Retiring Knowledge? EHPM On-process Migration Made Easy

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Today’s Business Challenges for Process Industries

Automation Challenges:

- Hardware/Software obsolescence
- Increased maintenance costs
- Operator & Optimizations limitations
- Skilled resource availability

- $65B installed base of Process Automation Systems reaching end of useful life (ARC)
- 78% of operating control systems over 10 years old (ARC)

$10B cost to US Industry due to inability to manage abnormal situations (ASM)
Honeywell Evolution Vision

Delivering continuous evolution for 40+ years

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

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

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
Modernization Planning and Retiring Knowledge

Operations and support expectancy
• Plant Assets operation - 50-60 years
• Process and operational knowledge - 50-60 years
• Active Workforce engagement - 25-30 years
• Process Controllers operation - 15-20 years

Things to Consider:
Controllers - 20+ years old
Customer build application (IP) – 20+ years old
Availability of knowledge and information

Organizations are struggling to find and retain the critical skills
67% of manufactures in US report shortage of skilled labor

Digging deeper
• This trend was in the top 5 for Asia Pacific with 48% respondents ranking it as highly relevant today
• 66% of respondents from Japan rank it as the top most relevant trend today
• 50% respondents from Manufacturing and Public Sector industries rank the trend as highly relevant today, which is the highest across the industries
• A lower number of respondents (28%) from Financial Services industry rank the trend as highly relevant today

Deloitte Global Human Capital Trends 2013
## Control Infrastructure Modernization Solutions

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<th>Retiring Knowledge Concerns</th>
<th>Controllers Migration Solutions</th>
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<tr>
<td>Retain controllers configuration</td>
<td>Use backup/restore functions applying checkpoints</td>
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<tr>
<td>Keep applications unchanged</td>
<td>Use applications with checkpoints, or Use safety application migration tools</td>
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<tr>
<td>Maintain existing operations approach</td>
<td>No changes in HMI during migrations</td>
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<td>Do not change information flows</td>
<td>Retention of peer-to-peer data exchange</td>
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<td>Avoid testing during modernization</td>
<td>Apply checkpoint without change Automated safety migration solutions Retain wiring avoiding loop checks</td>
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<td>Migrate while plant in operation</td>
<td>True On-process HPM-EHPM migration</td>
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<td>Flexibility in migrations</td>
<td>Step-wise migration approach</td>
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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
On-Process creation of hybrid UCN

ENB - Incremental step-wise modernization
The Incremental Step-wise Migration Process

Planning for upgrades

- Peer to peer traffic analysis on the coax UCNs
  - Traffic data collection
  - Define devices for simultaneous upgrade
- Define mounting locations for the ENB

The Considerations

- ENB is a temporarily migration enabler
  - Requires changeover to ENIM with the last device upgrade
  - ENB has limited coax to FTE data exchange capacity

Migration Benefits

- Incremental migration of UCN devices
  - Linearity of investment compared to one time upgrade
  - Retains peer data exchange between coax and FTE based devices
  - Enable alignment with process units turnaround schedules

Migration planning – key to success
On-Process HPM-EHPM upgrade

2016 - 2025
The True On-Process Migration
Benefits of EHPM Experion Integration License

Typically Over 80% reduction in HPM to LCN Traffic
FSC to SM on EUCN upgrade

TÜV Approved Verification

2016 - 2025
Software Migration to Safety Manager

TÜV approved application migration tool
Maintain your application & save test time and training of maintenance & engineering personnel.
Triconex-SMM to Triconex-TCMI Upgrade

2018 - 2025
TCMI - Product Description

What is TCMI
- Honeywell Manufactured Equipment
- Facilitates Triconex communication to EUCN
- Sold in Redundant configuration
- Available in two hardware form factors

- Front and Rear access mounting – redundant

- Front only access mounting - redundant
Migration - Completion

2025

US PCUS GUS
HM
AM/ EPLCG

Orion ES
ESV

EUCN
ENIM
EHPIA
SM
Triconex
TCMI

FTE
SM
Benefits from Simplified Migration

Production Downtime
- TRUE On-Process initial 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
- Reduced LCN/NIM loading with EHPM Experion Integration License

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
- No changes to IO and wiring

Total upgrade investment reduction larger than 25%

Reduced Risk and Investments Savings
TPN Merges into Experion

Fault-Tolerant Ethernet

Experion Station

EHPM

C300

Safety Manager

Vision

TPN Components Gradually Melt into Experion
Information for Users

Honeywellprocess.com
Things to Remember

Over 1300 EHPMs Shipped to Date

Intellectual Property Protection Reducing Project Costs and Risks

Off-process Migration to TCMI or SM

Direct Access of EHPM data by Experion Nodes

On-process Infrastructure Set-up

True On-process HPM-EHPM Migration

Preserves existing IO wiring

End of coax support

2025
Other Sessions of Interest

- **Tuesday – October 2nd**
  - 11:50 – 12:30:
    - Leverage the Power of Experion LCN – Marjorie Ochsner, Honeywell
  - 14:50 – 15:35: Spotlight Area in the Knowledge Center –
    - Spotlight: Improve, and Test and Train on Experion LCN with OpenVEP - Marjorie Ochsner, Honeywell

- **Wednesday – October 3rd**
  - 11:00 – 11:45
    - Cost Effective Migration from FSC to Safety Manager – Johan School, Honeywell
  - 11:50 – 12:35: Spotlight Area in the Knowledge Center
    - Spotlight: Live Migration: On Process Migration to EHPM – Steven Roby, Honeywell
  - 16:50 – 17:35: Spotlight Area in the Knowledge Center -
    - Spotlight: Upgrade to Experion LCN Live! – Steven Roby, Honeywell

- **Thursday – October 4th**
  - 10:15 – 11:00:
    - Roundtable: Migration Planning & Execution Best Practices – Francisco Alonso Gonzalez, Repsol and Owen Sillett, Honeywell
  - 14:00 – 16:00
    - Secure Network Planning: Best practice for Experion and ELCN Virtual Migrations – Jay Gustin, Honeywell
Thank You

Learn more about EHPM Solutions at www.honeywellprocess.com