What is the IIoT (Industrial Internet of Things), and how does this emerging technology mean to industry?

Summary

What is the IIoT (Industrial Internet of Things), and how does these emerging technologies impact industry?

IIoT technologies promise increased reliability, increased security, improved access to data, and reduced operational costs.

This presentation introduces the concepts of IIoT and offers keen insights into how these technologies can be leveraged to create and implement solutions that are more functional, more scalable and better equipped to enable future development and integration. The presentation will focus on the key areas of the platform technologies, device connectivity, security and the use of the available data.

Moving Forward

How Can the IIoT Impact Daily Life in industry?

Where does the IIoT come from?

- Starts with the expectations created through the influence of technology on our personal lives
- Need for more operational efficiency…and honestly, convenience!
- Evolution of cloud and wireless technologies

What will the impact to industry look like?

- These new technologies have been merged with traditional automation and data acquisition architectures and further evolved, generally resulting in modern solutions for our problems
- Development of new technologies, software and communication architectures enable new models for doing business

What does this mean for the future?

- More reliable, flexible, scalable solutions that can be integrated with a multitude of necessary operational and regulatory systems

The IIoT Connection

A few examples to help connect the dots:

How can IIoT change the way you do business?

Public Utilities

- Need for more robust network, mitigating weather-related problems
- Maintain process control while allowing alerting and remote intervention
- Low-cost solution fur rural utilities that is feature-rich

OEM Machine Manufacturers

- Logistics automation - sell materials instead of machines
- Agricultural equipment OEM - Integrated ticketing and blending
- Gas turbine engine OEM – integrate engine controls with ERP, MES and ticketing

Oil and Gas

- Fracking pad water delivery
- Pumping unit optimization
- Midstream crude oil and natural gas

The Transition from Traditional systems to IIoT

The path to successful deployment and secure operation

The Transition from Traditional systems to IIoT

The path to successful deployment and secure operation

Key Points for Consideration:

1. System Architecture
2. System Security, complete solution
3. Application Functionality

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Key Points for Consideration: System Architecture

1. How will we integrate with existing controls and automation?
2. Who will perform installation?
3. What is the level of effort required to add sites, now or in the future
4. Do we have the flexibility to integrate with other technologies, new technologies as they arrive?

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Key Points for Consideration: System Security

Physical Security

- Applies to remote sites, server rooms, laptops and even backups
- Includes doors, key cards, cameras, access control procedures, access logs, automation and control systems
- With physical access, anything can be compromised
- keep assets under lock & key

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Key Points for Consideration: System Security

Network Security

- Public accessibility = BAD
- Firewalls, threat defense and event logging
- Strict control over network ingress and egress, vigilance at the Internet border is critical
- Enable security measures at the edge, field device configuration
- Must be able to form a baseline of normality so you can be made aware when an event occurs and are able to take action
- Data must be encrypted when using IP protocols and the Internet!

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Key Points for Consideration: System Security

Application Security

- Operating System (OS)
  - Anti-virus Software
  - Process/procedures for maintenance and security patches
  - Program for vulnerability assessment and threat management
- Web Application firewall
- Must provide defense against treats such as Denial of Service (DDoS) and brute force attacks
- Employ robust authentication
- Consider two-factor authentication
- Consider process for account admin, management and creation
- Backend and database security - encryption, limited access, principal of least privilege

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Key Points for Consideration: Application Needs

The User Experience

- What functional needs are driving the migration?
  - Alerting, alarming
  - Compliance, accountability
- What devices will be used to access and use the application?
- What is needed in terms of data storage?
- Integration with other cloud-based applications and services?

SUMMARY

How do I go about choosing the best cloud based solution?

1. Consider system architecture
   - Deployment
   - Scalability
   - Integration with existing systems

2. Consider Security
   - Physical security
   - Hardware Config
   - Communication Network Security
   - Web Application Security

3. Consider Application Needs
   - User Interface Functionality
   - User Accessibility
   - Data Storage
   - Data Transfer to/from other applications
   - Alarms and Alerting, Reporting
   - Accountability and Compliance

Q & A

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