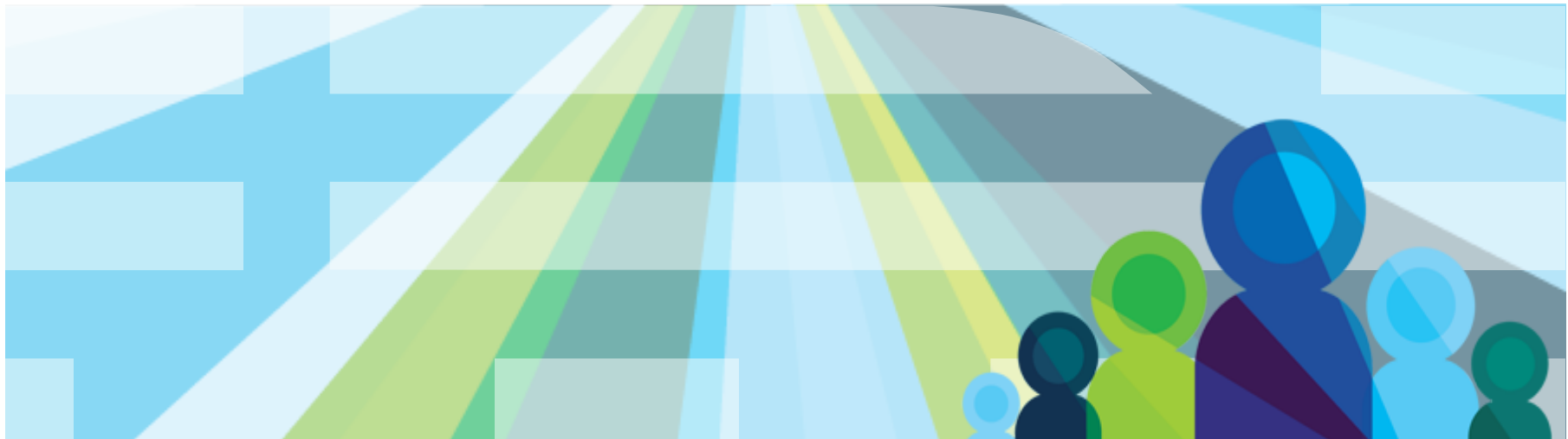


# IBM Bluemix™ – Create apps with the efficiency of a cold blooded cyborg

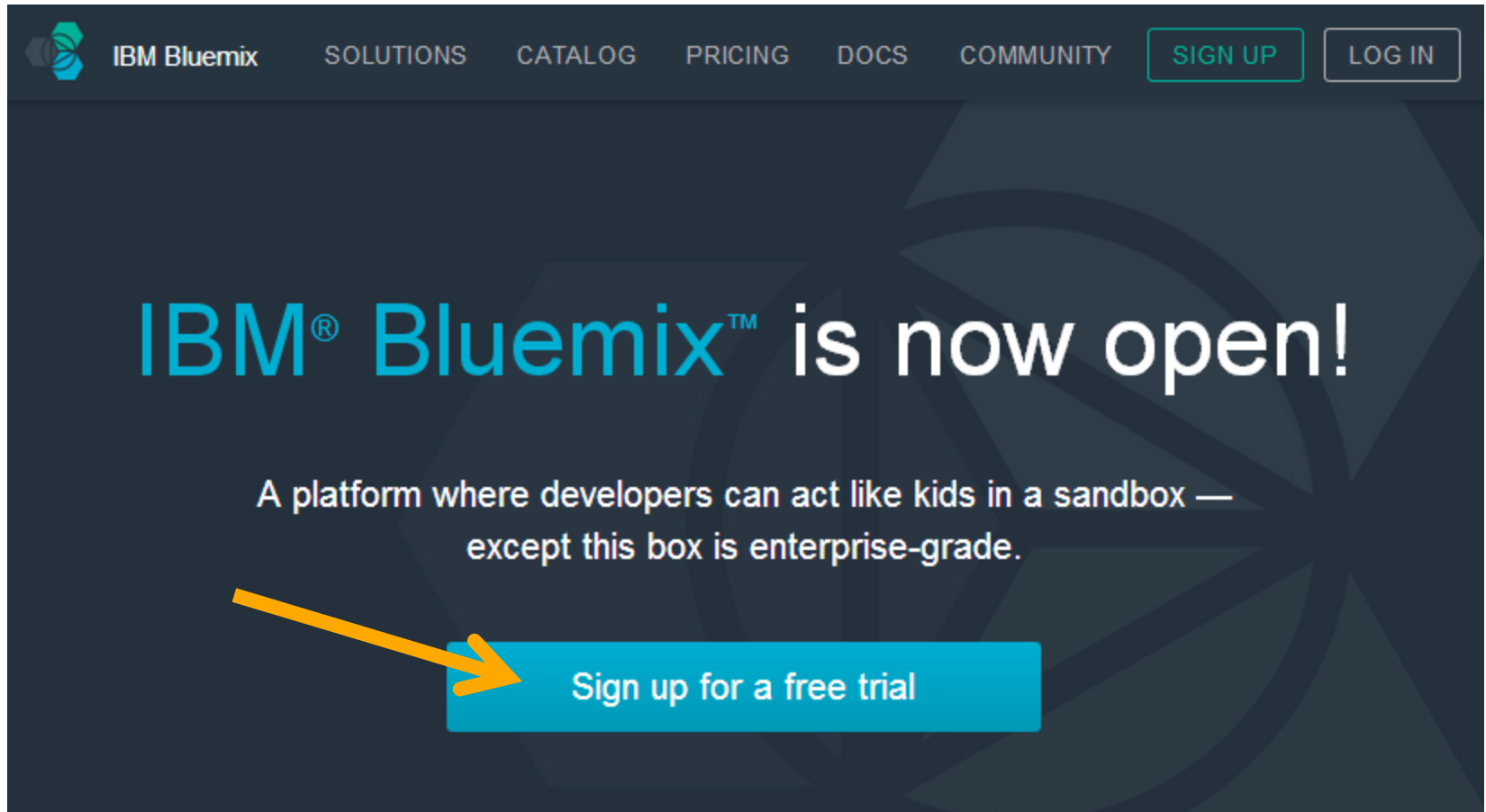
IBM Ecosystem Development  
Dan O’Riordan  
#gotoaar goto conference  
AARHUS  
@danoriordan



# IBM Bluemix Registration

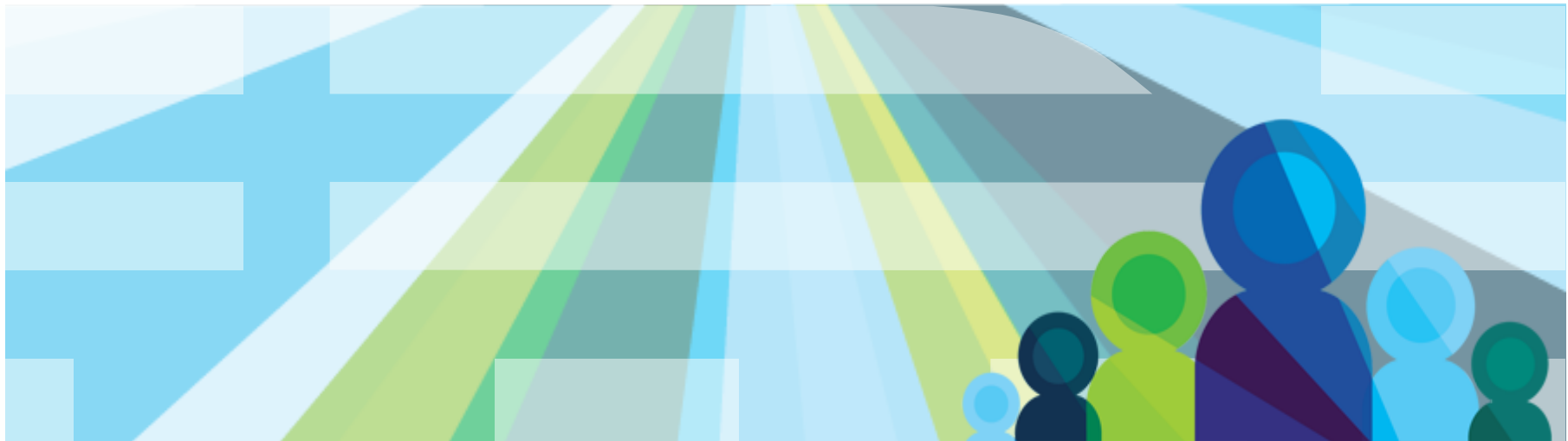
---

Go to [bluemix.net](https://bluemix.net) and sign up

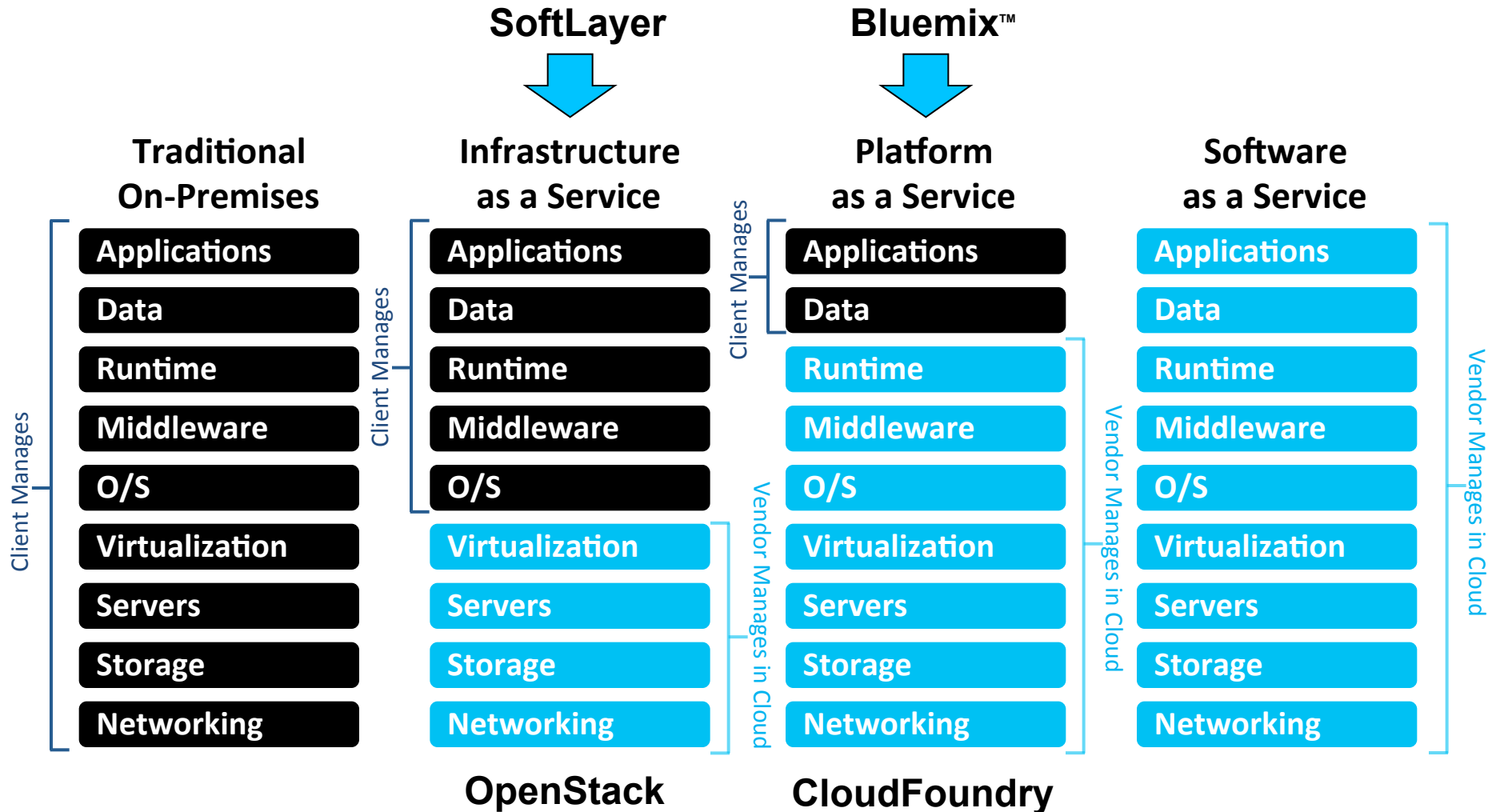


Use your laptop, mobile device or classroom system for easy registration!

# Bluemix™ Overview & UI Dashboard



# Cloud Service Models



Customization; higher costs; slower time to value

Standardization; lower costs; faster time to value



# SoftLayer's Infrastructure changes the definition of cloud

Competitive Cloud Mandates

...all resources are virtualized.

...all resources are shared, at every granular level.

## Think Differently ....

With SoftLayer, neither is mandated, opening up cloud computing to new applications and use cases

... virtualization is a choice with a flexible set of options.

... resources can be shared, dedicated, or mixed.



# Bluemix™ Value to Developers

- <2 Mins: from idea to search to coding via Integrated developer tools.  
[E.g. Polling app in 2 mins](#)
- Everything you need to write modern mobile apps are pre-integrated and preconfigured
- Self service to start, scale and make money!

**Simplicity  
& Speed**

- Bluemix™ Framework and Services are built based on Open standard
- Use what you already use: MongoDB, NodeJS
- Need something more, find it in Marketplace!

**Open &  
Flexible**

- Best in class security, support and reliability, loved by Fortune 500 companies.
- Reuse your existing business services to create new composable apps integrating with what you already have.

**Brand trust  
&  
integration**

# Bluemix™ Pricing Options

- Friction free adoption for developers
- 30 day trial – full access to the platform to test an entire application
- Free tier per service – allow experimentation for apps already deployed
- Multiple purchasing options
  - Pay as you go per API – flexible and zero commitment per service
  - Subscription – platform level commitment with discounted rates
- Fully self service
  - Zero to coding in < 5 minutes
  - Credit card over the web
- Purchase Order option available

## Begin your free trial

Create an IBM id to get started.

[Already have an IBM id?](#)

<input type="text" value="valid email address / IBM id"/>	
<input type="text" value="First Name"/>	<input type="text" value="Last Name"/>
<input type="password" value="Create Password"/>	<input type="password" value="Re-enter Password"/>
<input type="text" value="UNITED STATES"/>	

Please enter a security question that only you can answer. Then, enter the answer to the question. Occasionally, you may be asked to answer this question to confirm your identity.

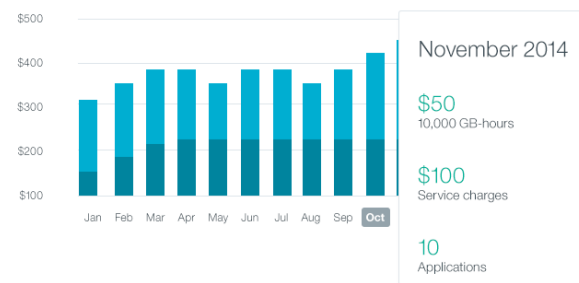
<input type="text" value="Security Question"/>	<input type="text" value="Security Question Answer"/>
------------------------------------------------	-------------------------------------------------------

I accept IBM's [Privacy Statement](#) and [Trial Terms and Conditions](#).

**Submit**

## Track Your Growth

Select a month to view the usage summary.



Charges do not include support, taxes or discounts applied at the account level.

Your Cloud Activity for October 2014

**\$6,950.00**

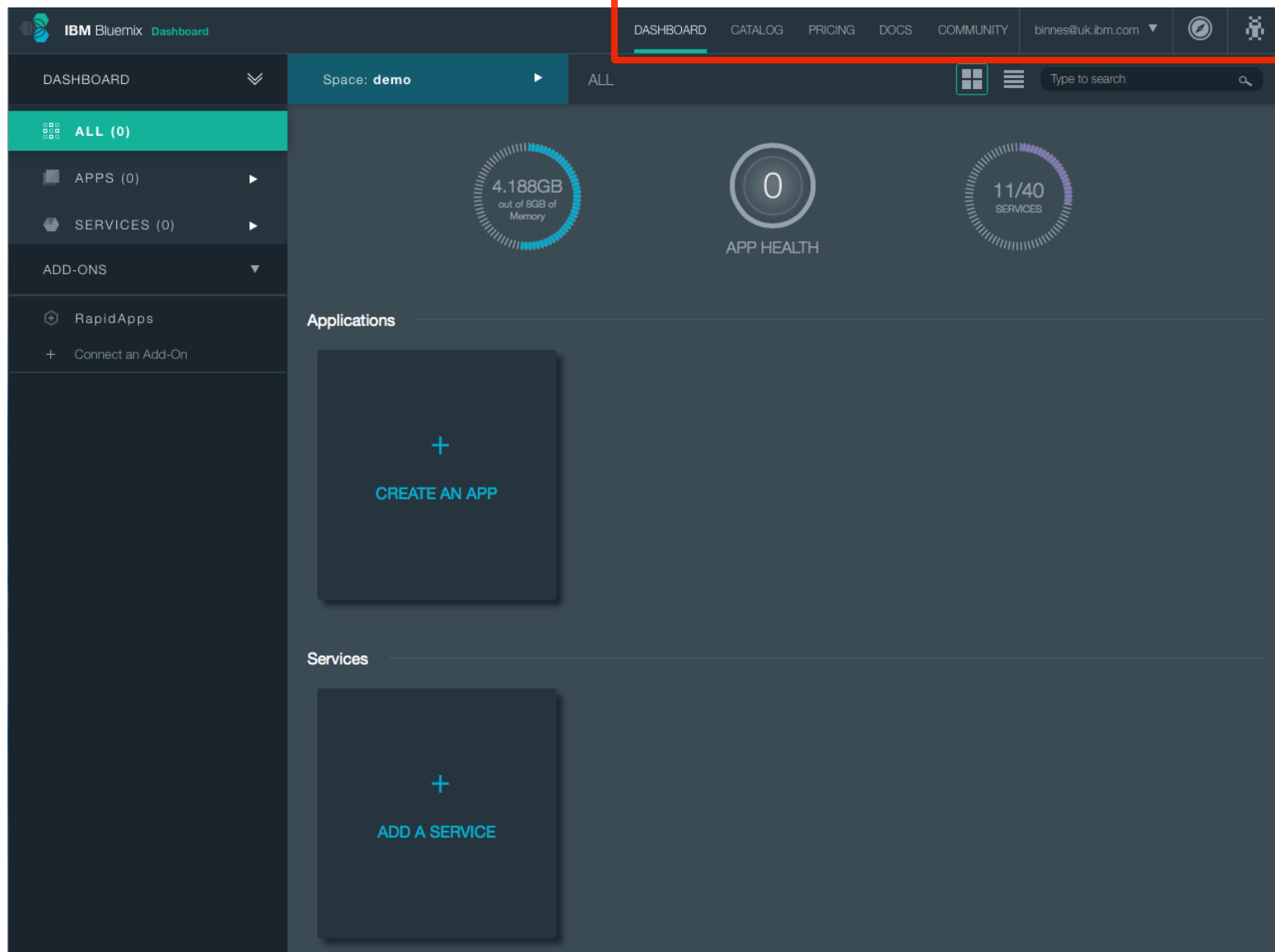


# We're just getting started.

Register at: <http://www.bluemix.net>

# Bluemix™ UI Dashboard

Main menu



The screenshot displays the IBM Bluemix Dashboard interface. At the top, a dark navigation bar contains the Bluemix logo, the text 'IBM Bluemix Dashboard', and a main menu with links for DASHBOARD, CATALOG, PRICING, DOCS, and COMMUNITY. The user's email 'binnes@uk.ibm.com' and a search icon are also present. Below this, a secondary bar shows 'Space: demo' and 'ALL'. The left sidebar features a list of menu items: DASHBOARD, ALL (0), APPS (0), SERVICES (0), ADD-ONS, RapidApps, and Connect an Add-On. The main content area includes three circular gauges: memory usage (4.188GB out of 8GB), app health (0), and service count (11/40). Below these are sections for 'Applications' and 'Services', each with a large '+ CREATE AN APP' and '+ ADD A SERVICE' button respectively. A search bar is located in the top right of the main content area.

# Catalog - Delivering Composable Services for building an environment

**Starters** // Choose a package of sample code and services, or start from scratch

**Boilerplates**  
Get started with a new app, now

- Java DB Web Starter (IBM)
- Java Web Starter (IBM)
- Mobile Cloud (IBM)
- Node JS Web Starter (IBM)
- Internet of Things Starter (Community)
- Node-RED Starter (Community)

**Runtimes**  
Run an app in the language of your choice

- Liberty for Java™ (IBM)
- SDK for Node.js™ (IBM)
- Ruby on Rails (Community)
- Ruby Sinatra (Community)
- Bring Your Code (Community)

**Services** // The building blocks of any great app

**Mobile**  
Quickly get started with your next app

- Mobile Application Security (IBM)
- Mobile Data (IBM)
- MobileQualityAssurance (IBM)
- Push (IBM)
- Twilio (Third Party)

**Web and Application**  
Deliver new web and apps

- Data Cache (IBM)
- Embeddable Reporting (IBM BETA)
- MQLight (IBM BETA)
- Rules (IBM BETA)
- Session Cache (IBM)
- Workflow (IBM BETA)
- BlazeMeter (Third Party)
- CloudAMQP (Third Party)
- Geocoding (Third Party)
- Load Impact (Third Party)
- Memcached Cloud (Third Party)
- New Relic (Third Party)
- Reverse Geocoding (Third Party)
- SendGrid (Third Party)
- Travel Boundary Service (Third Party)
- Validate Address (Third Party)
- rabbitmq (Community)
- redis (Community)

**Data Management**  
Agile data management

- Cloudant NoSQL DB (IBM)
- SQL Database (IBM)
- ClearDB MySQL Dat... (Third Party)
- ElephantSQL (Third Party)
- MongoLab (Third Party)
- Redis Cloud (Third Party)

## Run Your Apps

The developer can choose any language runtime or bring their own. Just upload your code and go.

## DevOps

Development, monitoring, deployment and logging tools allow the developer to run the entire application

## APIs and Services

A catalog of open source, IBM and third party APIs services allow a developer to stitch together an application in minutes.

## Cloud Integration

Build hybrid environments. Connect to on-premises systems of record plus other public and private clouds. Expose your own APIs to your developers.

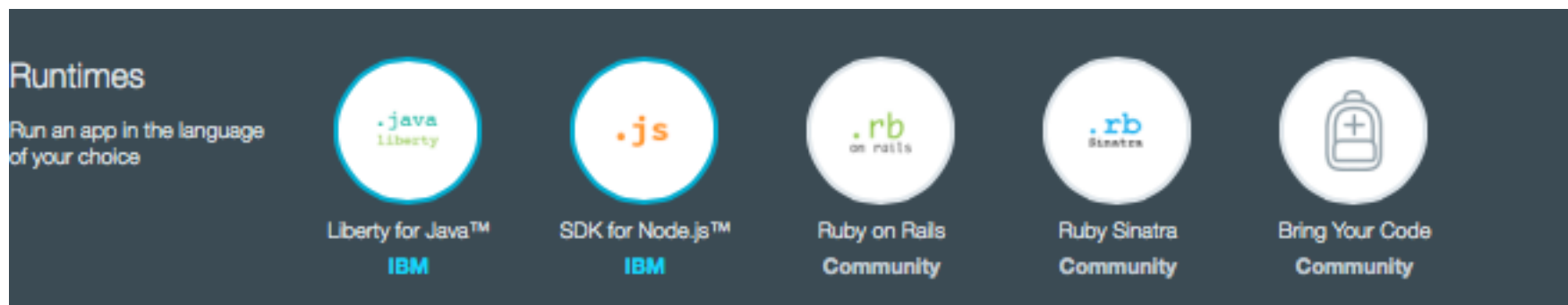
## Extend SaaS Apps

Drop in SaaS App SDKs and extend to new use cases (e.g., Mobile, Analytics, Web)



# App Runtimes

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.



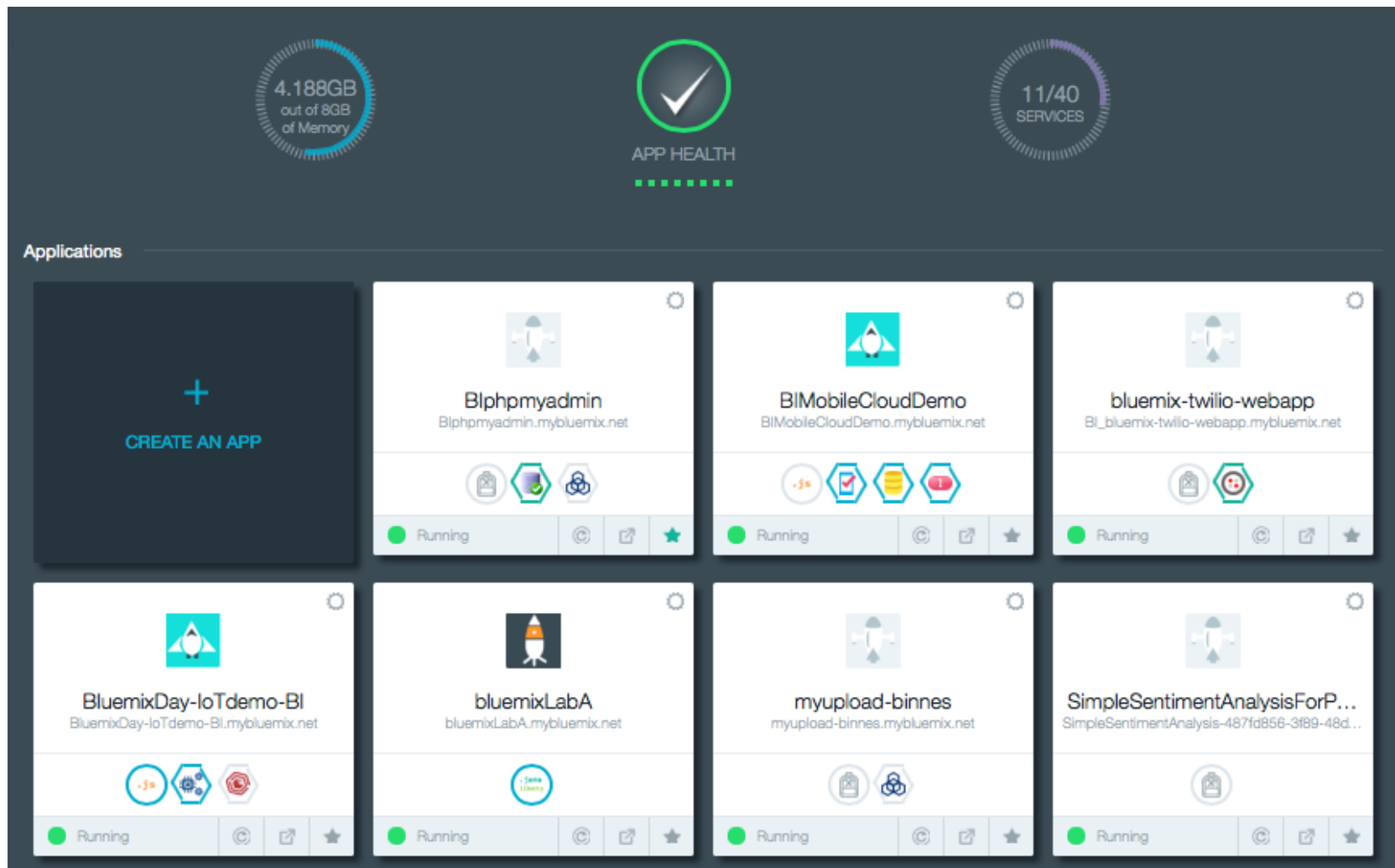
# Services

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 pre-defined services that you can use directly.





# Applications on your dashboard



# Organizations, Spaces , Users and Domains

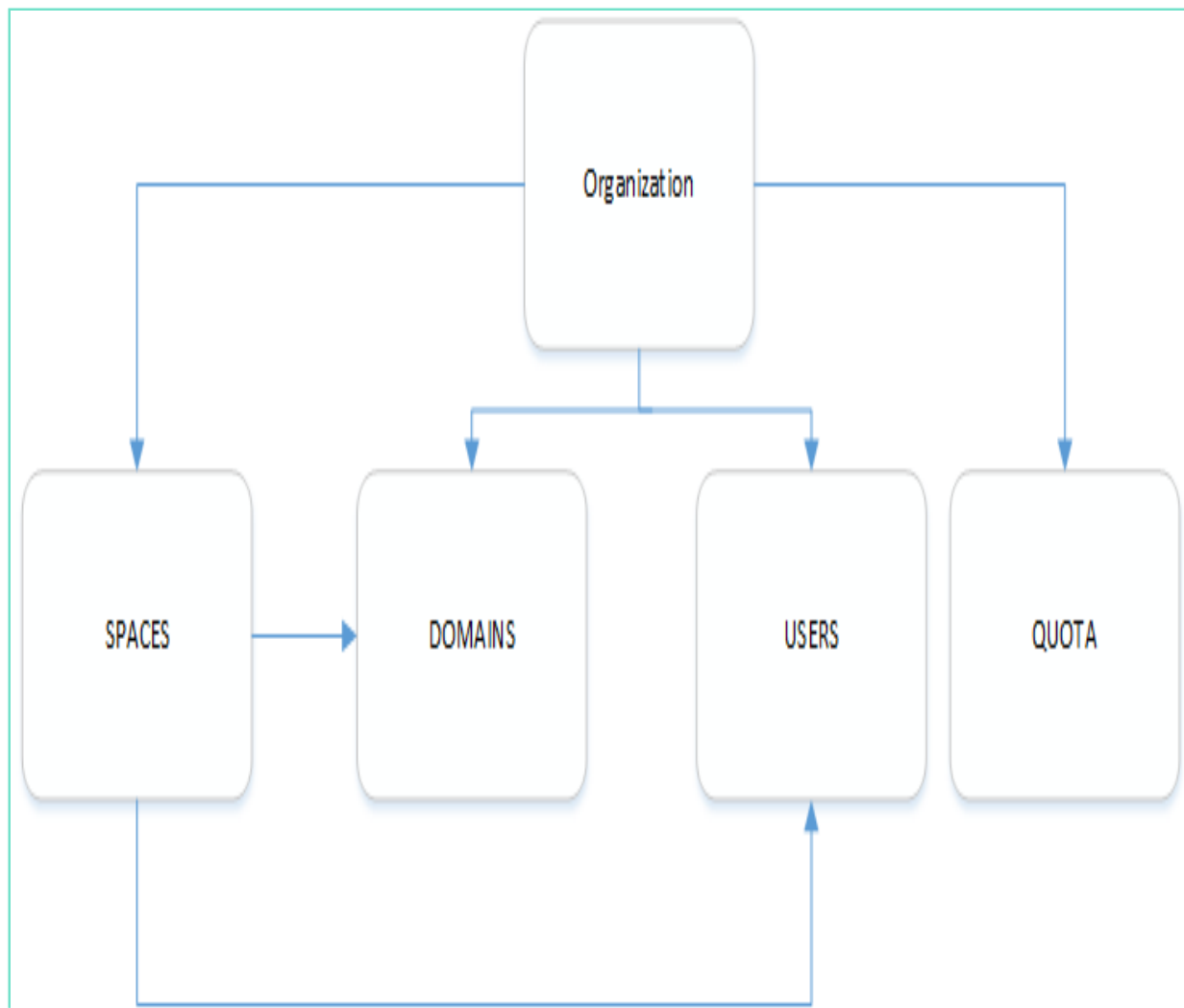
- **Organizations**

**Users**

**Domains**

**Spaces**

**Quota**



# Buildpacks

- A buildpack is a collection of scripts responsible for preparing your code for execution on the target PaaS. A buildpack can gather the framework and runtime dependencies of an application, and package them with the application into a droplet that can be deployed to the cloud.
- IBM created buildpacks in Bluemix™
  - Liberty Built-in
  - Node.js Built-in

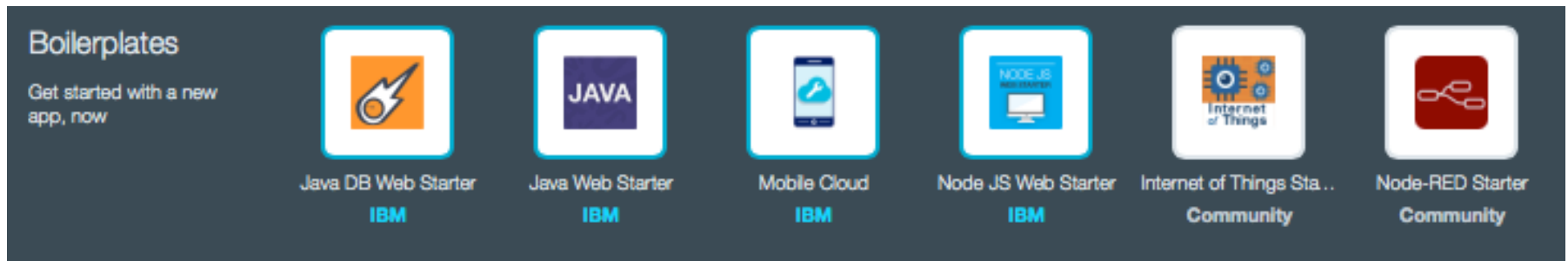
# Buildpacks – Cont'd

## External buildpacks


- There are also external buildpacks that are provided by the Cloud Foundry community. For detailed information of external buildpacks,.
- If you want to use the built-in Cloud Foundry buildpacks to overwrite the IBM built-in buildpacks, you must specify the URL with the *-b* option on the *cf push* command. For example, use the Cloud Foundry built-in Java buildpack with *cf push my\_app -b https://github.com/cloudfoundry/java-buildpack*, and use the Cloud Foundry built-in Node.js buildpack with *\$ cf push my\_app -b https://github.com/cloudfoundry/heroku-buildpack-nodejs.git*.
- External buildpacks are not supported by IBM, and you might need to contact the Cloud Foundry community for support.

# Boilerplates

A boilerplate has an associated runtime and services, and is the container of one application with multiple services.



# Pricing

IBM Bluemix Pricing



DASHBOARD CATALOG **PRICING** DOCS COMMUNITY binnes@uk.ibm.com

## Pay only for what you use.

### Runtimes

Runtimes are charged by the GB-hours that your app runs. To scale your app for more users, increase memory as needed.

Maximum 2GB running for 30 days during trial. Then, 375 GB-hours free per month.



### Services and Add-ons

Some services have plans, with **flat-rate pricing**. Select a plan and pay the plan price.

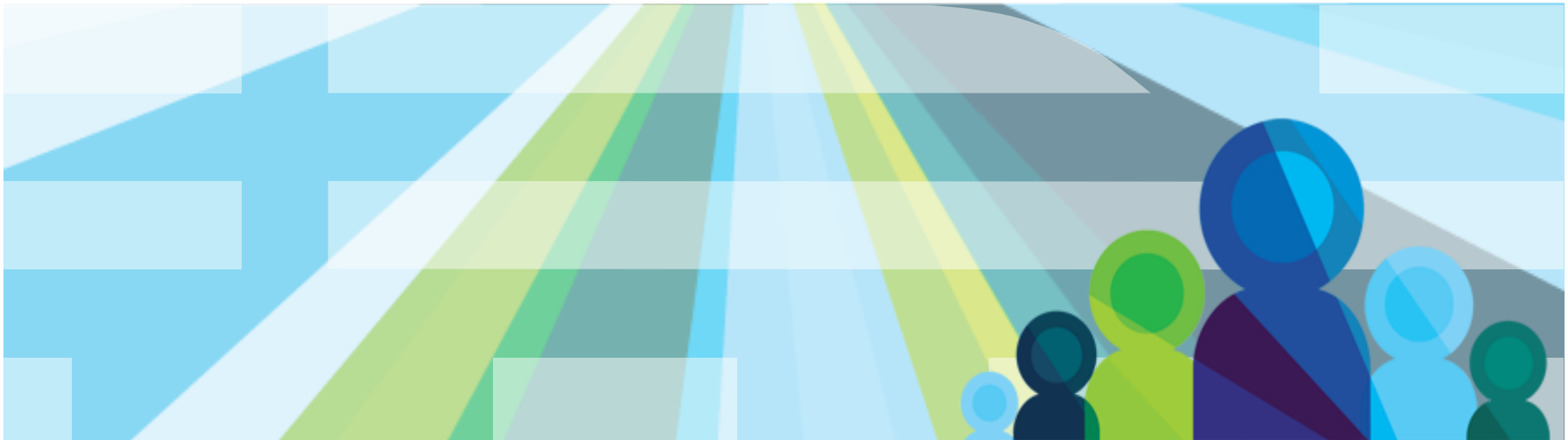
Some services have **metered pricing**. Pay based on your consumption of the service.

Many services provide **free allowances** every month.



© 2014 IBM Corporation

# Lesson 2: Bluemix™ Architecture



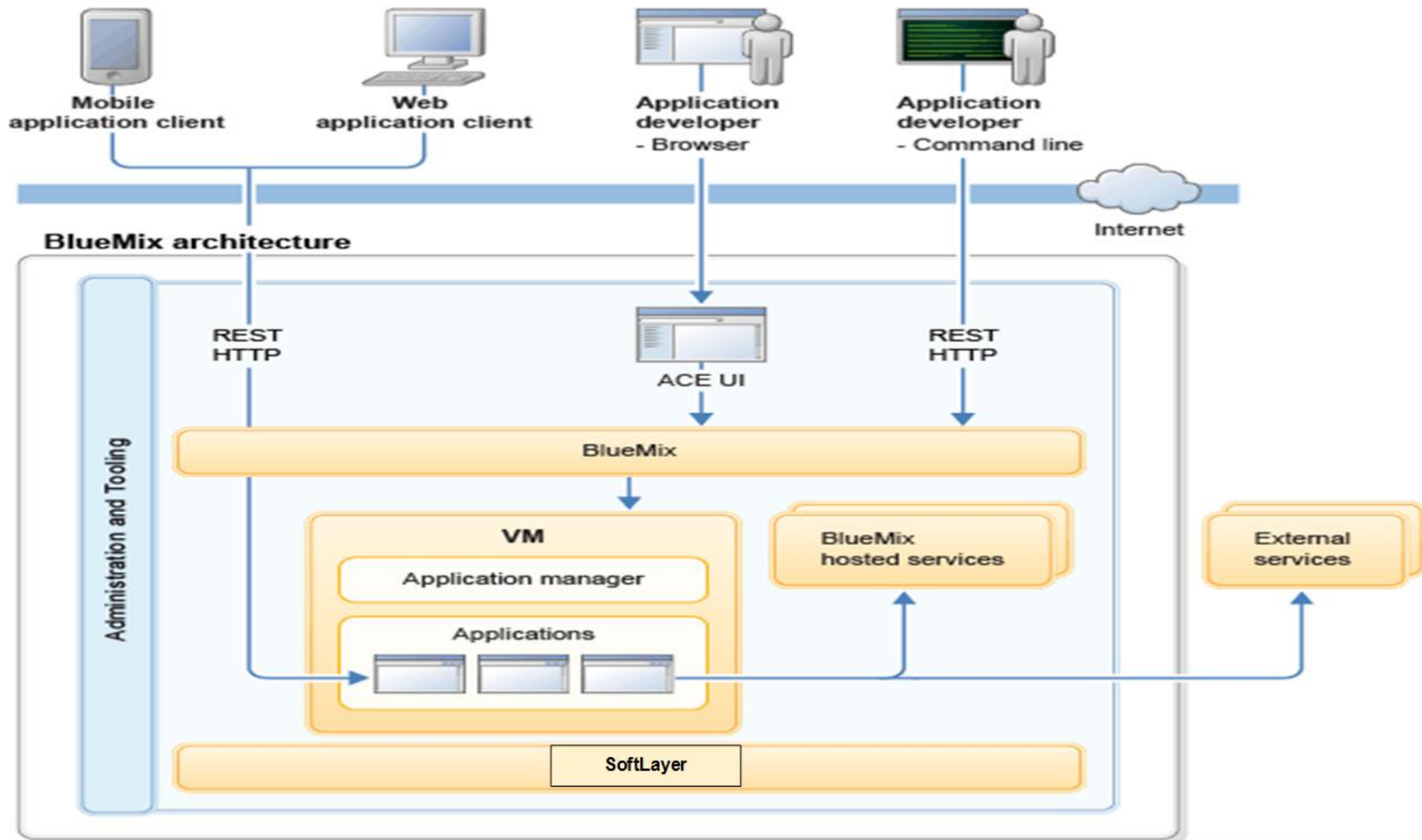
## Lesson 2 - Bluemix™ Architecture

### What is Bluemix™?

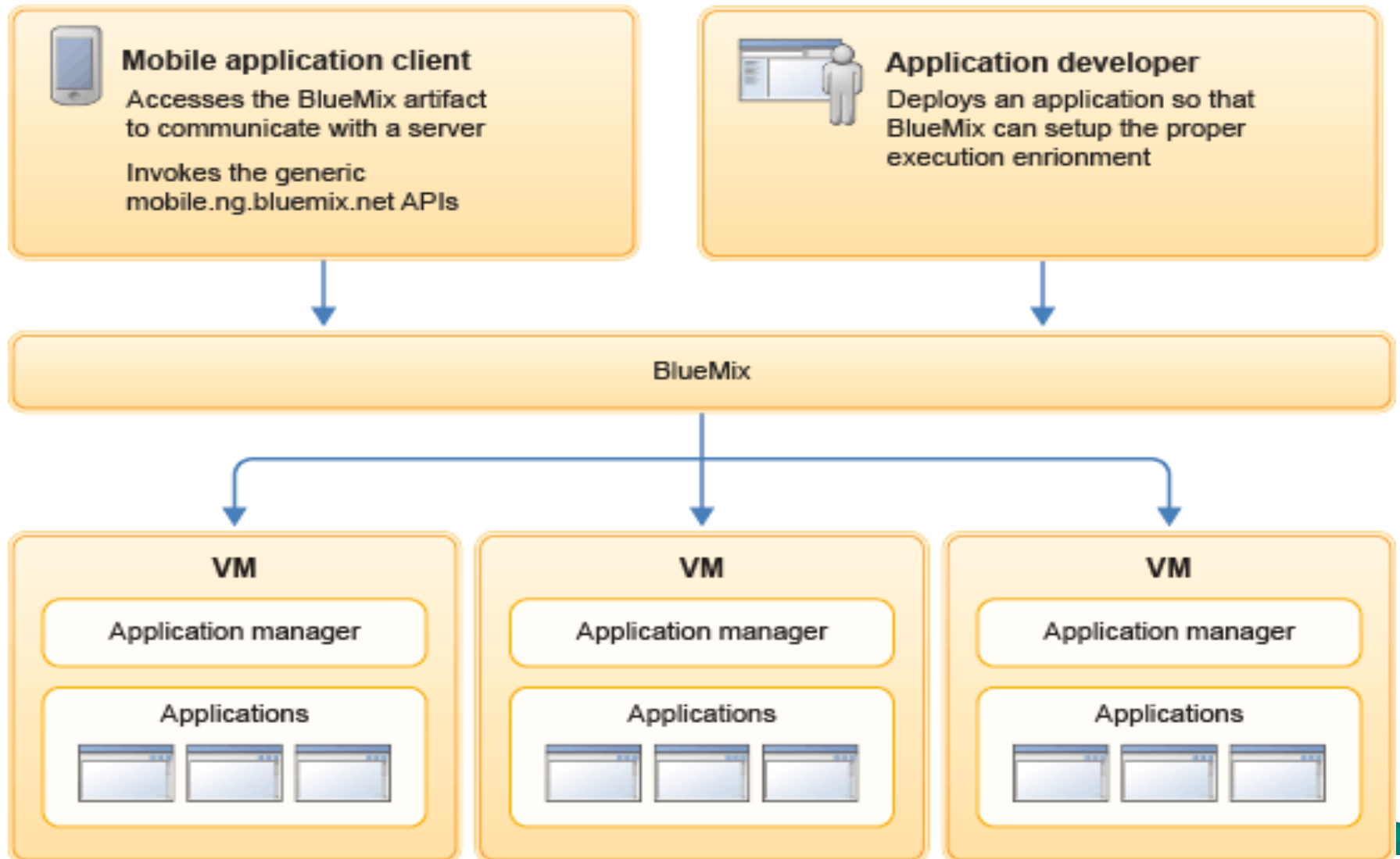
1. Bluemix™ is an implementation of IBM's Open Cloud Architecture, leveraging [Cloud Foundry](#) to enable developers to rapidly build, deploy, and manage their cloud applications, while tapping a growing ecosystem of available services and runtime frameworks.
2. IBM will provide services and runtimes into the ecosystem based on our extensive software portfolio.
3. For developers, this meant that we wanted a system that would significantly reduce the time needed to create the application, to provision it, allow for flexible capacity in terms of storage, but also bandwidth and processing power, and which would handle the back-end infrastructure needs without requiring the developer to spend their valuable time doing so.



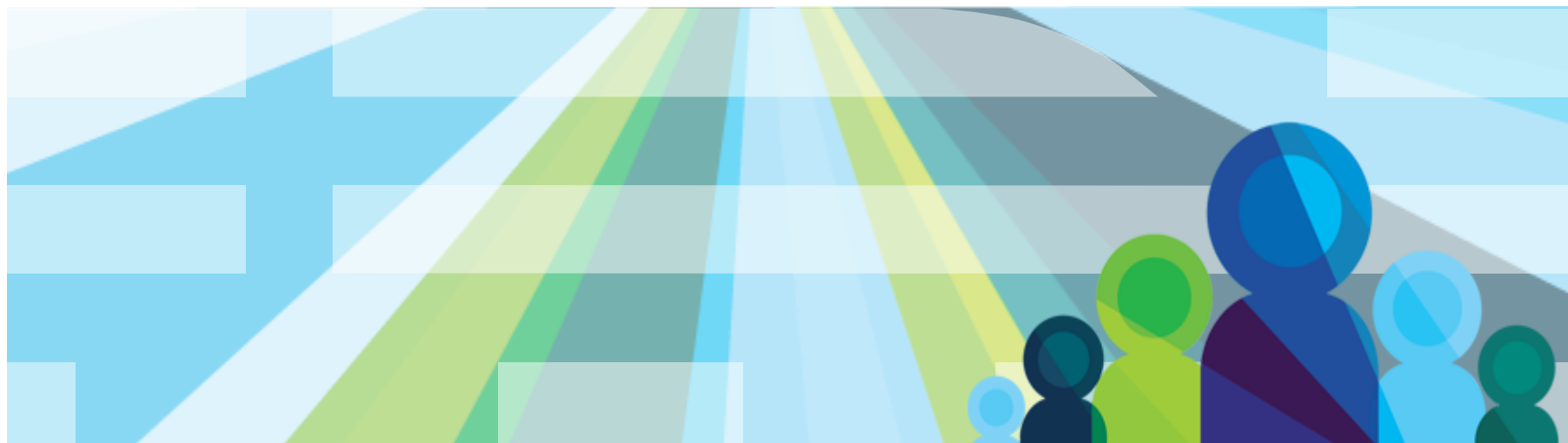
# Bluemix™ Architecture – High Level



# Bluemix™ Architecture – How it works



# Lesson 3: DevOps Services for Bluemix™



## What is DevOps Services for Bluemix™?

DevOps Services for Bluemix™ is an end-to-end solution in the cloud providing an open, integrated rapid development experience that scales.

# IBM Bluemix™ DevOps Services

*An Open, Integrated Rapid Development Experience that Scales*

## 1. A Premier DevOps Service for IBM Cloud Platform

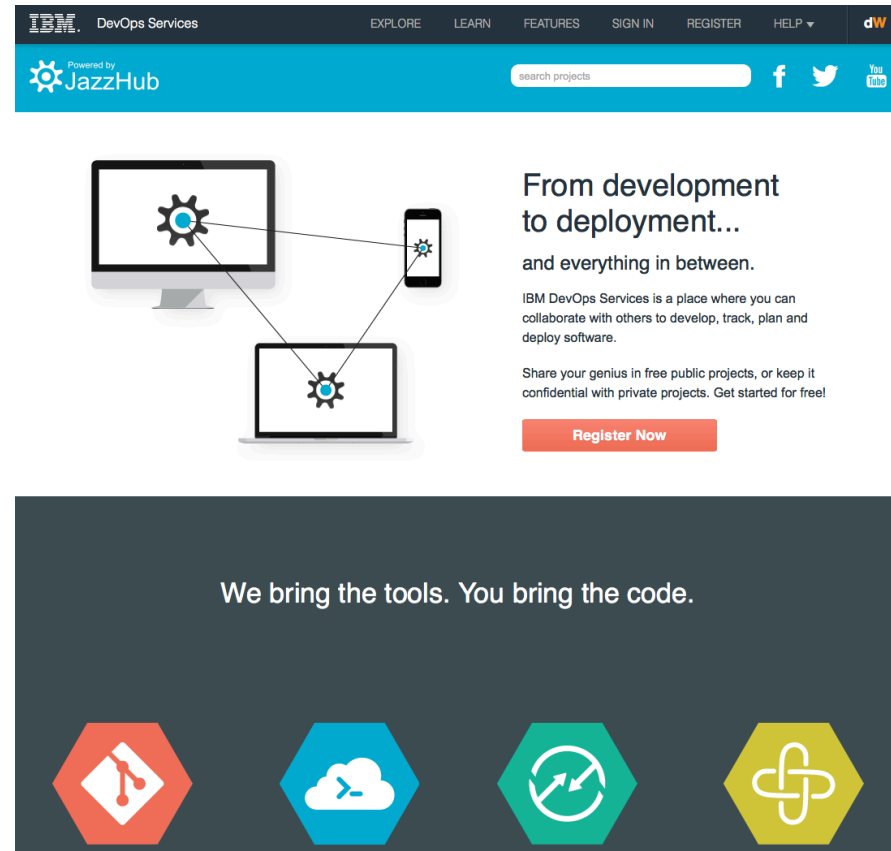
- A. Promotes incremental frictionless adoption of DevOps Services for Bluemix

## 2. An Integrated Developer Experience

- A. End-to-end DevOps Solution in the cloud for developing applications.
- B. Integrated task tracking, agile planning, source control with auto deploy
- C. Complementary mobile quality and application performance monitoring
- D. Use your favorite tools or work from the Web IDE
- E. Free public and fee-based private projects (free for now now)

## 3. Scalable, secure, enterprise-ready

- A. Runs on SoftLayer Infrastructure



The screenshot shows the IBM DevOps Services website. The header includes the IBM logo, 'DevOps Services', and navigation links: EXPLORE, LEARN, FEATURES, SIGN IN, REGISTER, and HELP. Below the header is a blue bar with 'Powered by JazzHub' and a search projects input field. The main content area features a diagram of a desktop monitor, a laptop, and a smartphone, all connected by lines and displaying gear icons, representing a multi-device development environment. To the right of the diagram, the text reads: 'From development to deployment... and everything in between.' Below this, it states: 'IBM DevOps Services is a place where you can collaborate with others to develop, track, plan and deploy software.' Further down, it says: 'Share your genius in free public projects, or keep it confidential with private projects. Get started for free!' and a red 'Register Now' button. At the bottom of the screenshot, a dark grey banner contains the text 'We bring the tools. You bring the code.' and four hexagonal icons: a red one with a branching diagram, a blue one with a cloud and code symbol, a green one with a circular arrow, and a yellow one with a knot-like symbol.

# DevOps Services available today



## Mobile Quality Assurance

Instrument apps to capture tester and live-user experiences, including context-aware crash log and in-app bug reports, in-app user feedback and insightful and streamlined quality metrics.



## Git Hosting

Integrated Git hosting, with deployment via Git push and auto deployment from Git repositories.



## Deployment Automation

Single stage Continuous Deployment



## Monitoring and Analytics

Application Performance Monitoring and Management



## Web IDE

Web IDE — scripted languages. Eclipse - Simplified client setup



## Agile Development

Adds IBM tooling and service for agile planning and tracking with the cloud platform.



# Get productive with Bluemix™ DevOps Services in minutes

1. Register at [www.jazzhub.com](http://www.jazzhub.com)

2. Answer a few questions

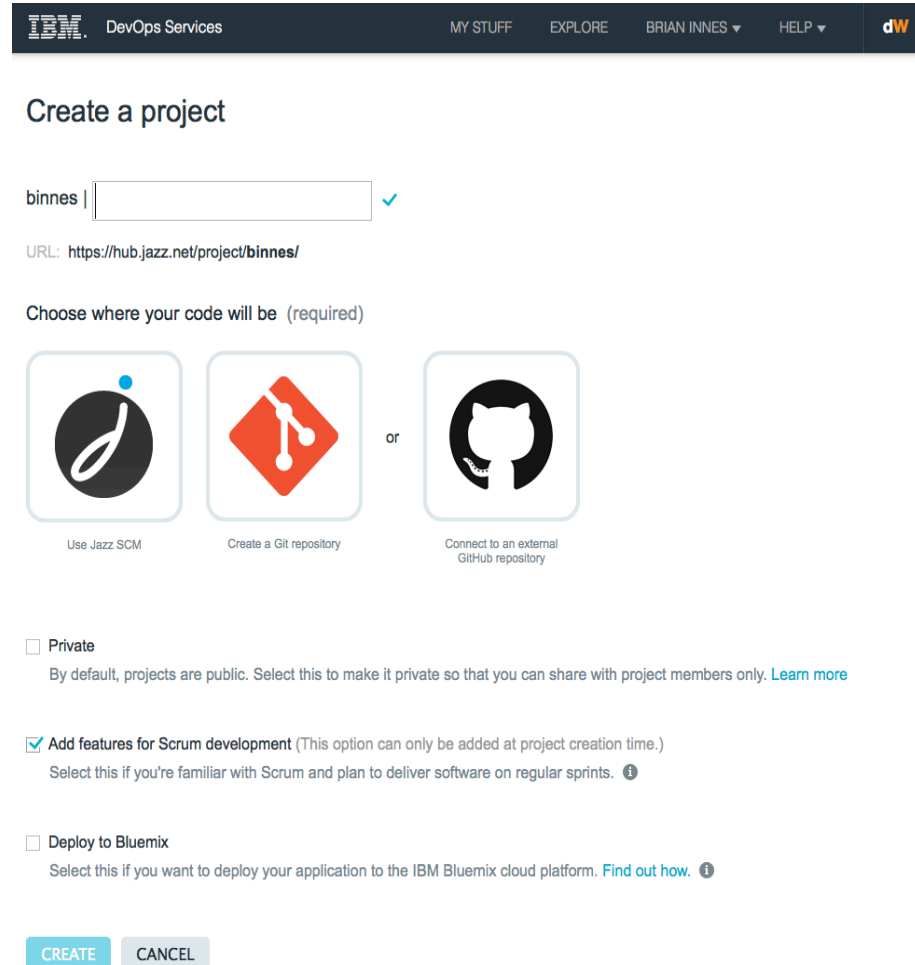
A. Which SCM (Git, GitHub, Jazz SCM)?

B. Do you want your project to be public or private?

C. Do you want to practice agile software development?

D. Do you want to deploy on IBM Bluemix?

3. Start coding



The screenshot shows the 'Create a project' form in the IBM DevOps Services interface. The form includes a header with the IBM logo, 'DevOps Services', and navigation links: 'MY STUFF', 'EXPLORE', 'BRIAN INNES', 'HELP', and a 'dw' logo. The main form area has a title 'Create a project'. Below the title is a text input field containing 'binnes' with a green checkmark to its right. Underneath the input field is the URL 'https://hub.jazz.net/project/binnes/'. The next section is titled 'Choose where your code will be (required)'. It features three options: 'Use Jazz SCM' with a Jazz SCM logo, 'Create a Git repository' with a Git logo, and 'Connect to an external GitHub repository' with a GitHub logo. Below these options are three checkboxes: 'Private' (unchecked), 'Add features for Scrum development' (checked), and 'Deploy to Bluemix' (unchecked). Each checkbox has a descriptive text and a link. At the bottom of the form are two buttons: 'CREATE' and 'CANCEL'.




IBM DevOps Services MY STUFF EXPLORE BRIAN INNES ▼ HELP ▼ dw

Create a project

binnes |  ✓

URL: <https://hub.jazz.net/project/binnes/>

Choose where your code will be (required)

  or 

Use Jazz SCM Create a Git repository Connect to an external GitHub repository

☐ Private  
By default, projects are public. Select this to make it private so that you can share with project members only. [Learn more](#)

☒ Add features for Scrum development (This option can only be added at project creation time.)  
Select this if you're familiar with Scrum and plan to deliver software on regular sprints. ⓘ

☐ Deploy to Bluemix  
Select this if you want to deploy your application to the IBM Bluemix cloud platform. [Find out how.](#) ⓘ

CREATE CANCEL

# Collaborate seamlessly on public or private projects

1. Easily invite team members
2. Access from anywhere
3. Built for collaboration from the ground up
4. Choose who sees your project, and how you engage with broader

IBM DevOps Services MY STUFF EXPLORE BRIAN INNES ▼ HELP ▼ dW

binnes | SentimentAnalysisApp

EDIT CODE TRACK & PLAN BUILD & DEPLOY

About this project (0)

Members (1 of 1)

Invite

Branch: master Git URL

binnes | SentimentAnalysisApp

Last Commit by Brian Innes 9 days ago. checking

Invitations for binnes | SentimentAnalysisApp

Enter email addresses (separated by commas) and click invite.

Emails:

Invite

Pending Invitations

There are no pending invitations.

readme.md checking 9 days ago 3 KB

Invite other people to your project

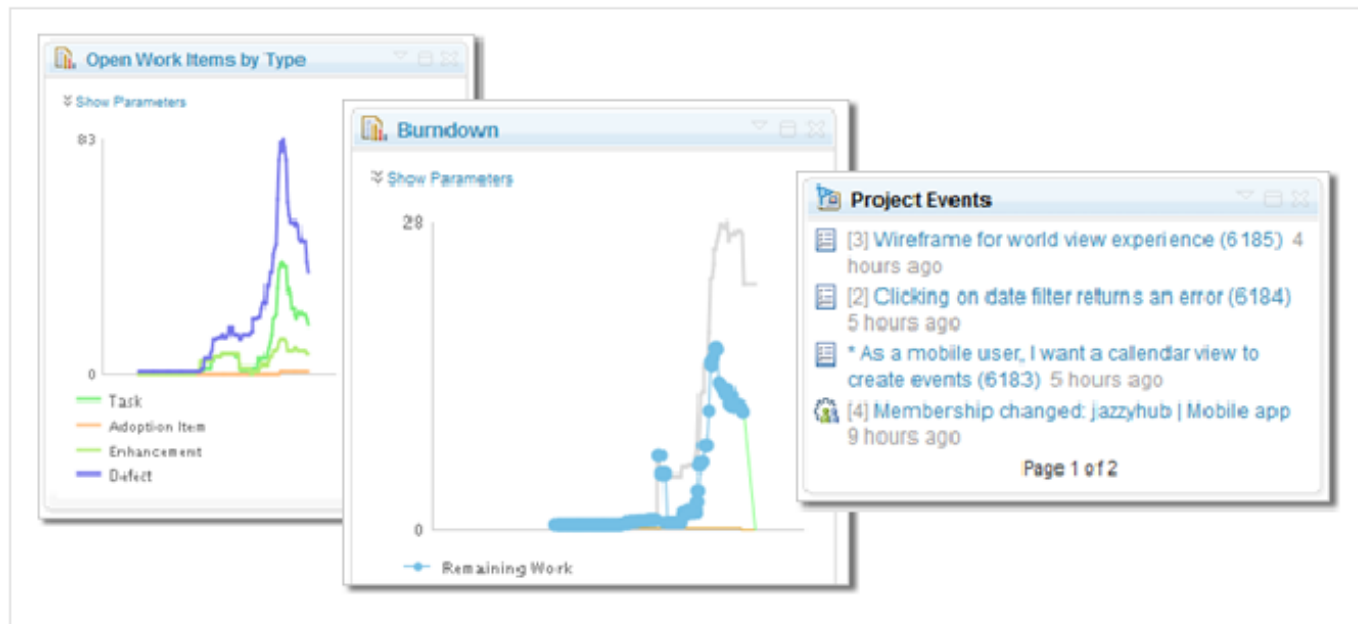
Enter comma separated list of email addresses





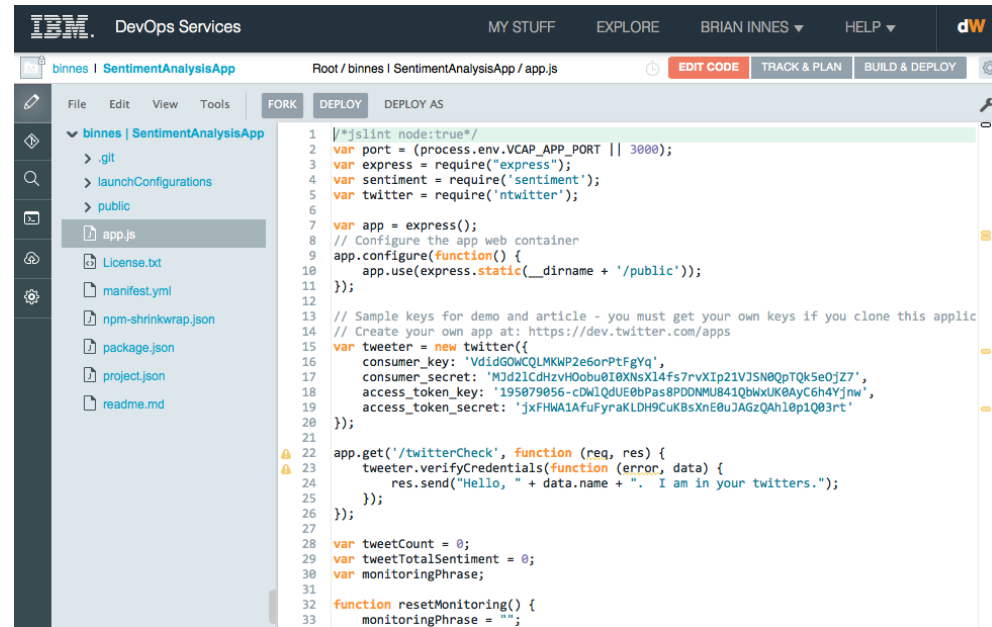
# Agile development in the Cloud is easy with Bluemix™ DevOps Services for Bluemix™

1. **Built-in agile process support**
2. **Work items to track and plan project activities**
3. **Agile tools for the product backlog, releases, and sprints.**
4. **Dashboard charts for project status**

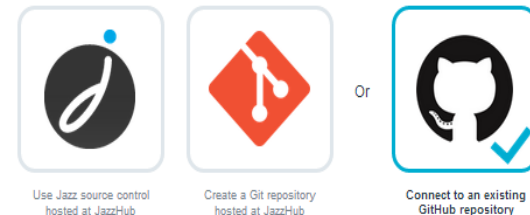


# Choose how you code with Bluemix™ DevOps Services

1. Browser-based Integrated Development Environment
2. Full support for local development with Eclipse or Visual Studio
3. Built-in support for Jazz Source Control
4. Hosted Git repository
5. Got GitHub? No problem




Choose where your code will be



Copy and paste URL (<https://github.com/username/project-name.git>)



Leverage the power of social coding. With public projects, it's easy to learn and share work with a broader audience.

 DevOps Services


MY STUFFEXPLOREBRIAN INNES ▾HELP ▾dw

## Explore


CREATE PROJECT

Type to search projects


### Trending




[dimascio](#) | [WatsonFilmsDW](#)  
Likes (6) Members (2)  
0 activities



[joelennon](#) | [polls](#)  
Likes (56) Members (3)  
0 activities




[trygst](#) | [South Island](#)  
Likes (6) Members (5)  
0 activities




[srich](#) | [JazzHub](#)  
An IBM project focused on improving JazzHub. Our purpose is to gather feedback, bug reports, ideas, and...  
...


### Most Active



[srich](#) | [JazzHub](#)  
An IBM project focused on improving JazzHub. Our purpose is to gather feedback, bug reports, ideas, and...  
Likes (67) Members (54)  
122 activities




[psteinfo](#) | [OGPC](#)  
Oregon Game Project Challenge  
Likes (4) Members (10)  
51 activities




[wkulas](#) | [System\\_klasyfikacji\\_skr\\_zyzowan](#)  
Likes (4) Members (6)  
22 activities


### Activity




[Jerome Clyde Bulanadi](#) created a new project called [jeromebulanadi](#) | [pt-db-layer-test](#)  
2 hours ago




[Roberto Pozzi](#) created a new project called [rpozzi](#) | [windfire](#)  
2 hours ago




[Harry Eland](#) created a new project called [mireina](#) | [TestHBE](#)  
3 hours ago



[Rainald Guentner](#) created a new project called [rainald](#) | [SAA](#)  
4 hours ago



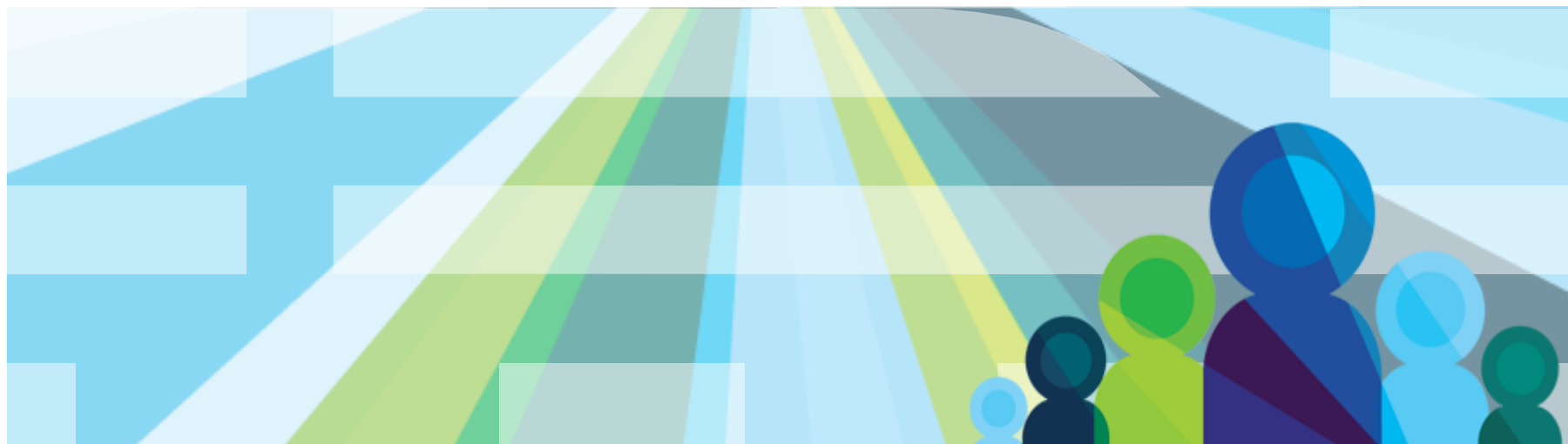
[Thomas Muschkalski](#) created a new project called [tmusch](#) | [Project Control Book](#)  
4 hours ago



[Rajendra Barve](#) created a new project called [rajbarve](#) | [myFirstSampleProject](#)  
4 hours ago



# Lesson 4: Register a Service in Bluemix™



## Lesson 4 - Registering Services in Bluemix™

### Why Register a Service?

1. Bluemix™ offers pay-as-you-go *cloud services* for cloud platform *services*.
2. Bluemix™ helps service providers go to market more quickly, efficiently, and effectively.
3. Bluemix™ assists service providers by providing cloud monetization strategies and actionable business and technology planning

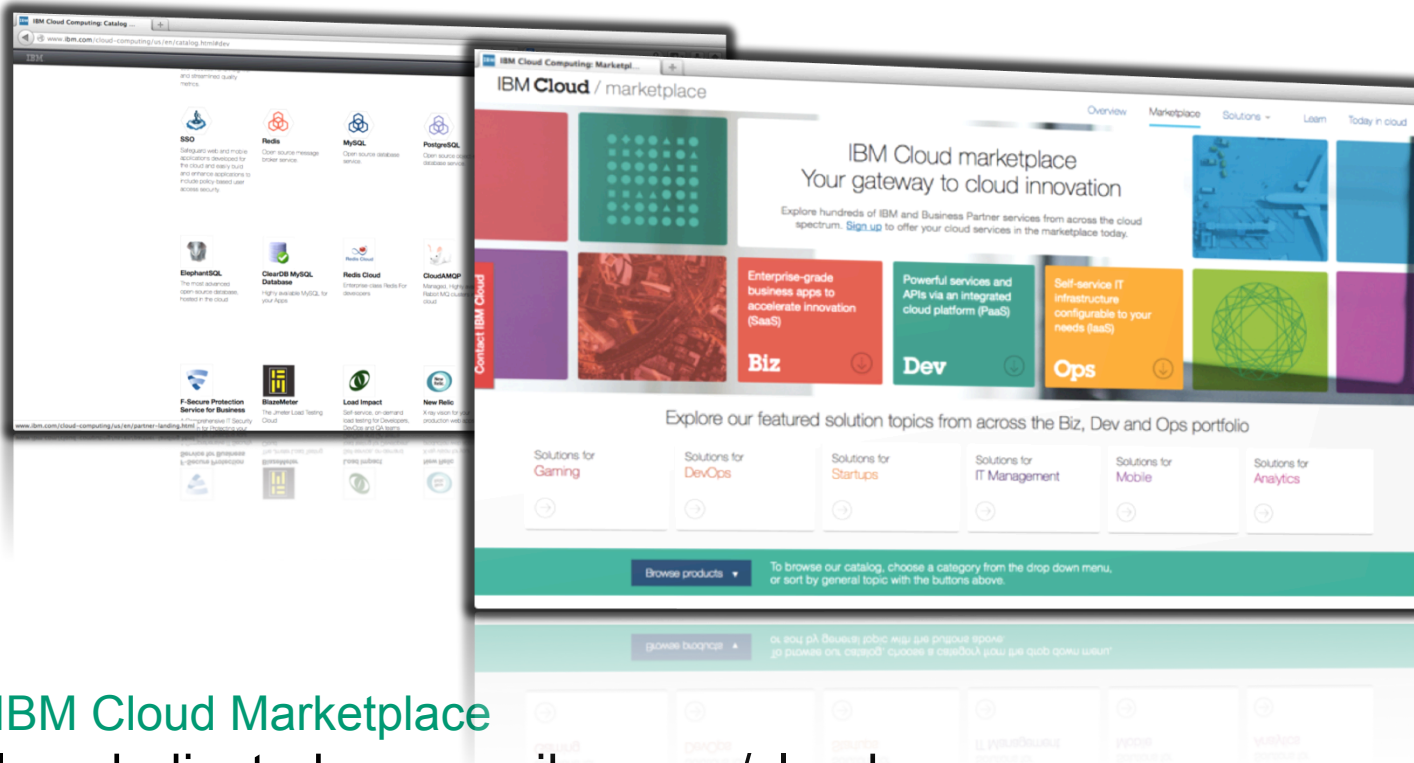
# Registering Services in Bluemix™

Two types of services can be registered in Bluemix™

1. Service Offering – This is a type of service that partner can create and get monetized. To Perform this process → IBM Cloud Partner Market Place

2. User Provided service Instance - This is type of service that can be published in Bluemix™ locally. By creating this service, we can have a hook to the other services published on other clouds using Http Rest calls. Or the other option to get connected to the Other services on other clouds is using Cast Iron (Cloud Integration service) service available. Partner cannot monetize on this as they are just the hooks created by the partner locally under their own Bluemix™ organization. This is currently available for all the partners.

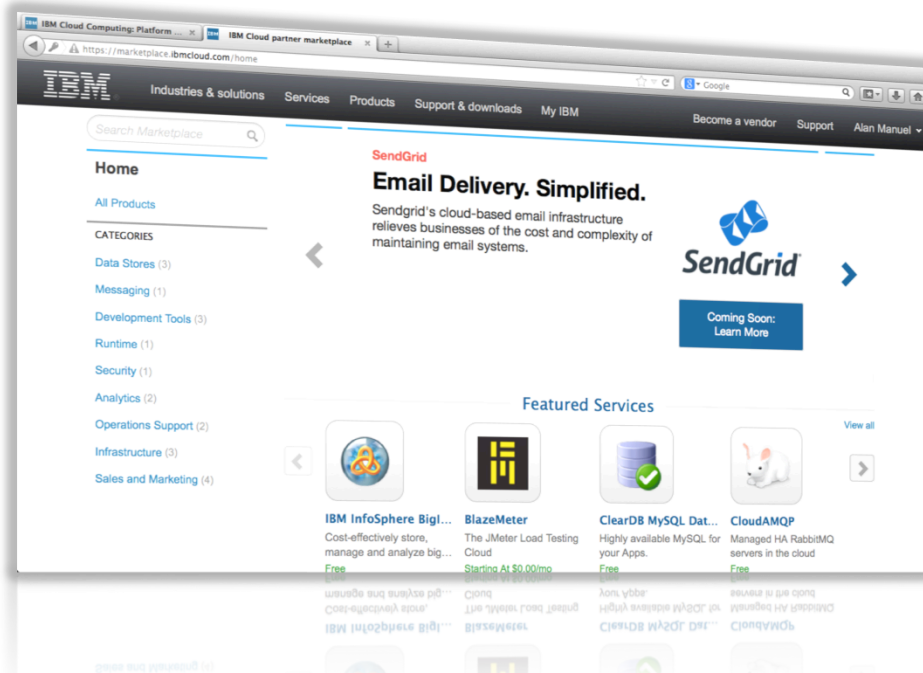
## Partner cloud services in the IBM Cloud Marketplace



### IBM Cloud Marketplace

Is a dedicated area on [ibm.com/cloud](http://ibm.com/cloud) for IBM customers to discover enterprise cloud services that run on or are deployable to SoftLayer or integrated with Bluemix and are available from IBM partners.

## New Way for Partners



Participation in the IBM Cloud marketplace is by nomination.

**Get started now at**

[ibm.biz/newway4partners](http://ibm.biz/newway4partners)

### Customers discover our Business Partner cloud services:

- by Biz/Dev/Ops role,
- by Solution,
- in a dedicated area

### Business Partner services are:

- appropriate for the enterprise cloud buyer
- run on or deployable to SoftLayer, or integrated with Bluemix
- support key Solutions (mobile, devops, analytics...)
- offered under a standard contract with IBM

### Premium features are available for services that take advantage of:

- Bluemix (Cloud Foundry)
- PureApplication Service (Patterns)
- High performance analytics

Business Partners services as trial only today. Commercial later in 2014 (US).



## Limited Preview qualifications

### Services:

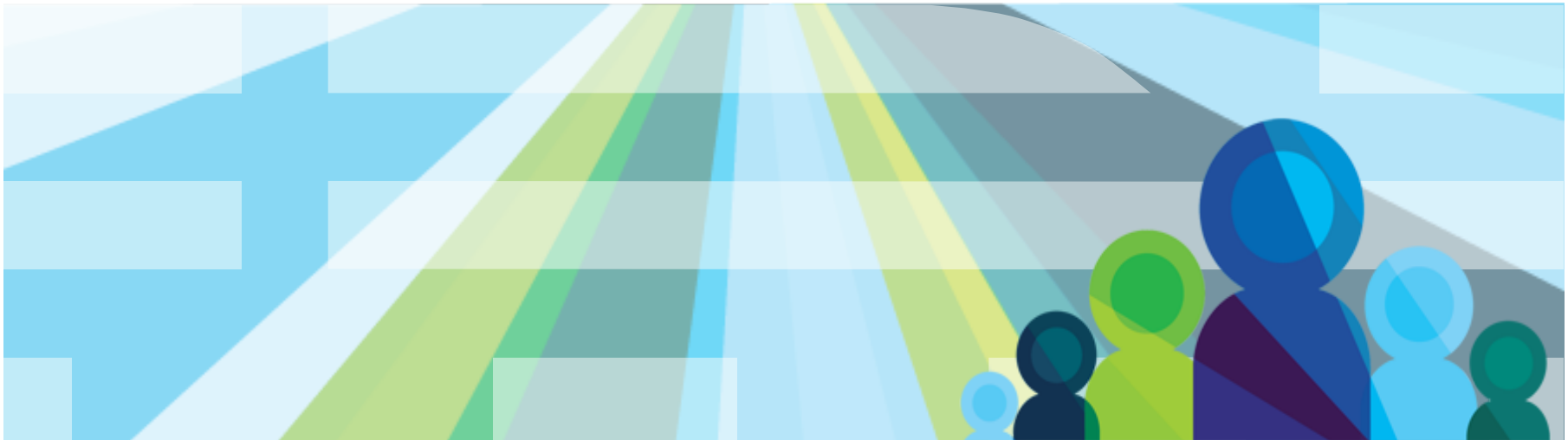
- run on SoftLayer, deployable to SoftLayer, or integrated with Bluemix
- are in production supporting paying customers
- are leaders in one of the key solution or technology areas: datastores, messaging, mobile, development tools, security, analytics, monitoring
- preference to services that support IBM marketing programs
- additionally, use Bluemix or other premium features and meet specific criteria which could include additional technical integration and/or certification

### And are offered by Business Partners who:

- are US based or have a US affiliate, or based in UKI, Germany, Switzerland, France or Spain
- are able to support live customers as evidenced by customer adoption
- provide a free edition and basic support for trials by participants
- integrate into the IBM Cloud marketplace APIs for provisioning in a timely manner
- meet IBM procurement requirements of basic business viability
- agree to the terms in the Marketplace Vendor Agreement

Note that IBM may promote certain marketplaces services, include IBM's own services, which complement or compete with other marketplace services.

# Lesson 5: Cloud Foundry



## Lesson 5 – Cloud Foundry

This lesson provides an overview of the PaaS, Open PaaS, & Cloud Foundry

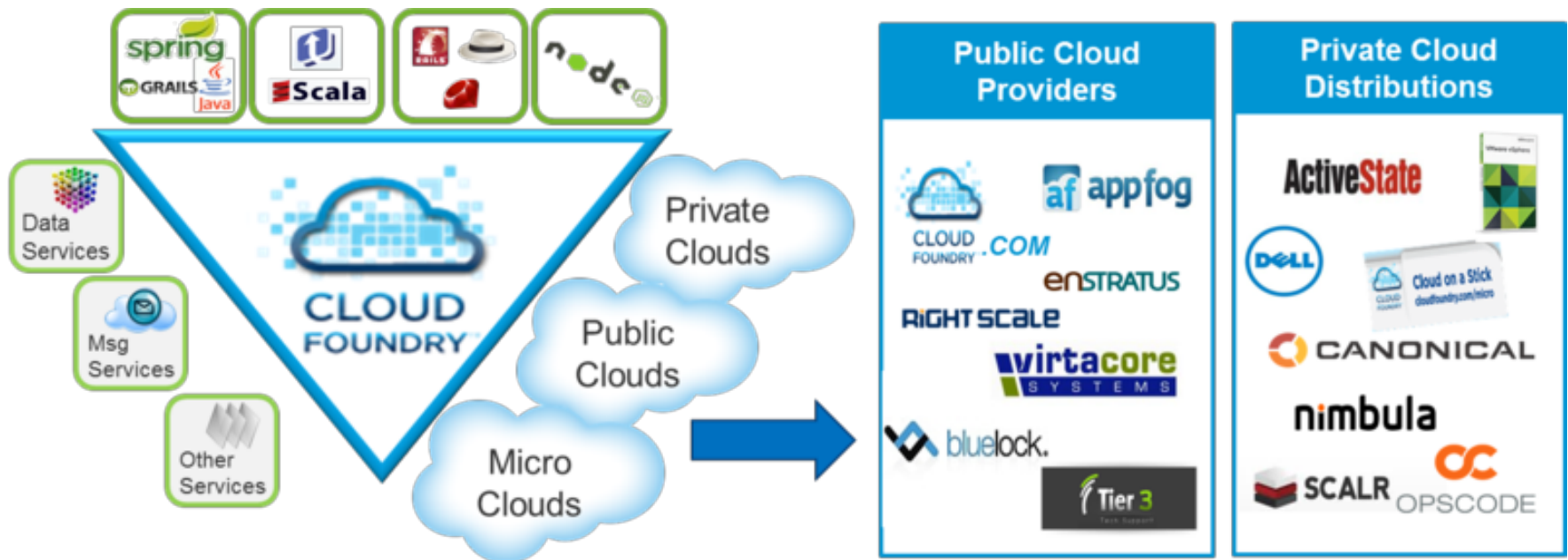
Topics in this lesson include:

- What is Cloud Foundry?
- Cloud Foundry Architecture and Application Staging
- Cloud Foundry CLI



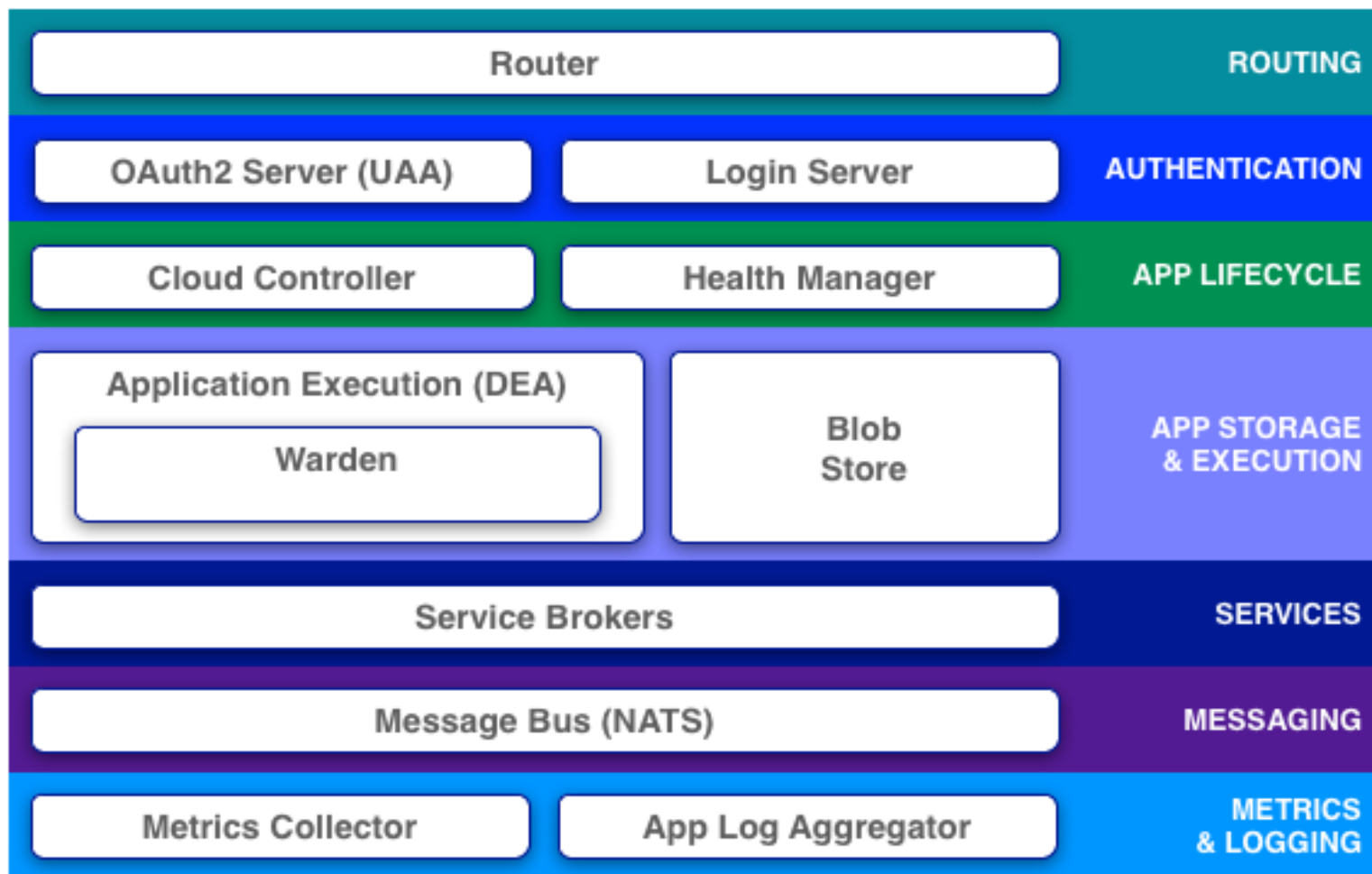
# What's Cloud Foundry?

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

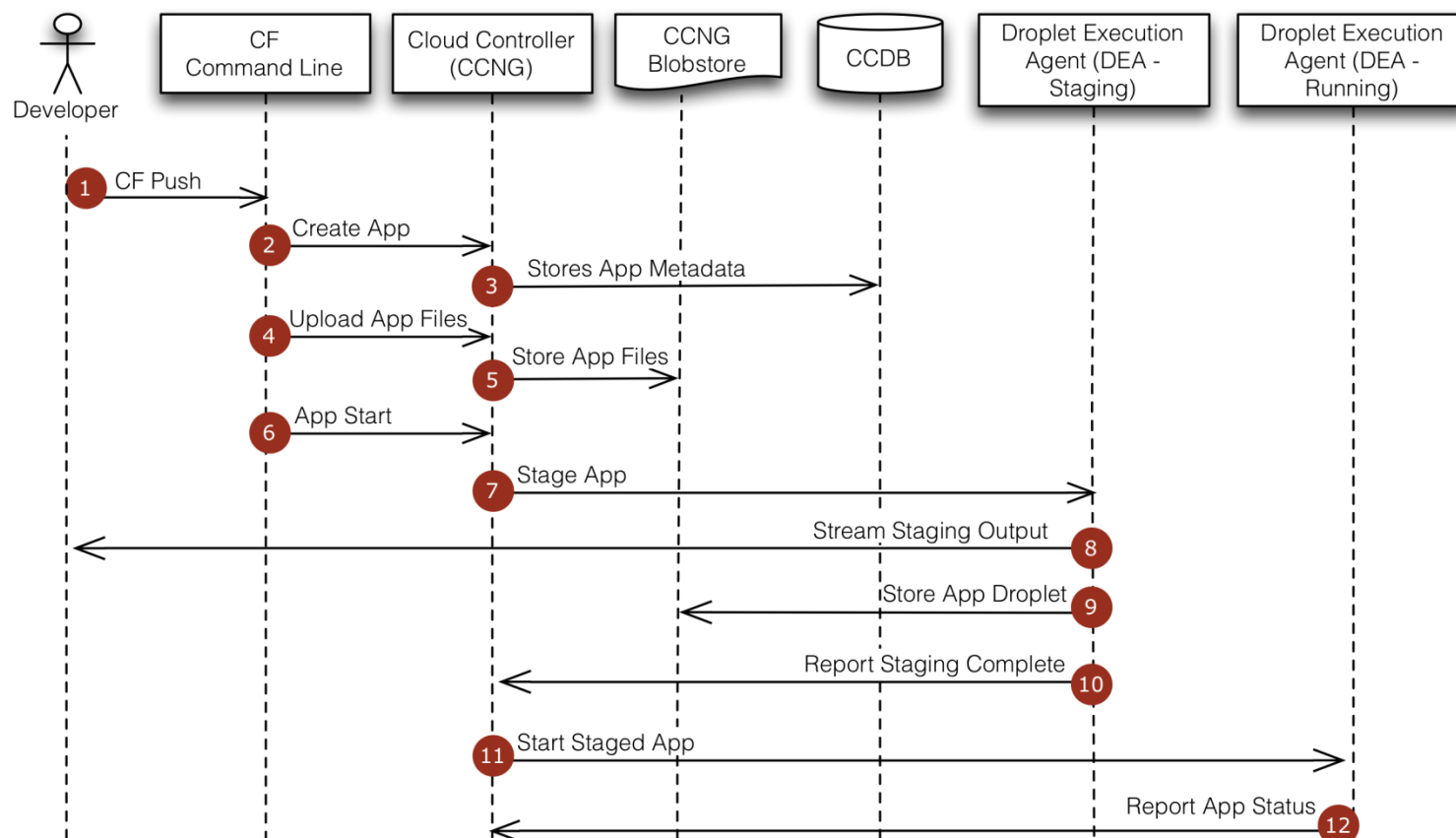


*Making Multi-Cloud a Reality*

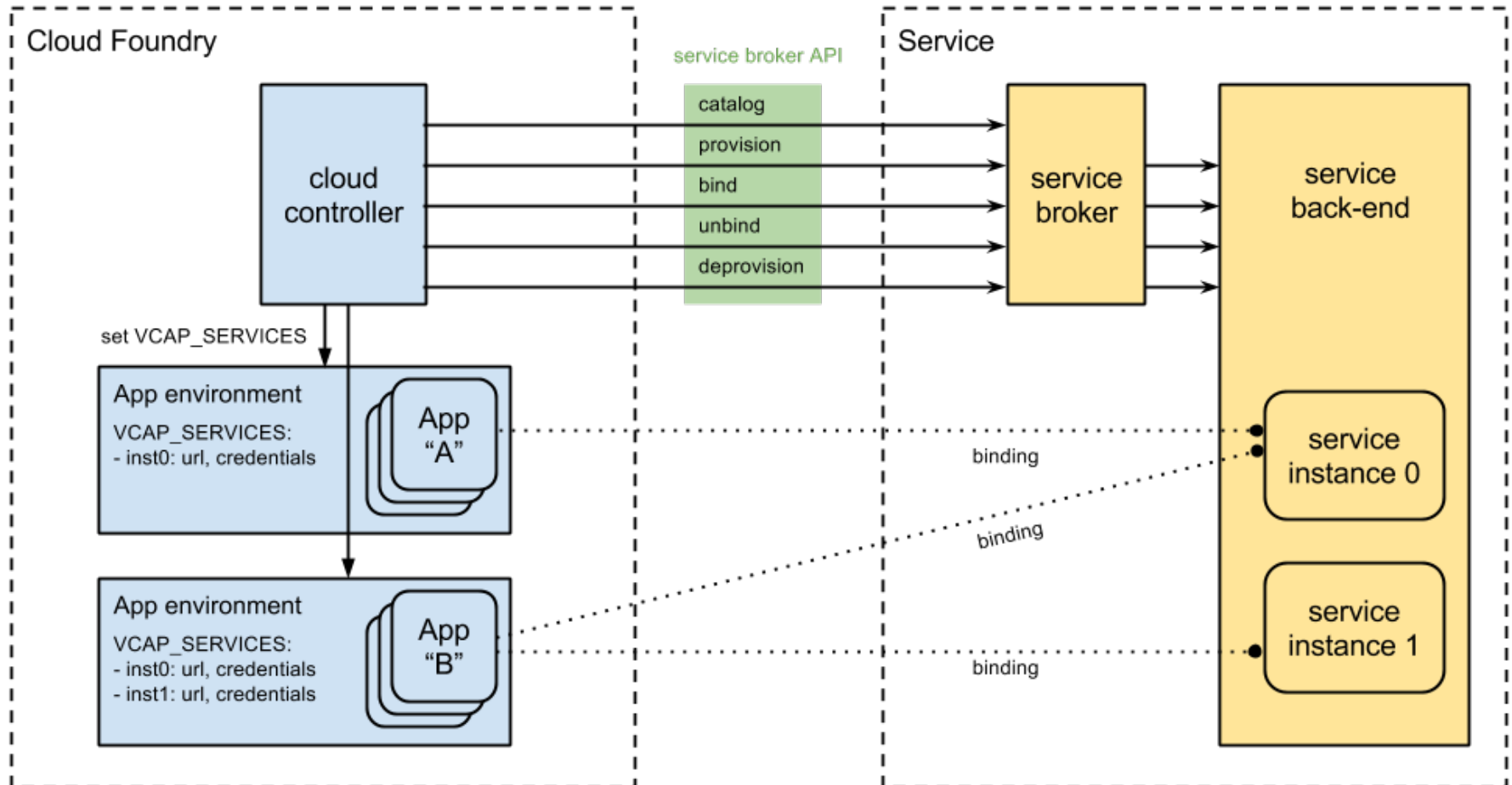
# Cloud Foundry Architecture – CF Kernel Internal



# Cloud Foundry - Application Staging



# Cloud Foundry - Services



## Bluemix™ - Cloud Foundry CLI (Command Line Interface)

- `cf` is Cloud Foundry's command line interface.
- Used to deploy and manage applications running on most Cloud Foundry based environments
- `cf go` binary for your OS in github

### Important CF CLI Calls

- `cf -a api-end-point`
- `cf login user-id`
- `cf push my-new-app`
- `cf create-service my-service`
- `cf bind-service my-service my-new-app`



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# Questions?

