Living in the real world with EtherNet/IP

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General Session and Annual Meeting of Members

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Kimberly-Clark Corporation

Kimberly-Clark is a leading global company employing 56,000 people worldwide and posting sales of US$19.1 billion in 2009. Headquartered in Dallas, Texas, with operations in 35 countries, Kimberly-Clark’s global brands are sold in more than 150 countries. Every day, 1.3 billion people trust Kimberly-Clark's essential products and the solutions they provide to make their lives better.

With well-known core brands such as KLEENEX®, SCOTT®, ANDREX®, HUGGIES®, PULL-UPS®, KOTEX®, POISE® AND DEPEND®, we hold the No. 1 or No. 2 share position globally in more than 80 countries. Globally, medical professionals turn to Kimberly-Clark Health Care for a wide portfolio of solutions essential to the health and hygiene of their patients and staff. Even when they're not at home, people all around the world use Kimberly-Clark Professional's washroom, workplace, safety and do-it-yourself solutions.
Kimberly-Clark places consumers, users and customers at the center of everything we do. By nurturing and growing our core brands, and creating new markets to meet emerging personal needs of our consumers and users, we make essential products that make life better.

- Use standard solutions and vary only where meaningful competitive advantage is gained.
- Drive and enable business and employee agility.
- Leverage business governance to prioritize high-value IT solutions.
Kimberly-Clark Philosophy

- Manufacturing Organization for Systems Associated with Industrial Computing (MOSAIC)
- MOSAIC is an IT Infrastructure Architecture
- MOSAIC is an ITS team
- The vision of MOSAIC is to proactively leverage standard IT infrastructure and K-C engineering best practices to securely enable adoption of new manufacturing technology solutions
- The mission is to provide information technology expertise and guidance while delivering services to Kimberly-Clark Corporation’s manufacturing organizations
MOSAIC Design

- Single Manufacturing Domain independent of Enterprise Domain
- Onsite Domain Infrastructure for each location
- Ethernet switching designed for site and project risk tolerance
- Unique IP addressing within Kimberly-Clark
- Use of off-the-shelf Ethernet components, PC’s, and servers
- Firewall is connection between Enterprise Zone and Manufacturing Zone
- Route-Switch controls site-based MOSAIC communications
- Design aligned to Rockwell and Cisco Manufacturing Reference Architecture
- Enterprise and Manufacturing may share Ethernet switches and firewalls
- Design accommodates multiple unique VLANs per line/cell
- Communication between cells blocked by default
- Architecture can be extended with new plug in modules
- Provide controlled access to all machine lines for supportability
Business benefit of MOSAIC approach

- Ethernet technology changes support model for machines from proprietary to standards-based.
- Business imperative to reduce costs changes number of support personnel to support machines.
- More automation of support tasks required.
- Moving from build it to buy it on new machine assets.
- MOSAIC approach allows for standard implementation and standard support tools for Ethernet-based machines, enables use of applications to automate support tasks.
Integration of New and Existing machine networks

New production lines
- Ethernet based Level 2 networks
- Ethernet based Level 1 networks
- Some Ethernet based Level 0 networks

Existing production lines
- Ethernet based Level 2 networks
- Some Ethernet-based Level 1 networks
- Non-Ethernet-based Level 0 networks
MOSAIC Architecture
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Reason for use of CIP Networks

- Vendors provided off the shelf systems using Ethernet solutions and made that choice strategic as Ethernet became ubiquitous
- K-C followed the industry down the Ethernet path resulting in manufacturing lines with EtherNet/IP applications
- Since IT-provided solutions already were based on Ethernet, the extension within the plant floor to using EtherNet/IP was a logical step with management challenges
- Provide ability to take advantage of the common network platform in K-C Facilities, so cost effective
- Enable a flexible re-usable solution that can be repurposed in future
- Enable more feature rich applications and allow vendor application interaction using a standard protocol
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Reason for use of CIP Networks

- Secure Remote Access is enabled to plant floor with the introduction of Ethernet technologies
- Machine startups are made more efficient
- External resources can assist in improving machine uptime
- EtherNet/IP is a strategic solution for Kimberly-Clark, we will deploy at all K-C manufacturing facilities
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Lessons Learned

- EtherNet/IP is an application not a topology
- Tools to manage EtherNet/IP are not mature
- Pockets of knowledge with EtherNet/IP are growing
- Engineers and IT have different and valuable skillsets that enhance the capabilities of these systems
- This is a fluid and ever-changing environment
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- Standard Owner – Ensures commonality among vendor implementations
- Organization to address systematic needs of CIP
- Confidence builder – Industry backed
- Information source – reduces my workload in educating end users
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Wish list

- Machine builders that focus on the customers needs, not product turns
- Software systems that have flexibility built-in
- Elimination of auto-negotiation
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Questions?