Bluemix Introduction and Practices

A platform where developers can act like kids in a sandbox - except this box is enterprise-grade.

Jacky Mao -- GBS Innovation Center - Architect

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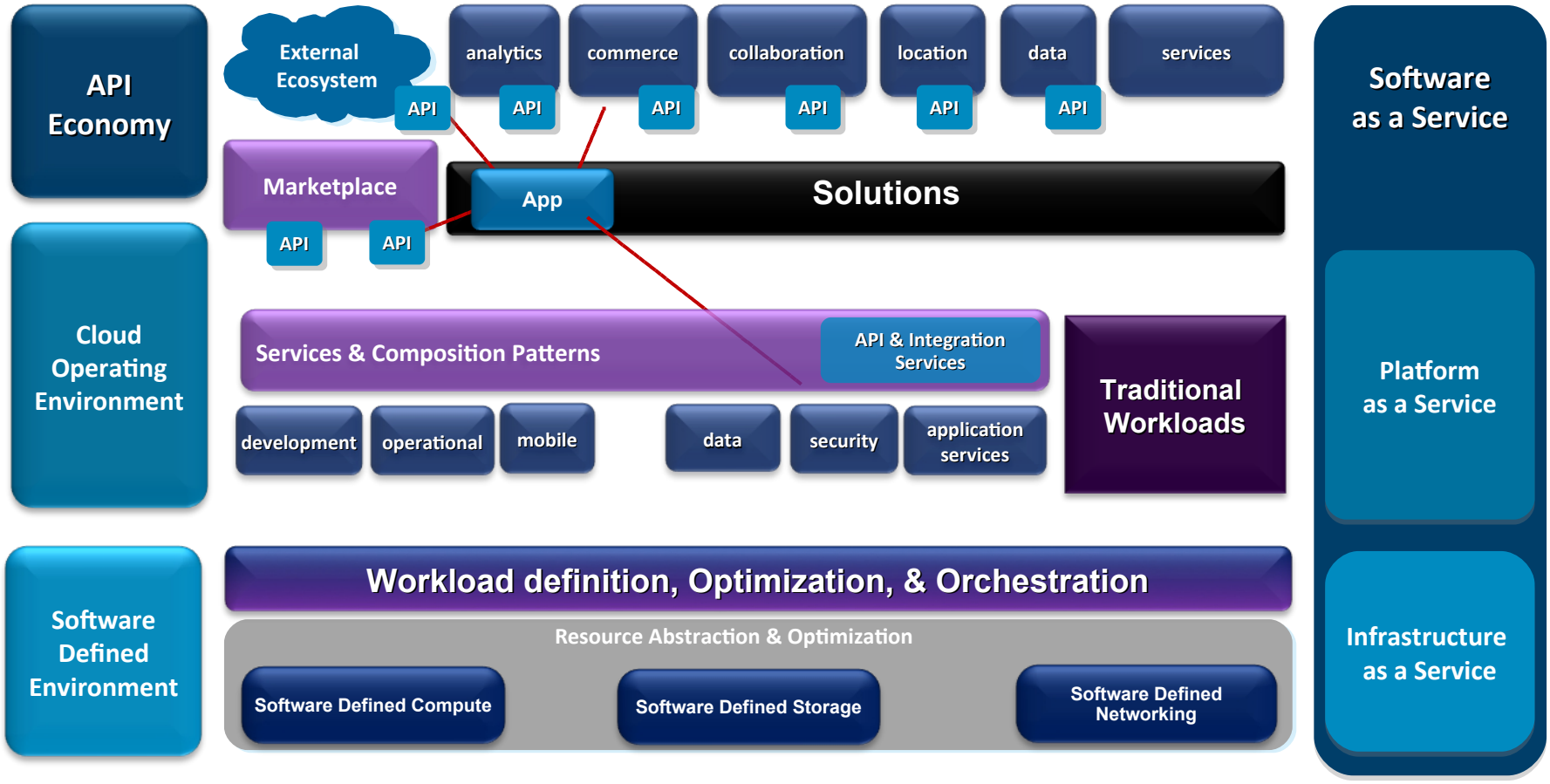
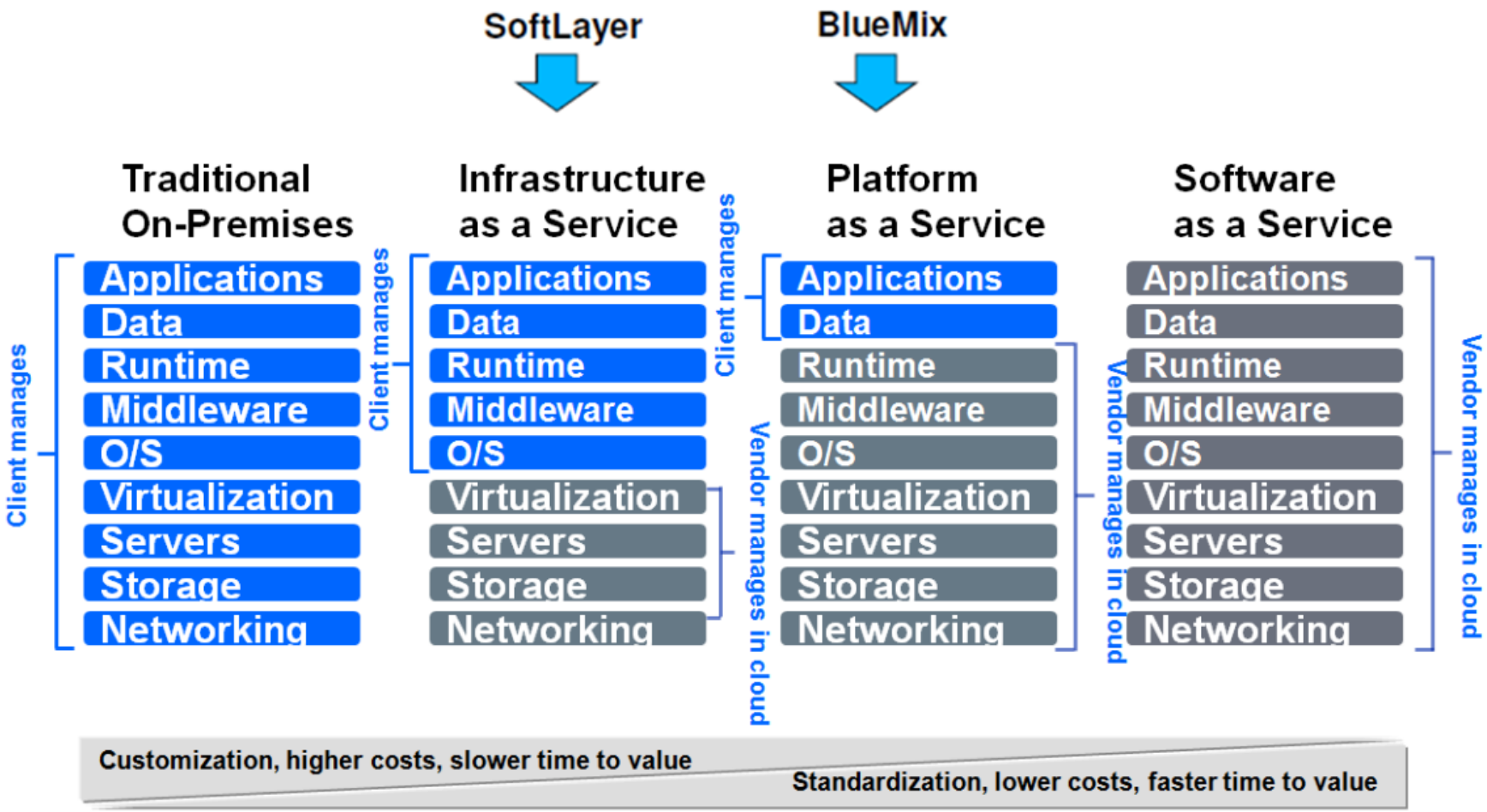
1.1 IBM Next Generation Cloud Environment



1.2 IBM-provided cloud services models



1.3 Why not just use IaaS?

- It might be just as easy to get started at the IaaS layer if you use a prebuild image
- Over time though the maintenance of this image increases the cost
  - OS updates, security updates, new versions of libraries, DNS and networking changes, configuration and maintenance of other services like DBs etc.
- At the PaaS layer all of this cost disappears! The platform takes care of it for you!

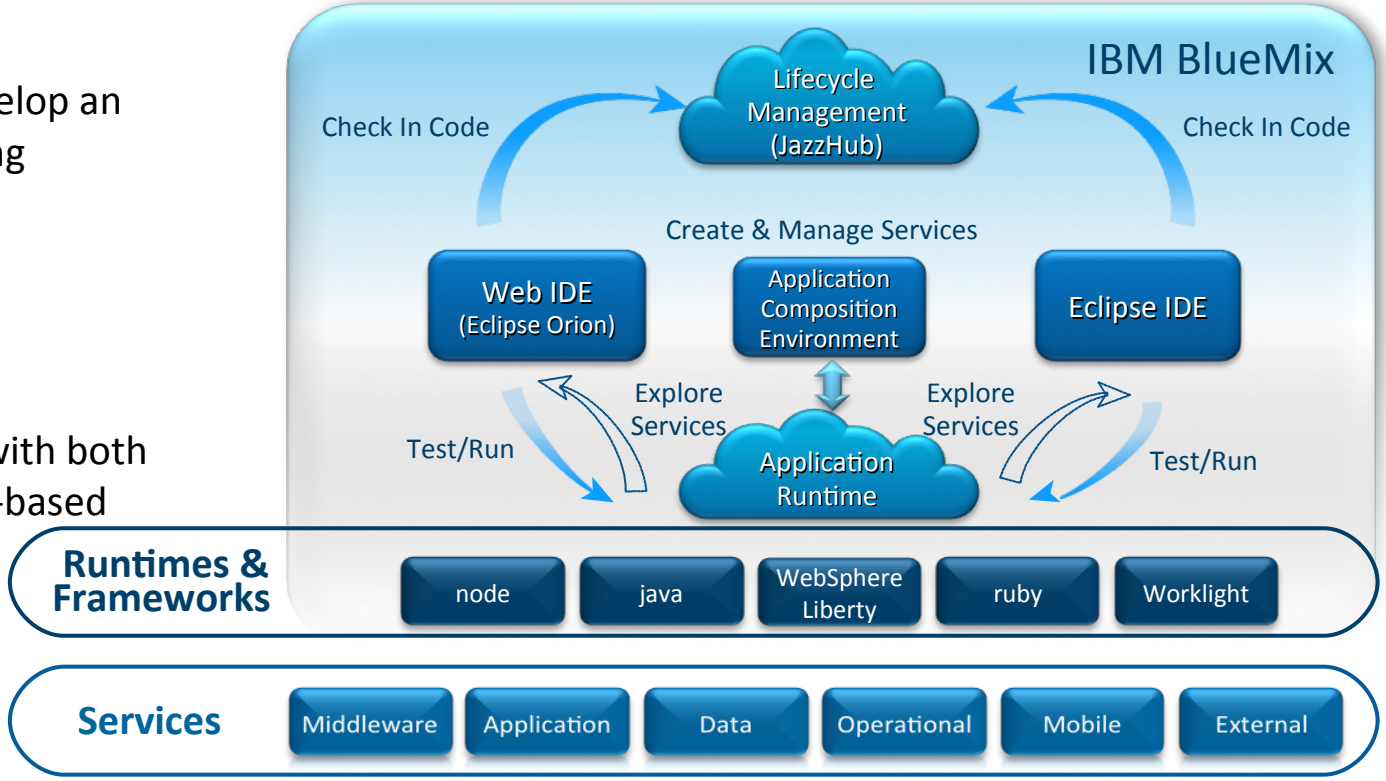
1.3.1 Benefits of using BlueMix:

- Save time by just worrying about the code and not the infrastructure
- Quickly get your app in the hands of your users – deploying your app is a matter of running a single command
- Easily add functionality to your application using IBM and partner provided services
- Use the languages, runtimes, and frameworks that you are most familiar with

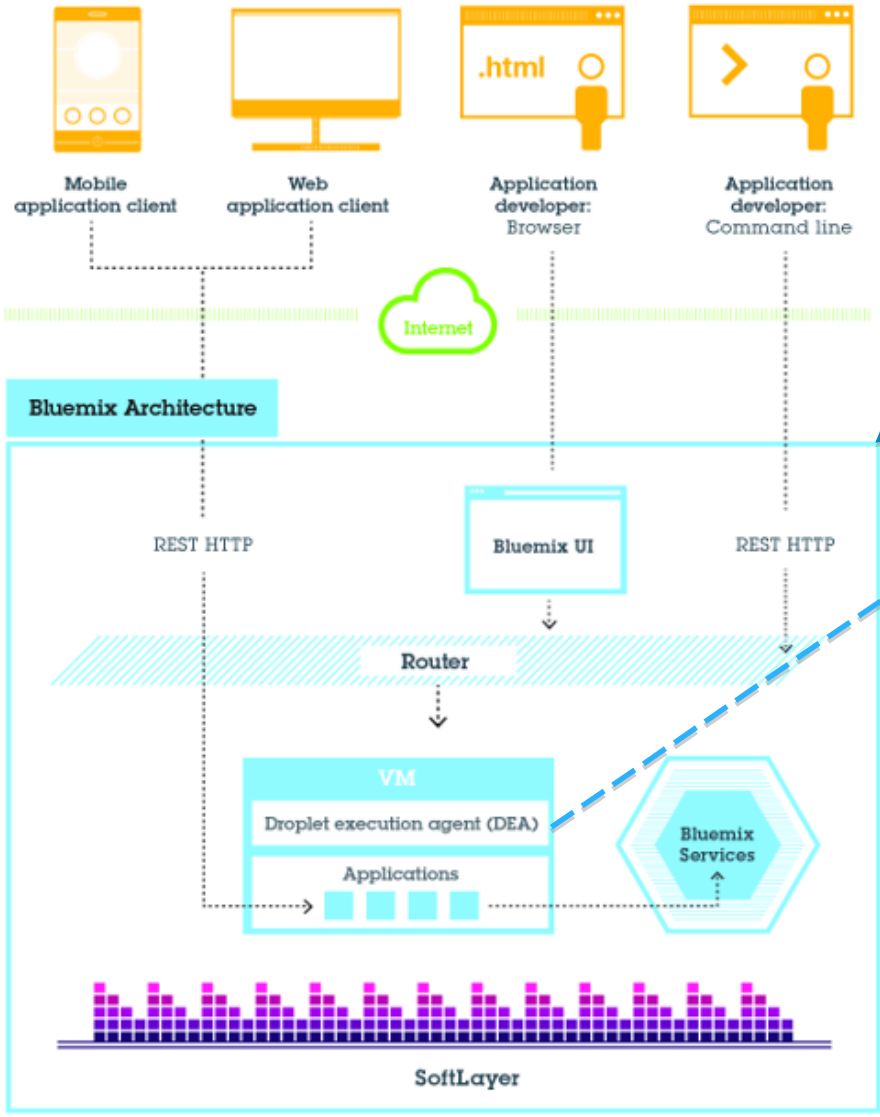
2 Introducing IBM Bluemix

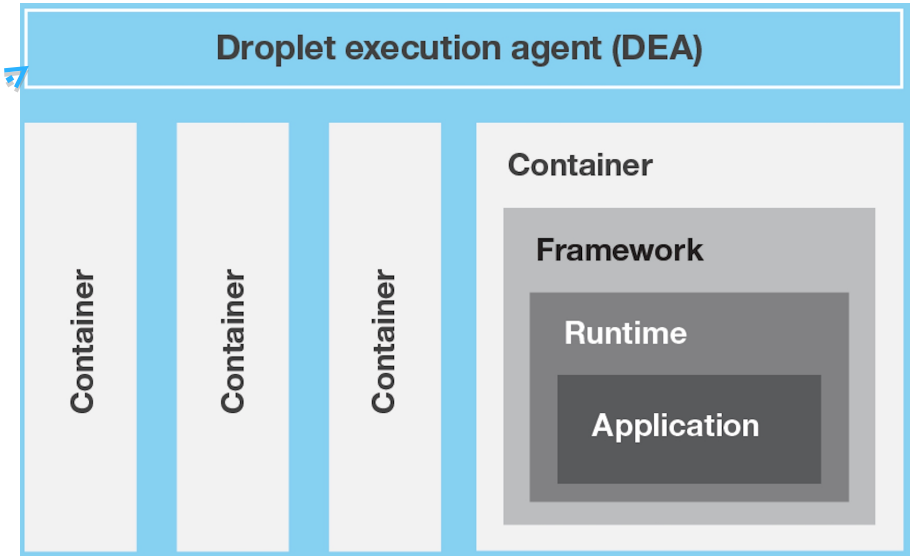
Bluemix is IBM's new PaaS solution that combines the power of Cloud Foundry with popular languages and IBM SaaS.

- IBM initiative to develop an open Cloud Operating Environment
- Runs on **SoftLayer**
- Integrated DevOps with both Browser and Eclipse-based tools



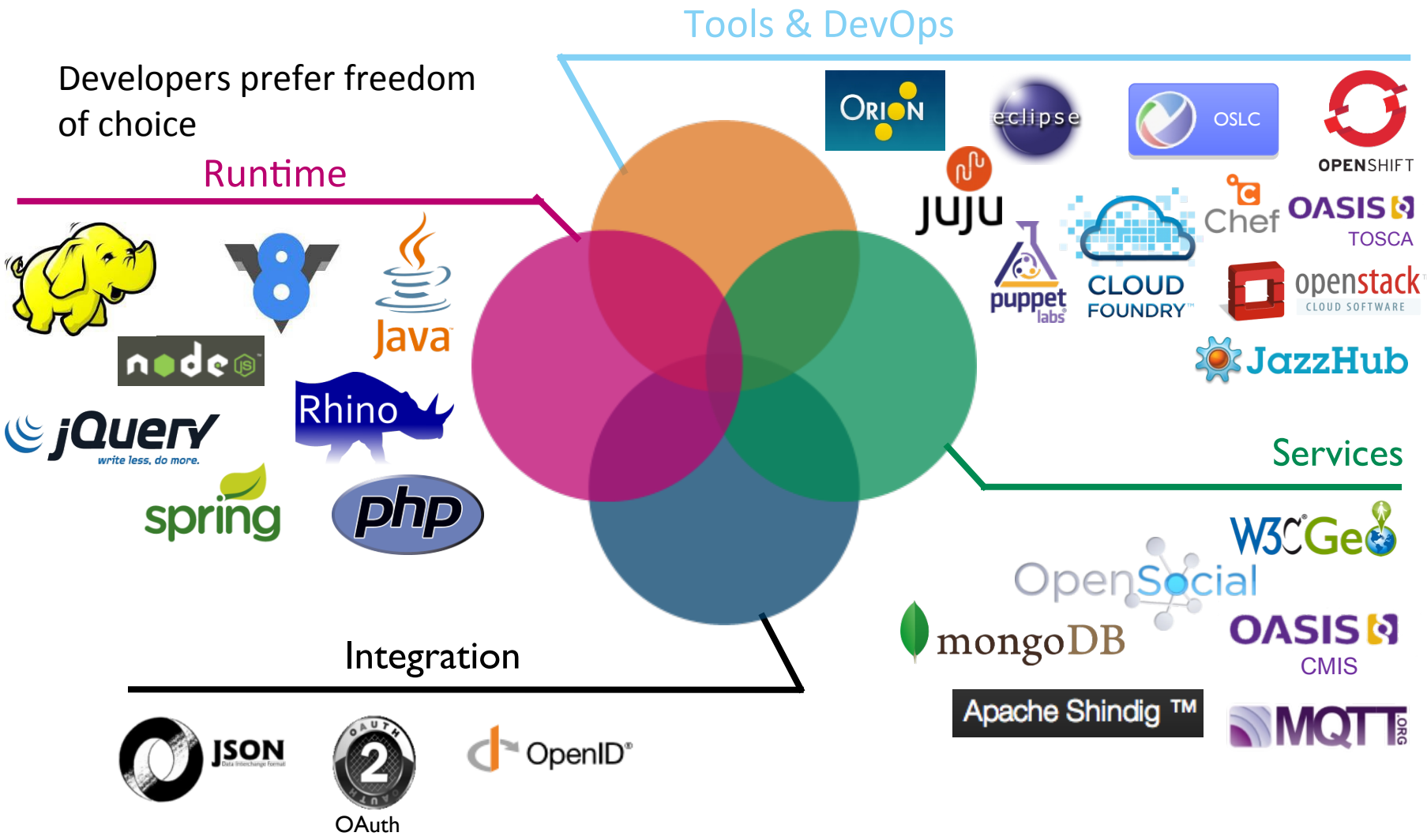
2.1 Bluemix Architecture





2.2 Innovation is fueled by Open standards for Bluemix

Developers prefer freedom of choice



2.3 What can Bluemix Deliver?

----Delivering a Composable Services development environment

Run Your Apps

The developer can chose 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

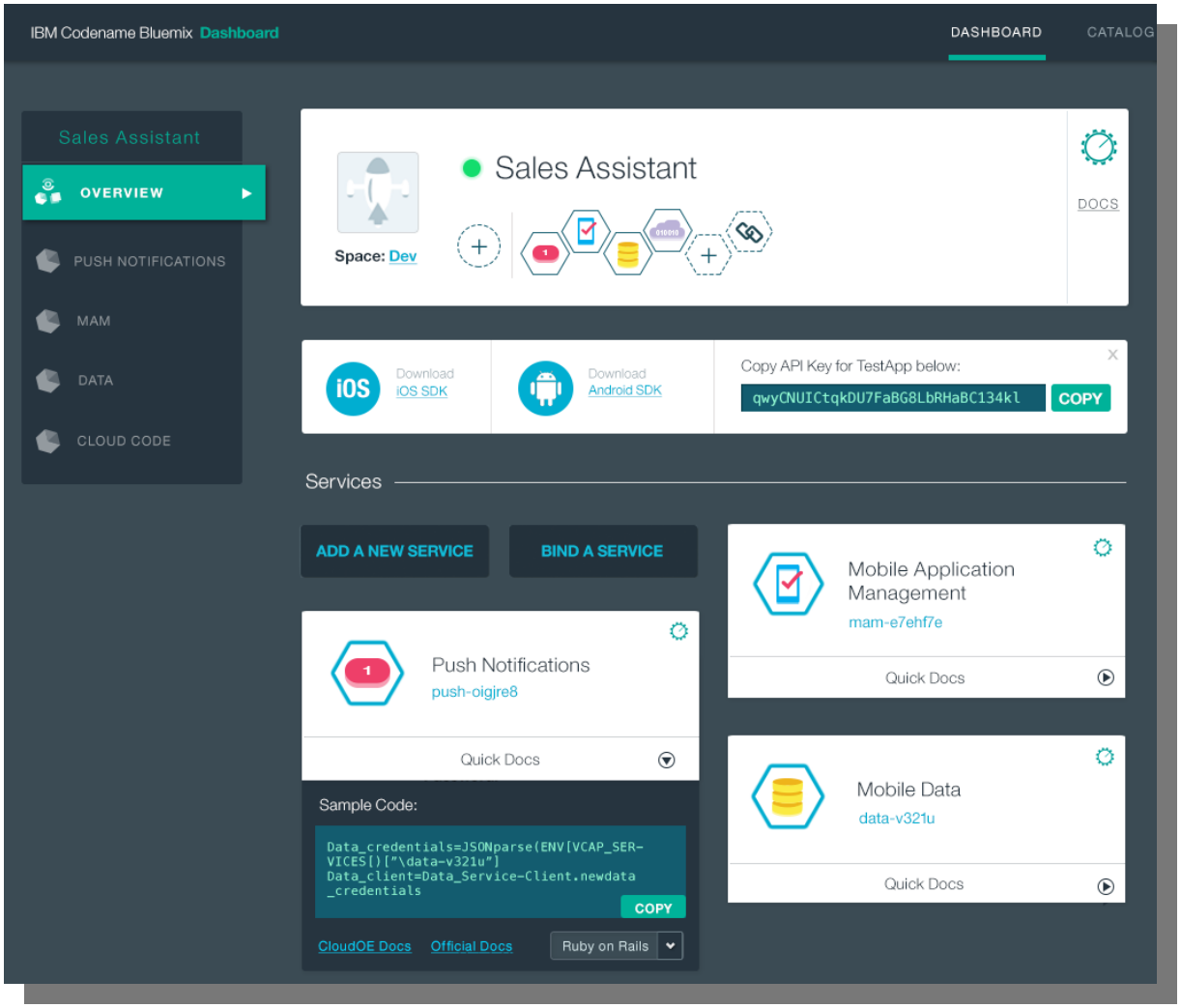
Build hybrid environments. Connect to on-premises systems of record plus other public and private clouds. Expose your own APIs to your developers.

Extend SaaS Apps

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

2.4 Scaling and Monitoring in Bluemix

Fully integrated environment for deploying and managing your application



Single Dashboard

Single view of application health, usage and status

Health and Monitoring

Integrated monitoring and diagnostics with the ability to add on features such as code level tracing

Scaling

Ability to scale the application by adding new runtime instances

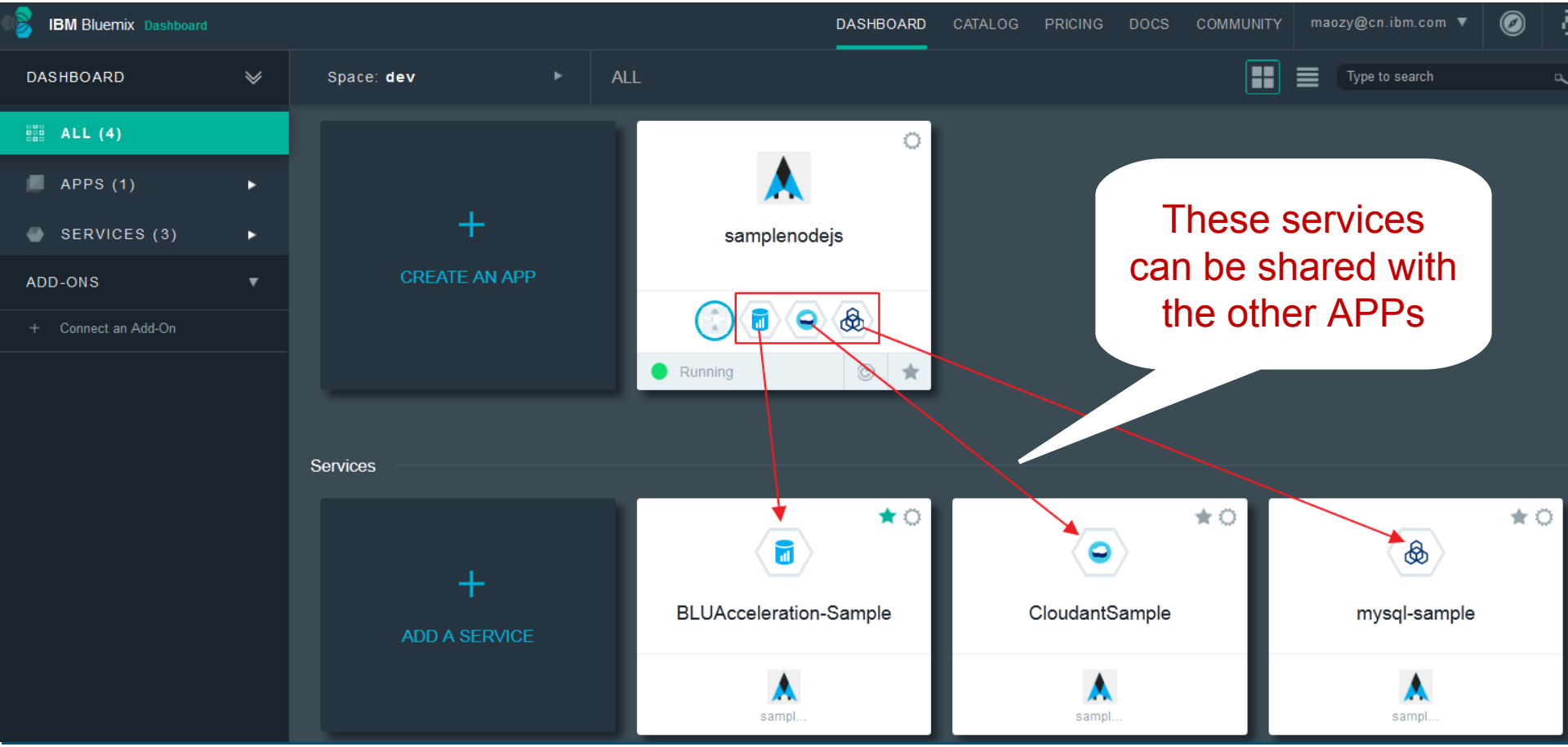
2.5 Which services can Bluemix offer?

The service marketplace is defined as the aggregate catalog of services and plans advertised to a Cloud Foundry instance by all registered brokers.

The IBM BlueMix Services are the main differentiator against other Cloud Foundry PaaS Offerings such as Pivotal.

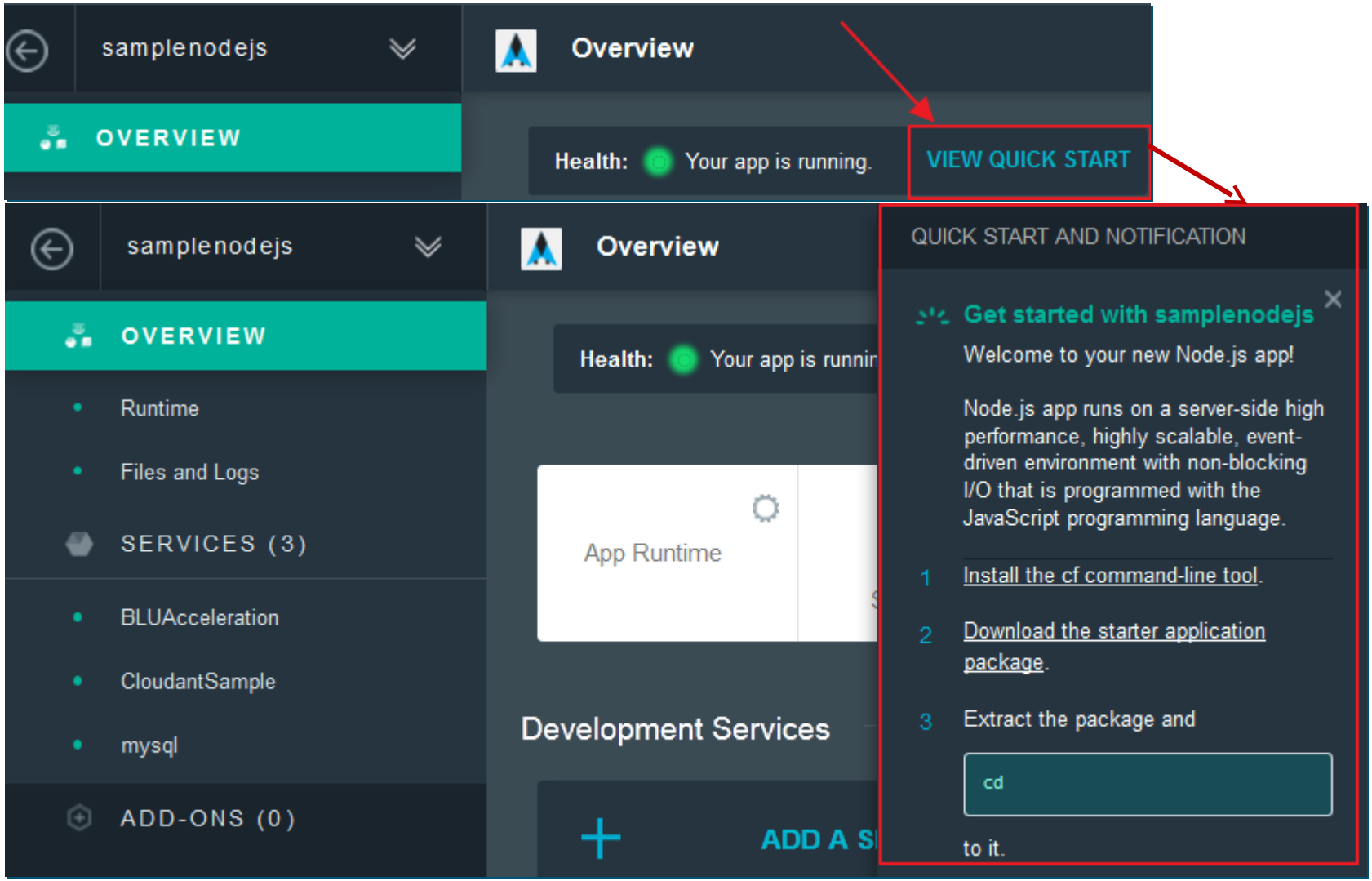
Integrate and Share is the mission.

3.1 Bluemix management - Dashboard



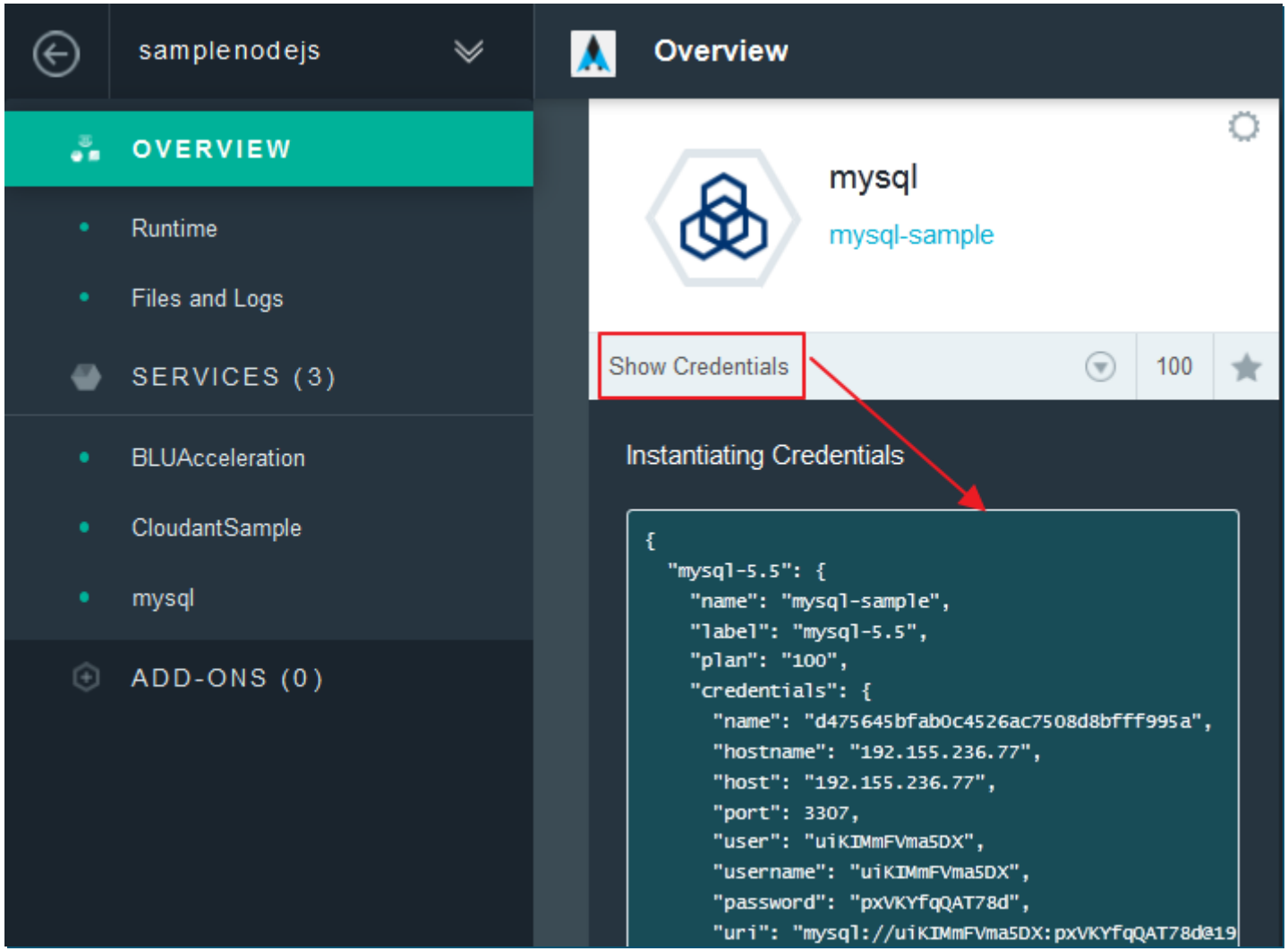
3.2 Bluemix management - APP dashboard

----View Quick Start for this app

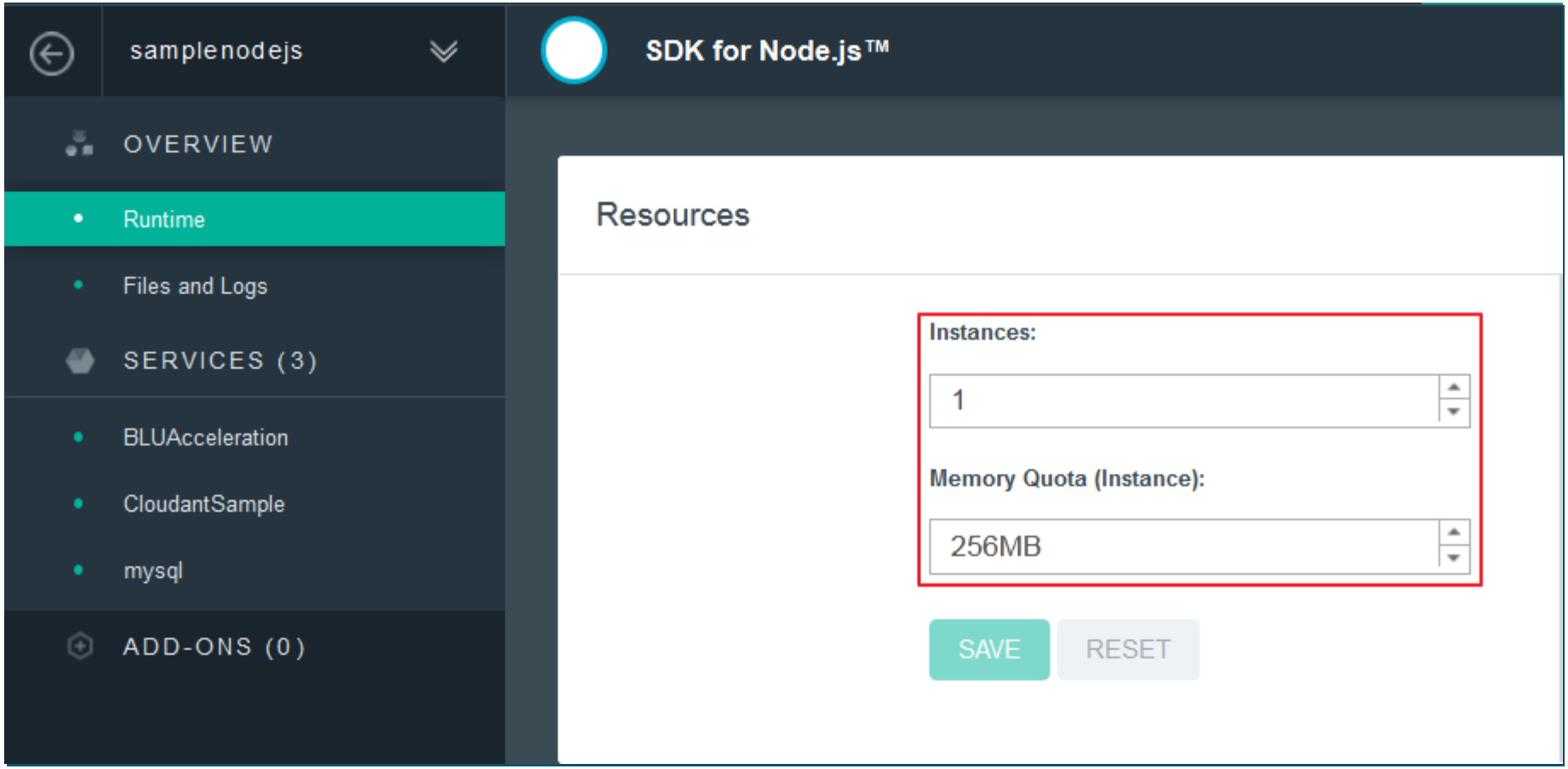


3.2 Bluemix management - APP dashboard

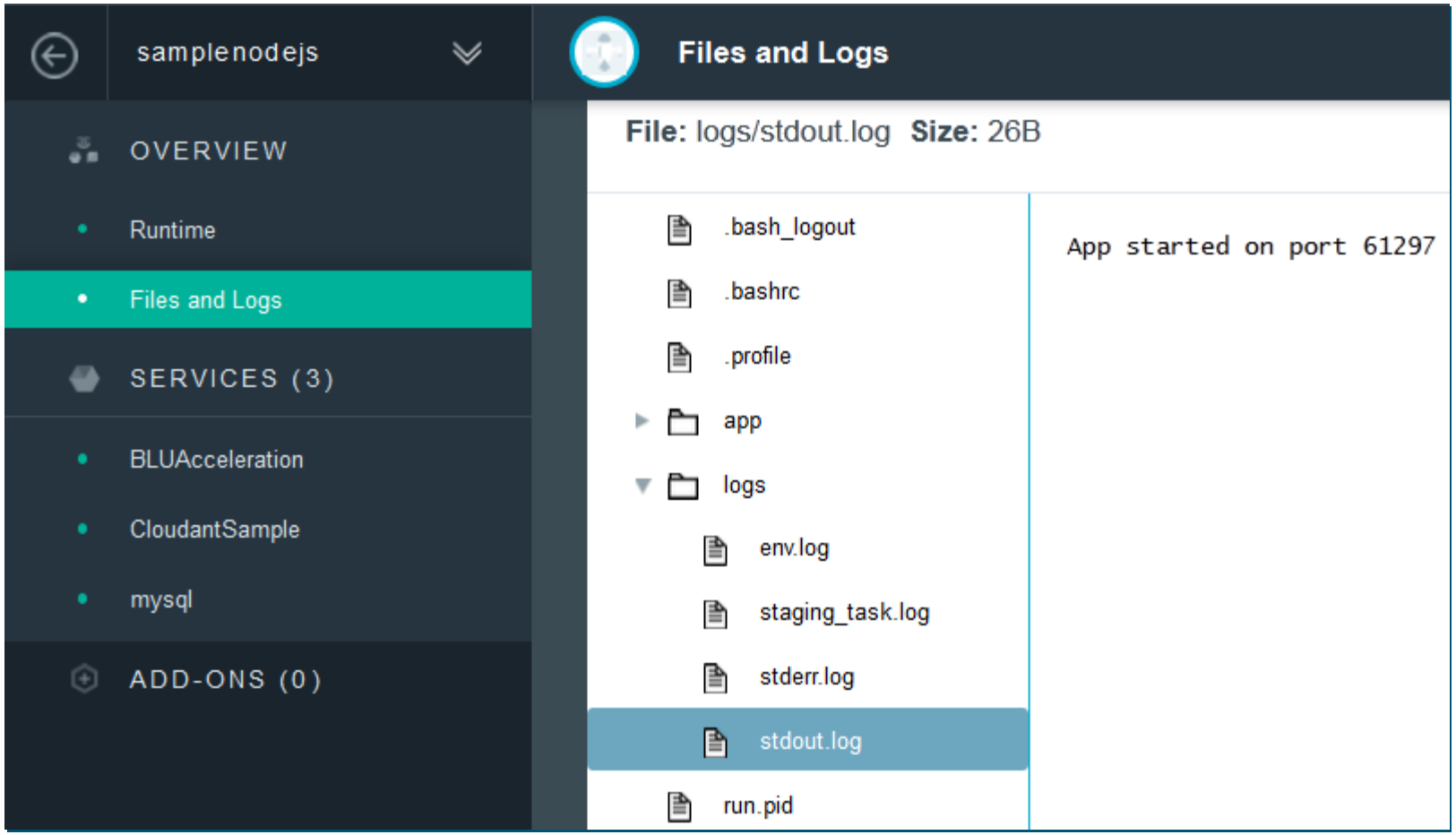
----Show service credentials



3.3 Bluemix management - Runtime



3.4 Bluemix management - Files and Logs

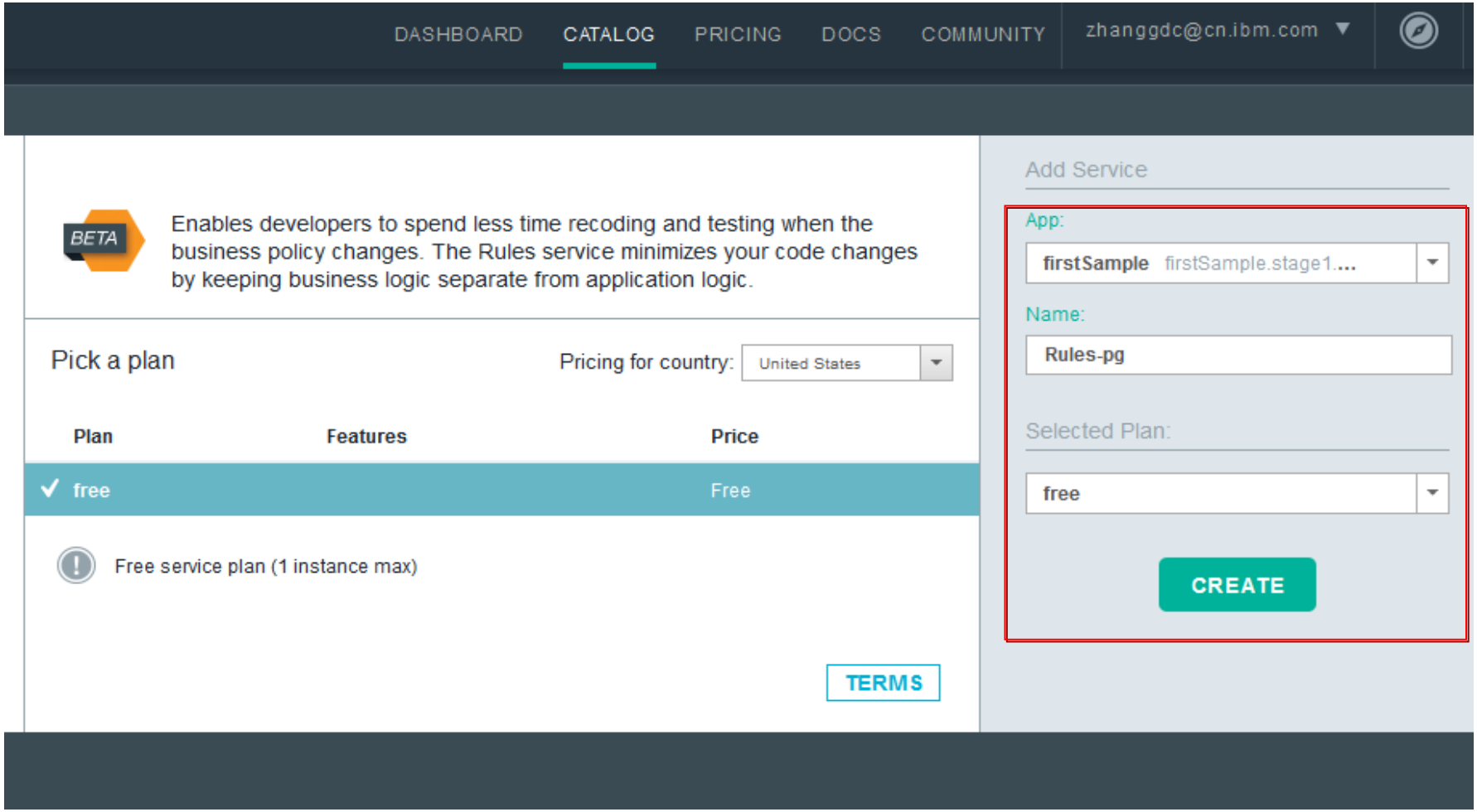


3.5 An example to add Rules service:

---Step#1.Select catalog and chose Rules service

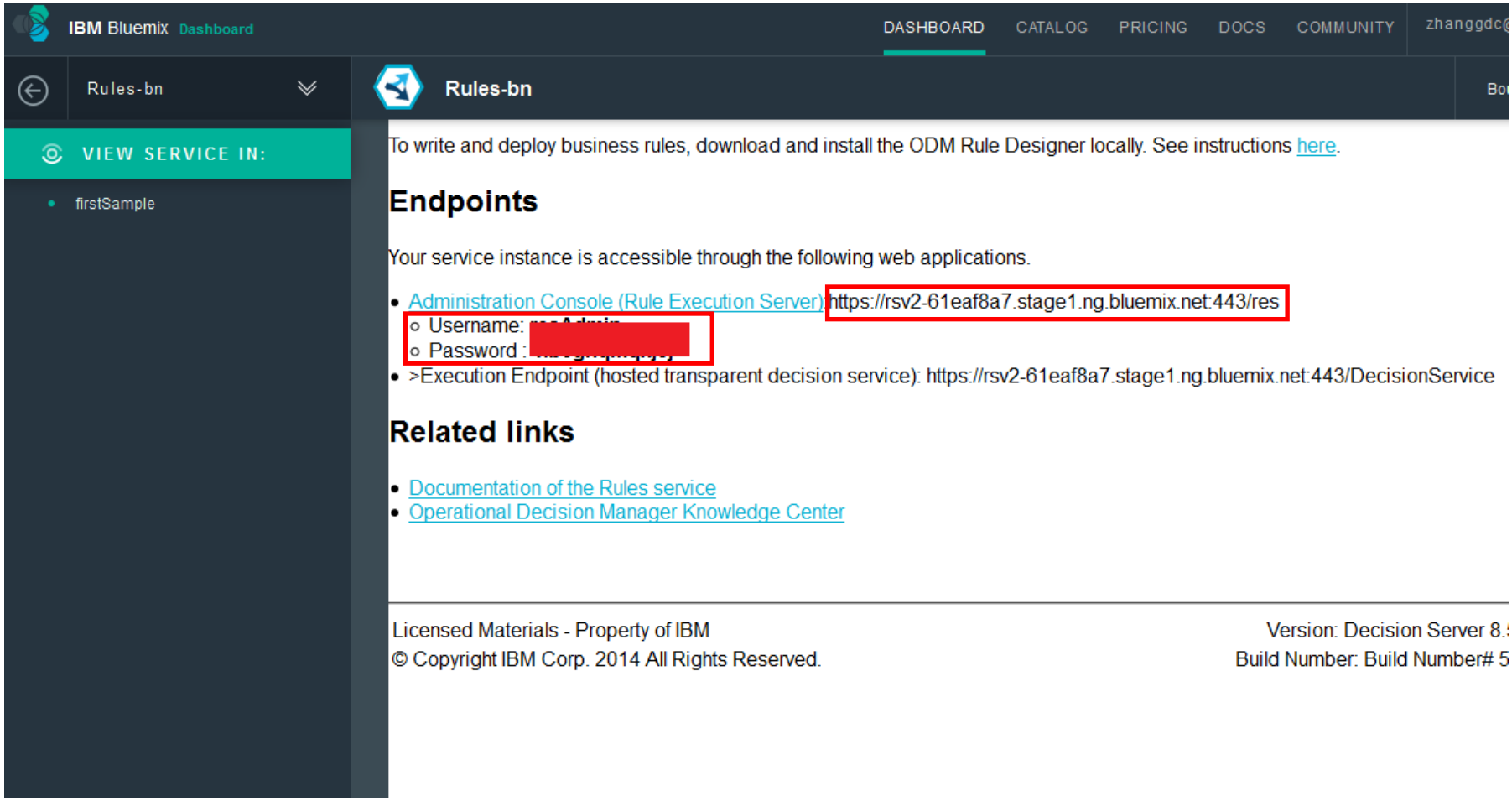
3.5 An example to add Rules service:

---Step#2.Select App, Plan and input name and then click button CREATE



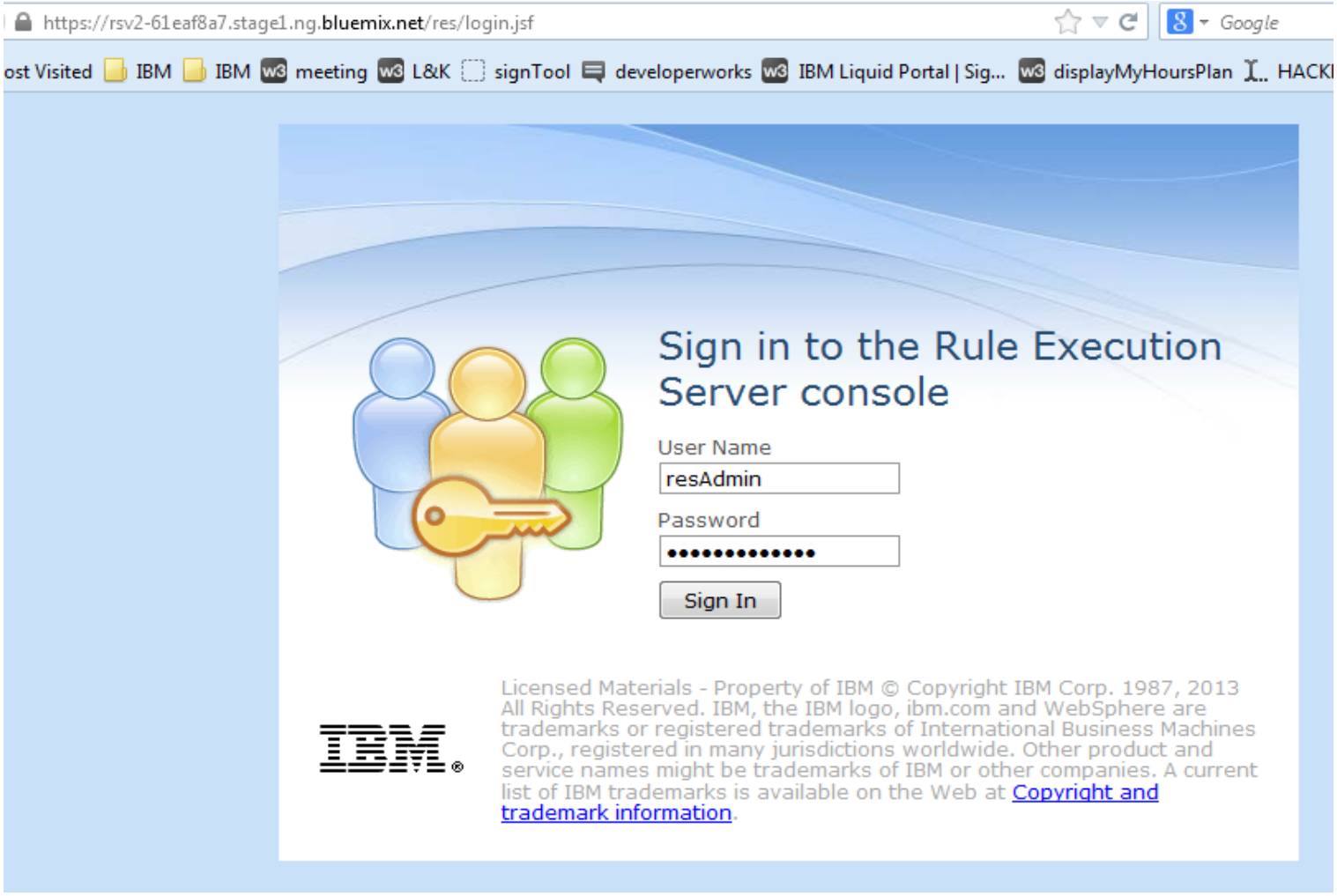
3.5 An example to add Rules service:

---Step#3.Page included instance information will be displayed after new instance has been created.



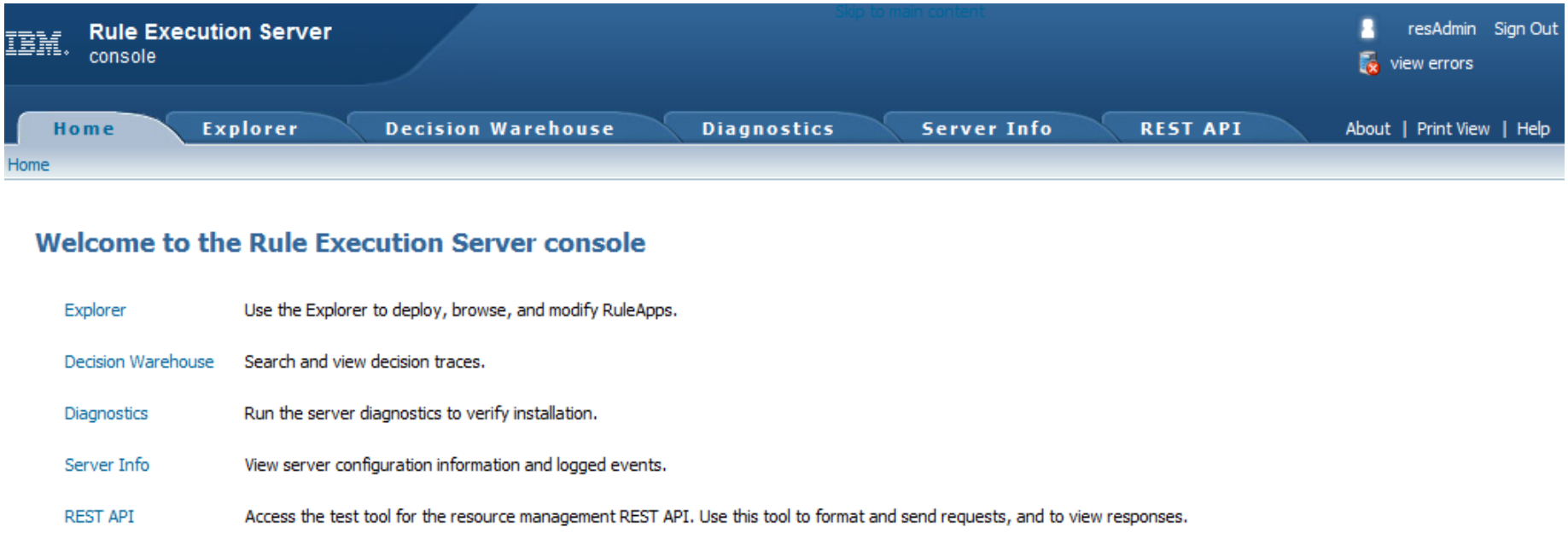
3.5 An example to add Rules service:

---Step#4.Login into admin console with url, user, password in instance page.



3.5 An example to add Rules service:

---Step#5. RuleApp can be deployed in this admin console.



4. What is IBM Bluemix DevOps Services

IBM® Bluemix™ DevOps Services is software as a service (SaaS) on the cloud that supports continuous delivery.

IBM Bluemix DevOps Services provides these capabilities:

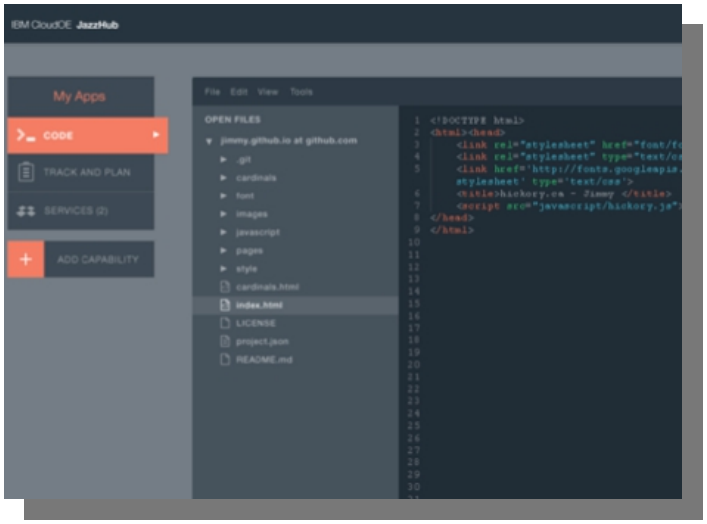
- Agile planning, through the Track & Plan service
- A Web IDE for editing and managing source control
- Source control management (SCM), through Git, Jazz SCM, or GitHub
- Automated builds and deployments, through the Delivery Pipeline service

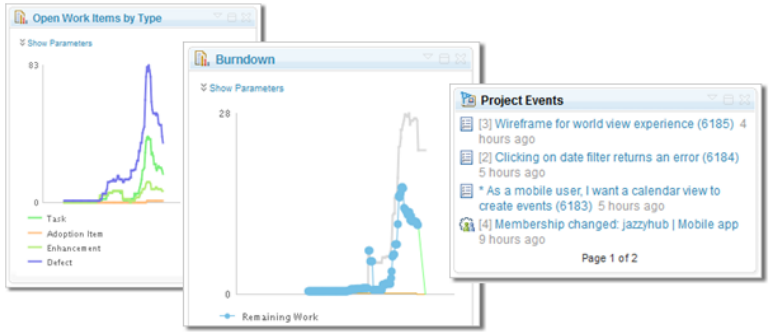
4.1 DevOps Experience

Continuous Integration, Agile Project Planning and Integrated IDEs

An Integrated Developer Experience

- DevOps Solution in the cloud for developing applications.
- Integrated task tracking, agile planning, source control with auto deploy
- Complementary mobile quality and application performance monitoring
- Use your favorite tools or work from the Web IDE
- Continuous Integration: Automate builds, unit and integration testing and deployment to the Cloud using Jenkins and Rational Team Concert





5 Practice tips

5.1. Migration tips:

- Dynamic file system, so you can not write persistent content into file
- Custom buildpack can fix some dependency libraries, but it is not strong
- The IPs for some services are for internal usage in CIO Bluemix
- You can build the access bridge to CIO Bluemix with Cloud Integration Service in SWG Bluemix

5.2. Node.js modules management(cf command reference)

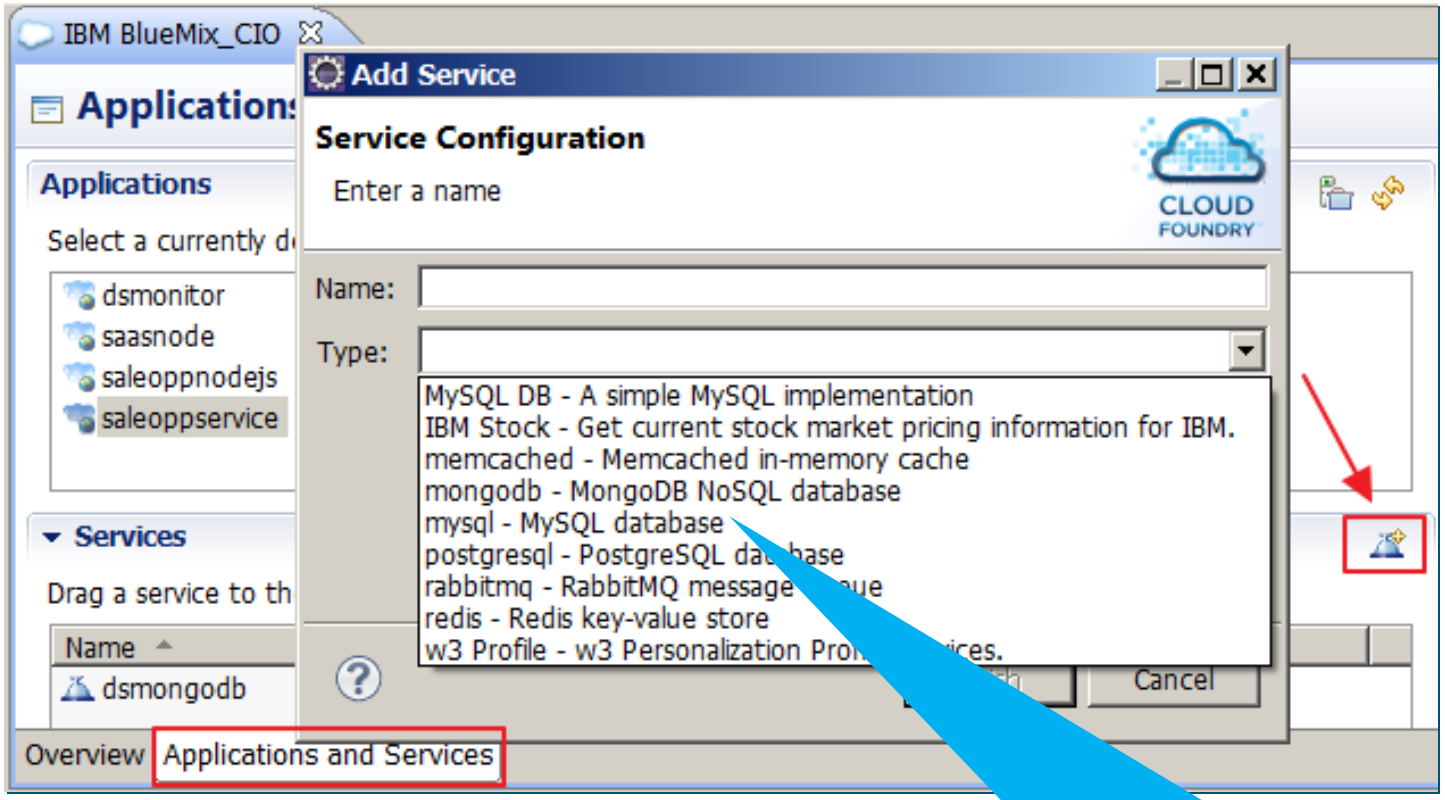
package.json

```
1 {
2         "name": "NodejsStarterApp",
3         "version": "0.0.1",
4         "description": "SaaS nodejs
5         "dependencies": {
6         "express": "3.4.7",
7         "ldapjs" : "0.7.1"
```

If the module version for different OS are not same, you can:
1.Add the module version information into package.json file as the left shown.
2. Remove the module files from node_modules .
3. Add –b parameter to specify the custom buildpack if need. e.g.:-b https://github.com/ibmdb/db2nodejsbuildpack

5 Best practices - continued

5.3. Add service by Bluemix Eclipse plugin(you can get it in eclipse marketplace)



If there is no UI to add service node such as CIO Bluemix, you can use Bluemix plugin to do it remotely.

6. Bluemix environments

CIO Bluemix: http://ace.ciopaas1.innovate.ibm.com/
SWG Bluemix: http://console.ng.bluemix.net/
Stage Bluemix: https://console.stage1.ng.bluemix.net/

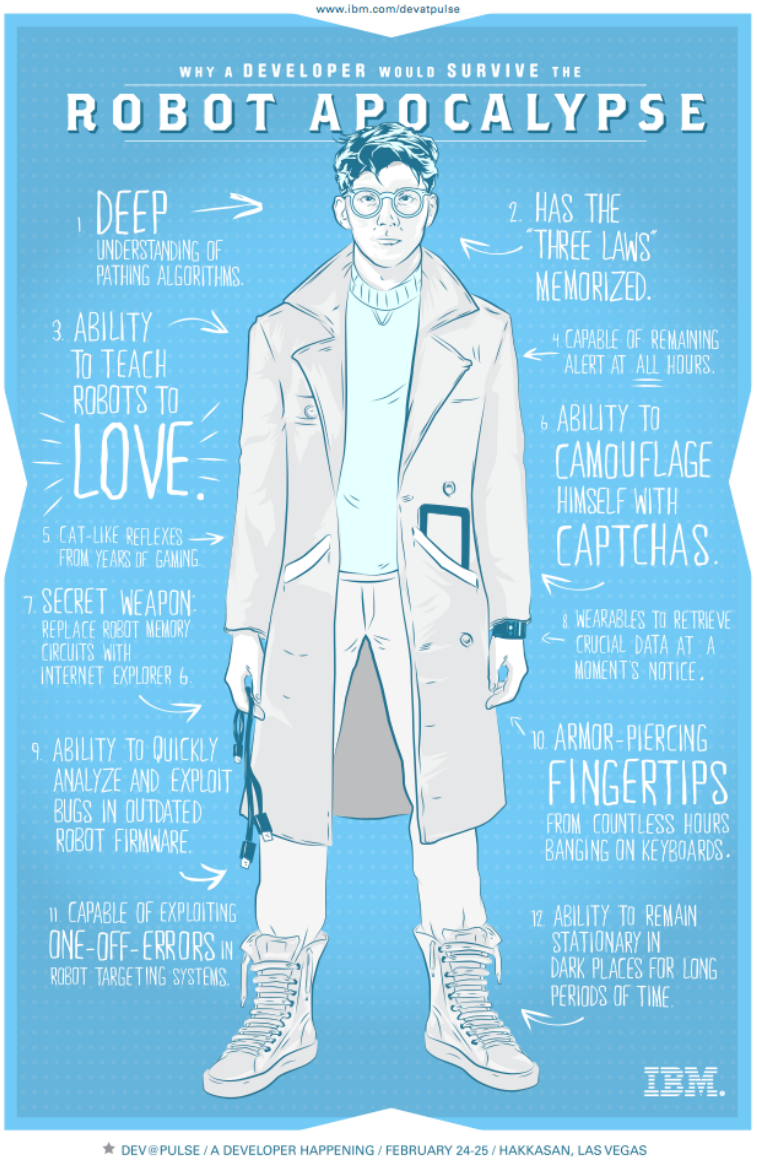
Difference among them:

Features	CIO	SWG	Stage
Stability	Good	Good	Bad
Diversity	Bad	Good	Good
Zone	Blue	Red	Red
Cost	Free	Charge	Free

Thanks!

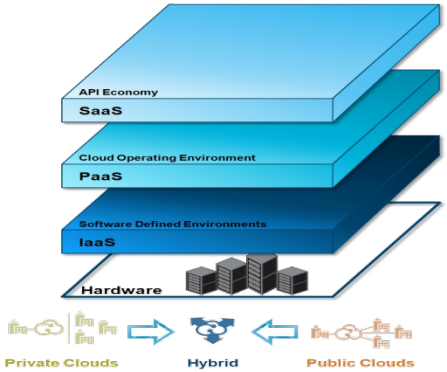
The next billion dollar idea starts with a single developer.

That developer starts with a single line of code



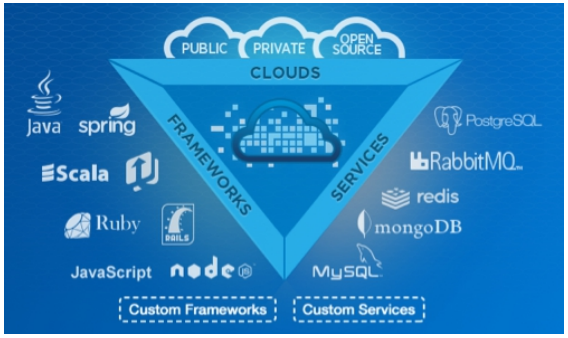
Appendix: Cloud Foundry

Why Cloud Foundry?



Open Cloud Platform

There is an increasing appetite for cloud-based mobile, social and analytics applications from line-of-business executives - drives the need for a more open cloud development platform

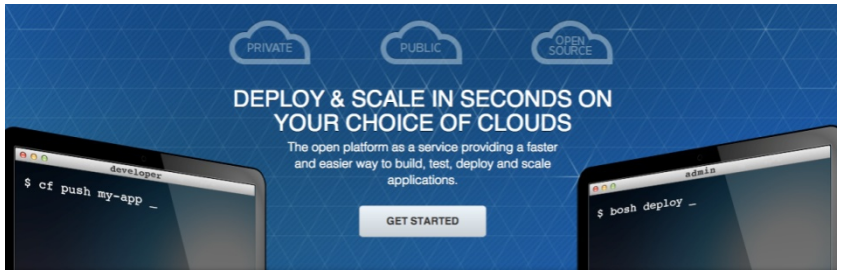


Meets Developer's Needs

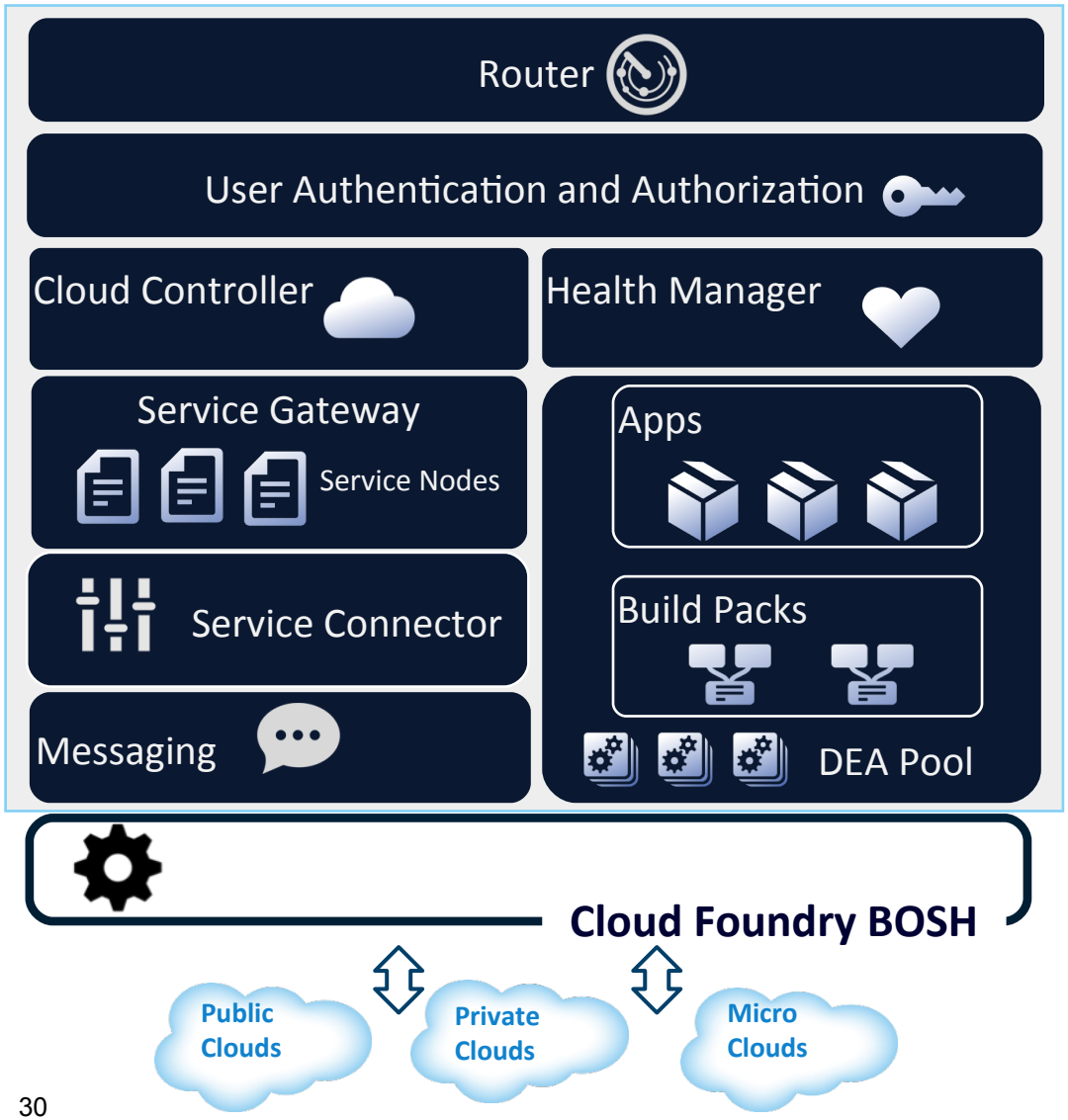
Focus on app development, not provisioning VMs, databases, messaging servers, etc
Agile development model
Deploy and scale in seconds

Compelling Community

Cloud Foundry has a compelling community and emerging ecosystem as well as a mature set of capabilities and robustness



Cloud Foundry Components



Cloud Foundry PaaS

Cloud Foundry services registry and runtime management layer. Components are dynamically discoverable and loosely coupled, exposing health through HTTP endpoints so agents can collect state and act on it.

Application Execution (DEA)
The Droplet Execution Agent manages application instances, tracks started instances, and broadcasts state messages.