

Experion Virtualization Solutions

Product Information Note

Experion Virtualization Solutions lead the industry with a turnkey approach to bringing the major benefits of virtualization to customers in the process industries.

Today's industrial and manufacturing enterprises face immense pressures in both constructing new plants as efficiently as possible, and operationally to reduce rising lifecycle maintenance costs while maintaining or improving reliability. Additionally, the immense skills shortage being experienced today is requiring companies to do more with less, now more than ever.

Intelligently leveraged, virtualization provides innovative methods to tackle the key challenges that our industry faces.



Current Issues in Plant Construction

With the ever-increasing demand for resources and manufactured goods, plants are becoming more complex than ever and face constant pressures to reduce time to production and build costs. The challenges facing customers constructing new plants include:

- **Geographically distributed engineering** - With increasing plant complexity, the need to draw upon multiple labor sources and the desire to distribute risk is causing plant construction to become more geographically distributed than ever before. This new distributed engineering model is the driving force behind new project implementation methods and approaches.
- **Project complexity** - As natural resources become scarce, projects of today are becoming more and more complex. This requires industry to respond with new techniques and technologies that can deal with the uncertainties these projects bring.
- **Accelerated project schedule** - New plant construction represents a significant investment on behalf of companies, and there is a constant pressure to complete the project and start production. Additionally, there can be other compounding factors like patent expirations that make it an imperative to get plants running quickly.

Honeywell Process Solutions has taken a unique approach to delivering the benefits of virtualization to our customers by providing a complete experience from installation to support that is comprehensive, allowing you to run more of your system virtualized and reap greater benefits. We also understand that end-users are always looking to reduce complexity, improve performance, reliability and supportability and our solutions are designed with that in mind.

Current Issues in Existing Operations

In a demanding economy, industrial companies must find ways to do more with less, which means reducing operating costs while maintaining or increasing production levels. As such, there is an urgent need to identify inefficiencies and ensure operations are as productive and economical as possible. Some of the current challenges facing the maintenance of control systems in use today include:

- **Proliferation of computer hardware** - There is a huge amount of computer infrastructure used in today's plants and each one of those machines needs to be patched, maintained and refreshed.
- **Facility and utility costs** - For each piece of computer hardware that is added, there is an associated impact on space, power, cooling and maintenance. This can be particularly impactful on off-shore applications where space, weight and power are at a premium.
- **Costly and time-consuming OS and application patching** - Patching operating systems (OS) and applications or reloading computer hardware for the purposes of a hardware refresh is extremely time consuming. It also introduces risk into plant operations. Customers want to maximize the time between having to touch the OS or applications and reduce the risk to operations when it is required.
- **Limited skills to maintain open systems** - Strong computer hardware and networking skills with knowledge of the industrial domain are a must for maintaining open control systems. While most companies have been increasing these skills within process control groups, the right skills are still in short supply. Improving the efficiency of these limited resources is very important.

Experion Virtualization Benefits

Experion Virtualization Solutions provide substantial benefits for new projects and existing installations alike. For new projects, new paradigms are enabled for greater project flexibility and for existing systems; there are major lifecycle management advantages.

Benefits for customers building new plants

- **Extend Design Freeze Dates** - By leveraging virtualized staging resources, development work can start as soon as there is a minimum set of requirements to begin engineering. Given that this work can commence without requiring actual controller or server hardware, it provides valuable additional time for design work.
- **Delay Hardware Purchases** - Given that development can start even without having to purchase computer hardware, the final purchase of this equipment can be delayed ensuring that there is no costly and disruptive mid-project refresh required. Additionally, having the latest hardware when the plant goes into production is ensured.
- **Virtual Factory Acceptance Tests** - With Experion Virtualization these formal tests, greater collaboration becomes possible ensuring greater requirements alignment at any point in time.



Benefits for customers building new plants

- **Hardware Refresh Optimization** - Experion Virtualization Solutions allow more than one workload to run on a physical box. This reduces the quantity of hardware required for Experion and therefore the total number of refreshes that need to be conducted over a period of time, and the benefit is cumulative. When a refresh is required, we can do this online, transparently to your operations.
- **Facility and Utility Savings** - With a reduction in the amount of computer hardware required to run Experion, there is a corresponding reduction in the space, power, cooling and maintenance required. These reductions are particularly valuable for offshore installations where space, weight and power are a premium.

- **System Management Benefits** - Experion Virtualization Solutions provide a single view into the virtual infrastructure. Though this single portal, you can see the performance of the virtual environment, access the desktops and turn virtual machines on and off. New virtual machines can also be deployed from this same portal. In a traditional system, it can take weeks to deploy a piece of computer hardware. With a virtualized Experion System, a new workload can be deployed in hours.
- **High Availability Solutions for Computer Hardware** - One of the most common areas of operating system instability is with drivers. Experion Virtualization provides a very robust and stable driver layer at both the hardware and virtual machine layer, which improves stability. In the event of a host failure, a new host can be installed very quickly, and restoring is a matter of copying the virtual machines back. Experion Virtualization provides integration with Experion Backup and Restore, and high availability features providing the ability to automatically restart virtual machines on another physical machine in the event of a hardware failure. These factors combine to provide better availability than traditional physical deployments.
- **Improved Hardware, OS and Third-Party App Compatibility** - Before virtualization, operating systems and applications running inside of them had to be compatible with certain hardware platforms. With Experion Virtualization Solutions, Honeywell still offers recommended and tested platforms however now provides improved choice because of the hardware independence that virtualization provides. OS compatibility is driven by what the Hypervisor can support rather than by the underlying hardware. Third Party application compatibility is improved because through virtualization, a number of virtual machines that could be running applications from different vendors can all be running totally isolated on the same piece of computer hardware.
- **Simplified, Lower Risk Upgrades and Patching** - Upgrading hardware with Experion Virtualization Solutions is easy, and depending on the type of virtual infrastructure deployed, can even be done totally transparently to process operations. Leveraging templates, base virtual machines that are customized to site policies can be developed, reducing risk when deploying new virtual machines. The ability to quickly and easily duplicate an on-process environment for offline staging ensures quick and accurate testing of patches. In the event of the unexpected, snapshot capabilities allow for the rapid rollback of a system to a known good point in time.
- **Increased Desktop Security, Reliability with Lower Heat and Noise** - Virtualized Experion Workstations allow for computer hardware to be moved out of the control room and into the instrumentation room for a fraction of the cost of traditional techniques. This allows for a quiet, cost effective and secure thin client to be the only thing that is present out in the floor of the control room. Virtualized Experion Workstations additionally allow for rapid recovery in the event of a failure and can even result in superior performance due to a common set of high-performance hardware that can be shared, instead of each desktop requiring equivalent power which can become cost prohibitive.

Experion Virtualization Benefits

Honeywell is committed to virtualization technology and the benefits it provides to our customers worldwide. Experion Virtualization Solutions deliver a comprehensive range of offerings in the following areas:

- **Virtual infrastructure providing the software and hardware needed to run virtual machines** - Experion Virtualization Solutions are unique in the ability to supply all the components of a tested, turnkey virtual infrastructure, install it, and provide best practices and configuration guidance. On the support side, customers only have one telephone number to call to obtain support for the entire solution regardless of where the problem is. Experion Virtualization Solutions are powered by VMware®, the world's largest supplier of virtualization products and solutions.
- **Support for any type of Experion deployment virtualized along with Honeywell's Advanced Applications** - Experion Virtualization Solutions can be used to run all different types of Experion deployments virtualized from full On-Process systems of any size and complexity, SCADA deployments, Off-Process Systems and smaller configurations with our Experion HS and LS products.

In addition to Experion, Honeywell supports a full range of our Advanced Solutions products virtualized. “Virtually” the entire Advanced Solutions portfolio is now supported virtualized, including:

- Optimization and simulation applications (e.g. Advanced Alarm Management, Profit® Suite and UniSim)
- Historians such as PHD
- The range of HPS applications that support virtualization is constantly growing. Please see the HPS Virtualization Specification for the most current information.

- **Experion Virtualization Solutions can be used to run Experion Virtualization Solutions that take advantage of virtualization features to create new capabilities –**

Experion Virtualization Solutions take advantage of advanced Experion Virtualization capabilities and extended them to solve specific business problems through dedicated offerings. These include our Experion Backup Control Center Solution (BCC) and Experion Off-Process Solution

The Experion BCC solution provides a complementary addition to traditional disaster recovery technique providing a rapid recovery in the event of an entire site failure. Backup sites can also be utilized for other purposes when not in use, and testing can be done at any time, supporting the integrity of the disaster recovery strategy.

Experion Off-Process Solution enables rapid setup and teardown of off-process tests, as well as easy configuration of multiple off-process labs on a single set of hardware. Users can perform upgrade testing while doing simultaneous engineering checkout. Attractive licensing optimized for virtualization allows companies to maximize the potential of this technology in a cost-effective manner.

- **Virtualization services supporting our customers from pre- sales, project execution to after-market** - Honeywell has the resources and service capabilities needed to help customers access, design, implement and manage a virtual infrastructure. We provide back-to-back support in the areas of technical assistance, training, and execution and after-market services. So, whether you are a customer building a new plant and want to leverage our expertise in virtualization to improve your plant engineering, or are operating an existing facility, we have the expertise to help you.

How to Get Started

Contact your Honeywell Account Manager to find out more about how Experion Virtualization Solutions can transform your business.

Honeywell can start by providing an assessment of the virtualization opportunities in your facility and quantify the business return that moving to a virtual environment can bring to your facility.

The good news for industrial companies is that virtualization can be applied gradually, starting small and growing over time. While Honeywell can provide a Virtualized Experion on-process system at any time, if you are unfamiliar with virtualization some good places to start including:

- **Off-process development:** Off-process development systems are by their nature non-critical, making them a great place to start applying virtualization.
- **Non-critical ancillary nodes:** Where supported by the vendor, industrial sites can begin to virtualize non-critical ancillary nodes such as web access portals, active directory servers, and OPC servers.
- **Business domain interface software:** Virtualization is being widely adopted for enterprise applications such as SAP and Oracle. As such, industrial control applications that are used to interface with these applications are great places to start virtualizing as there is a well-established precedent for using virtualization with these types of applications.

For More Information

To learn more about Honeywell's Virtualization solutions visit

www.honeywellprocess.com/virtualization or contact your Honeywell Account Manager.

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