ENERGY DIGITAL TRANSFORMATION

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**TRANSFORMING YOUR ENERGY SYSTEM**

- **% improvement**
  - Reduce Energy Waste
  - Improve Energy Profile
  - Automate Energy Processes

- **Change**
  - Produce your Electricity
  - Electrify your Processes
  - Share & Monetize Excess Energy

**Not your 20th century energy system…**

- More granular data and real-time visibility
- Higher security, reliability and availability
- Easier to install and use
- Integrate with legacy equipment and systems
- Satisfy the Internet society
TAKE ADVANTAGE OF TECHNOLOGY TRENDS

6 TENETS OF DIGITAL TRANSFORMATION

- Big Data
- Insights
- Efficiency
- Trusted
- Interoperable
- User Experience
INDUSTRY STANDARDS – ARE YOU INVOLVED?

*Other names and brands may be claimed as the property of others.
1. Secure connectivity
2. Distributed computing
3. Virtual systems
4. Advanced analytics
**Common issues Today**

- Default Passwords
- Delayed Image updates
- Poor, Manual Device provisioning
- Lack of Security Designed into HW
- Default passwords
- Delayed image updates
- Poor, manual device provisioning
- Lack of security designed into HW

**Industry perspective**

- **73%**: Increase in worldwide IoT spending until 2019\(^1\)
- **47%**: Of IoT developers name security as their top concern\(^1\)
- **38%**: CAGR for global IoT security market 2016 to 2021\(^1\)
- **35%**: CIOs cite security as top barrier to IoT success\(^2\)
- **27%**: Fear (a security breach) will lead to physical safety issues\(^1\)

\(^1\)*Other names and brands may be claimed as the property of others.
\(^2\)1. Infographic Sept. 2016, GSMA (Link)
\(^3\)2. 2016 IoT Backbone Survey, Gartner

**Security Solutions Rooted in HW**

- Intel® Secure Device Onboarding
- Wind River Helix Device Cloud
- Enabling security services

**Consistent security foundation**

- Trusted Execution
- Protected Data, Keys, Identity
- Platform Integrity
- Crypto

- Simplified & Unified Tools

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**Device lifecycle Security & Manageability**

- Harden Edge
- Secure Comms
- Device Management

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DISTRIBUTED COMPUTING
REDUCE NETWORK COST, INCREASE SYSTEM AUTONOMY

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VIRTUAL INDUSTRIAL SYSTEMS
reduce hardware costs, increase software flexibility

Manufacturing Management System
Substation Management System
Microgrid Management Systems
Building Management Systems

Sensing & Workload Consolidation
Virtualization Orchestration

IT platform with Industrial Performance
Energy Applications

- Consumer Intelligence
- Supply / Demand Optimization
- Energy Trading
- Maintenance Strategies
- Diagnosis & Prevention
- Machine Vision
- Video Surveillance

Analytics

**ARTIFICIAL INTELLIGENCE**

- SENSE
- REASON
- ACT
- ADAPT

- Machine Learning
- Reasoning system
- Memory based
- Logic Based

Deep Learning

Classic ML

Classic ML

Logic Based

Traditional analytics

Big data analytics

remember

ACT

ADAPT

REASON

SENSE

ARTIFICIAL INTELLIGENCE

Connecting traditional and big data analytics:

- Deep Learning
- Classic ML
- Memory based
- Logic Based

Artificial Intelligence - The Next Big Wave in Computing

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Prioritize the Business Case

“Rent” Solutions for Proof

Scale Deployment and ROI

Start small with a clear roadmap for future evolution
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Performance estimates were obtained prior to implementation of recent software patches and firmware updates intended to address exploits referred to as "Spectre" and "Meltdown." Implementation of these updates may make these results inapplicable to your device or system.

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