



# - IBM **Bluemix** Introduction

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<http://www.bluemix.net>



# Innovation is the new currency

**“Two guys in a Starbucks can have access to the same computing power as a Fortune 500 company.”**

**Jim Deters**

*Founder, Galvanize*



The next billion  
dollar idea starts  
with a single  
developer.

That developer  
starts with a single  
line of code



# Translates into an application development environment that...



Brings the best of born-on-the-cloud development without leaving behind enterprise data and services

Combines the flexibility of a platform as a service (PaaS) with existing suites of software as a service (SaaS)

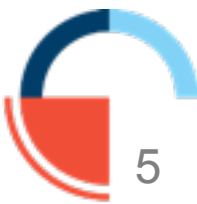
Offers freedom of choice to use any software or open technologies

Scales from a single developer to global teams

Enables a massive and open ecosystem built on open standards

# What is an API ? API Economy ?

<https://www.youtube.com/watch?v=s7wmiS2mSXY>



# API Economy

Lifecycle

## Business Assets

Exposable Enterprise Services

## Web APIs

APIs providing commercial access to the Business Assets

## Developers

Use APIs to create Apps

## Apps

Use backend services through Web APIs

## End Users

Increase revenue by using Apps with Business Assets



## The API Economy

Where companies [providers] expose their (internal) digital business assets or services in the form of (Web) APIs to third parties [consumers] with the goal of unlocking additional business value through the creation of new assets

# Watson APIs, just list a few..



## Concept Expansion

BETA

Maps euphemisms or colloquial terms to more commonly understood phrases



## Concept Insights

BETA

Explores information based on the concepts behind your input, rather than limiting investigation to findings based on traditional



## Language Identification

BETA

Identifies the language in which text is written



## Machine Translation

BETA

Globalize on the fly. Translate text from one language to another



## Message Resonance

BETA

Communicate with people with a style and words that suits them



## Personality Insights

GA

Enables deeper understanding of people's personality characteristics, needs, and values to help engage users on



## Question and Answer

BETA

Direct responses to user inquiries fueled by primary document sources



## Relationship Extraction

BETA

Intelligently finds relationships between sentence components (nouns, verbs, subjects, objects, etc.)



## Speech to Text

BETA

Transcribes English speech to text with low latency



## Text to Speech

BETA

Synthesizes natural-sounding speech from English or Spanish text



## Tradeoff Analytics

BETA

Helps users make better choices to best meet multiple conflicting goals, combining smart visualization and



## User Modeling

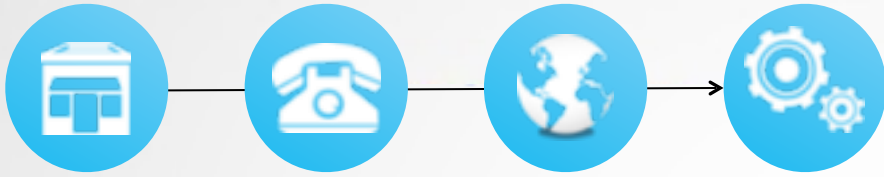
BETA

Improves understanding of people's preferences to help engage users on their own terms



# APIs - the building blocks for apps

Application Programming Interface



Branch

Toll-free

Website

Web APIs

APIs represent a new, fast-growing channel opportunity

By 2016, 50% of B2B collaboration will take place through Web APIs

Bank Externalized Services





# API Economy

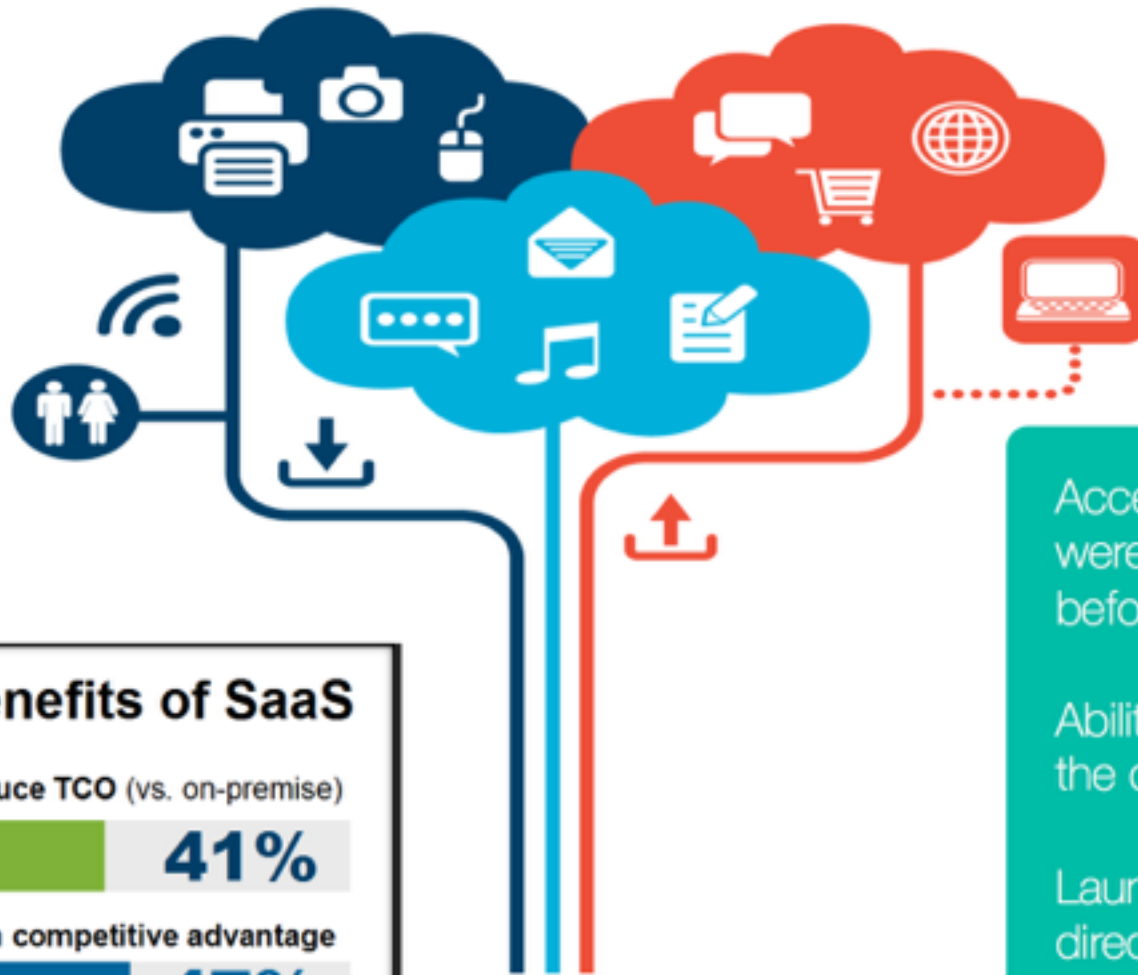
Mobile App Assembly



# APIs & Hackathon Starter Kit



# Cloud opens up **new possibilities** for developers



Access to services that were never available before

Ability to bring and access the data that you need

Launch new initiatives to directly engage your clients

## Benefits of SaaS

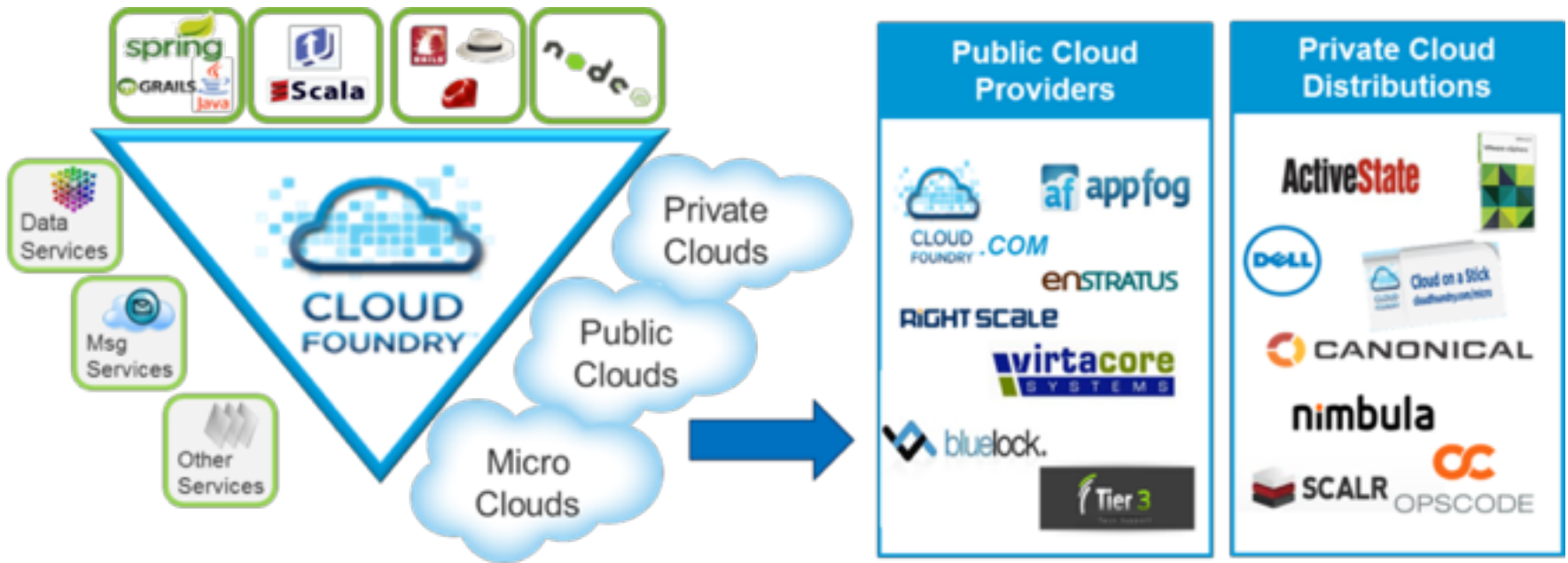
Reduce TCO (vs. on-premise)



Gain competitive advantage



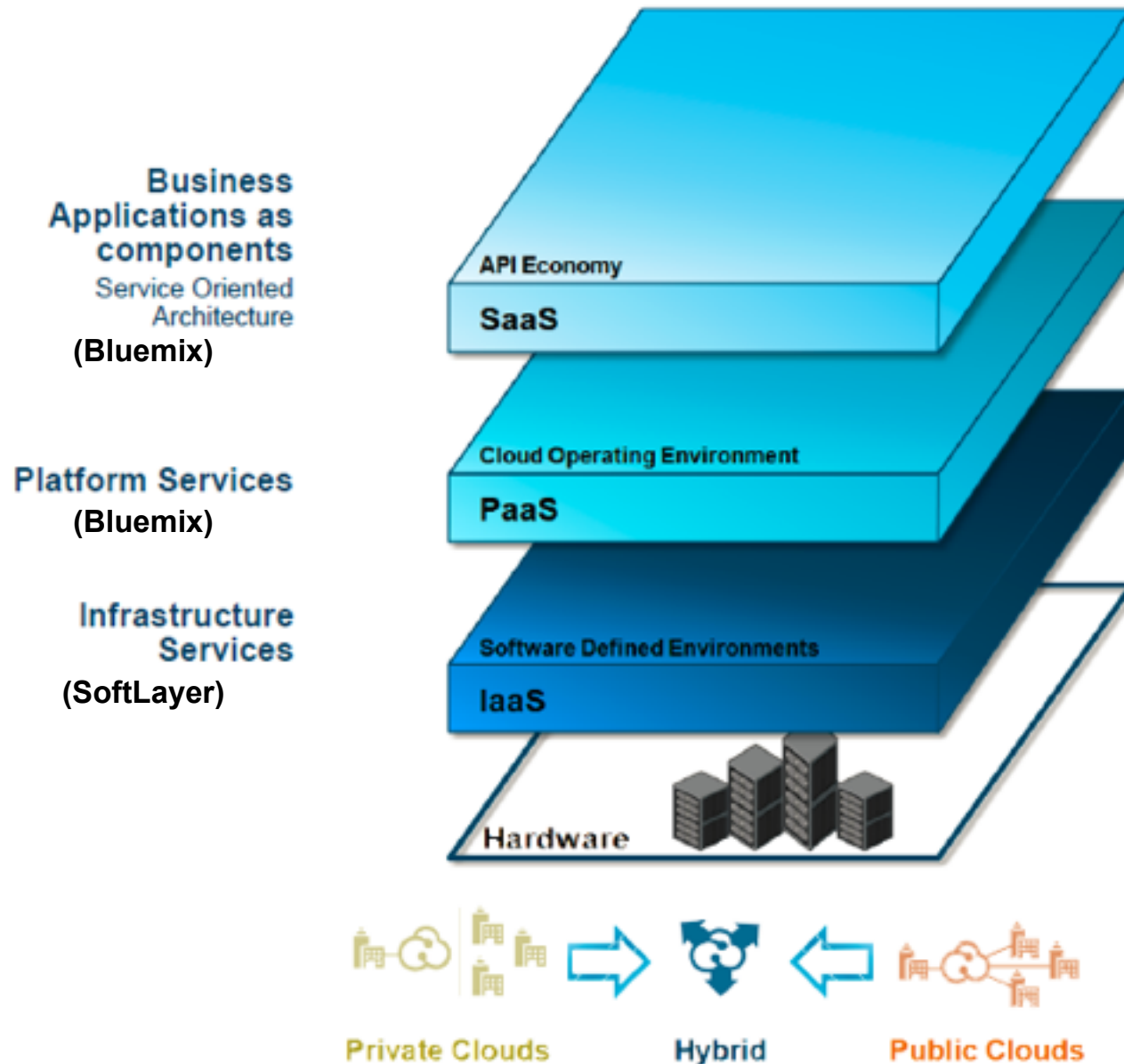
An open platform-as-a-service (**PaaS**). The system supports **multiple** frameworks, **multiple** application infrastructure services and deployment to **multiple** clouds.



*Making Multi-Cloud a Reality*

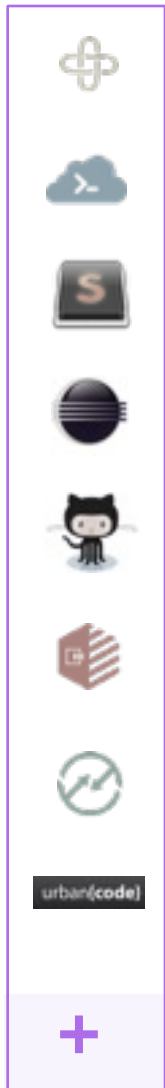


# IBM Cloud computing layers



# What is Bluemix? How it works?

## DevOps Tooling



## Your Own Hosted Apps / Services



## Catalog of Services that Extend Apps' Functionality



## Flexible Compute Options to Run Apps / Services



## Platform Deployment Options that Meet Your Workload Requirements



## Integration and API Mgmt



\*Bluemix Beijing coming Sep 30 2015

\*Bluemix Local coming Sep 30 2015

# Create apps quickly with prebuilt services

A full range of capabilities to suit any great idea.

## Choice

- Runtimes, services, and tooling up to you

## Industry Leading IBM Capabilities

- Services leveraging the depth of IBM software
- Full range of capabilities

## Completeness

- Open source platform and services
- Third party to enable key use cases





# BlueMix UI – Dashboard



The screenshot shows the IBM BlueMix UI Dashboard. At the top, the navigation bar includes the IBM logo, the text "Codename: BlueMix", and the "Dashboard" link. Other navigation options are "DASHBOARD", "CATALOG", "DOCS", and "COMMUNITY". The user's email "cwei@tw.ibm.com" and a profile icon are on the right.

On the left, a sidebar contains a "Space: dev" dropdown menu with options for "dev" and "test", and a "Manage Spaces" button. Below this is a list of resources: "ALL (1)", "APPS (1)", and "SERVICES (0)". At the bottom of the sidebar is an "ADD-ONS" section with a "+ Connect an Add-on" button.

The main dashboard area features three large circular gauges: "MEMORY: 128MB / 8GB", "APP HEALTH" (with a green checkmark), and "SERVICES: 0 / 20". Below these is a search bar and a section titled "Applications" with a large "+ Add an application" button.

A modal window is open, displaying a "Sentiment Analysis" application. It includes a rocket icon, the application name, a unique ID link, a status icon, and a green message: "Your app is running great!".

At the bottom of the dashboard, a "Services" section is partially visible.

IBM Codename: BlueMix **Catalog** DASHBOARD CATALOG DOCS COMMUNITY cwei@tw.ibm.com

Search  IBM Created  3rd Party  Community

### Boilerplates

- Internet of Things
- JAVA Web Starter
- Mobile Cloud
- NODE JS WEB STARTER
- Node-RED
- JAVA+DB Web Starter

### Runtimes

Code in the language that works for you

- .java** liberty  
Liberty for Java™  
IBM Created
- .js**  
Node.js  
IBM Created
- .rb** on rails  
Ruby on Rails  
Community
- .rb** SINATRA  
Ruby Sinatra  
Community

### Add-Ons

Manage and monitor your applications

- Auto-Scaling
- Auto-Scaling Clg

Runtimes in the BlueMix represent different buildpacks that are provided. Each runtime is an application with a starter application code deployed, and a starter application is a template so that you can use it directly with the existing buildpack from BlueMix user interface.

**Runtimes**  
Code in the language that works for you

Liberty for Java™ IBM Created	Node.js IBM Created	Ruby on Rails Community	Ruby Sinatra Community

# Services

A service is a piece of code that BlueMix hosts. And the service offers a piece of functionality for applications to use. BlueMix provides a set of predefined services that you can use directly

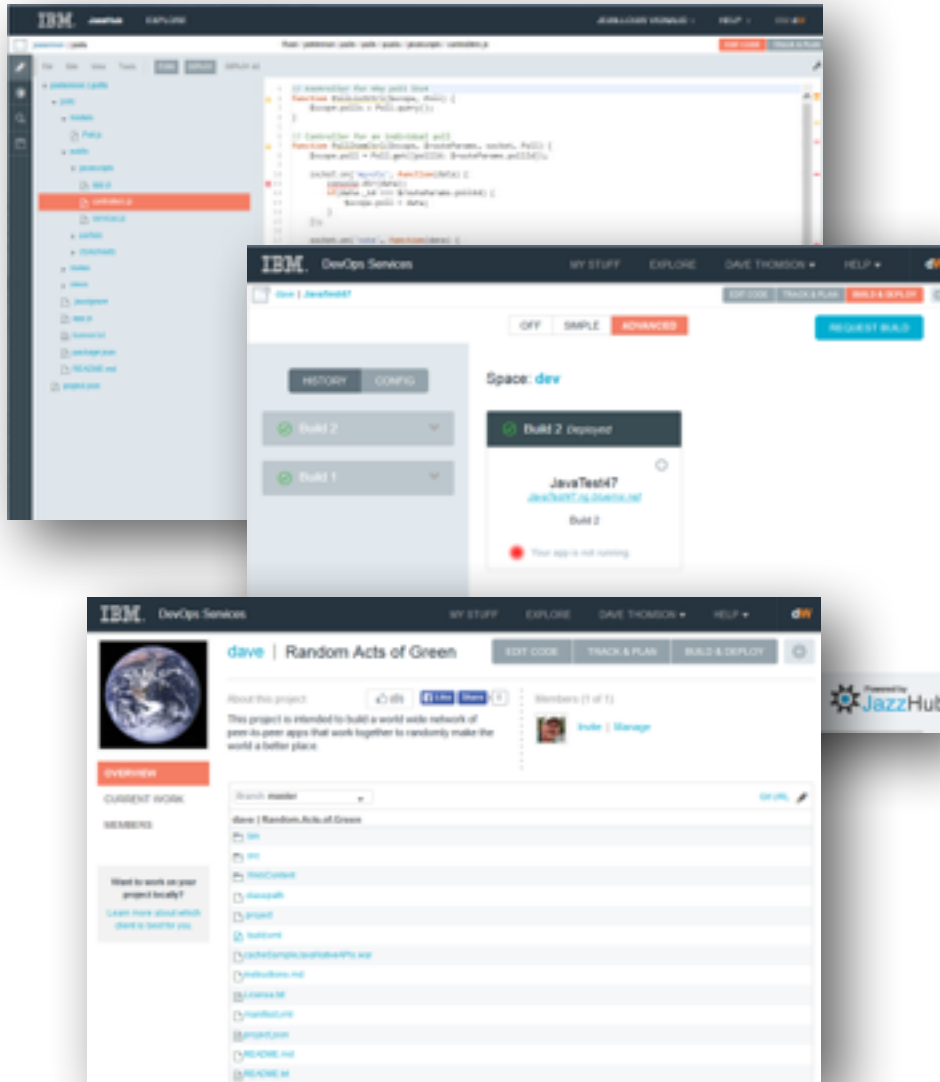
The screenshot displays the IBM Bluemix Services catalog, organized into two main sections: "Web and Application" and "Mobile".

**Web and Application**  
Leverage enterprise grade capabilities in your applications

Service Name	Created By
CastIronLive	IBM Created
CloudIntegration	IBM Created
DataCache	IBM Created
ElasticMQ	IBM Created
LogAnalysis	IBM Created
RapidApps	IBM Created
Rules	IBM Created
SessionCache	IBM Created
SSO	IBM Created
CloudAMQP	3rd Party
Geocoding	3rd Party
Memcached Cloud	3rd Party
Redis Cloud	3rd Party
Reverse Geocoding	3rd Party
SendGrid	3rd Party
Travel Boundary S...	3rd Party
Validate Address	3rd Party
rabbitmq	Community
redis	Community
Wearable Fitness	Community

**Mobile**  
Accelerate your mobile app development

Service Name	Created By
InternetOfThings	IBM Created
MAS	IBM Created
Mobile Data	IBM Created
MobileQualityAssur...	IBM Created
Push	IBM Created
Twilio	3rd Party



- DevOps Solution in the cloud for building mobile and cloud applications
- Optimized for use with BlueMix
- Integrated task tracking, agile planning, source control with auto deploy
- Use your favorite tools or work from the Web IDE
- Hosted Jazz SCM or Git or link to GitHub
- Public and private projects
- Continuous Integration and Deployment with Jenkins
- Mobile quality and application performance monitoring (coming)





# IBM Bluemix IOT

Instrument – Interconnect - Intelligent



Internet of Things

**IBM**



Internet of Things Fou...

**IBM**



IBM Analytics for Had...

**IBM BETA**

IBM Bluemix

DASHBOARD SOLUTIONS CATALOG PRICING DOCS COMMUNITY REGION: US South 112

Back to Dashboard

jjiot Routes: [localhost:3000](http://localhost:3000)

MOBILE OPTIONS ADD GIT

1. Enable your Node.js app for mobile.
   
Enable Node.js App
2. Install and configure the SDK for your client.
   
iOS Android Hybrid Java Script
3. Enter registration credentials.
   
Route: <http://localhost:3000>
  
App Key: 9f59a3bc-ec2e-47a3-97d5-18a9a...
   
App Secret: 3277e6d76e96cc-f598d3a13009ba...

INSTANCES: 1 MEMORY QUOTA: 512 AVAILABLE MEMORY: 3.625 GB

APP HEALTH: Your app is running.

ACTIVITY LOG

3/7/18 7:05 PM jjiot an instance of the app crashed: failed to start - exit status: -1, CRASHED

3/7/18 5:07 PM jjiot an instance of the app crashed: failed to start

IBM Analytics for Hadoop IBM Analytics for Hadoop-ij Free

Cloudant NoSQL DB jjiot-cloudantNoSQLDB Shared

Mobile Application Security Mobile Application Security-f1 Standard

Mobile Data Mobile Data-vc Shared

Push Push-rz Standard

Question and Answer Question and Answer-11 question\_and\_answer\_free\_plan

Estimate the cost of this app

You can assemble a Platform with IOT, Mobile, Hadoop and Watson capacity.



# IOT Recipe Catalog

<http://developer.ibm.com/iot>

The screenshot shows the top section of the IBM IOT Recipe Catalog website. At the top left, the word "Recipes" is displayed in a white font on a dark grey background. To the right, the user's email "changha@tw.ibm.com" and a profile icon are visible. Below this, a dark grey banner contains the text "QUICKLY PRODUCE RECIPES TO INSPIRE MILLIONS OF DEVELOPERS." and a "Create New Recipe" button. The main content area has a teal background and features three columns: "Discover" with a magnifying glass icon, "Combine" with a double-headed arrow icon, and "Inspire" with a lightbulb icon. Each column has a brief description of its function. At the bottom of this section is a search bar with the placeholder text "Start your search..." and a magnifying glass icon.

Most Popular  
In Recipes



Connect a Raspberry Pi to Internet of Things Foundation

By Vikki Paterson  
February 25, 2015



Connect a CC2650 SensorTag to the IoT Foundation's Quickstart

By Steve Haskay  
March 06, 2015



Connect a MultiTech MultiConnect Conduit to the IoT Foundation

By Steve Haskay  
March 06, 2015

# IOT Recipe Catalog



**Texas Instruments Energia with TMS4C1294 Connected LaunchPad**  
 By Vikki Paterson  
 May 13, 2015  
 Use the Energia Rapid Prototyping Environment to connect to the IBM Internet of Things Fo...  
 95 (v) 1 (d) 0 (e)



**Connect an Intel Galileo to the Internet of Things Foundation**  
 By Vikki Paterson  
 May 20, 2015  
 Use an Intel® Galileo to connect to the IBM Internet of Things Foundation and Visualize...  
 204 (v) 0 (d) 0 (e)



**MQTT Chat Over IBM Bluemix**  
 By microtime  
 May 29, 2015  
 Using Microtime PTK System with STM32F207 Adopted  
 99 (v) 0 (d) 0 (e)



**NEXCOM NIO100/NIO100Y Bluemix connectivity tutorial**  
 By Nexcom  
 June 10, 2015  
 Use IoT Studio Gateway Builder to create data path and send data to IBM Bluemix.  
 28 (v) 1 (d) 0 (e)



**u-blox Cellular IoT Starter Kit**  
 By u-blox  
 July 3, 2015  
 Use an u-blox C027 cellular IoT Starter Kit, to connect to the IBM Internet of Things Fou...  
 43 (v) 3 (d) 0 (e)



**Intel Edison IoT Recipe**  
 By chipg  
 July 15, 2015  
 Connect your Intel® Edison to the IBM Internet of Things Foundation and visualize your d...  
 179 (v) 3 (d) 0 (e)



**Connect a SimpleLink Wi-Fi CC3200 LaunchPad to IoT with Energia**  
 By EdProsser  
 July 16, 2015  
 Connecting a SimpleLink CC3200 Launchpad to the Internet of Things Foundation Service for...  
 148 (v) 1 (d) 0 (e)



**TI Sensor Tag and Raspberry Pi**  
 By AllenMarube  
 In this tutorial, you will learn how to use Bluetooth to connect and get sensor readings...  
 90 (v) 0 (d) 0 (e)



**How to Connect a Device to the Cloud**  
 By locked  
 July 17, 2015  
 Got a "thing" to connect to the cloud? Learn how to connect the device or "thing" to the...  
 204 (v) 1 (d) 0 (e)



**Connect an Arduino Uno device to the IBM Internet of Things Foundation**  
 By EdProsser  
 Tutorial that shows how to connect an Arduino Uno to the IoTF service in Bluemix  
 1795 (v) 2 (d) 0 (e)



**ARM mbed™ IoT Starter Kit (Part 1)**  
 By EdProsser  
 Connect an ARM mbed IoT starter kit to the Internet of Things Foundation, visualize the d...  
 334 (v) 7 (d) 0 (e)



**ARM mbed™ IoT Starter Kit (Part 2)**  
 By EdProsser  
 July 20, 2015  
 Connect your ARM mbed device and application to the IBM Bluemix Service, and send command...  
 151 (v) 0 (d) 0 (e)



**Connecting an ARM mbed NXP LPC 1114 to the Internet of Things**  
 By EdProsser  
 Use an mbed microcontroller to connect to the IBM Internet of Things Foundation. Then you...  
 245 (v) 0 (d) 0 (e)

# Select a device

Step 1: Configure BeagleBone & SensorTag.



Internet of Things

Recipes

IoT Foundation

Quickstart

Blog

Answers



## BeagleBone with SensorTag

Use a BeagleBone Black board to connect a TI SensorTag to the IBM Internet of Things Foundation. Then you can visualize the data generated by the SensorTag's temperature, humidity, pressure, accelerometer, gyroscope, and magnetometer sensors.

### Ingredients

Hardware Requirements



- BeagleBone Black
- TI SensorTag CC2541
- Bluetooth Low Energy (Type 4) USB adapter to connect the SensorTag to the BeagleBone (for example, <http://plugable.com/products/usb-bt4le>)

# Connect and view the data



Step 2: View data through IOT foundation.

Step 2: View data through IOT foundation.

Overview **Chartview**

	Sensor	Reading	Sparkline
<input type="radio"/>	Acceleration X	0 g	
<input type="radio"/>	Acceleration Y	0.1 g	
<input type="radio"/>	Acceleration Z	1 g	
<input type="radio"/>	Ambient Temperature	25 °C	
<input type="radio"/>	Gyroscope X	-1.3 °/s	
<input type="radio"/>	Gyroscope Y	0.9 °/s	
<input type="radio"/>	Gyroscope Z	-1 °/s	
<input type="radio"/>	Humidity	63.7 %	
<input type="radio"/>	Magnetic X	-35.6 μT	
<input type="radio"/>	Magnetic Y	3.6 μT	
<input type="radio"/>	Magnetic Z	82.3 μT	
<input checked="" type="radio"/>	Object Temperature	18.2 °C	
<input type="radio"/>	Pressure	1,016.2 mBar	
<input type="radio"/>	Temperature	25.3 °C	



**DEMO TIME**



**The Economist**

**SPECIAL REPORT**  
**TECH STARTUPS**  
January 18th 2014



**A Cambrian moment**



- IBM cloud marketplace  
<http://www.ibm.com/cloud>
- IBM BlueMix  
<https://ace.ng.bluemix.net/>
- IBM BlueMix introduction  
[https://www.ibm.com/developerworks/cloud/blueprint/html/ibm\\_bluemix\\_intro.html](https://www.ibm.com/developerworks/cloud/blueprint/html/ibm_bluemix_intro.html)
- Getting started with BlueMix and JazzHub  
<https://hub.jazz.net/tutorials/jazzeditor>