Honeywell is committed to enabling customers to use their TPS investment as a foundation for process automation improvements. Customers are able to sustain the reliability, performance and cost-effectiveness of their process automation system. Our modernization solution for TPS installations opens the door to virtualization and allows easy migration to the latest control technology.

The world of industrial automation is ever changing to address a wide range of operational and business demands. Control system users face the challenges of modernization and continuous improvement, while ensuring plant operations remain unaffected.

Plants running the TotalPlant™ Solution (TPS) system need to avoid obsolescence with modern technology. TPS was introduced in 1998 and helped establish open plant automation with a host of advanced applications. However, its users are now dealing with compliance issues related to new safety regulations, as well as increasing system support challenges.

Need for Flexible Upgrades

Legacy system sites can realize significant advantages by migrating to Honeywell’s Experion® Process Knowledge System (PKS), the first enterprise-wide Distributed Control System (DCS) designed to unify people with process, business requirements and asset management.

TPS installations looking to modernize typically employ a physical connection to Experion using Fault Tolerant Ethernet (FTE). Users install a card in the PCI slot of their third-party servers and Personal Computers (PCs), which are then connected via coax cable to the Local Control Network (LCN).

The optimal approach for TPS migration would free users from the maintenance issues and technology “churn” of third-party hardware by allowing TPS-connected nodes (TPS Nodes) to run entirely on a Honeywell platform. It would also provide opportunities to leverage the power of virtualization to realize important engineering, operational and cost benefits.

Honeywell’s Migration Strategy

With Honeywell’s commitment to continuous technology evolution, plants can take what was once a legacy system and gradually, in a step-by-step fashion, move it forward to become part of a new, modern system while at the same time protecting existing asset investments.

This strategy maintains safe and reliable controls while modernizing and evolving with the most advanced technologies. It keeps established, reliable systems running longer, extends uptime, and preserves investments in hardware and network infrastructure.
Honeywell’s modernization solution provides customers with greater freedom and flexibility in upgrading their legacy TPS control platform. Plants can replace bulky, outdated Universal Station (US) hardware with the state-of-the-art Experion Orion consoles, implement a virtualized station environment with thin clients, and update their Human-Machine Interface (HMI) with modern operator interface graphics.

With LCN traffic going over Ethernet, users can take advantage of TPS virtualization and remotely locating the TPS Node. The location of the Virtual Machine (VM) with respect to the ETNI card is irrelevant; it can be in the same rack, in the same room, or a few miles away.

Why Virtualization?

It is particularly important for TPS customers to optimize their long-term HMI support. Fortunately, Honeywell’s ETN leverages the power of virtualization technology to simplify management of HMIs. The ETN can be employed to address Operating System (OS) and hardware platform obsolescence, decoupling the system interface from remote VMs executing in physical host platforms. This approach provides remote access to core Hiway, TPS and LCN drivers and services. Best of all, it enables virtual cloud engineering to streamline major expansions. The ETN also works with US in PCUS to provide better overall packaging options.

The key value of virtualization for legacy customers is the ability to future-proof their TPS investment. Moving the LCN onto Ethernet enables flexibility in modernization today — and in the future.

The specific benefits of ETN with virtualization include:

- Simplified system management
- Hardware refresh optimization
- Increased availability
- Facility and utility savings
- Improved console experience
- Greater hardware sustainability
- Reduced heat and noise in the control room

Solutions for Different Customers

Honeywell’s objective is to tailor technology evolution to meet a wide range of customer requirements. There are several different use case scenarios for legacy sites seeking to employ our TPS modernization solution.

In the first scenario, a US customer wants to deploy physical PCs in the normal way, but decouple from the LCNP4 and corresponding hardware. The customer isn’t ready to implement virtualization, however, the technology is regarded as a future option. The key objective is to ensure a sustainable operator platform. By upgrading to ES-T with ETN, the customer’s site can retain all Native Window Graphics and transition to HMIIWeb graphics and operator effectiveness tools at its own pace.
Migrating to Experion with ETN will also provide a sustainable hardware platform with stability features similar to the US.

In the second scenario, a Global User Station (GUS) customer has growing concerns about system longevity, but wants to maintain existing LCN hardware. Since Microsoft® is no longer supporting Windows XP, an upgrade is essential. By mounting the ETN in an LCN or third-party cabinet, the customer can gain the confidence of a sustainable hardware platform based on a familiar and secure physical approach.

In the third scenario, a customer with an ES-T, ESV-T, ACE-T or E-APP installed base is planning a hardware refresh. This situation offers a good opportunity to implement virtualization. By mounting ETNs in an LCN or third-party cabinet, the customer’s facility can achieve a modern hardware platform while realizing all of the benefits of virtualized infrastructure.

**Virtual ETN**

With the Virtual ETN, TPS Nodes run as VMs and access to the LCN is provided by the ETN. Thin clients make visibility of each VM desktop possible.

Using this solution, the ETNI card can reside in one of two locations:

- Dual-node card file of the US (for a US migration)
- Dual-node card files residing in the instrumentation room

The Virtual ETN, combined with the K4LCN, replaces the LCNP4 card and opens the door to the robust capabilities of virtualization. However, the chosen approach will depend on whether the customer has a US or TPS Node installation.

**Physical ETN**

With the Physical ETN, TPS Nodes run as physical machines and reside in one of two locations:

- Control room
- Instrumentation room

Access to the LCN for these nodes is provided by the ETN. Visibility of each VM desktop is then provided by:

- Local monitors and keyboards (physical workstation located in the control room)
- Thin clients (physical workstation located in the instrumentation room)
- Matrox Extio 2 (physical workstation located in the instrumentation room)

With this technique, the ETNI card can reside in the same locations as the Virtual ETN.

**Benefits to Industrial Sites**

Industrial operations concerned with the future of their legacy control system can realize numerous operational and business benefits from the TPS modernization solution. Honeywell is committed to helping you sustain your automation platform, and at the same time, take advantage of the most up-to-date technologies.

Industrial plants can replace their outdated Universal Station hardware with the state-of-the-art Experion Orion console.

Honeywell’s solution enables legacy sites to enjoy the benefits offered by Experion TPS Nodes while retaining existing graphics and intellectual property. It also unchains hardware from third-party technology churn. Best of all, your current LCN components can remain in place with the same constant and predictable user experience as on the Universal Station.

Honeywell’s TPS modernization solution minimizes operating disruptions and maintains overall consistency, as well as delivering the optional lifecycle advantages of virtualization. Ultimately, it provides a secure path to a host of advanced technologies.

**Rely on Honeywell’s Support**

Honeywell is the only automation vendor that continues to support 40+ year-old control systems. With our migration solutions, customers can upgrade to new technology without having to “rip and replace” their existing systems. They can continue to operate and be supported on legacy equipment, while avoiding changes to physical wiring and intellectual property.

Honeywell’s modernization roadmap incorporates full flexibility in lifecycle planning, including long-term support of existing equipment for life expectancy extensions and upgrades for plant
performance improvements. Our support services and expertise help industrial facilities protect current investments and extend their system lifecycle.

Experion® is a registered trademark and TotalPlant™ is a trademark of Honeywell International Inc. All other trademarks are the property of their respective owners.

For More Information
Learn more about how Honeywell’s TPS Modernization Solution can sustain your automation investments, visit our website www.honeywellprocess.com or contact your Honeywell account manager.

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