Achieve Agility with Cloud Based Development: BlueMix and IBM DevOps Services
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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

- Developers are empowered
- Business leaders innovate
- IT leaders advance change

Delivery speed and productivity rapidly enable businesses to grasp new opportunities

New apps are consolidating data and capabilities to engage new audiences

New businesses are composed leveraging digital services from a broad ecosystem

Companies of all sizes have the ability to disrupt, or face the prospect of being disrupted.

A few examples of start-ups that disrupted the industries they entered with digital innovation

"As we get ready for this upcoming holiday season, we are focused on making the customer experience easier and more stress-free than ever" (Jeff Bezos, CEO)

"In San Francisco, taxi usage has plummeted by around 65 percent" (Kate Toren, SF MTA)
"In New York…demand for the traditional taxis has plunged" (Andrew Murstein, MFC President)

"If we can invest all of our funding into the technology and the experience we don't have to worry about capital adequacy and branch real-estate." (Brett King, CEO)

"We estimate that in Austin, where Airbnb supply is highest, the impact on hotel revenue is roughly 8-10%" (Zervas et. al , BU)

Introduction

For success of your business innovation you need…
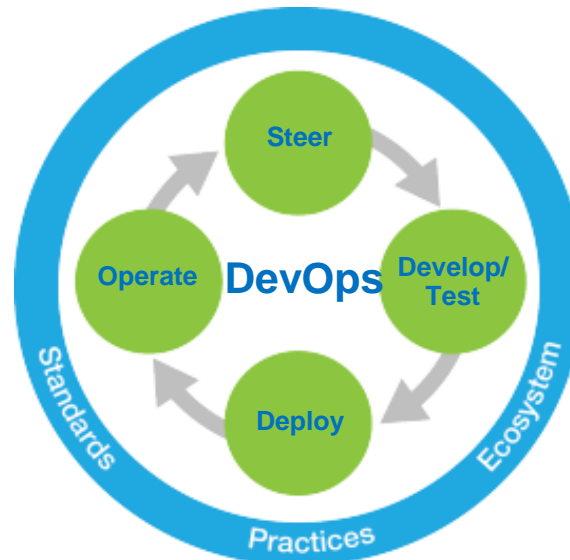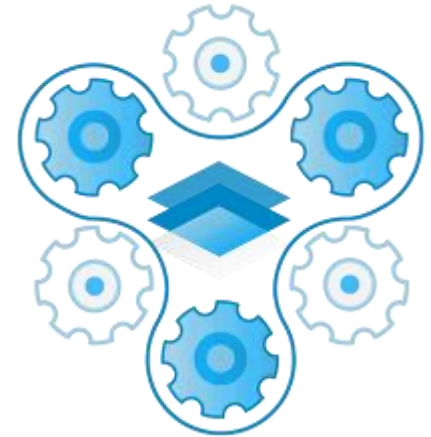
Digital Innovation Platform

+

Agile Hybrid Cloud infrastructures and platforms
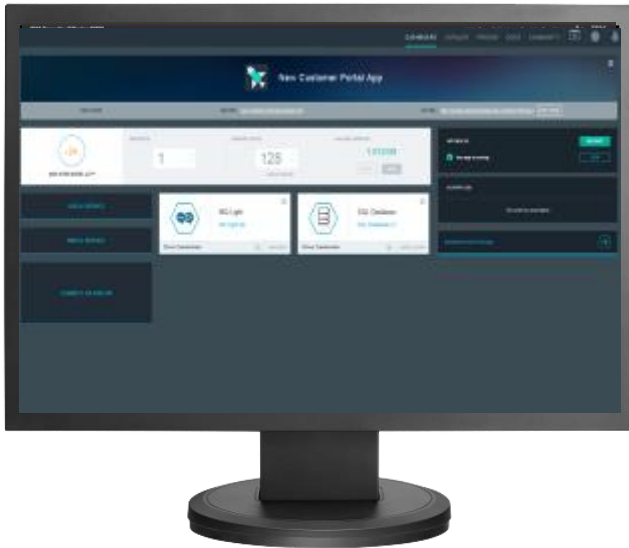
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Enterprise Systems Integration

With lean delivery methods & tools, across the lifecycle

Standards

Steer

Operate **DevOps** Develop/ Test

Deploy

Ecosystem

Practices

Introduction

Developers and IT need a digital innovation platform to rapidly bring new products and services to market

IBM Bluemix™

Open cloud architecture

DevOps

Hybrid integration, deployment and management

Syndicated catalog of IBM, 3rd party and community services and images

Global reach

Rapidly bring new products and services to market at lower cost.

Balance agility with quality, security and governance.

Extend existing IT investments into cloud business and delivery models.

Introduction

Built on the Highest Performing Cloud Infrastructure

Spanning across the globe

A different kind of data center

- Every location designed, built, and operated to the **same standardized**, "**pod**" based spec

- **24/7 on-site security** and rigorous controls

- **Public, private, and management networks** all separate

- More than **2,000Gbps between data centers** and **network points of presence** (PoPs)

- **Unmetered inbound public bandwidth** and fully **unmetered bandwidth between data centers**

Entirely automated

- **SoftLayer API** controls everything
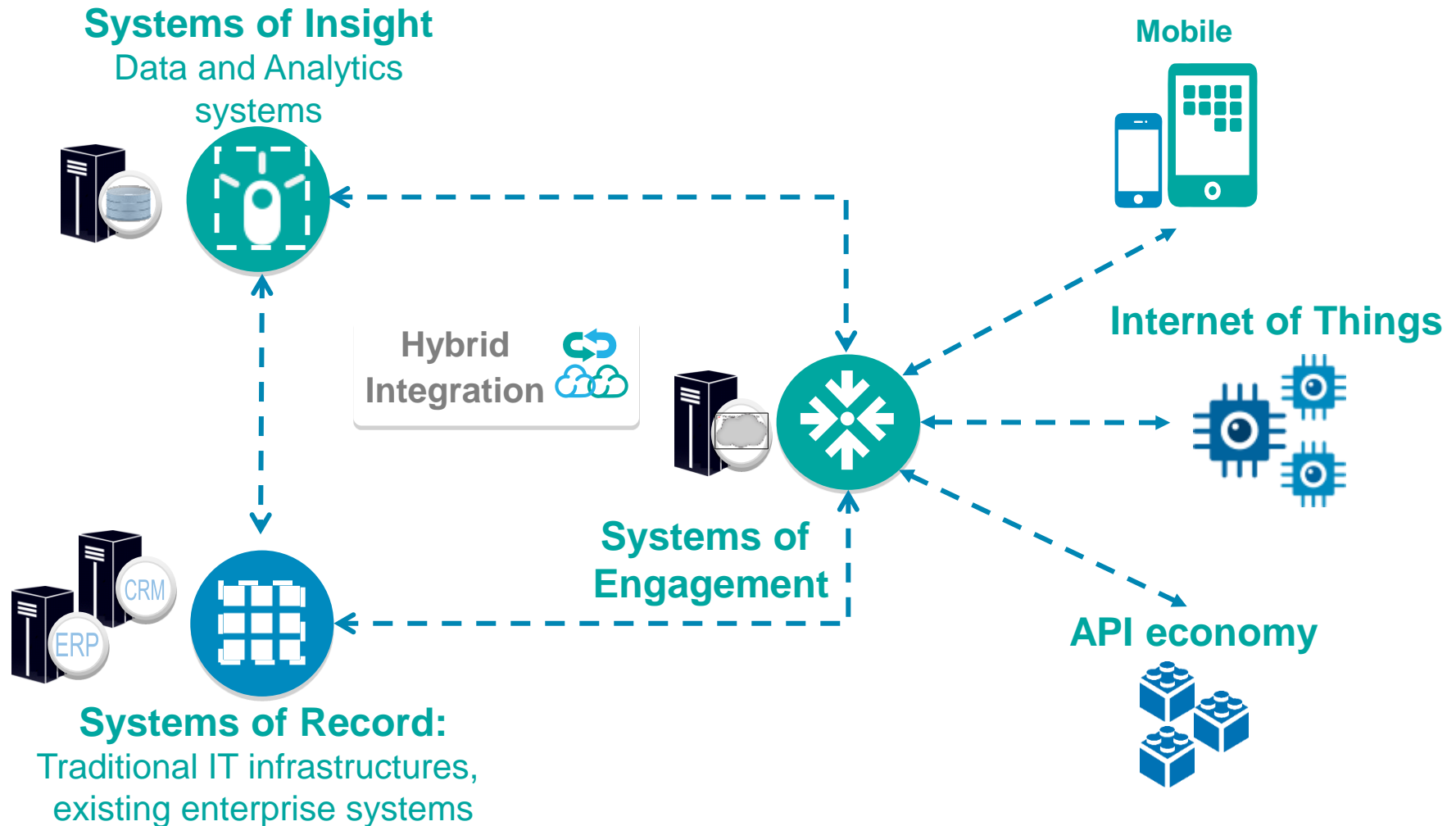- **Bare metal** and **virtualized servers** in the same platform

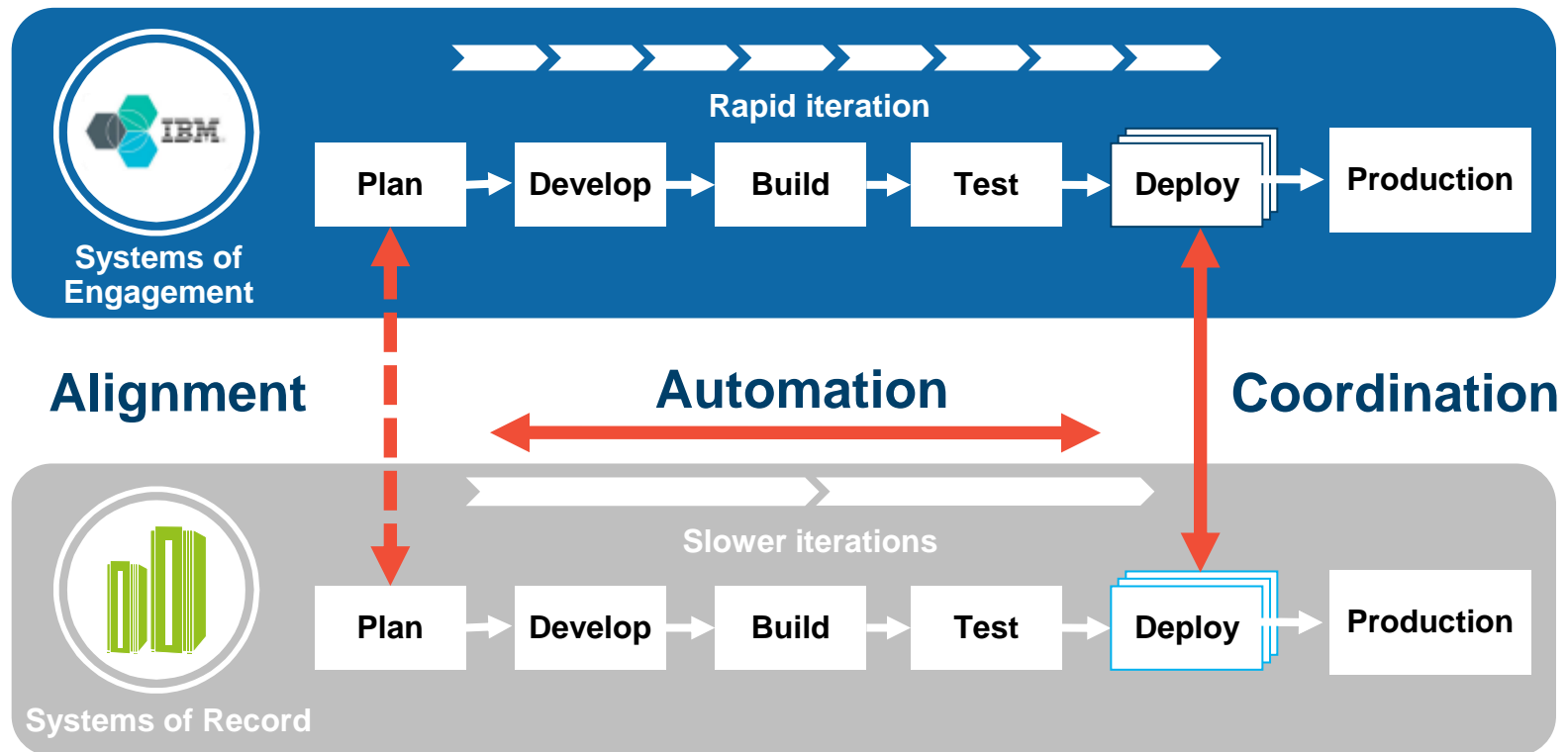Carrier grade private network with over 2,000 Gbps of connectivity

Over 29 global locations with geographic disperse network PoPs

Innovation requires hybrid cloud

Fast-movers are building Systems of Engagement to capture growth opportunities

Systems of Insight
Data and Analytics
systems

Mobile

Hybrid Integration

Internet of Things

Systems of Engagement

Systems of Record:
Traditional IT infrastructures, existing enterprise systems

API economy

Most organizations building software are transforming to a two speed model…

- Software delivery processes for SoR (on-premises components) and SoE (mobile and cloud components) typically operate independently at different speeds and on different release cycles
  - DevOps solutions for SoR and SoE can be different

- Release coordination of JKE Bank and JKE Wallet will need a solution that provides agile lifecycle management for both SoR and SoE and a single orchestrated approach to automated deployment

Hybrid Cloud DevOps

As a result, hybrid Cloud Applications are becoming the norm for the Integrated Digital Enterprise …
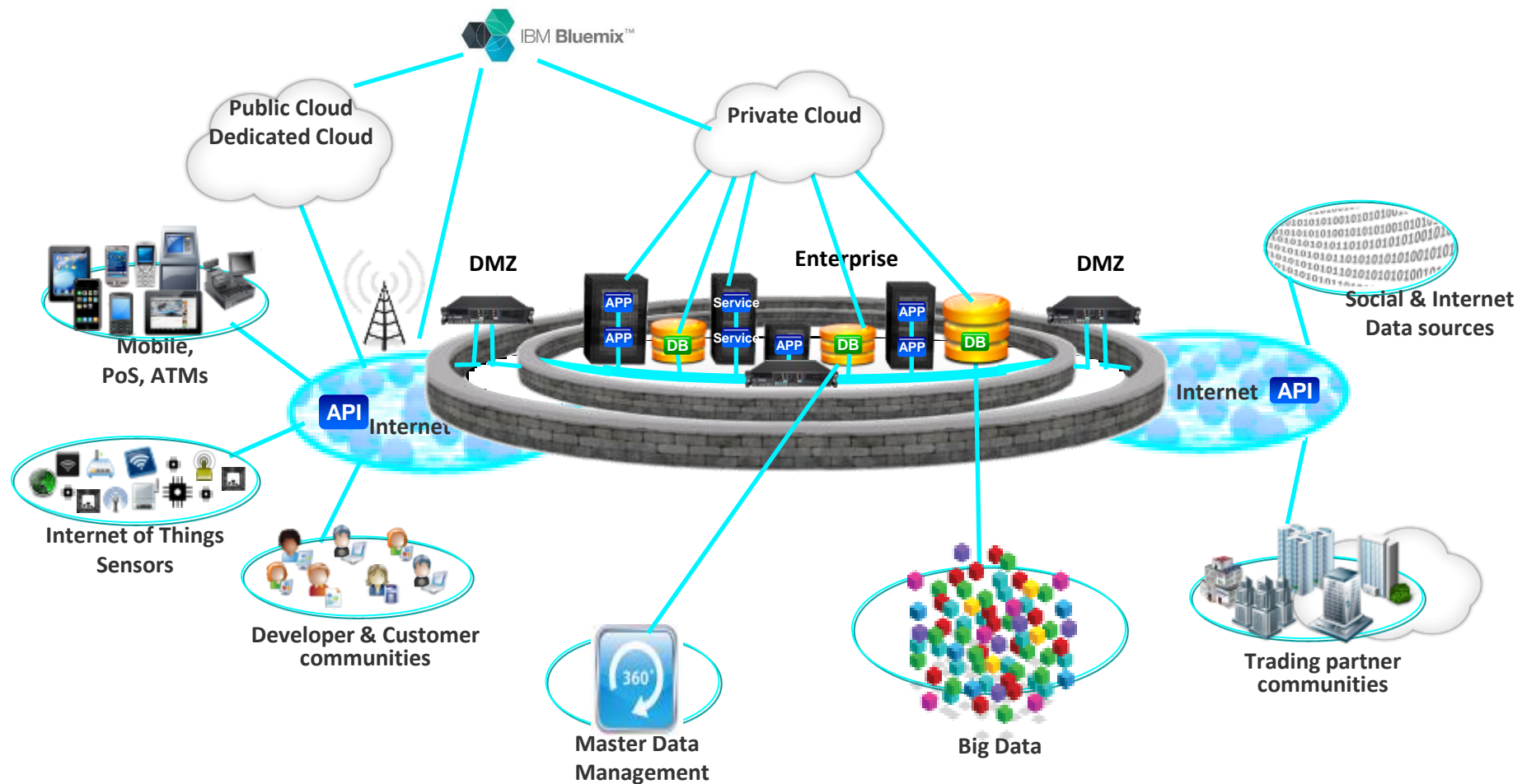
Bluemix is an integrated hybrid cloud platform
Delivered through any combination of three deployment environments

Public

Multi-tenant public cloud rolling out globally.

Dedicated

Bluemix in an isolated SoftLayer private cloud.

Local

Bluemix as a managed service in your data center.

Syndicated Catalog

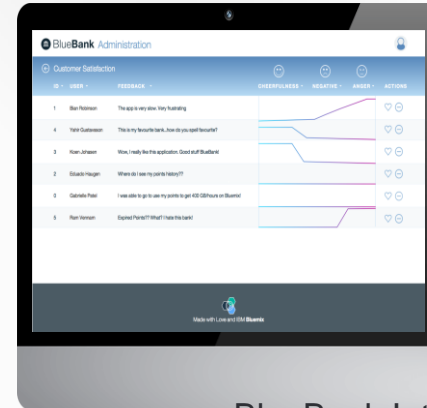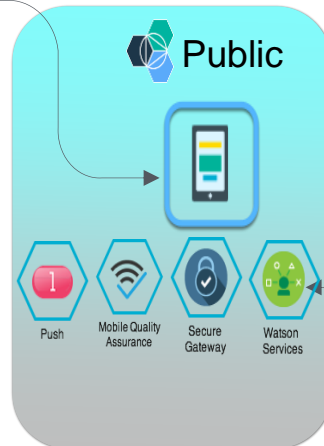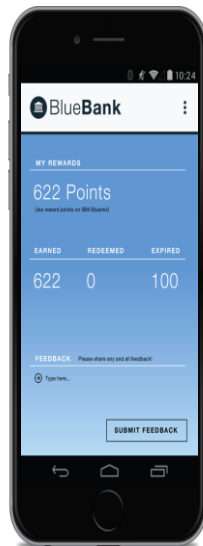The catalog of IBM, 3rd party and private services is syndicated across Bluemix.

Ops Console

A single view of the health and status across apps and infrastructure.

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Introduction

Hybrid Customer Example

Customer Loyalty App

BlueBank Internal Application

IBM Bluemix™

Public

Local

Push | Mobile Quality Assurance | Secure Gateway | Watson Services

Syndicated

Watson Services | Cloudant NoSQL DB | API Management

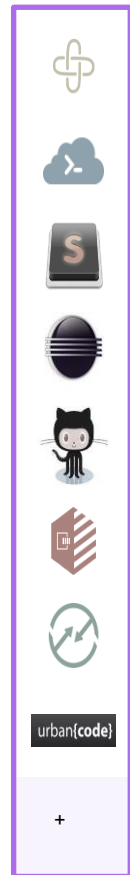Live Demo: https://www.youtube.com/watch?v=eLX05QkZ-s0

How does Bluemix work?

Bluemix is also built on 3 key open compute technologies: **Cloud Foundry**, **Docker**, and **OpenStack**.

It extends each of these with a growing number of **services**, robust **DevOps tooling**, **integration** capabilities, and a seamless **developer experience**.
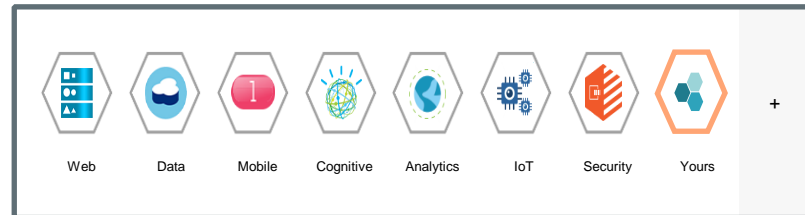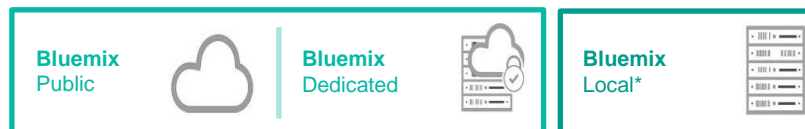
DevOps Tooling

Integration & API Mgmt

Your Own Hosted Apps / Services

Catalog of Services that Extend Apps' Functionality

| Web | Data | Mobile | Cognitive | Analytics | IoT | Security | Yours | + |

Flexible Compute Options to Run Apps / Services

Instant Runtimes   +   Containers   +   Virtual Machines   +

Platform Deployment Options to meet Workload Requirements

Bluemix Public   **Bluemix** Dedicated   **Bluemix** Local*

Powered by IBM SoftLayer   In Your Data Center

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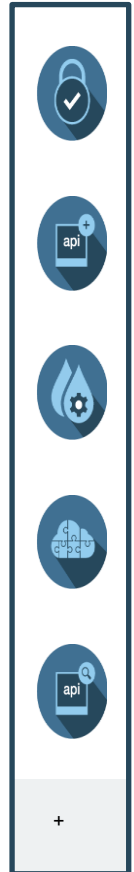
IBM Bluemix offers multiple choices for provisioning computing resources

- **Instant Runtimes**
  - Runtimes in IBM Bluemix are based on Cloud Foundry
  - Highest level of infrastructure abstraction

- **IBM Containers**
  - Run Docker containers in a hosted cloud environment on IBM Bluemix
  - Less resource intense than VMs
  - Key to support hybrid portability

- **Virtual Machines**
  - Use OpenStack on IBM Bluemix to run and manage VMs
  - Control all the way down to the operating system

Instant Runtimes	Containers	Virtual Machines
CLOUD FOUNDRY ＋	docker ＋	openstack ＋

Bluemix and DevOps Services
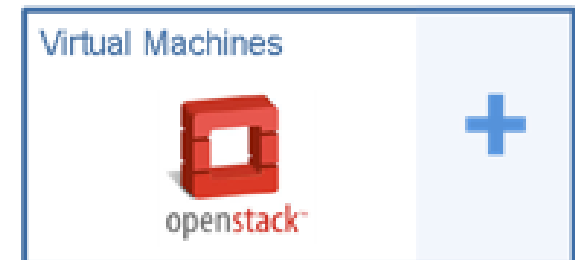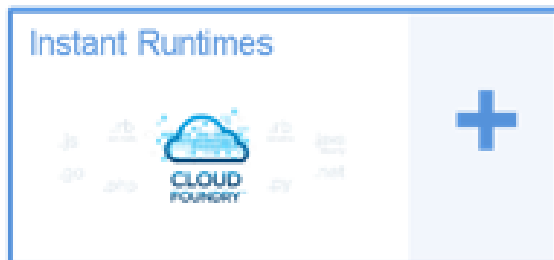
Developers leveraging IBM Bluemix runtimes and services can spend more time innovating

- Quickly create your Bluemix application
  - Use one of the available languages
    - Liberty Java, Node.js, Ruby, Python, PHP, Go, Community Buildpack
  - Bluemix takes care of instantiating the runtime for your selected language

- Easily add services to your application from a vast collection of services available on the Bluemix catalog
  - Over a 100 IBM, third-party, and community supported services
  - Available categories
    - Mobile
    - DevOps
    - Web and App
    - Integration
    - Watson
    - Data Management
    - Big Data
    - Security
    - Business and Analytics
   - Internet of Things

IBM Bluemix provides services to integrate cloud applications and enterprise data and APIs

- **Securely access data and applications** in other clouds, enterprise data centers, and locally on the developer workstation

- **Prepare your data** for use in production apps
  - Capabilities: shape data, load data, provision masked data, profile data, and classify data

- **Create REST APIs** from on-premises or cloud endpoints
  - Endpoints: DB2, Oracle, SalesForce, and others

- **Publish, promote, and oversee** your APIs
  - Secure and scalable environment
  - API user support resources such as API documentation

- **Find** the right API for your app
  - Select from public APIs, including dependent APIs

| API Management | Cloud Integration | Secure Gateway | DataWorks |
| IBM | IBM | IBM | IBM |
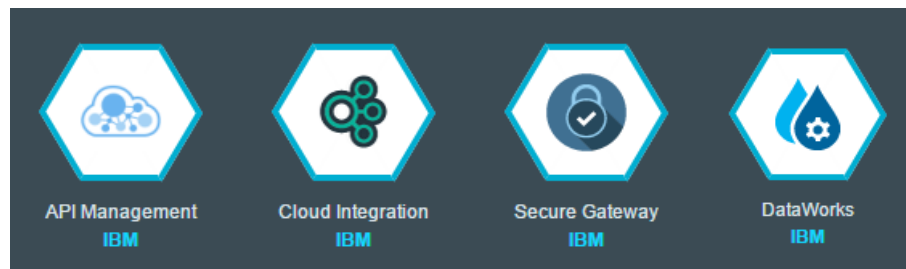
IBM Bluemix supports Docker portability with the use of IBM Containers

- Docker as-a-service
  - Fully integrated, high performance Docker experience

- Select from a trusted, secure repository of enterprise-grade images
  - Select images from: Docker registry, IBM hosted public registry, user's own registry

- Achieve enhanced performance and scalability for your applications
  - Bare metal deployment
  - Run images on local datacenter or cloud

- Integrated monitoring, logging, networking, and storage
  - Elasticity to grow storage and container needs
  - Lifecycle management of containers and data volumes
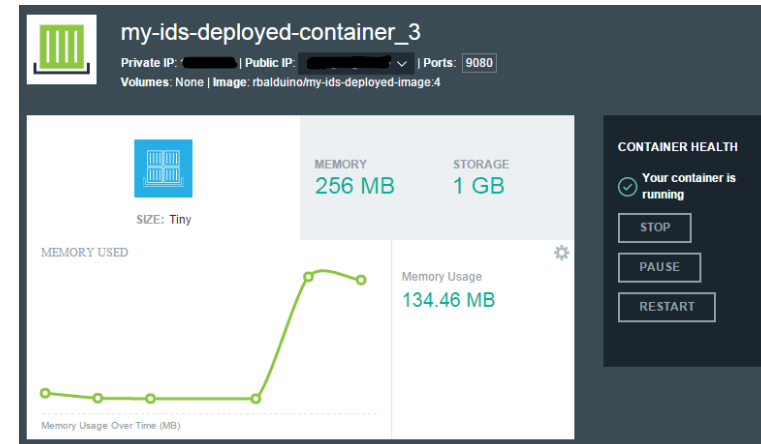
IBM Bluemix provides infrastructure control with the use of Virtual Machines

- The most control offered over your apps and middleware

- Bluemix uses industry-leading OpenStack software to run and manage VMs
  - Public, dedicated, or on-premises cloud

- Key OpenStack services can be used in conjunction with Bluemix services to build and run hybrid apps
  - Auto scaling, load balancing, and object storage

cpovm	Image: Ubuntu 14.04	Cloud: IBM Cloud Public

INSTANCES	HEALTH	TOTAL CPU	TOTAL MEMORY	TOTAL DISK
1	⊘ Your VMs are running.	2	3.1 GB	20 GB

Name	IP Address	CPU	Memory	Disk	Created	Status	Actions
cp-7bzn-rymhca3...er-brafmseov4ha		2	3.1 GB	20	2015-06-03T21:53:23Z	● Running	⚙

IBM Hybrid Integration Services bring together on premise and cloud based data resources and applications

- **Single integration platform**, delivered for the developer community through **IBM Bluemix**

- Publish, promote, share and manager **APIs in a secure, scalable environment**

- Connect and access **cloud and on-premises** data resources and applications

- Built-in collaboration via a **catalog** for connectors, patterns, and APIs.

Hybrid Integration Services

Cloud Integration
IBM

DataWorks
IBM

API Management
IBM

Connect & Assemble
IBM

# Secure Gateway - creating a hybrid connection to on-premises data

Connect Clouds Securely Together
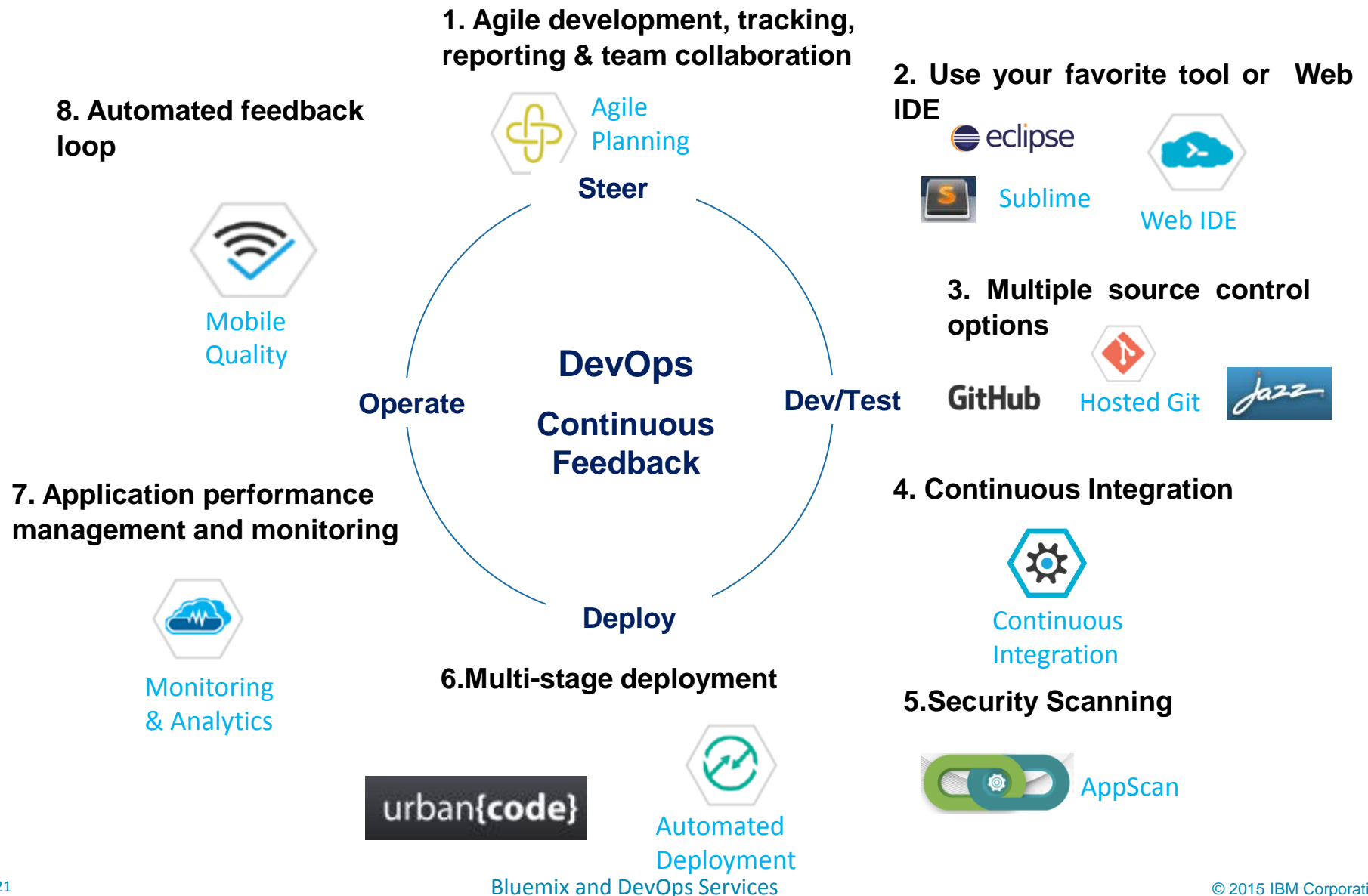
Connect

IBM Secure Gateway: Provides secure connectivity from Bluemix to other applications and data sources running on-premise or in other clouds.

What's unique?

- Unique passport feature allows for single step download, install, and secure setup of client
- Flexible Gateway topology allows segregation, Load Balancing, Fault tolerance
- Layered security on the cloud side and client side
- API / SDK for secure connect directly from app
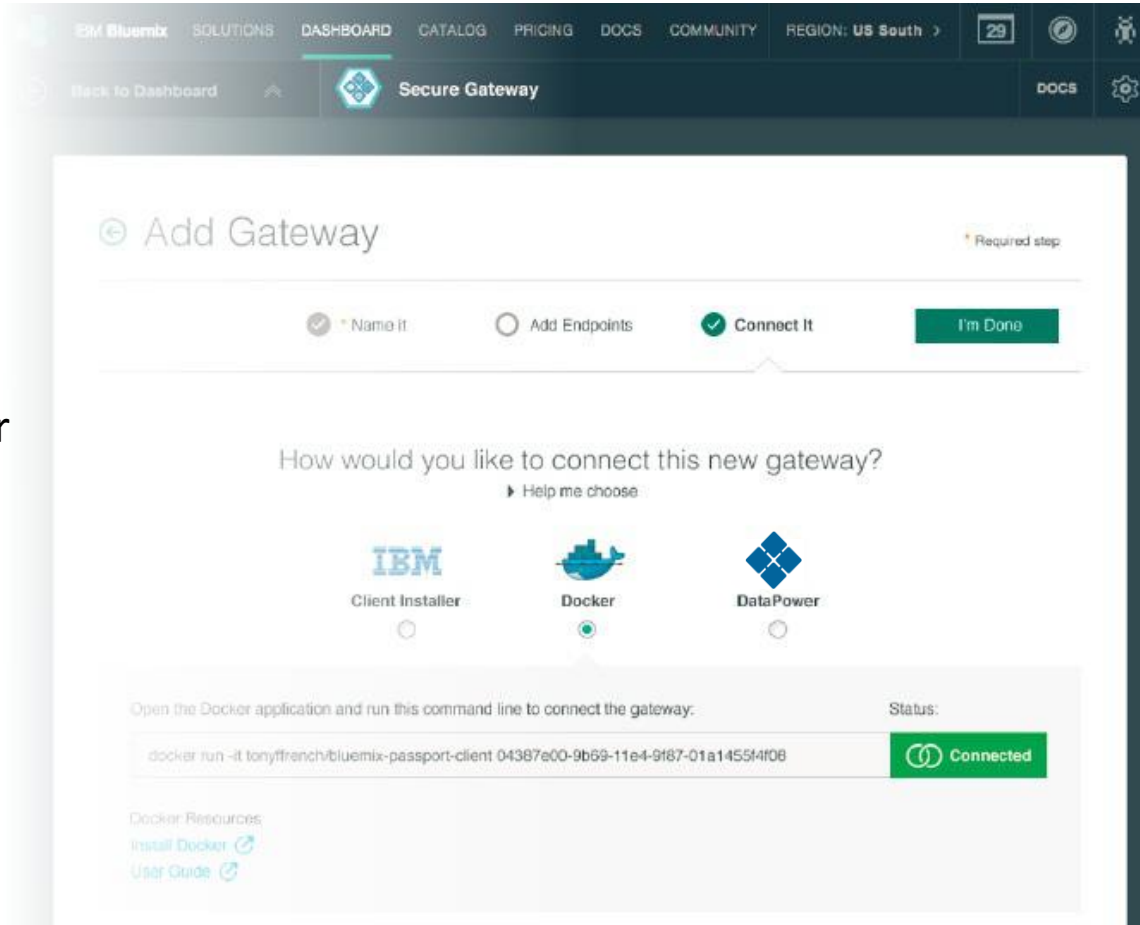
IBM Bluemix DevOps Services provides capabilities to manage the entire lifecycle

1. Agile development, tracking, reporting & team collaboration

Agile Planning

2. Use your favorite tool or Web IDE

eclipse

Sublime

Web IDE

8. Automated feedback loop

Mobile Quality

Steer

DevOps

Continuous Feedback

Operate

Dev/Test

3. Multiple source control options

GitHub   Hosted Git   Jazz

7. Application performance management and monitoring

Monitoring & Analytics

Deploy

4. Continuous Integration

Continuous Integration

6. Multi-stage deployment

urban{code}

Automated Deployment

Bluemix and DevOps Services

5. Security Scanning

AppScan

IBM Bluemix DevOps Services and deployment automation ensure quality and speed across the application lifecycle

- Do agile planning through the Track & Plan service
  - Work items discussions promote team collaboration
  - Queries and dashboards show real-time project status

- Use web editor or on-premises editor (e.g. Eclipse) to edit source code

- Commit and push source code changes to the project repository
  - Git, GitHub, or Jazz SCM

- Define builds and deployment stages through the Delivery Pipeline service
  - Build and deploy Cloud Foundry applications and Docker containers to Bluemix
  - Include tests as part of the stages
  - Pushing code to the repository can automatically start the build and deploy processes

Bluemix and DevOps Services
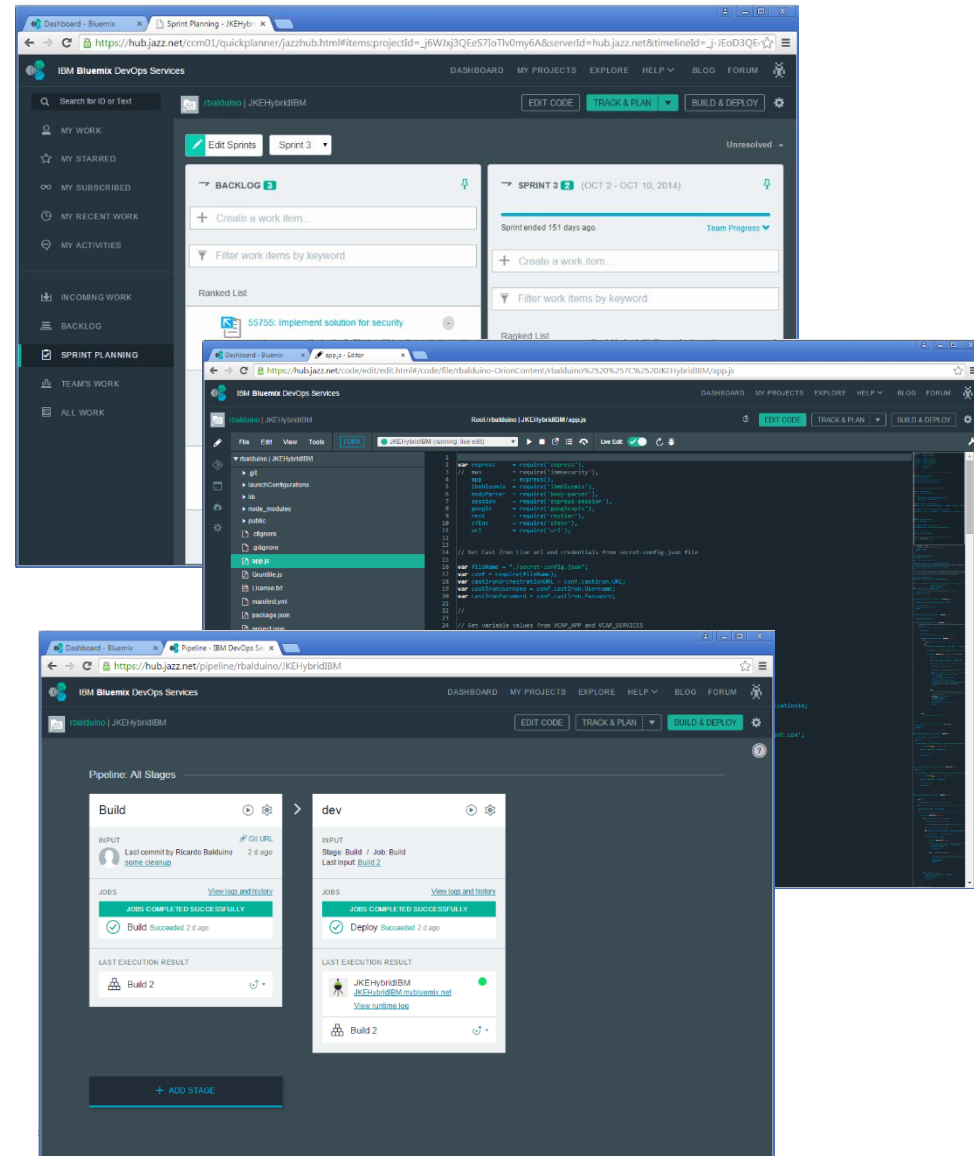
IBM Bluemix Dashboard helps manage and control all apps, containers, VMs, services and APIs

- **Spaces** are used to control access to a specific collection of Bluemix resources
  - Each has it's own access control list with permissions

- From the Dashboard, instantly view information about
  - *Applications* – status, bound services, runtimes
  - *Services* – current plan, bound applications
  - *Containers* – status, image, instances, network, memory
  - *Virtual Machines* – status, image, instances, network, memory, cpus (can also launch the OpenStack Horizon dashboard)

Know the real-time health of your application via IBM Bluemix Monitoring and Analytics service

- Monitoring and Analytics can be bound to an IBM Bluemix application to view:
  - **Availability**
    - Response times
    - Determine application health
  - **Performance Monitoring**
    - Throughput and Response Time
    - CPU and Memory usage
  - **Log Analytics**
    - Log events captured over time
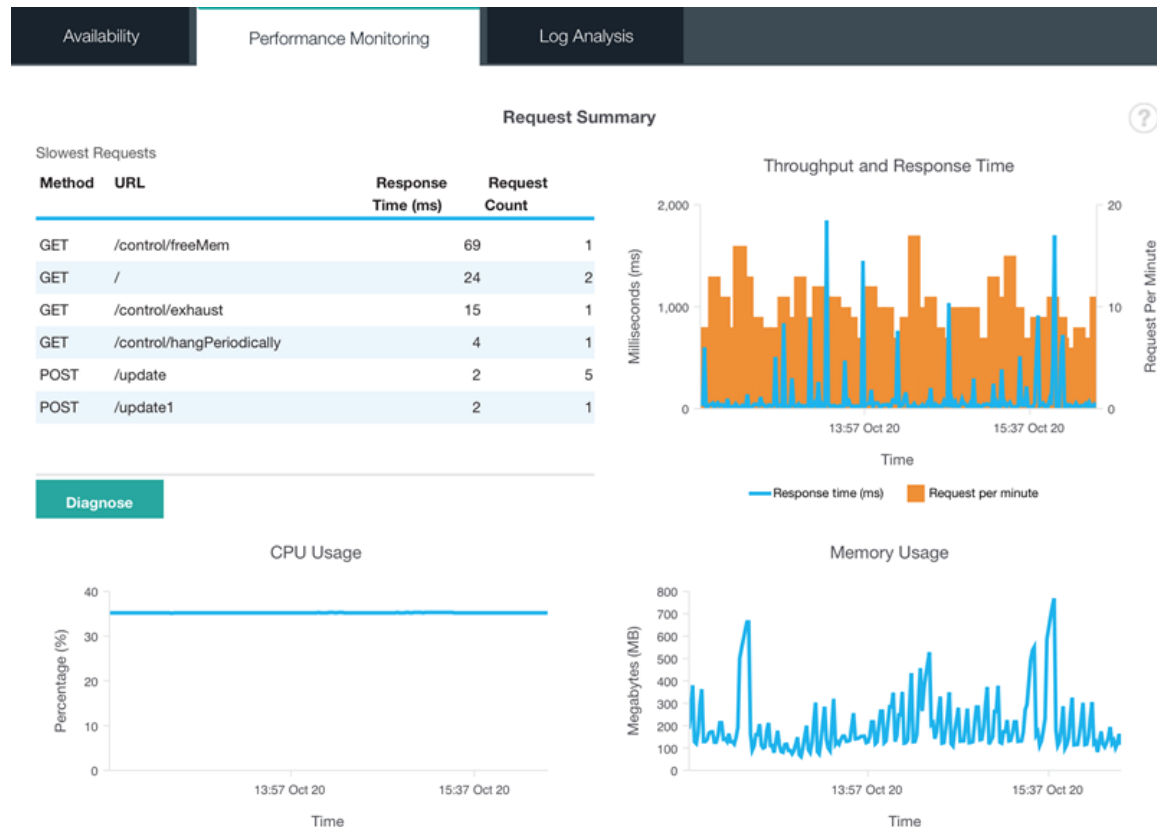
Customer case: GE is using IBM Bluemix and IBM Bluemix DevOps Services to rapidly innovate

GE Capital embraces DevOps to move at market speed with private cloud and patterns

Before:

- Self-integrated, 10+ teams, **manual**
- QA + Production deployed **in 3-6 months**
- Compliance reports in **3-6 months**

After:

- Pre-integrated, 1 team, **fully-automated**
- QA + Production deployed in **< 60 minutes**
- Compliance reports in **< 10 minutes**

"We built our award-winning bank – GECapitalBank.com – **from scratch in weeks to months instead of months to years**. By bringing together a strong IT foundation based on DevOps, we can execute and deliver requirements faster – giving us the agility of a startup with the resources of a large enterprise."

— Snehal Antani,
CIO - Enterprise Architecture GE Capital Americas

What are customer doing with Bluemix

Startups

- Instantaneous productivity
- Start small, grow infinitely
- Sophisticated, consumable services
- Marketplace

Enterprises

- Enterprise Fit
- Differentiating Content
- Cultural Transformation
- Path to a new way to work

Bluemix in numbers

1B+   API calls per day

2,000+   New users per day

Largest   Cloud Foundry deployment

112,000+   Application starts per month

How do I get started?
Sign up in minutes. Pay for what you use.

Friction free adoption

- **30 day trial (no credit card required)** - Designed to allow testing of an entire application on the platform

- **Free tier for every service** - encourages experimentation of new services for applications already running on Bluemix

Multiple Commitment Models

- **Pay-as-you-go** - optimized for flexibility, no term commitment

- **Subscription** - term based optimized for cost, discounted from pay as you go rates
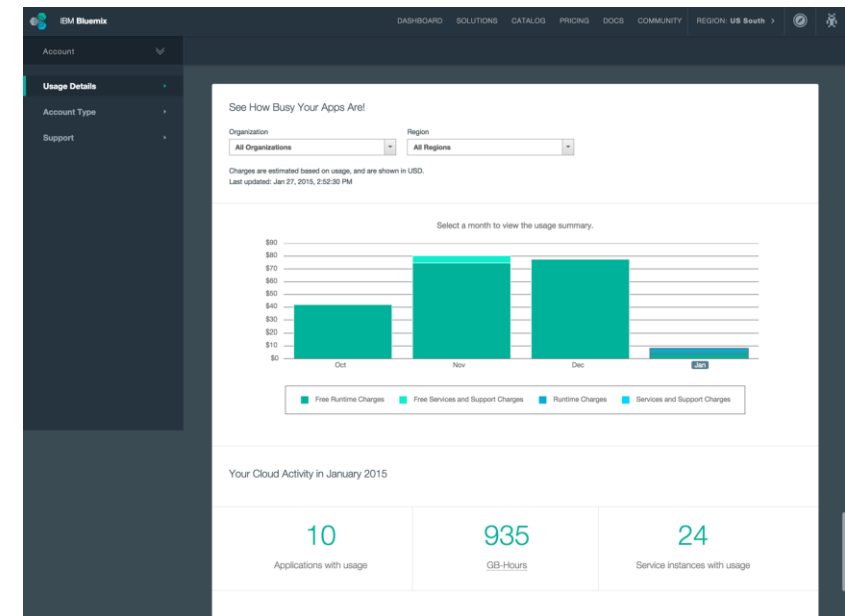
Self Service

- Zero to coding in **less than 5 minutes**

- **Credit card** over the web in many countries - or through your IBM rep

IBM Cloud is Open By Design

Open technology lynchpins maximize the effectiveness of Cloud investments

Private Cloud

Hybrid Cloud

Off-premise cloud

DEMO

Hybrid Cloud DevOps
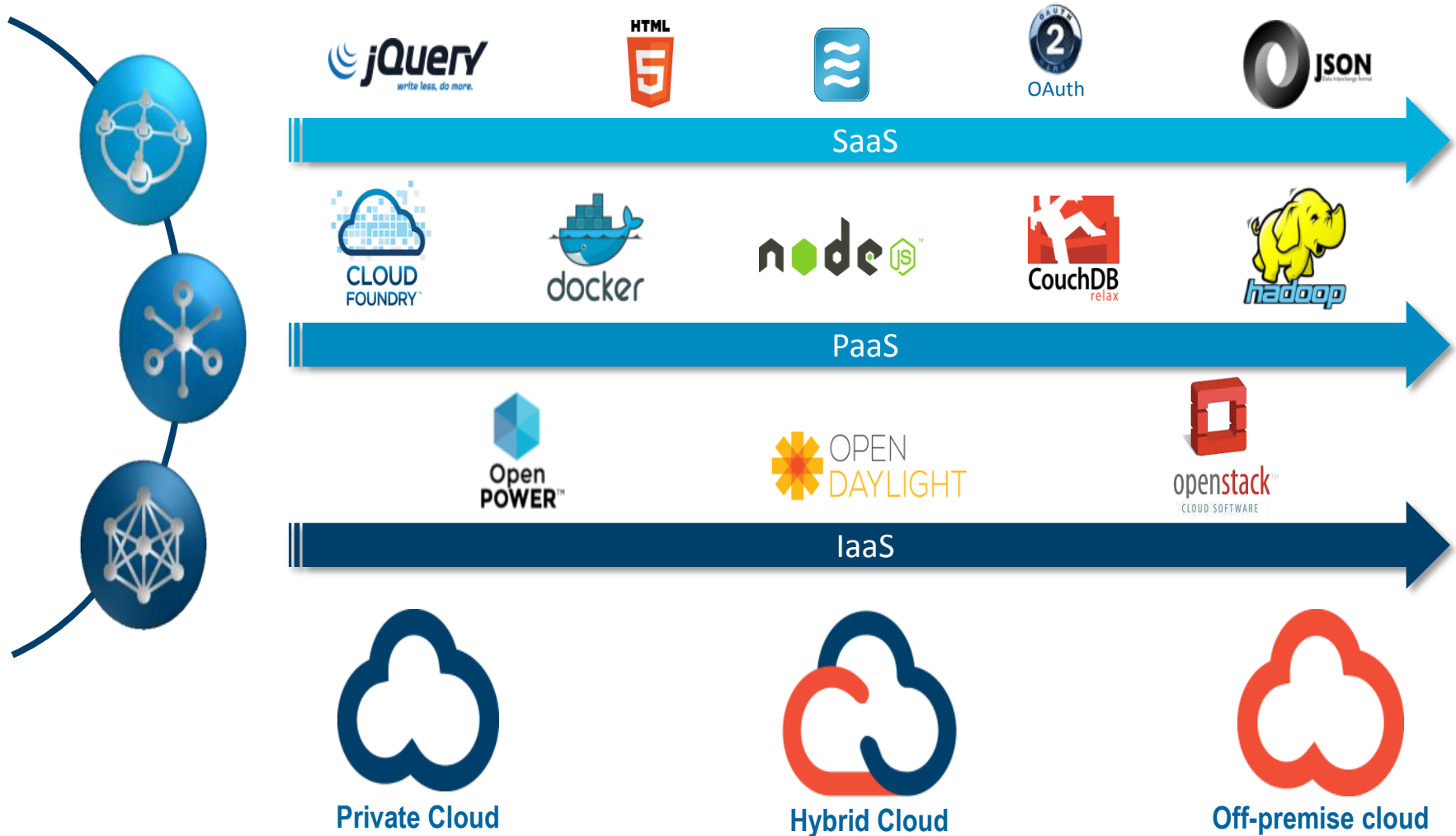
IBM Bluemix and DevOps Services provide a complete platform for rapid delivery of digital innovation

Develop and Test

- **IBM Bluemix** services provide a complete cloud development platform
- **IBM Bluemix DevOps Services** allow integrated Agile planning, coding, building and deploying

Continuous Feedback

- **Mobile Quality Assurance** provides continuous quality control of apps via end-user (customer) feedback

Deploy

- Automatically build and deploy your applications with the **Delivery Pipeline** service

Operate

- Gain visibility and control of your applications with the **IBM Bluemix Dashboard** and **Monitoring and Analytics** service