Overview and Introduction

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Forum Co-Chair
Schneider Electric
Who We Are

Collectively Redefining The Future Of The Process Control Industry

Industry Organizations
- Oil + Gas
- Chemical + Petrochemical
- Food + Beverage
- Power Generation
- Pulp + Paper
- Mining + Metals
- Manufacturing
- Pharmaceutical

System Integrators

Hardware, Software + Solution Providers

Industry Analysts
How We Are Different

“Standard of Standards” Strategy – Already Proven in Aviation Industry

Create MORE standards? – No!

- Integrating existing standards
- Holistic view of ensuring interoperability among process automation technologies
- Certify systems and components that conform to agreed upon set of standards
Our Goal – Open Architecture

Secure

Standards-Based

Interoperable
## Our Values

<table>
<thead>
<tr>
<th>Our Values</th>
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<tbody>
<tr>
<td>Drive value from operations</td>
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<tr>
<td>Ensure safety, reliability + security</td>
<td>Reduce life-cycle costs</td>
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<tr>
<td>Maintain end-user software portability</td>
<td>Ease upgrade + replacement path</td>
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<tr>
<td>Foster &amp; reward innovation</td>
<td>Easy integration of certified, best-in-class, fit-for-purpose products</td>
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<td>Protect intellectual property</td>
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Scope

Term | Description
---|---
MES | Manufacturing execution system
DCS | Distributed control system
HMI | Human-machine interface
PLC | Programmable logic controller
SIS | Safety instrumented system
I/O | Input / Output point
Shift from Process Control to Business Control

Operations costs = competitiveness

Systems are closed

Security was an afterthought

• Imperative to lower capital + lifecycle costs
• Pressure to increase profitability from operations
• Costly to integrate new capabilities
• High operational costs for maintenance and upgrades
• Security is often bolted on, not designed into architecture
Benefits of OPAF™ Standards

End Users Reap Far More Value And Profitability From Their Operations!

- Improved Operations
  - Easy migration and upgrade path
  - Pre-tested and certified systems

- Open Systems
  - Multi-vendor interoperability
  - Future proof

- Pervasive Security
  - Holistic security framework
  - Designed and integrated from the beginning
Benefits to End Users

- Reduces total cost of systems and asset ownership
- Empowers workforce to be more actively involved and responsible for good business outcomes
- Solves system integration issues
- Enables continuous innovation
- Enables faster, more cost-effective upgrades
OPAF allows less investment; more efficiency and profitability

**Today’s CapEx Model:**
- High initial investment
- Little or no incremental improvement
- Multi-year shutdown for modernization

**OPAF CapEx Model:**
- Lower initial investment
- Frequent incremental improvement
- Increasing efficiency
- Constant flexibility
- No shutdowns
Benefits to Suppliers

<table>
<thead>
<tr>
<th>Top-line growth</th>
<th>Bottom-line growth</th>
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<tr>
<td>• Access to new markets and customers</td>
<td>• Reduced development cost</td>
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<tr>
<td>• Remaining relevant to existing customers and installed base</td>
<td>• Increased margins</td>
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<tr>
<td>• Creating new goods and services for expanded markets</td>
<td>• Streamlined product portfolio</td>
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Architecture Vision

Real-Time OT Services
- Abnormal Event Detection
- Procedural Automation
- Advanced Control
- Process Optimization

Manufacturing OT Data Centers
(L1 – L3 Functions)

Operations Platform
- App A
- App B
- High-Availability, Real-Time Advanced Computing Platform

Enterprise IT Data Centers
(L4 Functions)

Business Platform
- Transactional Computing Platform

External Data Centers
(L4 Functions)

Cloud Services
- Predictive Maintenance
- Global Data Analytics
- Remote Operations
- Fleet Services

Transactional IT Services
- Planning & Scheduling
- Enterprise Data Analytics

Legacy Device/Network Gateway

RTAC Platform

real-time service bus

DCS
DCN
DCN
PLC
Analyzer
Machinery Monitoring
Wireless Gateway
Safety Systems
Electrical Systems

Distributed Control Node
L1 – L3 Functions

Legend
- Existing
- New

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## Publications

<table>
<thead>
<tr>
<th>Year</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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<td>2021</td>
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### Business Guide
- Present

### Requirements
- Present

### Whitepaper
- Present

#### Technical Standard – DCN Standard

**Software subset – DCF Standard**
- Table of contents
- Snapshot v1 – DCF Profile 1 – Interoperability
- Snapshot v2 – DCF Profile 2 – Interoperability + Config. Portability
- Snapshot v3 – DCF Profile 3 – Interoperability + Application

**Hardware subset – DCP Standard**
- Table of contents
- Snapshot v1 – HW profile A
- Snapshot v2 – Full list of HW profiles

### Glossary of Terms – Data Dictionary
- Present

### Conformance Program
- Present

### Contract Guide
- Present

### Problem Report/Change Requests
- Present

### Industry adoption

#### Milestones:
- Present
  - Technically ready OPA
  - System Instance

### Master Project Plan

**Open Process Automation Forum**

**Status**
- Present

**BWG Deliverable**

**TWG - SWG**

**EAWG Deliverable**

**Internal deliverable**

**Snapshot**
- Standard v1
- Standard v2
- Standard v3

**Whitepaper, Guide or Standard**
- Internal deliverable

**Milestones**
- Present
- Amsterdam
- San Diego
- London
- Houston
- Hong Kong