



# THE DZONE GUIDE TO THE INTERNET OF THINGS

2015 EDITION

BROUGHT TO YOU IN PARTNERSHIP WITH



# Wind + Cloud = Power

Connected machines, big data,  
and predictive analytics are  
propelling the next  
industrial era.

Learn how the Predix cloud platform can help you  
start building apps for the Industrial Internet.  
Predix offers efficient, secure, cutting-edge tools  
and microservices, shifting your focus from  
integration to inspiration.

[predix.io](http://predix.io)



# Developers Wanted for the Industrial Internet

No doubt about it, the Internet of Things is pretty cool—especially for software developers. Write a few lines of code and your refrigerator can remind you to buy milk.

Interesting, but not life changing.

At GE Software, when we talk about connected machines, we're thinking bigger. A lot bigger.

You may have heard of the Industrial Internet—or what I like to call the Internet of Really Important Things. GE was early to recognize the convergence of heavy industry or “big iron” with big data and predictive analytics. The result? Industrial companies can now achieve unprecedented levels of efficiency, safety, sustainability, productivity, and profitability.

We created our GE Predix platform to help developers simplify the delivery and consumption of Industrial Internet applications by using the automation and elasticity of cloud computing for

faster time to market, improved agility, and reduced operating and capital expenses. You can optimize the performance of any business across plants and fleets, down to the individual asset.

With Predix, a hospital's CT scanner can communicate with infusion pumps for better real-time patient care. A wind turbine can check itself into maintenance and chat with other machines on the farm (and the grid itself) to optimize output. Connected locomotives and trains can self-optimize their route plans across train networks to improve passenger service.

But we can't advance the Industrial Internet alone. We need the global developer community to help us spark a new industrial era that could add \$10 trillion to the global GDP.

## We need the global developer community to help us spark a new industrial era that could add \$10 trillion to the global GDP.

The Industrial Internet is dramatically different than the consumer-based Internet of Things. It's bigger. It's tougher. It requires a common operating system, such as Predix. And it demands that the brightest minds come together and solve the world's biggest challenges.

What will you build with Predix?



**WRITTEN BY HAREL KODESH**

VICE PRESIDENT AND CHIEF TECHNOLOGY OFFICER, GE SOFTWARE

## Predix



Predix powers industrial-strength apps by bringing together device connectivity, data integration, analytics, cloud, and mobility.

### TARGET MARKET

B2B

### IDE PROVIDED

×

### OPEN SOURCE

×

### REAL TIME MESSAGING

✓

### PROPRIETARY HARDWARE REQUIRED

×

### CASE STUDY

From space, Norfolk Southern's 20,000-mile rail system resembles a neural network. And it increasingly works like one, thanks to GE's Movement Planner, an Industrial Internet app that helps guide hundreds of trains traveling the railroad's network across 22 states daily. Powered by GE Predix, Movement Planner uses big data to improve machine and infrastructure efficiency and help the environment. The app takes logistical information and combines it with schedules, track grades, train movement, and other data. As a result, trains run faster and more efficiently on existing routes without laying new tracks. Since the company turned on Movement Planner a few years ago, fuel use is down 6.3%, and velocity is up 10% to 20%.

### PRODUCT HANDLES

- M2M Gateway
- Data Services
- Networking Hardware
- Web Services
- Analytics

### NOTABLE CUSTOMERS

- Pitney Bowes
- BP
- Dubai Aluminum
- City of San Diego
- Norfolk Southern
- E.ON

**BLOG** [gesoftware.com/blog](http://gesoftware.com/blog)

**TWITTER** @GEsoftware

**WEBSITE** [predix.io](http://predix.io)

# Solutions Directory



This directory of platforms, middleware, software development kits, and hardware solutions provides comprehensive, factual comparisons of data gathered from third-party sources and the tool creators' organizations. Solutions are selected for inclusion in the directory based on several impartial criteria, including solution maturity, technical innovativeness, relevance, and data availability.

## IoT PLATFORM

PRODUCT	LANGUAGES	MESSAGING	HOSTING	WEBSITE
<b>Aeris</b>	Language-independent	SMPP, SOAP	Hosted	aeris.com
<b>AirVantage M2M Cloud</b>	Java, Python, JavaScript, Ruby	MQTT, AMQP, OMA Lightweight M2M, HTTP	Hosted	sierrawireless.com
<b>AWS Elastic Beanstalk</b>	PHP, Java, Python, Ruby, Node.js, .NET, Go	N/A	Hosted	aws.amazon.com
<b>Ayla IoT Platform</b>	C, C++, C#, Java, Python	SMS, SMTP, HTTPS	Hosted	aylanetworks.com
<b>Bluemix by IBM</b>	Java, Node.js, Go, PHP, Python, Ruby on Rails	MQTT	Hosted	ibm.com/bluemix
<b>Carriots</b>	Java, Python, Groovy, C, C#	MQTT, HTTP	Hosted or On-Premise	carriots.com
<b>CloudOne IoT Platform</b>	Language-independent	MQTT	Hosted	oncloudone.com
<b>DeviceHive by DataArt</b>	Java, Python, C, C++, C#	Protocol Plug-in Architecture	Hosted or On-Premise	devicehive.com
<b>Dweet.io by Bug Labs</b>	Java, Python, C, C++, C#, Node.js, JavaScript	HTTPS	Hosted or On-Premise	dweet.io
<b>Electric Imp</b>	Squirrel	HTTP	Hosted	electricimp.com
<b>Etherios Device Cloud</b>	Java, Python, C, C++	HTTP, TCP/IP	Hosted	etherios.com
<b>Everyware Device Cloud by Eurotech</b>	Java	MQTT	Hosted or On-Premise	eurotech.com
<b>EVRYTHING Engine</b>	All major languages	MQTT, WebSockets	Hosted	evrythng.com
<b>Golgi</b>	Node.js, JavaScript, Java	HTTP, MQTT, Zigbee	Hosted	golgi.io
<b>Jasper Control Center</b>	HTML, XML	SMS, TCP/IP, Proprietary Protocols	Hosted	jasper.com
<b>Mender.io</b>	Language-independent	TLS	Hosted	mender.io
<b>Microsoft Azure</b>	JavaScript, Python, .NET, PHP, Java, Node.js	AMQP	Hosted	azure.microsoft.com
<b>Mojio</b>	C#, JavaScript, PHP	WebSockets	Hosted	moj.io
<b>Niagra by Tridium</b>	HTML5, JavaScript	Protocol-independent	Hosted	tridium.com
<b>Oracle Internet of Things Platform</b>	Java	HTTP, MQTT	Hosted	oracle.com
<b>Pivotal Cloud Foundry</b>	Java, Ruby, Python, Go, PHP, Node.js	AMQP, MQTT, STOMP	Hosted	pivotal.io
<b>Predix</b>	All major languages	ModBus, OPC-UA, TCP Sockets, HTTP, HTTPS	Hosted	predix.io
<b>Salesforce1 Platform</b>	Java, JavaScript, Apex, Objective-C, Ruby	REST, SOAP	Hosted	salesforce.com
<b>ThingFabric IoT Platform by 2lemetry</b>	Java, Python, C, C++, C#	MQTT, AMQP, XMPP, CoAP, DDS, OMA Lightweight M2M	Hosted or On-Premise	2lemetry.com
<b>ThingWorx, a PTC Business</b>	Drag-and-drop interface	MQTT, AMQP, XMPP, CoAP, DDS, WebSockets	Hosted or On-Premise	thingworx.com
<b>Xively by LogMeIn</b>	Java, Python, C, C++, Objective-C	MQTT, AMQP, XMPP, CoAP	Hosted	logmein.com
<b>Zatar by Zebra Technologies</b>	Java, JSON, Python	CoAP, OMA Lightweight M2M	Hosted	zatar.com

# diving deeper

## INTO FEATURED INTERNET OF THINGS PRODUCTS

Looking for more information on individual IoT solutions providers? Nine of our partners have shared additional details about their offerings, and we've summarized this data below.

If you'd like to share data about these or other related solutions, please email us at [research@dzone.com](mailto:research@dzone.com).

IBM.COM/BLUEMIX

PLATFORM

## Bluemix

BY IBM

### SECURITY CERTIFICATIONS

n/a

### USE CASES

1. Smart Supply Chain
2. Medical
3. Smart Service Sector
4. Environmental

### MESSAGING

MQTT

### LANGUAGES

- Java
- Node.js
- Go
- PHP
- Python
- Ruby on Rails

ONCLOUDONE.COM

PLATFORM

## CloudOne IoT Platform

### SECURITY CERTIFICATIONS

- SSAE 16
- SOC 2
- FISMA
- ITAR

### MESSAGING

MQTT

### USE CASES

1. Transportation
2. Smart Supply Chain
3. Smart City
4. Medical

### LANGUAGES

Language Independent

EUROTECH.COM

PLATFORM

## Everyware Device Cloud

BY EUROTECH

### SECURITY CERTIFICATIONS

n/a

### USE CASES

1. Transportation
2. Smart Service Sector
3. Smart City
4. Smart Supply Chain

### MESSAGING

MQTT

### LANGUAGES

Java

AERIS.COM

PLATFORM

## Neo

BY AERIS

### SECURITY CERTIFICATIONS

Device-level authentication

### USE CASES

1. Energy
2. Transportation
3. Smart Supply Chain
4. Environmental

### MESSAGING

- SMPP
- SOAP

### LANGUAGES

Language Independent

PREDIX.IO

PLATFORM

## Predix

### SECURITY CERTIFICATIONS

- ISO 27001
- AICPA SOC 1&2
- HIPAA
- FIPS 140-2

### MESSAGING

- Modbus
- OPC-UA
- TCP Sockets
- HTTP
- HTTPS

### USE CASES

1. Medical
2. Transportation
3. Smart City
4. Environmental

### LANGUAGES

Language Independent

REDHAT.COM

MIDDLEWARE

## Red Hat JBoss A-MQ

### SECURITY CERTIFICATIONS

n/a

### USE CASES

1. Smart Supply Chain
2. Medical
3. Smart Service Sector
4. Environmental

### MESSAGING

- MQTT
- AMQP
- STOMP
- WebSockets

### LANGUAGES

- C
- C++
- Java
- JavaScript
- .NET

SALESFORCE.COM

PLATFORM

## Salesforce1

### SECURITY CERTIFICATIONS

- ISO 27001
- SSAE 16
- SOC 2
- FedRAMP

### MESSAGING

- REST
- SOAP

### USE CASES

1. Wearables
2. Smart Supply Chain
3. Medical
4. Transportation

### LANGUAGES

- Java
- JavaScript
- Apex
- Objective-C
- Ruby

THINGWORX.COM

PLATFORM

## ThingWorx, a PTC Business

### SECURITY CERTIFICATIONS

- SSAE 16
- SOC 2

### MESSAGING

- MQTT
- AMQP
- XMPP
- CoAP
- DDS
- WebSockets

### USE CASES

1. Smart Supply Chain
2. Medical
3. Smart Service Sector
4. Environmental

### LANGUAGES

Drag-and-drop interface

WSO2.COM

MIDDLEWARE

## WSO2 Platform

### SECURITY CERTIFICATIONS

n/a

### USE CASES

1. Environmental
2. Transportation
3. Medical
4. Smart Service Sector

### MESSAGING

- MQTT
- AMQP
- XMPP

### LANGUAGES

- Java
- JavaScript

# Tell Your Boss You Need To Go.

Minds + Machines 2015  
Sept 29 – Oct 1, San Francisco

Help your company invest in innovation by attending Minds + Machines, the premier event for the Industrial Internet. Find out how to use GE Predix to build industrial-strength apps that will boost productivity and profitability. **Code the Industrial Internet.**

Register at [gemindsandmachines.com](http://gemindsandmachines.com).

