



**ODVA**  
**2007**

CIP Networks Conference  
and 12th Annual Meeting

[www.odva.org](http://www.odva.org)

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**General Session and  
Annual Meeting of Members**



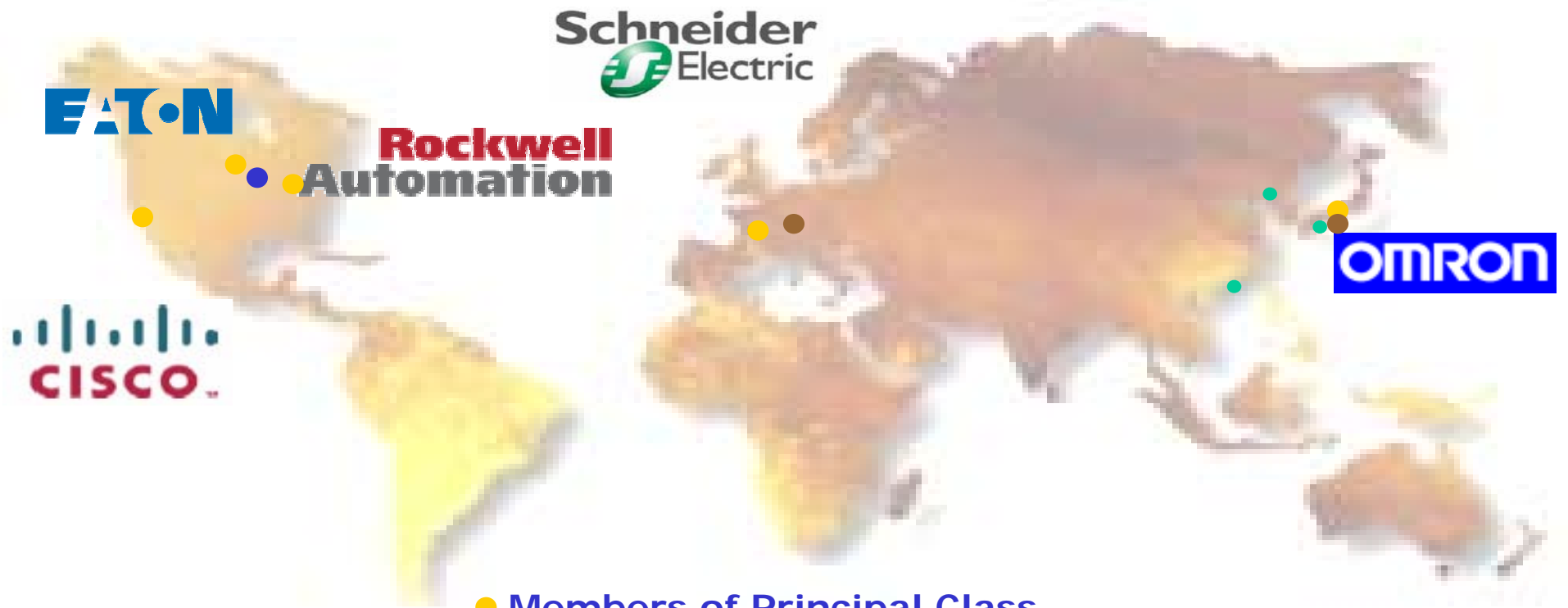
# Report on the Activities of the Association

**Presented by:**

**Katherine Voss, Executive Director - ODVA**

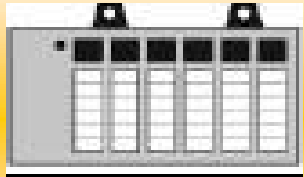
**Rich Harwell, Chief Technology Officer - ODVA**

*More than 275 global vendor members*



- **Headquarters**
- **Members of Principal Class**
- **Satellite Member Service Sites**
- **TSPs**

# In the News since the 11th Annual Meeting



A leading industry analyst firm, ARC Advisory Group, ODVA's class of principal members now represents **36% of the global PLC market<sup>1</sup>**.

<sup>1</sup>ARC Insight, April 12, 2007

"Schneider Electric Makes Waves with ODVA"



# Key Accomplishments since the 11<sup>th</sup> Annual Meeting

## Standards Development

- ▶ jSIGs formed: Modbus Integration, EtherNet/IP Infrastructure
- ▶ Specifications: 2X publication cycle maintained

## Certification

- ▶ New composite conformance test suite for DeviceNet and EtherNet/IP completed
- ▶ Validation completed of conformance tests for CompoNet and CIP Safety on EtherNet/IP
- ▶ Continued progress on EtherNet/IP Performance Testing

## Vendor Education

- ▶ EtherNet/IP QuickStart Seminar developed

## Industry Awareness

- ▶ Numerous activities surrounding The CIP Advantage campaign (newsletters, tradeshow, etc):
- ▶ Most notable . . .



# Key Accomplishments since the 11th Annual Meeting

- ▶ . . . all new web site launched





# In the News since the 11<sup>th</sup> Annual Meeting

1. ODVA PUBLISHES NETWORK INFRASTRUCTURE GUIDE FOR ETHERNET/IP (8/17/2007)
2. ODVA RELEASES DEVELOPER TOOLKITS FOR COMPONET (8/4/2007)
3. NEW EDITIONS OF SPECIFICATIONS PUBLISHED FOR THE FAMILY OF CIP NETWORKS (4/20/2007)
4. SCHNEIDER ELECTRIC BECOMES A PRINCIPAL MEMBER OF ODVA (4/10/2007)
5. FIRST EDITION OF COMPONET™ SPECIFICATION PUBLISHED (2/23/2007)
6. SERCOS INTERNATIONAL ANNOUNCES ADOPTION OF CIP SAFETY™ ON SERCOS (11/29/2006)
7. ODVA AND THE FDT GROUP ANNOUNCE THE PUBLICATION OF THE FIELD DEVICE TOOL FOR CIP NETWORKS: ANNEX TO FDT SPECIFICATION (11/28/2006)
8. NEXT EDITIONS OF DEVICENET™ AND ETHERNET/IP™ SPECIFICATIONS PUBLISHED (11/28/2006)
9. ODVA ON THE MOVE: GROWING AND EXPANDING ITS HEADQUARTERS (10/27/2006)
10. ETHERNET/IP ADOPTED AS CHINESE STANDARD (10/3/2006)
11. ODVA ANNOUNCES THE LAUNCH A SERIES OF ETHERNET/IP™ SEMINARS (4/24/2006)
12. ODVA ANNOUNCES ETHERNET/IP MILESTONE: ONE MILLION NODES (4/24/2006)

# In the News since the 11th Annual Meeting

## Adoption and Future Developments

*-The Schneider Electric announcement coincides with two parallel events.-*



Plans to extend its specifications to provide compatibility of **Modbus<sup>®</sup>/TCP** slave devices with networks built on the Common Industrial Protocol (CIP<sup>™</sup>).

Plans to adopt **EtherNet/IP** as a foundation of its core network strategy.

**WIN • WIN • WIN**  
**Users - Vendors - Members**

# In the News since the 11th Annual Meeting

## The Integration of the Two Most Popular Industrial Ethernet Networks

**CIP™**

+

**Standard Unmodified Ethernet**

**Enabled by two of the key  
Unifying Technologies for Industry**

*Modbus/TCP + EtherNet/IP*

*estimated to be >50% of industrial  
Ethernet shipments in 2005<sup>1</sup>*

<sup>1</sup>According to a study by ARC Advisory Group.

# Marketing Activities

## Activities in Specific Territories Will Promote Vendor and User Adoption of ODVA Technologies

- ▶ Industry trade shows
- ▶ Technical seminars
- ▶ Workshops
- ▶ Coverage in trade publications
- ▶ Drive acceptance as local standards
- ▶ Local language requirements

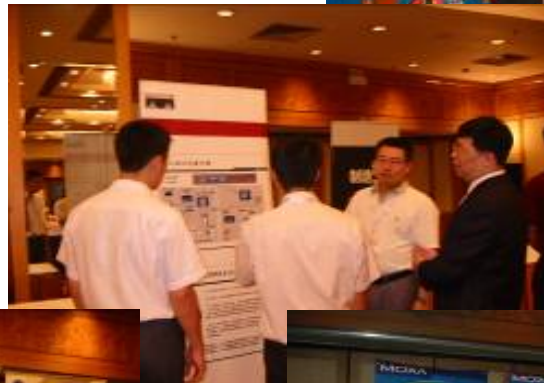
## EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation

Shanghai



## EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation

### Guangzhou



## EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation

Xi'an



## EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation

Beijing



## EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation

Shenyang



## EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation



Brochure



PPT Book

### Localization of Materials

## **EtherNet/IP Seminar: The Proven and Complete Solution for Manufacturing Automation**

- ▶ Copenhagen (en)
- ▶ Stuttgart (de)
- ▶ Milan (it)
- ▶ Birmingham (en)



Copenhagen

## Tradeshows



- ▶ Hannover Fair 2006, 2007
- ▶ SPS/IPC/Drives Show 2006





# Vendor Adoption of EtherNet/IP

- ▶ Implementor Workshops = 3
- ▶ PlugFest = 1
- ▶ Project lead on developer guide
- ▶ Company participation > 40

ODVA/CI Confidential  
TDE-xxx-xxx  
Version 01, <March> 12, 2007

**Technical Document Enhancement**  
TDE-xxx-xxx

<Essential EtherNet/IP: (Short form) Developer Guide>

Type of Enhancement:	Disposition of Enhancement:	Date Submitted:
<input checked="" type="checkbox"/> New Document	<input type="checkbox"/> Working Draft	12 March 07
<input type="checkbox"/> Addition	<input type="checkbox"/> Draft Standard	
<input type="checkbox"/> Change	<input type="checkbox"/> Standard	
<input type="checkbox"/> Clarification	<input type="checkbox"/> Canceled	
<input type="checkbox"/> Technical Correction		

<b>Author:</b>	Richard Piggin, Brian Batke & Viktor Schifler
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<b>Submitting Group:</b>	Informal working group
<b>Audience:</b>	EtherNet/IP developers – initial guidance
<b>Publication Type:</b>	Guidelines/Brochure/Technical Overview
<b>Distribution Method:</b>	Exhibitions, Fairs, Workshops, Quick Start Seminars, web public

Approvals:		
Richard Piggin (unofficial chair)	<i>Richard Piggin</i>	05 June 07
<Submitting Group Chairman>	<i>Acceptance Signature</i>	Date
<Additional Group Chairman>	<i>Acceptance Signature</i>	Date
TRB Chairman	<i>Acceptance Signature</i>	Date

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## Trade Shows

- ▶ SEMICON Japan 2006



## Co-Sponsor Exhibition

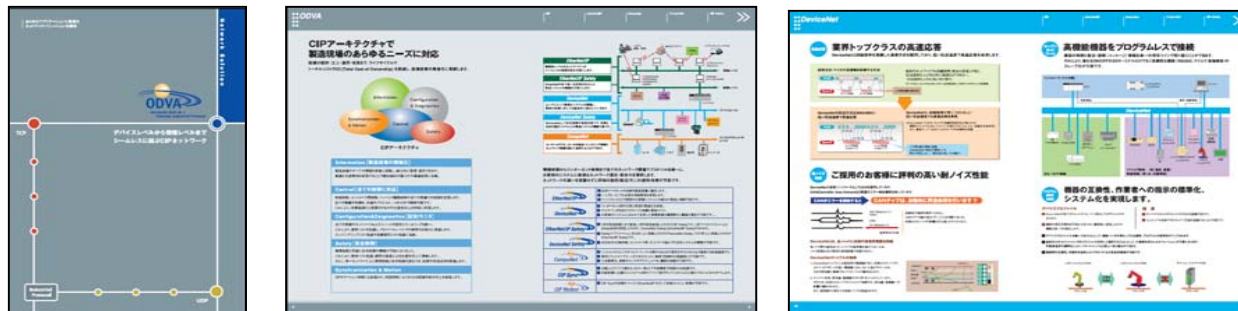


## DeviceNet Safety Demo system

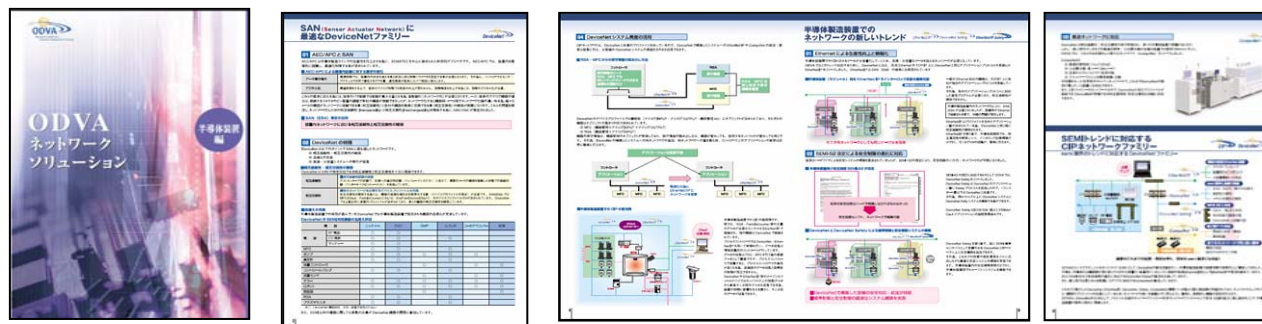


## Promotion Material

Comprehensive pamphlet of ODVA Network (24 pages)

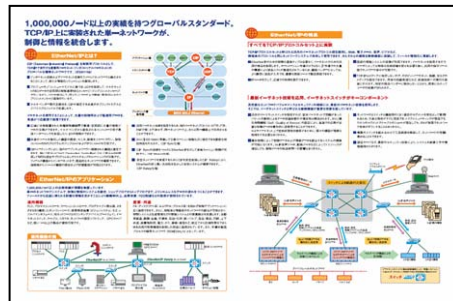


Booklet "CIP Network Solution for Semiconductor industry" (24 pages)



## Promotion Material

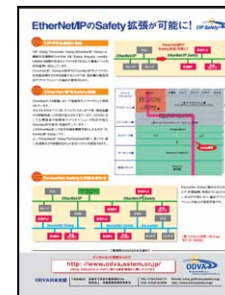
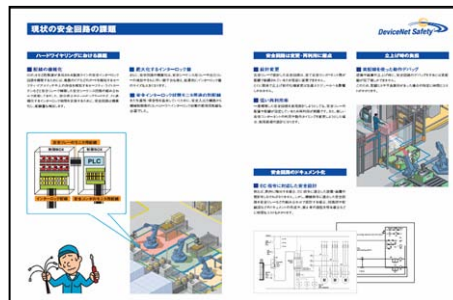
EtherNet/IP (4 pages)



CompoNet (8 pages)



CIP Safety (8 pages + 1 page)





## Seminars

- ▶ Introduction to CIP Safety on DeviceNet = 1
- ▶ Introduction to CompoNet = 1
- ▶ Introduction to EtherNet/IP = 3
- ▶ EtherNet/IP for Developers = 2



## ▶ AIMEX 2006 Exhibition

- March 8-11<sup>th</sup>, 2006
- COEX, Seoul, Korea

## ▶ AIMEX 2006 ODVA EtherNet/IP Technology Conference

- March 8<sup>th</sup>, 2006
- COEX, Seoul, Korea
- Conference on Introduction of EtherNet/IP standard & technology



# EtherNet/IP: The Proven & Complete Solution for Manufacturing Automation

- ▶ September 14<sup>th</sup>, 2006
- ▶ Hotel SKMH, Seoul, Korea
- ▶ Conference on Introduction of EtherNet/IP standard & technology





# North America

## EtherNet/IP: The Proven & Complete Solution for Manufacturing Automation

- ▶ Detroit
- ▶ Chicago
- ▶ Houston
- ▶ Boston
- ▶ Minneapolis
- ▶ Milwaukee
- ▶ San Jose

## EtherNet/IP QuickStart

- ▶ Ann Arbor

## DeviceNet for Developers

- ▶ Ann Arbor



Chicago



## Various communication pieces about ODVA Technologies and The CIP Advantage including 4 issues of The CIP Advantage Newsletter.



**THE CIP ADVANTAGE™**

Networks Built on a Common Industrial Protocol

ISSUE 2006-2 • AN OFFICIAL PUBLICATION OF ODVA

**FROM THE EXECUTIVE DIRECTOR**

Welcome to this issue of *The CIP Advantage™*. It will focus on the ascent of EtherNet/IP. In the four short years since the EtherNet/IP Specification was first published, ODVA has issued over 150 vendor IDs for EtherNet/IP and over 1,000,000 EtherNet/IP nodes have been shipped. Adoption of EtherNet/IP will continue to grow as its application coverage expands to include functional safety and high — performance motion control — all using the Common Industrial Protocol (CIP™) adapted to standard, unmodified Ethernet and Internet technologies. We invite you to read this issue to learn more about EtherNet/IP and the future-proof and proven benefits of choosing networks built on the Common Industrial Protocol.

  
Katherine Voss

### EtherNet/IP: A Complete Solution for Control and Information at fenaco

When Swiss seed stock processor **fenaco** looked to update the control system in its Niderfeld plant, its challenge was not only to increase flexibility and productivity in order to continue meeting the steadily increasing demands of its customers but also to implement an open control architecture that would allow fenaco to integrate different controllers and instruments from a range of manufacturers. Key to meeting these requirements was adopting a network infrastructure built on EtherNet/IP™.

fenaco, a company managed by co-operative of Swiss farms, operates two large seed cleaning plants. The Niderfeld plant in Winterthur cleans seed stock, stores it in silos until it can be certified and then mixes and treats the seed at a later date as required. Then the seeds are weighed according to customer orders, packaged and prepared for shipment to customer locations. Every year, this single plant processes almost 10,000 tons of seed stock—mainly cereals but also seed for clover, grass, turf and wild flowers.

fenaco had determined that the key to gaining measurable increases in their flexibility and productivity was to collect data generated by the process in order to have the ability to analyze the data from their process and act based on greater levels of information. fenaco's need for "information" made the choice of a seamless network infrastructure based on Ethernet and Internet standards to be paramount, and, with an open, multi-vendor standard as a procurement requirement, EtherNet/IP was selected.

Furthermore, with the control system at the plant dating back to 1993, maintenance of the system had

started to be required on a more frequent basis, resulting in costly downtime. To keep up with current customer requirements, any upgrade to the control system had to be accomplished without interrupting daily operations. This business requirement was another reason fenaco looked to an open, interoperable, multi-vendor network standard to provide a choice of vendors and maximum "plug and play." As fenaco's Seedcentre Managing Director Albert Gysin explains, "In the busy season, we need to be able to provide farmers with additional seed stock at short notice if the weather changes. If the plant wasn't up and running at this time, it really would be bad news." Accordingly, fenaco took approximately six months to convert the Niderfeld plant to EtherNet/IP, during which time the plant remained fully operational with only very short periods of downtime.

The results were worth the wait. Today, the plant control system provides fenaco with the control and information it needs to maintain the plant at maximum uptime and to respond to customer requirements in a

*Continued on page 6*

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fenaco silo system at work

THE CIP ADVANTAGE an ODVA publication 1



# Report on the Technical Activities of ODVA

- ▶ **Organization update**
- ▶ **Key Accomplishments since last Annual Meeting**
- ▶ **Key current activities**
- ▶ **The challenges ahead**

# TRB

# Organization update

- Welcome new principal member Schneider Electric TRB representative: Rudy Belliardi
- Welcome new Cisco TRB representative: Paul Didier
- Thanks to Jeff Jurs (OMRON), Jörgen Palmhager (HMS), and Dave VanGompel (Rockwell) for another year of service.
- Adding a second membership elected TRB representative today.
- Added New Special Interest Groups : Modbus Integration, EtherNet/IP Infrastructure
- Thanks to chairs and participants of the 16 SIGs and other work groups for a highly productive year.

# Key Accomplishments

- ▶ New CIP Network option: Componet
- ▶ CIP support in FDT
- ▶ CIP Safety for SERCOS cooperation established
- ▶ Publication of the Network Infrastructure Guideline for EtherNet/IP
- ▶ Modbus device integration into CIP architecture
- ▶ 3 specification update cycles including over 70 specification enhancements.

# Key Accomplishments

## CompoNet™

- ▶ New CIP Network option. Optimized for applications requiring a large number of simple sensors and actuators.
- ▶ Released as Edition 1.0 of Volume 6 in February 2007.
- ▶ Developers toolkit released in July 2007
- ▶ Key additions slated for Edition 1.2 of Volume 6
  - ▶ **Round cable option**
  - ▶ **Bridging and routing**

# Key Accomplishments

## CIP Support in FDT

- ▶ Publication of the *Field Device Tool for CIP Networks: Annex to FDT Specification*. Added the schemas required to implement the Device Type Managers (DTM) configuration option for DeviceNet™, EtherNet/IP™ and ControlNet™. (November 2006)
- ▶ DTM configuration option released in CIP Volume 1, Edition 3.1 and as the CIP annex to the FDT specification. (November 2006)
- ▶ Current work underway to extend the CIP annex to include CompoNet

# Key Accomplishments

## CIP Safety for SERCOS

- ▶ SERCOS International (SI) and ODVA announced that SI will adopt CIP Safety™ as its functional safety protocol for SERCOS. (November 2006)
- ▶ Work is currently underway in the Safety JSIG to extend *The CIP Safety Specification* to include safety profiles for SERCOS devices.
- ▶ SI will develop the SERCOS III network adaptation to utilize CIP Safety.
- ▶ SI and ODVA, jointly, will develop and establish conformance testing for devices implementing CIP Safety on SERCOS

# Key Accomplishments

## EtherNet/IP Infrastructure Guidelines

- ▶ **ODVA published 'Network Infrastructure for EtherNet/IP: Introduction and Considerations' . Provides introduction to the network infrastructure used in EtherNet/IP networks and gives users a framework for identifying the considerations that are most critical to their specific applications. (August 2007)**
- ▶ **EtherNet/IP Infrastructure JSIG formed.**
- ▶ **Work continues on other key application topics including network architecture and security considerations.**

# Key Accomplishments

## Modbus device integration into CIP architecture

- ▶ ODVA's announces plans to extend the CIP Network specifications to provide compatibility of Modbus®/TCP devices with networks built on the Common Industrial Protocol (CIP™). (April 2007)
- ▶ JSIG formed to develop specification for Modbus Integration functionality. (April 2007)
- ▶ Functionality approved by the TRB is currently being integrated for the next specification revision.

# Key Accomplishments

## 70 Specification enhancements, including:

- ▶ DeviceNet low cost flat cable option
- ▶ Use of Ethernet link and TCP/IP objects for Multiport Ethernet devices
- ▶ DeviceNet active node table, faster tool discovery
- ▶ Extended format for CIP Safety for greater application flexibility
- ▶ Reset enhancement to preserve network configuration
- ▶ Internationalize EDS files
- ▶ Connection Configuration Object (COCO) extended to allow fully EDS driven scanner configuration

# Key Current Activities

- **CIP Safety on SERCOS**
  - ▶ Forum: CIP Safety JSIG and SERCOS International organization
- **Peer to Peer Motion (controller to controller)**
  - ▶ Forum: Motion JSIG
- **EtherNet/IP QoS**
  - ▶ Forum: EtherNet/IP System SIG and EtherNet/IP Infrastructure JSIG, Motion JSIG, CIP Safety JSIG.
- **Ethernet Security Guideline update**
  - ▶ Forum: EtherNet/IP workshop
- **CIP Sync update for IEEE1588/PTP V2 (transparent clock)**
  - ▶ Forum: Motion JSIG
- **Integrate ICON into EDS file**
  - ▶ Forum: CIP System JSIG
- **Reduced duplicate MAC start up time**
  - ▶ Forum: DeviceNet System SIG

# Challenges Ahead

- **We face key challenges individually and collectively:**
  - ▶ **New areas of specialization**
    - Ethernet Infrastructure
    - Network security
    - Safety systems
    - Wireless
  - ▶ **Manage complexity and Maintain quality**
    - Foresee the impacts and interaction of specification updates
    - Provide interoperability in complex systems
    - Foresee the impact of specification enhancements on the user
  - ▶ **Keep pace with technology change**
    - Leveraging internet technology
    - Responding to the rapid internet technology evolution (ie IPV6)
    - Trends in other industrial networks / interoperability with other industrial networks