

# WDPF<sup>®</sup>-to-Ovation<sup>®</sup> Migration

*Increasing Your Performance While  
Preserving Your Investment*



# Migration: A Smart, Field- Proven Approach



*Since your WDPF® system was first installed, computing and control technology have advanced dramatically. The introduction of more powerful processors, high-speed networks, and the development of sophisticated control and information management capabilities can significantly improve the performance, reliability and profitability of your plant. In addition, as systems age, maintenance costs can swell as older components and peripheral devices used on the original system become more difficult and expensive to obtain.*

Traditionally, to meet the needs for increased functionality and avoid component obsolescence issues would require a complete replacement of your control system — an expensive proposition involving long outages and significant risk.

Emerson Process Management (formerly Westinghouse Process Control) offers a smarter, field

proven alternative to complete replacement of your Westinghouse WDPF system. Our WDPF-to-Ovation® Migration program allows you to retain the most cost and engineering intensive elements of your WDPF system while providing you with all of the features and performance benefits of our state-of-the-art Ovation expert control system.



**Before**



**After**

New Ovation controllers are installed in your existing WDPF cabinets without disturbing your Q-line I/O or field terminations.

# Emerson: Committed to Your Success



*Emerson Process Management Power & Water Solutions has supplied reliable process automation systems to customers around the world for over 45 years. Through each step in that history – from the first digital process control computer in 1959 to our introduction of the Westinghouse WDPF technology in 1982, to our current Ovation expert system – we have consistently incorporated enhanced technologies and upgrade paths to help our customers keep pace with technology and enhance their operations.*

Migration from WDPF to Ovation offers users a low-risk, cost-effective alternative to complete system replacement. In fact, the WDPF-to-Ovation migration program was designed to allow users to preserve much of their existing investment in WDPF, including cabinetry, the entire Q-Line I/O subsystem and associated wiring, control logic, and process graphics.

Because existing DPU cabinets are simply refitted with an Ovation Controller Fieldkit, there is no impact to system footprint. And most significantly, since your proven control strategies, databases, and process graphics are retained, migration is virtually transparent to operators – thereby minimizing retraining requirements and allowing for continuity of operations.

## With our Field-proven WDPF-to-Ovation Migration

### You Retain:

- ✓ Your existing field terminations saving field labor and check-out time
- ✓ Your fully supported WDPF Q-line I/O, eliminating the expense and risk of replacement
- ✓ Your proven control logic, saving the expense and risk of developing new schemes
- ✓ Your existing process graphics, eliminating the need to retrain plant operators

### You Get:

- ✓ Powerful, fully redundant Ovation PC-based controllers with embedded advanced control algorithms
- ✓ Industry standard 100 Mbps Fast Ethernet control and information network
- ✓ Easy connectivity to plant WANs, LANs and third-party devices
- ✓ Fully integrated engineering tools including a user friendly control builder
- ✓ The ability to seamlessly incorporate fieldbus networks in Emerson's PlantWeb digital plant architecture

# Increased reliability and profitability

## Fast, Field-Proven Migration Process



*Emerson Process Management offers a field-proven migration process to allow a seamless conversion of your WDPF system to a fully functional Ovation expert control system. This process has been demonstrated in over one hundred thirty installations to provide a low-risk, high-value alternative to system replacement.*

To begin the migration process, we perform a complete hardware and software inventory of your existing WDPF system. Utilizing this information, we develop a comprehensive hardware layout, software map and migration plan to define specific requirements to guide the process. Your existing control logic, process graphics and databases are converted off-line to their Ovation equivalent. New workstations and network devices are pre-positioned at your facility and installed before cutover to the new system. Finally, your WDPF DPUs are replaced with Ovation controllers, completing the migration with minimum process downtime.



**I/O and Cabling** — WDPF Q-Line I/O maintains its full functionality within Ovation, and all of the existing I/O cabling is preserved. After migration, you will have the ability to add additional Q-line I/O modules as well as Ovation I/O for system expansions or enhancements. Adding Ovation I/O gives the capability of seamless incorporation of **Foundation Fieldbus, HART, Profibus** and **DeviceNet** smart field devices directly into a fully functional Ovation **PlantWeb** digital architecture.

**Controller** — The Ovation Controller will replace your existing WDPF DPUs. The Ovation Controller is based on a standard, industrial Pentium PC configured to provide the reliability, fault-tolerance, and full redundancy necessary for critical control applications. It incorporates a commercially available real-time

operating system that provides full multi-tasking with preemptive task scheduling, while maintaining strict compliance with open system standards.

**Network** — Your existing 2 Mbs Westnet Data Highway is replaced by a fully redundant, commercially available Fast Ethernet network. The Ovation Fast Ethernet network has a high bandwidth (100 Mbs), supports large, geographically dispersed systems, and is flexible enough to incorporate various media and topologies while providing secure, seamless connectivity to business networks and third party Ethernet compatible devices.

**Workstations** — WDPF Classic operator and engineering consoles are replaced by either Microsoft Windows PC platforms or Sun Solaris UNIX platforms.

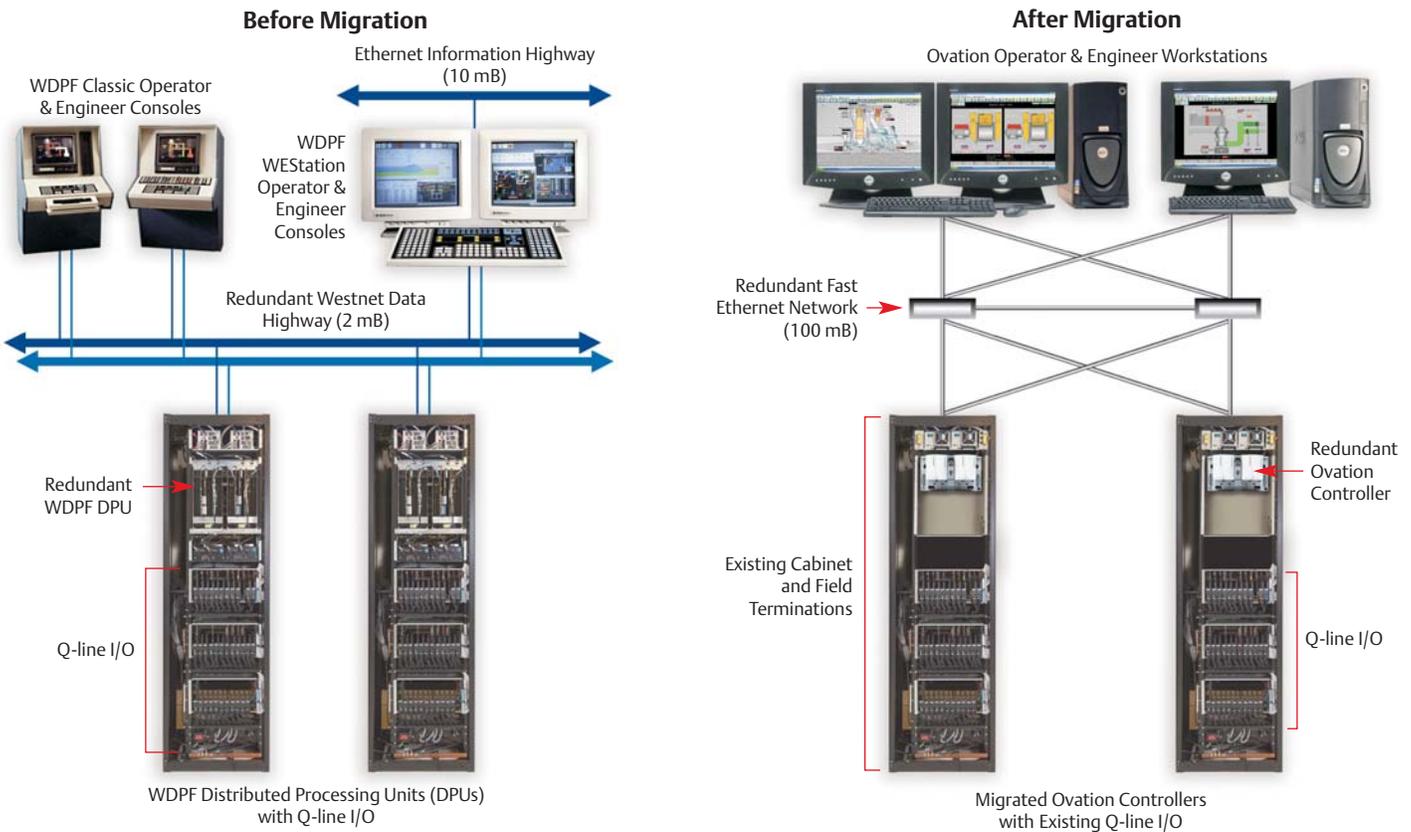
*Fully integrated products*

**Engineering Tools** — WDPF engineering tools are replaced by the Ovation Windows Developer Studio or Ovation Solaris Power Tools. Both offer a fully integrated, easy-to-use suite of advanced software programs that create and maintain Ovation control strategies, process graphics, point records, report generators, and system-wide configurations. The Ovation Windows Developer Studio includes the Control Builder, Graphics Builder, Point Builder, Configuration Builder, Report Builder, I/O Builder, and

Security Builder. Similar tools are available in the Ovation Solaris Power Tools.

**Control Logic** — Your proven WDPF control and database information is migrated to the Ovation Control Builder, while point information is mapped directly into the Ovation relational database. Migrated control is displayed on the Ovation Control Builder drawing sheet using SAMA symbol-based control algorithms and Boolean logic. The migrated system retains the original algorithm and point names.

**Operator Station and Process Graphics** — In a one-to-one conversion process, we convert both Classic WDPF and WEstation process graphics into Ovation graphics. The new Ovation process graphics are identical in look and function to their WDPF predecessors and are fully editable using the Ovation Graphics Builder. To take advantage of Ovation’s advanced graphics capabilities, graphics can be enhanced at any time.



# I/O Migration Option



*The I/O migration program offers a one-for-one replacement of Q-Line I/O with Ovation I/O. Each Q-line card is replaced with a newly developed personality module and a standard electronics module. The card edge connector from the termination (“B”) cabinet plugs directly into the personality module, therefore preserving the existing field terminations.*

Emerson uses the existing card edge connector to plug into the personality module. The communications scheme uses standard Ovation I/O by node and branch, and every two groups of four cards make up one branch. In total, six branches are needed for each 48 Q-cards to be replaced. Ovation is designed for a maximum of eight branches per I/O bus.

The migrated Ovation I/O option is the optimal choice for customers who are migrating their WDPF system to Ovation and want improved configuration and diagnostics while maintaining their existing field terminations. An I/O migration can be implemented in a short outage period on a per-drop basis.

With an I/O migration, configuration capabilities are improved through a reduction in the number of jumpers that are required. With Ovation I/O, configuration is performed via software tools, and there are more configuration options for each point. RTD types are set by software, eliminating the plug-in RTD input modules.

In addition to improved configuration, diagnostics are also improved through additional options available for types of points. For example:

- Time out action — Reset or latch
- Time out selection — Eight different selections of timeout period
- Blown fuse detection for analog inputs and digital outputs
- Ground fault detection for digital inputs
- Diagnostic LED in electronic modules for power, communication with controller, and internal or external errors



The replacement kit offers easy mounting or removal of the back-plane, personality cards, and electronics module.



This image depicts one crate of 12 Q-Line cards migrated to Ovation I/O. The original card edge connectors are plugged into the personality modules. The picture also shows the Ovation controller with the power and communications cables.

# Ovation: Giving You a Competitive Advantage



*A key component of Emerson's PlantWeb digital architecture, the Ovation expert control system embodies Emerson's four decades of unsurpassed expertise by giving users higher levels of plant availability, reliability, and environmental compliance.*

From basic control and monitoring to fleet or district-wide integration, Ovation offers seamless communication with fieldbus networks, intelligent field devices and integrated asset management solutions to deliver the power of predictive intelligence.

The Ovation expert control system is renowned for delivering precision control with outstanding performance. That precision

begins with the Ovation Controller. Based on industry standards, the Ovation Controller is the most powerful process controller available. With an Intel Pentium PC at its heart, the Ovation Controller provides full-redundancy to assure the reliability and security necessary for even the most demanding application.

Through the WDPF-to-Ovation migration process, your existing control logic is converted to equivalent Ovation algorithms that provide either identical or enhanced functionality over their WDPF counterparts. In addition, Ovation also includes an **Advanced Process Control (APC) Toolkit**, a set of specialty algorithms and pre-defined control routines that leverages the ever-expanding computing power of the Ovation controller. The APC Toolkit takes control to a higher level by incorporating fuzzy logic, neural networks, model predictive control and industry specific applications to reduce process variability and optimize process performance over the full range of plant operating conditions.



## *Fast, powerful, flexible*



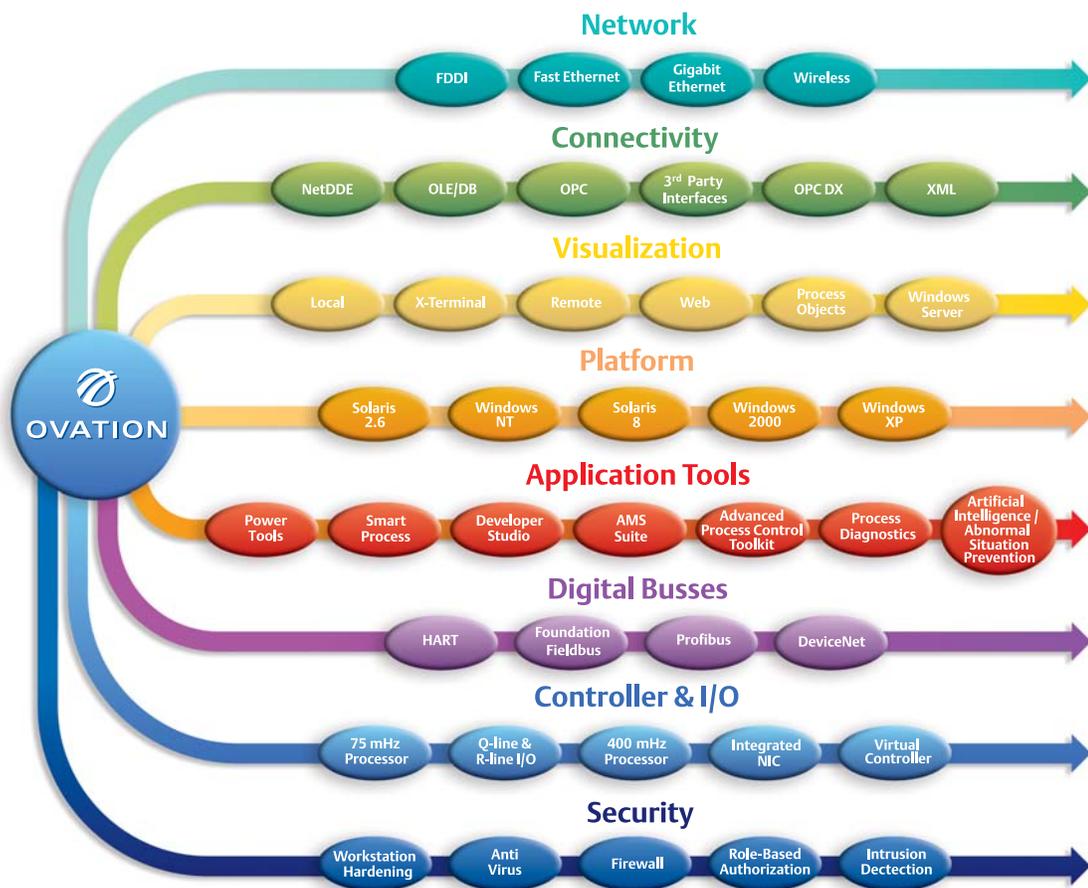
The Ovation expert control system also allows you to incorporate advanced intelligent field devices to create a **PlantWeb** digital architecture by providing seamless integration with widely adopted bus standards such as **Foundation Fieldbus, HART, Profibus DP** and **DeviceNet**. Using the rich data provided by smart devices, Ovation's native application of Emerson's **Intelligent Device Manager** allows you to implement a predictive maintenance program that continually analyzes device health, identifying problems before they impact the process while avoiding costly and unnecessary maintenance on healthy devices.

By incorporating commercial, off-the-shelf technology throughout the system, Ovation provides a powerful yet adaptable platform that gives you greater operational flexibility than other systems while also protecting your engineering investment by allowing you to continually modify and expand the system to meet new challenges.

This means your Ovation system can evolve incrementally as your process grows or as technology progresses. Ovation eliminates fears of rapid system obsolescence by allowing you to stay current with state-of-the-art developments in communications, processing and advanced applications.

## Ovation Evolution

By incorporating industry standard hardware platforms, operating systems and network architectures, only Ovation stays new in the face of rapidly advancing technology. Over time, your Ovation system can evolve incrementally, incorporating new technologies while preserving your vital investment in control logic, graphics and operator training.



*needs and applications*



*Only one company offers proven, state-of-the-art technology that preserves your existing investment.*

Only Emerson Process Management has demonstrated time and again that we can migrate any WDPF system to a state-of-the-art process control architecture while preserving your proven control logic, familiar system graphics, and much of your investment in system hardware and engineering — all while avoiding the high costs and risks of complete replacement or reliance on one-of-a-kind fixes.

With our WDPF-to-Ovation migration program, you get the latest technology for improved performance and increased functionality along with our world-class product support. Your migrated system will allow you to take advantage of not only current Ovation technology, but future enhancements made possible by rapidly progressing technology.

**For More Information**

If it is time for you to consider migration, contact your local sales representative or call 1-800-445-9723. Or visit our web site at [www.EmersonProcessPowerWater.com](http://www.EmersonProcessPowerWater.com).



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