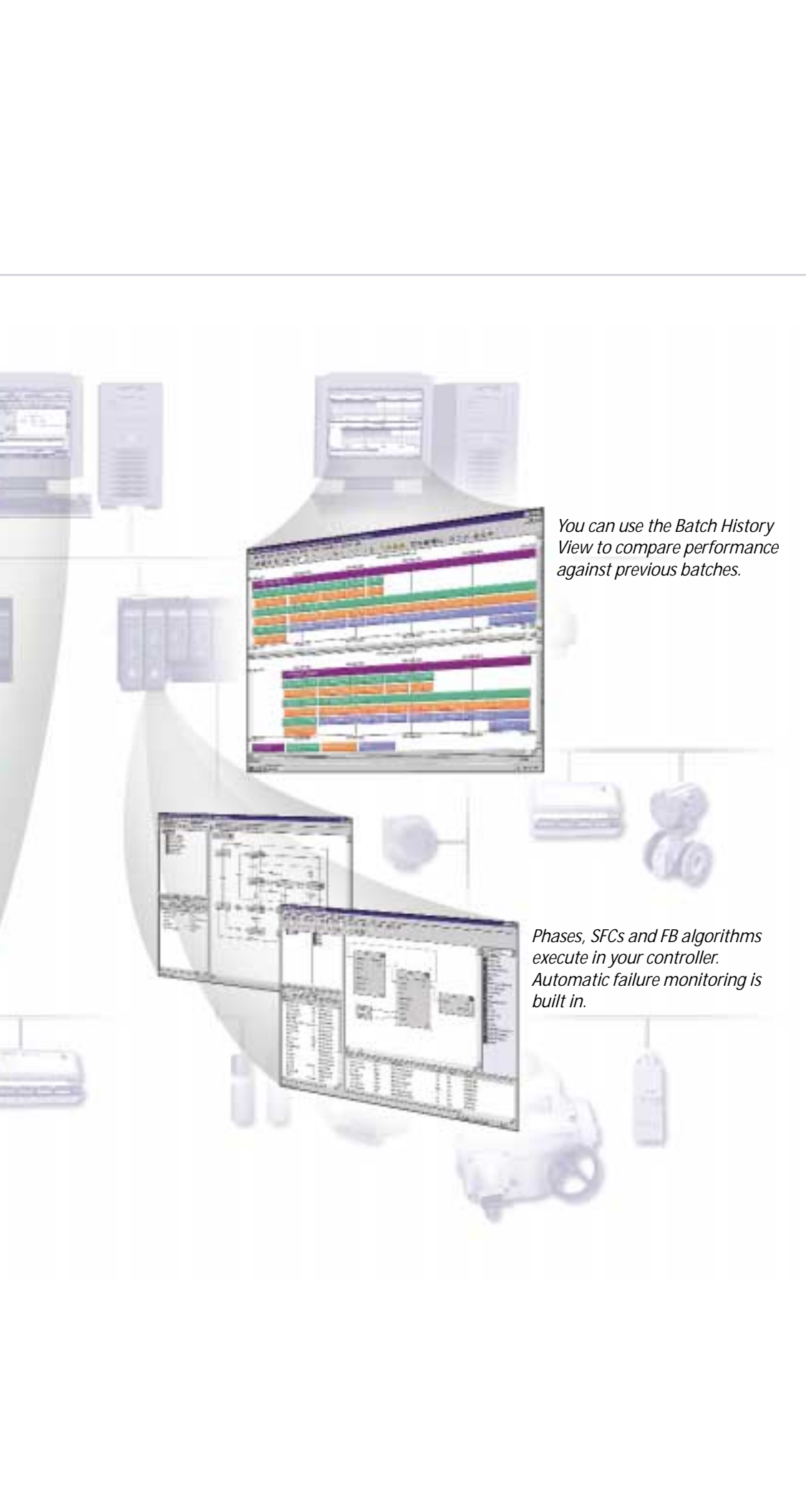
You can use the Batch History View to compare performance against previous batches.

Phases, SFCs and FB algorithms execute in your controller. Automatic failure monitoring is built in.

"The DeltaV Batch Historian makes it easy to track batch data because it automatically collects batch event data with no additional configuration."
– Michael Boudreaux
Akzo Nobel Chemicals, Inc.
USA

Enterprise Optimization

Almost everyone recognizes the benefit of connecting the production and automation systems with the enterprise planning, scheduling, quality, and maintenance software. Benefits like efficient plants, optimized supply chains, lower direct labor costs, and dramatically reduced inventory and delivery times. The roadblocks to achieving these logical connections include: legacy automation systems, lack of communications standards, and costly resources to develop and maintain this connectivity.

Real-time communication

In 1995 an effort led by Emerson Process Management, Microsoft and Intellution resulted in the development of OPC resulting in a standard for the high speed communication of real-time systems. Today this standard is managed by the OPC FOUNDATION, located at *www.opcfoundation.org* .

*OPC MIrrorLite facilitates drag and drop configuration.*

This client-server architecture has been adopted worldwide. Recognizing that this standard does not support server-to-server communications, like what's needed to connect automation systems together, Emerson developed the OPC Mirror to fill this gap.

In keeping with Emerson's commitment to open, interoperable standards, you can access a free version of this software at *www.easyDeltaV.com/OPCMirror* .

Between OPC and serial communications using Modbus, the old problem of connecting different 3rd-party systems together for real-time communications has been solved!

Event integration

The OPC FOUNDATION increased its standards scope, delivering the OPC Alarm and Event specification for the integration of time-stamped, event information. True to form, Emerson has delivered DeltaV OPC Alarms and Events software for easy, standards-based integration with the enterprise.
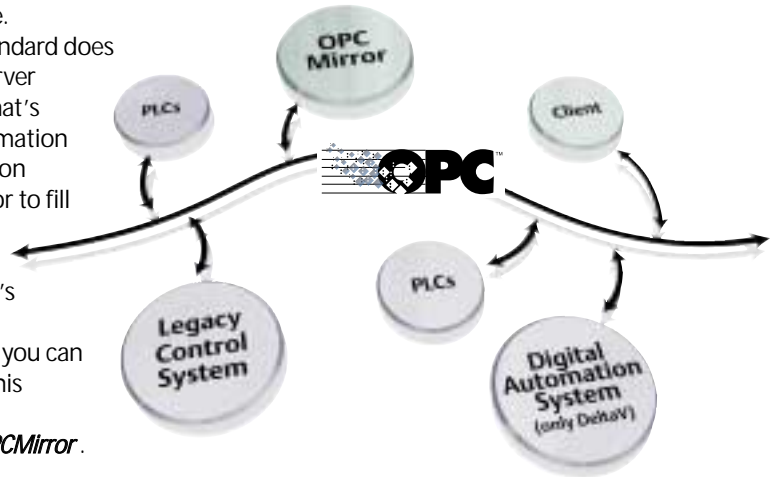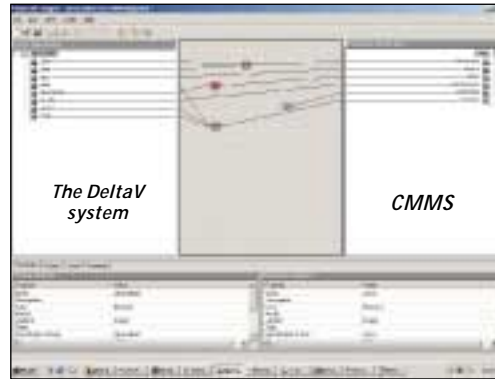
The next generation

A new revolution is upon us. Recently we have seen the explosion of the internet with the proliferation of data via standards such as HTTP and HTML. Widely adopted for viewing data, this standard has found its way into automation products such as the DeltaV and AMS web servers for viewing maintenance, historical and process data.

The introduction of web services by Microsoft with the standardization of XML (eXtensible Markup Language), in their vision of enterprise integration, is providing technologies to transform our enterprises even further. Now, 3rd-party applications can work together via a drag-and-drop configuration as opposed to complex C/C++ programming.

Integration has never been easier.

How does this help optimize your enterprise? Now you can integrate your production control system readily with the maintenance system so the the equipment proactively generates work orders. The production control system delivers inventory information to suppliers for inventory management and plant scheduling. Production scheduling is automated, with the ERP system delivering production schedules and quotas to the production control system: all using the same drag-and-drop interface using an off-the-shelf XML transaction engine.

Many transaction manager software packages are available today such as WebMethods, BizTalk, DataJunction and others.

BizTalk also includes software for routing events to email, pagers, personal organizers and SMS cell phones. With XP windows, these XML transactions can be routed in to the Windows Messenger for integration with your Passport (a Microsoft Windows XP application for sending you information when you need it where you need it!).

Microsoft Biztalk maps predictive maintenance alerts to the Maintenance Management software.

For more on this these technologies and to learn how your digital plant may be optimized refer to the "*DeltaV We Do Digital Plants*" brochure.

"Both OPC and DCOM are transparent to the user– our EtaPRO system polls the DeltaV and the DeltaV supplies the requested information. For the end user, it couldn't be simpler."

—John Holbrook
LA Dept. of Water and Power, USA

We are Emerson

Performance improvement is the primary objective of process management.

Creating greater potential for shareholders, customers and employees is the key. How best to do it is the question. And more than ever before Emerson is the answer. Our Performance Solutions division consolidates the expertise of more than 20 worldwide process improvement leaders– names like Fisher, Rosemount, Micro Motion and more– into a powerful, single source of experts focused on building productive risk/reward partnerships with clients in the power, pulp & paper, oil & gas, chemical, pharmaceutical, and food & beverage industries. Working together, we help companies achieve higher quality, greater reliability and faster time to market, while steadily advancing productivity and profitability. Time and again, we deliver proven performance improvement solutions.

Automation and integration expertise

Automation and instrumentation form the central nervous system of your plant or process. It's essential that all the components of this system work together to help you achieve greater performance, reliability and return. Day after day. Year after year.

Emerson is at the leading edge of this movement. Through internal development and acquisition, we have created a broad, process improvement enterprise that

incorporates many of the most respected product, service and engineering names in the business. We are clearly the world leader in single-source process management and performance.

Build it

In the case of new facilities or major expansions, Emerson can provide a turnkey solution– including front-end engineering design, equipment selection and commissioning services.

Our capabilities and experience are especially valuable when time is at a premium and integration integrity is essential.

Connect it

We help customers seamlessly integrate every level of their process information and equipment– from the shop floor to the top floor, from remote field operations through distribution networks and more.

Seamless integration of people and technology is mission critical for companies seeking maximum productivity and a better bottom line.

Build– Connect– Improve– Sustain.

Improve it

Emerson enjoys a well-deserved worldwide reputation for improving the efficiency and productivity of plant operations.

At the startup stage, we work to ensure the safety, reliability and efficiency of new facilities. And, we're also experienced in bringing old plants back to life— renewing technology, retraining people and fine-tuning processes to achieve new objectives.

Sustain it

It's a fact. When a system isn't maintained, any gains in performance improvements will eventually be lost.

That's why we work to deliver a complete portfolio of maintenance services and capabilities to our customers— from valves, instruments, and automation systems to analytical, electrical and rotational equipment, as well as monitoring, consulting and educational services. Everything designed to increase the reliability of plant equipment and maximize uptime.

From the field, to the plant, to the bottom line— where performance is the question, Emerson is the answer.

For a more detailed look at our capabilities visit: *www.emerson performancesolutions.com* .

"The Performance Solutions alliance agreement is the most successful of the twelve to fifteen key supplier agreements currently in place."
—Michael Freytag
Bayer
USA

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- **DeltaV Precision Control** (brochure)
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- **Product information CD**
- **Customer Case Studies video CDs and DVD**

To locate an Emerson Process Management representative or sales office near you, or receive any of the aforementioned brochures and cds, visit our website at:

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