

# More Data, More Sources, More Problems

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# Kepware Technologies Overview

- Established in 1995
- Located in Portland, Maine
- 70+ Employees and Growing
- Proudly Represented in 45 Countries
- Privately Held & Hardware Independent
- Communications for Industrial Automation Systems



# Industrial Control System: Challenges

- Communications and Information Access
  - Interoperability
  - Functionality
  - Reliability
  - Scalability
  - Safety and Security

# Interoperability: Common Challenges

- Single Vendor versus Best of Breed
- Vendor Specific Protocols
- Dissimilar Communications Mediums



# Interoperability: Discrete Manufacturing

- Devices include PLC/PACs, CNC, Vision systems, Torque Tools, ...
- Applications include HMI, MES, ERP, OEE, SPC, ...
- Environment is not static:
  - Production location
  - Product changeovers
  - Process improvements
  - Regulatory changes



# Interoperability: Solution

- Industry Specific Standards (DNP3, IEC 61850, BACnet, MTConnect ...)
- Cross Industry Protocols (Modbus)
- ICS Open Standards
  - OPC Foundation DA, AE, HDA, UA
- A Communications Platform Ties it All Together
  - Multi Protocol
  - Multi Clients



# Functionality: Common Challenges

- All Devices are Not Created Equally
- Infrastructure Bottlenecks and Dependencies
- Meaningless Raw Data
- Machine to Machine Connectivity



# Functionality: Oil & Gas

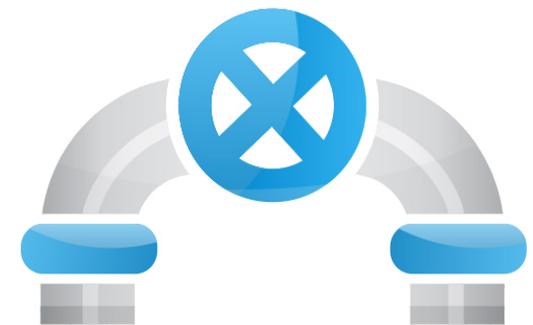
- Frequency of Data
- Telemetry
- Solicited vs. Unsolicited
- Data Recovery



**SCADA**



**Flow Computer**



**Pipeline**

# Functionality: Solution

- Control Over Communications Network
- Control Over Flow of Information
- Scaling and Analytics
- Diagnostics
- A Communications Platform Provides This and More



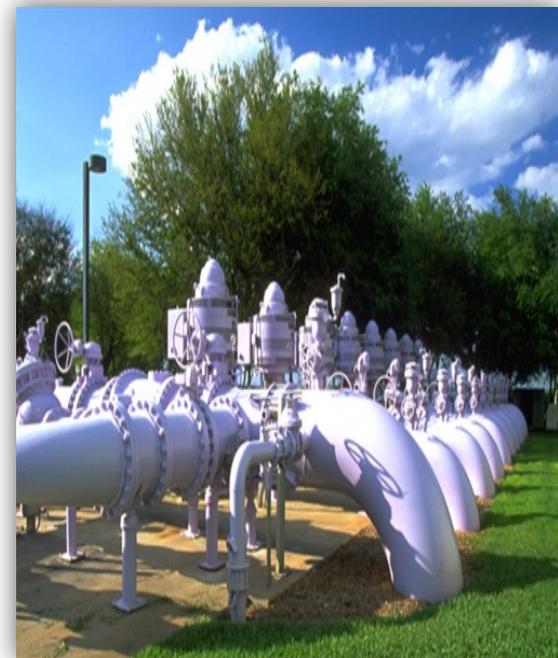
# Reliability: Common Challenges

- Hardware Will Fail
- Software is Not Error Free
- Infrastructure Bottlenecks
- Downtime is Costly



# Reliability: Water and Waste Water

- Maximize Uptime
- Predictive Maintenance
- Safety of Personnel and the Environment



# Reliability: Solution



- Redundancy
- Real Time Notifications
- Real Time Access to Health / Asset Information
- Best of Breed Components
- A Communications Platform Ensures Continuous Information Flow

# Scalability: Common Challenges

- Continuous Integration of More Components
  - Internet of Things
  - Bring Your Own Device
- Need for Increased Visibility for Operational Excellence
- Demand for More Productivity
- Must Preserve the Present



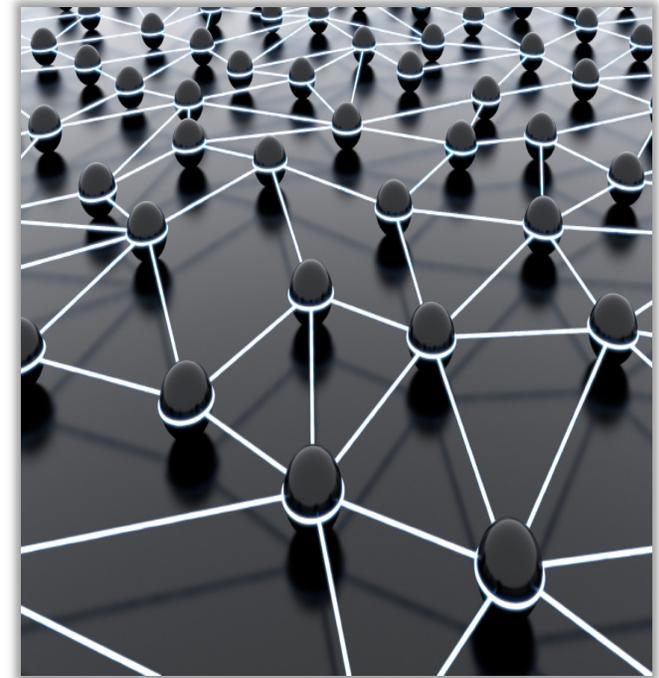
# Scalability: Power

- Operating Sites Increasing
- Remote Monitoring
- Growth Through Acquisition
- Many Components and Stakeholders



# Scalability: Solution

- Ability to Grow the System With No Impact on Existing Production
- Easy Replication of Existing Systems
- Integration of Additional Components or Networks
- A Communications Platform that Makes Good Use of Available Resources will Scale to Meet the Needs of Tomorrow



# Safety and Security: Common Challenges

- No Longer Isolated from the Outside World
- Preventing Unauthorized Access
- Intellectual Property Protection
- Protecting Personnel and the Environment
- Innocent Mistakes
- Legacy Equipment



# Safety and Security: Process Mfg.



- Single Site Contains Multiple Operations and Multiple Users
- Volatile Nature of Products Can Cause Financial and Bodily Harm
- Prime Target for Cyber Warfare

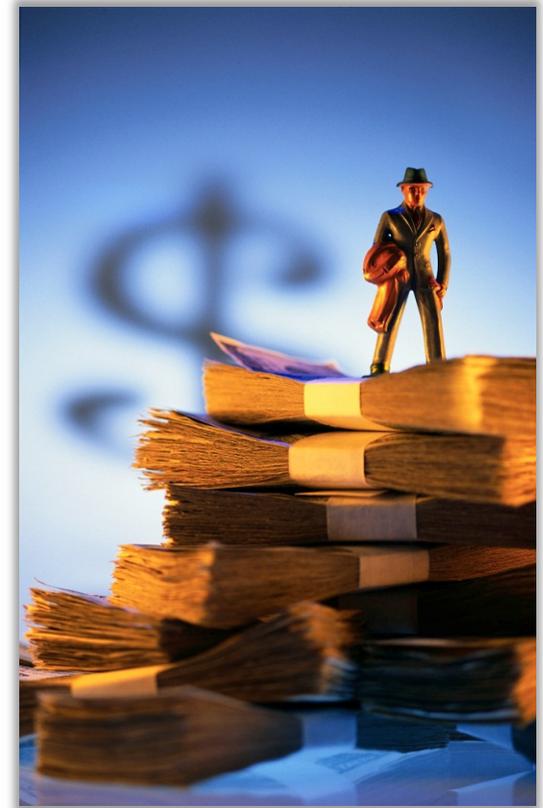
# Safety and Security: Solution

- Trusted Connections
- Data Encryption
- Granular Role Based Access to Information
- Secure Legacy Infrastructure
- Use of Secure Standards
- A Communications Platform Must Be Secure by Default and Take Responsibility for its Critical Role in an ICS



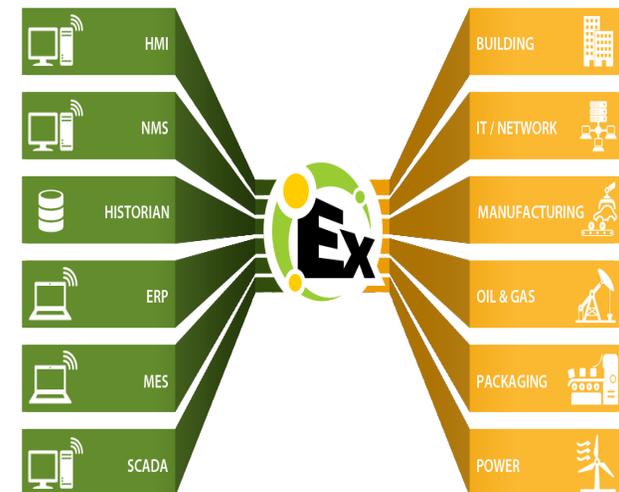
# Summary

- 5 Key Challenges for an ICS
  - Interoperability
  - Functionality
  - Reliability
  - Scalability
  - Safety and Security



# Communications Platform: The Heart of the ICS

- Connects Disparate Equipment and Applications
- Provides Advanced Functionality for Domain Specific Problems
- Robustness for 24x7 Operation
- Scales for Tomorrow
- Meets Today's Security and Safety Challenges



# Thank You

## Questions?

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