The Industrial Internet Consortium is a global, member supported organization that promotes the accelerated growth of the Industrial Internet of Things by coordinating ecosystem initiatives to securely connect, control and integrate assets and systems of assets with people, processes and data using common architectures, interoperability and open standards to deliver transformational business and societal outcomes across industries and public infrastructure.

Launched in March 2014 by five founding members: AT&T, Cisco, General Electric, IBM & Intel.

The IIC is an open, neutral “sandbox” where industry, academia and government meet to collaborate, innovate and enable.

Over 250 Member Organizations Spanning 30 Countries
Over 250 IIC Members

Founding and Contributing Members

[List of companies and logos]
Where the innovation and opportunities of the Industrial Internet: *New technologies, New applications, New products, New services, New processes* can be initiated and thought through, rigorously tested to *ascertain their usefulness & viability* before coming to market.

- Aerospace & defense
- Agriculture
- Building & Facilities
- Energy & Utilities
- Factory Connectivity
- Healthcare
- Manufacturing
- Public Safety
- Security Claims
- Telecom & IT
- Transportation & Shipping
INDUSTRIAL INTERNET CONSORTIUM ANNOUNCES FIRST SECURITY CLAIMS EVALUATION TESTBED

February 22, 2016 11:17 AM Eastern Standard Time

Security Testbed from Industrial Internet Consortium

FAST FACTS

LIAM MEMBERS:
Xilinx, UL (Underwriters Laboratories), Aicas, PrismTech

SUPPORTING COMPANIES:
Soc-c-e, Hexa, JUT, PFP Cybersecurity, Eyetech, Algeta

MARKET SEGMENT:
Industrial Manufacturing, Smart Grid/Energy, Smart Media

CHALLENGE:
Provide a Testbed to allow testing of security claims and all - security related testing evaluation.

SOLUTION:
Security Claims Evaluation Testbed – an open and easily configurable cybersecurity platform for evaluating endpoint, gateway, and other networked components' security capabilities.

HOW IT WORKS:
The security testbed is a comprehensive testbed comprised of three primary tiers: Endpoint, Gateway and Server (Private, Public Cloud). Data sources can include industrial, smart grid/energy, medical, automotive, building automation, and other related endpoints requested for secure operational analysis. Key platform elements of the testbed include:

- Intelligent endpoint monitoring systems from PFP Cybersecurity
- Intelligent Gateway from Soc-c-e
- Real time analytics from JUT
- Secure runtime Java VM from Aicas
- Private and Public Cloud secure communication from PrismTech
Open, configurable Cybersecurity Platform

- Coverage includes endpoint, gateway, cloud & other networked components
- Evaluation of participant defined Security Usage Scenario(s)
- Operation in adherence and alignment to the IIRA and IISF

Exploration of Methodology and Collection of Evidence

- Demonstrating the system operational security processes
- Supporting key characteristics of IIRA and IISF
- Provides evaluation of the participants claims
- Enabling Identification of Vulnerabilities and Remediation options
Multi-Layered Security Claims Evaluation Testbed
Real World Application using Security Testbed Technologies

Sensor Fusion, Analytics, Cybersecurity
New Testbed Released

SMART FACTORY MACHINE LEARNING FOR PREDICTIVE MAINTENANCE

FAST FACTS
MEMBER PARTICIPANTS:
Plethora IIoT, Xilinx
MARKET SEGMENT:
Industrial Manufacturing
GOALS:
- Evaluate & validate Machine learning techniques for Predictive Maintenance on high volume production machinery to deliver optimized system operation.
- Achieve increased uptime & improved energy efficiency utilizing Machine learning techniques for advanced detection of system anomalies and fault conditions prior to failure.
Market Opportunity - Market

Automotive:
• 91.5 million motor vehicles were produced globally in 2015.
• ~250,000 motor vehicles produced per day.
• High-productivity machining of powertrain: >1,000 systems per day.

Predictive Maintenance Potential
• Increase system availability by 8% through reduction in unexpected downtimes.
Solution Overview

Deployment Scenarios (OT) → Convergence (OT-IT) → Result (Actionable Insight)

Machine Learning

• Time critical sensor fusion to synchronize data from different domains
• Feature (variables) subset selection to:
  o optimize data transmission and
  o improve algorithms performance.
• Machine Learning algorithms to:
  o leverage knowledge discovery and
  o failure prediction

Result (Actionable Insight)

• Machine Tool System
  o Component degradation pattern analysis
  o Machine behavior pattern
• Manufacturing cell
  o M2M interaction
  o Energy consumption patterns
• Production line
  o Energy optimization
  o Production line characterization
• Factory Production plant
  o Overall data aggregation
  o Availability optimization
Why Smart Factory Machine Learning Testbed

- **Showcases Machine Learning-based Predictive Maintenance as a key element of Smart Factories**
  Provides Industry Thought Leadership representation based on real world production manufacturing facilities

- **Fosters collaboration & enables integration with IIC technologies, related testbeds primary & IIC working groups**
  Including: Connectivity-TSN testbed, Security-SCET testbed, Industrial Analytics and related testbed) and other interested IIC members technology in: Analytics, Machine Learning, Systems, Applications Services

- **Establishes a readily adaptable testbed framework, from edge to cloud, extensible to other domains/use/factories**
  Example: Smart Grid for predictive maintenance using different sensor suite and algorithms

- **Provides opportunity to propagate experiences/lessons learned for technology awareness via existing IIC liaisons**
  Including: Existing new member relations with Edge Compute Consortium (ECC), Industrial Value Chain Initiative (IVI), Platform Industrie 4.0, (PI4.0), Research institutes: Singapore, EU, Government bodies (CDTI -Spain); Academia: HPC groups, Spain, US, others tba

- **Enables proliferation of Machine Learning-based Predictive Maintenance technology to global-base of Auto OEMs**
  Expansion to CNC machines from Etxe-Tar, Plethora IIoT’s parent company, operating in production manufacturing facilities today