Dynamic Solutions. Endless Possibilities.

Marjorie Ochsner

Migration Solutions for Non-Honeywell Systems
Agenda

• Justification
• Upfront Assessment
• HMI Migration
• Controller Migration
• Recommendations and Summary
Justification Process – Cost of Doing Nothing

• Decreased Reliability causes Unplanned Shutdown
  PROVOX system caused 3 unplanned shutdowns in 1 year - Petrobras

• High Maintenance Cost due to Parts obsolescence, High Cost of Spares
  “SKC had various issues with the service provided by Emerson since our old RS3 system was archaic and the price of spare parts was not realistic,” said Hyun Cho, General Manager, SKC Chemicals.

• Inadequate Response
  Experion alarm system identifies process conditions that the Moore system was too slow to capture – HSM Metropolis
Justification Process – Increased Benefits

Benefits of Moving from Stagnant Technology

- Operator Effectiveness
  - Irving Oil - 45% decrease Daily Alarm Rate
- Better Process Control
  - Konya Sugar – 17% Increase in Quality
- Safety Standards (safety shutdowns embedded into DCS/PLC changed to Safety manager and Experion)
  - IRPC Makes Significant Gains in Plant Safety, Reliability and Efficiency

Migration to Experion = Increased Revenue, Increased Production, Lower Cost
"Honeywell helped us develop a plan to migrate our product and supplied both the justification and economic benefit analysis for us to do so,"- RVA
FEED & Pre-FEED Activities

Conceptual Design
- Philosophy Documents
- Vision Documents
- Guideline Documents
- Design Studies and Recommendations

Front-End Engineering & Design
- Philosophies and the visions developed during conceptual design are transformed into actual designs
- Project standards are critical in ensuring consistency across the facility
- Project execution strategies
Migration Options

Incremental HMI Migration

Incremental Controller Migration

Rip and Replace
“We needed a solution that would improve process performance while still leveraging our investment in the Bailey and Foxboro controllers.” - Alexandre Gershberg, Head of Instrumentation and DCS, Kirishi Refinery.
HMI Migration Overview

• More than an OPC interface
  – Optimal architecture
  – Performance limit tests
  – Faceplate and Detail Displays
  – Bulk build database utility

• Experienced with Bailey, Foxboro IA, Fisher PROVOX, RMV 9000, Siemens Teleperm M, Moore APACS, Rockwell and Yamatake
Standard Faceplate and Detailed Display

PID Point Detail

FIC-300
PROVOX Loop Point PID

PV
100.00

Alarm A

% Dev Low

100.00

0.00

SP
86

PV
74.75

OP
75.78

MD
AUTO

Range

Upper Limit
100.00 %

Lower Limit
0.00 %

Units
%

Services

Scanning and Control enabled
Alarms enabled

Displays

Associated Display

Algorithms

PV Algorithm
Action Algorithm

Performing Detail (or double clicking) on the Algorithm No.
will call up the Algorithm Configuration Page

Performing Detail (or double clicking) on the PV, SP, OP or MD will call up details from the controller
(where the controller interface supports this)

23-Oct-06 14:52:16 CDA Comms CDA Comms COMMS U 15 Server: Lost comms with CDA Server

Honeywell

Start
# Bulk Build Points

**Experion SCADA Database Point Structure**

<table>
<thead>
<tr>
<th>Escaped, Param.</th>
<th>Data Format</th>
<th>Access</th>
<th>Channel</th>
<th>Controller</th>
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<tbody>
<tr>
<td>P (PV)</td>
<td>Float</td>
<td>Read Only</td>
<td>OPC</td>
<td>OPC</td>
</tr>
<tr>
<td>SP</td>
<td>Float</td>
<td>Read/Write</td>
<td>OPC</td>
<td>OPC</td>
</tr>
<tr>
<td>DP</td>
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<td>OPC</td>
<td>OPC</td>
</tr>
<tr>
<td>Mode</td>
<td>Boolean</td>
<td>Read/Write</td>
<td>OPC</td>
<td>OPC</td>
</tr>
</tbody>
</table>

**OPC Exposed Point Structure**

<table>
<thead>
<tr>
<th>Escaped, Param.</th>
<th>Data Format</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>SP</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>OUT</td>
<td>VT_R4</td>
<td>Read/Write</td>
</tr>
<tr>
<td>MODE</td>
<td>VT_12</td>
<td>Read/Write</td>
</tr>
</tbody>
</table>

**Database Point Parameters**

- OPC accessed
- OPC Integrator Interface

**Station PID Control (STN)**

<table>
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<tr>
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<th>Data Format</th>
<th>Access</th>
</tr>
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<tbody>
<tr>
<td>SP_HL_LIM</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>SP_LO_LIM</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>OUT_HL_LIM</td>
<td>VT_R4</td>
<td>Read/Write</td>
</tr>
<tr>
<td>OUT_LO_LIM</td>
<td>VT_R4</td>
<td>Read/Write</td>
</tr>
<tr>
<td>P (PV)</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>P (PV)</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>HI_LIM</td>
<td>Float</td>
<td>Read/Write</td>
</tr>
<tr>
<td>LO_LIM</td>
<td>Float</td>
<td>Read/Write</td>
</tr>
<tr>
<td>CV_LIM</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>CV_LIM</td>
<td>VT_R4</td>
<td>Read Only</td>
</tr>
<tr>
<td>STN_TYPE</td>
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<tr>
<td>STN_LVL</td>
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<tr>
<td>STN_OK</td>
<td>VT_BooL</td>
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<td>STN_TMR</td>
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<tr>
<td>MODE_LOCK</td>
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<tr>
<td>SP_TRACKING</td>
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</tr>
<tr>
<td>OUTTRACKING</td>
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<td>Read Only</td>
</tr>
<tr>
<td>AO_BYPASS</td>
<td>VT_BooL</td>
<td>Read Only</td>
</tr>
<tr>
<td>HI_ACT</td>
<td>VT_BooL</td>
<td>Read Only</td>
</tr>
<tr>
<td>LO_ACT</td>
<td>VT_BooL</td>
<td>Read Only</td>
</tr>
<tr>
<td>H (HI) ACT</td>
<td>VT_BooL</td>
<td>Read Only</td>
</tr>
<tr>
<td>L (LO) ACT</td>
<td>VT_BooL</td>
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<tr>
<td>CV_HI_ACT</td>
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**Diagram**

- OPC DA
- OPC I
Graphics Improvement
Why Honeywell Controller Migration?

Better Support & Increased Reliability

Improve Process Control

Integrate with Field Networks
Controller Migration Productivity Opportunities

- Automate
- Standardize
- Data re-entry
- Re-use
- Reduce work

Global Honeywell Project Operations Knowledge Sharing Flexibility to Add New Learnings
Tools & Methodology

- Define Experion Parent Assets
- Define Experion Assoc Displays
- Import New IO Addresses
- Determine Area
- Specific Configuration Parameters/Rules
- Export/Import
- Intermediate DB for Alarm Rationalization
- Review
- MS Access Database
- Experion Bulk Builder
- MS Excel "Migration Map"
- Experion Control Builder ERDB
- Revise/Proof
Database Migration – MS Access

Query to capture PROVOX DB configuration:
Bailey to Experion Example
Controller Types Addressed

- Bailey
- PROVOX
- Foxboro
- Others to be added

See Demo Room
Wiring Kits

- Bailey Infi 90/Net 90
- PROVOX
- Yokogawa
- GSE
HART Access Using Bailey TU

- Many plants have existing HART devices connected to Network 90 or Infi 90 as an Analog Input/Output
- Migration kit connection to Series C HART I/O reveals HART information
- Enables maintenance, operations and process improvements
Migration Summary

Migration takes advantage of new Experion benefits:
- Operator effectiveness
- ASM standards
- Custom Algorithm Block
- Profit Loop
- Sequential Control Module
- Unit Control Function and Batch Manager
Recommendation #1: Comprehensive Engineering & Design

- Reduction in Project Risk
- Design Consistency
- Project Cost Savings
- Change Management
- Operational Readiness
- Business Readiness
- Lifecycle Sustainability

Every dollar spent in project scoping returns three dollars in reduced project cost, reduces project schedule and reduces risk.
Recommendation #2: Incremental Migration When Possible

Rip and Replace Can be Very Costly
Recommendation #3: Improve Operator Effectiveness

Be Cognizant of Changing Operator’s Role When Migrating

- Safety: Reduced Incidents
- Reliability: Effective Alarm System
- Efficiency: Improved Throughput and Operator Productivity
Recommendation #4: Leverage Upgraded Infrastructure

<table>
<thead>
<tr>
<th>Field Operator Solutions</th>
<th>Operator Performance Solutions</th>
<th>Digital Video Management</th>
<th>Integrated Process and Industrial Security</th>
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<tbody>
<tr>
<td>Plant Asset Management</td>
<td></td>
<td>Multivariable Control and Optimization</td>
<td>Secure, Read-Only, Remote Process Displays</td>
</tr>
</tbody>
</table>

Advanced Applications Network

Process Control Network

Integrated Supervisory Control ACE

SRX / SR90 Controller
Recommendation #5: Develop Long Term Automation Plan

Lifecycle Management

Plan → Implement → Upgrade → Maintain → LCM

Improve Process Automation Lifecycle
Summary

- Migrate to Someone You Trust
- Low Risk
- Global Skills
Come See Us in the Demo Room
www.honeywell.com/ps