Simplicity of controllers migration

TCMI – Triconex migration to EUCN

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Agenda

• Control system evolution (by 2013) – TPN-UCN and EPKS
• Simplified controllers migration with EHPM Solutions
• TCMI – Triconex coax UCN to FTE EUCN migration
• Migration considerations & benefits
• Questions
Honeywell Evolution Vision

- Keep your reliable system running longer with different modernization options
- Protect intellectual property and capital investments
- Provide services support for upgrade to the new technology

Delivering continuous evolution for 40+ years

Committed to Protecting Your Automation Investments
TPN / EPKS – Control System evolution

Coax Technology

History
- 1880 – patented (UK)*
- 1936 – first commercial use (Germany)*
- 1941 – first commercial use (US)*
- 1974 – Honeywell use in TDC2000
- 1983 – Honeywell use in TDC3000/TPN

* Source Wikipedia

Ethernet Technology

History*
- 1975 – patented (XEROX)
- 1976 – first commercial use
- 1982 – Ethernet II
- 1989 – ISO 8802-3 standard
- 2006 – Fault Tolerant Ethernet (FTE) – Honeywell

* Source Wikipedia

Coax infrastructure support extended till YE 2025

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Preparation for coax migration to FTE

FTE infrastructure engineering and setup

- FTE cables installation
- Level 2 switches installation, configuration and setup
- CF9 firewalls Installation
### Simplified Migration Approach

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On-Process creation of hybrid UCN

ENB - Incremental step-wise modernization
Modernization of xPM family controllers

2016 - 2025
FSC to SM on EUCN upgrade

2016 - 2025
TCMI – Triconex Communication Module Interface

What is TCMI

- New Honeywell hardware
- Requires connection license
- Connects Triconex with FTE using UCN protocol
- Facilitates Triconex migration from UCN to EUCN
- Compatible with Triconex controller V10.3 or higher
- Honeywell TCMI connection uses the Triconex TSAA communication protocol
- Connects to Triconex controller using Triconex TCM interface card
- Sold for migrations (kits) and expansions

Why important for Triconex connected systems

- Increased longevity of communication support
- Replaces coax connection (SMM) with FTE (TCMI)
- 2017-07 – Triconex SMM in “Mature” phase (Scheider)
- Off Process migration during plant turnarounds before 2025
- Migration checkpoint compatible with Triconex SMM
- Configuration Retention within the control system
- No changes in displays and control system applications
- Peer-to-peer communications communication retention
TCMI Hardware

- Connects Triconex system to EUCN
- Makes use of common Universal Embedded Appliance (UEA)
- UEA available as spare part
- UEA requires TCMI personality setup prior to installation
- Enables TPN tags data mapping identical to Triconex SMM
- TCMI shipped as redundant pair
Migrations with step-wise UCN-EUCN upgrade

Automation planning
- FTE topology setup
- Peer-to-peer traffic analysis
- FTE infrastructure check
- Sequence of device migrations
- On-process migration planning

Considerations
- ENB Coax to FTE traffic limitation – 140 msg/sec
- SW release requirements
  - TPN R687.1 (TCMI)
  - TPN R686.2 (ENB)
  - EPKS R432.1 (ENB)
- Upgrade Triconex to V10.3 or higher

Benefits
- On-process infrastructure setup
- On-process HPM-EHPM upgrade
- Retention of existing controls, applications, displays

Migration planning – key to success
Migration - Completion

2025
Benefits from Simplified Migration

**Production Downtime**
- TRUE On-Process infrastructure setup
- TRUE On-Process HPM to EHPM upgrade
- On-Process change to the final setup

Reduce up to 30% of production downtime for migration activities

**Automation Planning**
- Investment linearity
- Step-wise incremental upgrades
- On-process changes
- Changes during shutdown

Up to 80% automation planning accuracy improvement

**Engineering Savings**
- No changes in control, applications, HMI
- Reduced on-site migration effort
- Minimal training requirements
- Minimal test/validation effort

Total upgrade investment reduction larger than 25%

**Reduced Risk and Investments Savings**
TPS/TDC to Experion PKS Control Unification – EHPM Solutions

Honeywell offers the Enhanced High Performance Process Manager (EHPM) Solutions that mark a significant advancement in extending the lifespan of TPS/TDC systems. EHPM Solutions offers an easy and cost-effective approach for modernization of coax-based control devices to Fault Tolerant Ethernet (FTE) technology and integration with Experion® PKS. Preserving intellectual property in wiring, applications, HMI, control and safety strategies reduces risk and downtime for users.

What Is It?

Integrated Control for TPS/TDC and Experion PKS

EHPM Solutions represent the ongoing evolution of the TPS/TDC system by applying the advanced technology of Experion PKS. It avoids rip-and-replace upgrades, which can be more expensive and less secure than incremental, phased modernization techniques. At the center of the modernization approach is the on-process infrastructure upgrade and true on-process modernization of the industry’s most widely used and reliable controller, High Performance Process Manager (HPM).

EHPM Solutions program provides:

- Extension of the lifespan of the TPS/TDC control environment by applying FTE technology
- Modernization of the coax-based Universal Control Network (UCN) to FTE-based Enhanced Universal Control Network (EUCN)
- Modernization of the HPM controllers to EHPM
- Control function enhancements with control-level data exchange between EHPM and C300 controller
- Improvement of TPS/TDC system performance through direct operation station access to the EHPM controller
- Safety function enhancements with data exchange between EHPM and Safety Manager across EUCN, and modernization of the Fail Safe Controller (FSC) functions to Safety Manager
- Changeover of the coax connected Triconex systems to EUCN by use of the Triconex Communication Module Interface (TCMI)
Things to remember

Step-wise Migration Solutions – for all coax UCN connected devices

- Intellectual property protection reducing project cost
- True On-Process HPM-EHPM migration
- Off-process migration to TCMI or SM
- End of coax support 2025
- On-process infrastructure setup

Honeywell commitment to continuous evolution
Honeywell is building a smarter, safer, and more sustainable world

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Connected Plant · Connected Supply Chain · Connected Worker