

IBM Bluemix - Apps mit Cloud Foundry cool in der Cloud entwickeln



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Agenda

- Einleitung, Überblick
- Cloud Foundry
- Softlayer
- Architektur
- Services
- Liberty Buildpack
- Demo



Registrieren Sie sich jetzt für ein IBM Bluemix-Testkonto, es lohnt sich!

- Sie bekommen 30 Tage Zugriff auf Bluemix
- Es entstehen keine Kosten
- Nach 30 Tagen kann IBM Bluemix weiterhin kostenlos* verwendet werden, Sie müssen allerdings eine Kreditkarte hinterlegen
- Melden Sie sich jetzt für den kostenlosen Testzugang auf bluemix.net an und schicken Sie die Bestätigungs-E-Mail der Registrierung an

ISVTEAM@de.ibm.com

(forward mail). Dann nehmen Sie an der Verlosung eines

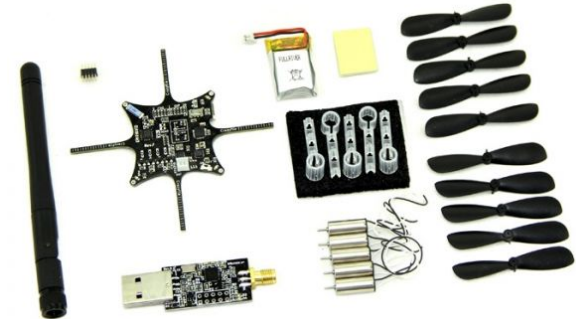
Crazyflie Quadcopters (10 DOF)

teil!

Einsendeschluss: 25.7.2014

Der Rechtsweg ist ausgeschlossen!

*) Es gibt ein freies Kontingent für Laufzeiten, viele Services bieten einen kostenlosen Nutzungsplan.



This kit requires soldering skills and is not for beginners. It is not a toy and should be handled with care.

Mobile

1B+

smart devices shipped in 2013 alone



Cloud

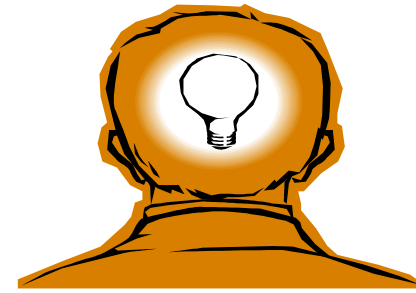
62%

of total workloads will be in the cloud by 2016



The next billion dollar idea starts with a single developer...

That developer starts with a single line of code ...





- **Move quickly, see results fast**
- **Learn by tinkering and playing**
- **Need to learn new skills through experimenting safely**
- **Need freedom to experiment without worrying about pricing* right away**

What is Bluemix? And what does it do?



- BlueMix is IBM's **PaaS** (Platform as a Service) offering
- A cloud-based platform for **rapidly building, managing and running** applications of all types (web, mobile, big data, social, ...).
- Allows developers to use capabilities (**services**) from IBM or ecosystem partners in a pay-as-you-go model in the cloud.
- Runs on IBM **SoftLayer** infrastructure (IaaS)
- Based on open-standards (**OpenStack, Cloud Foundry**)



Open

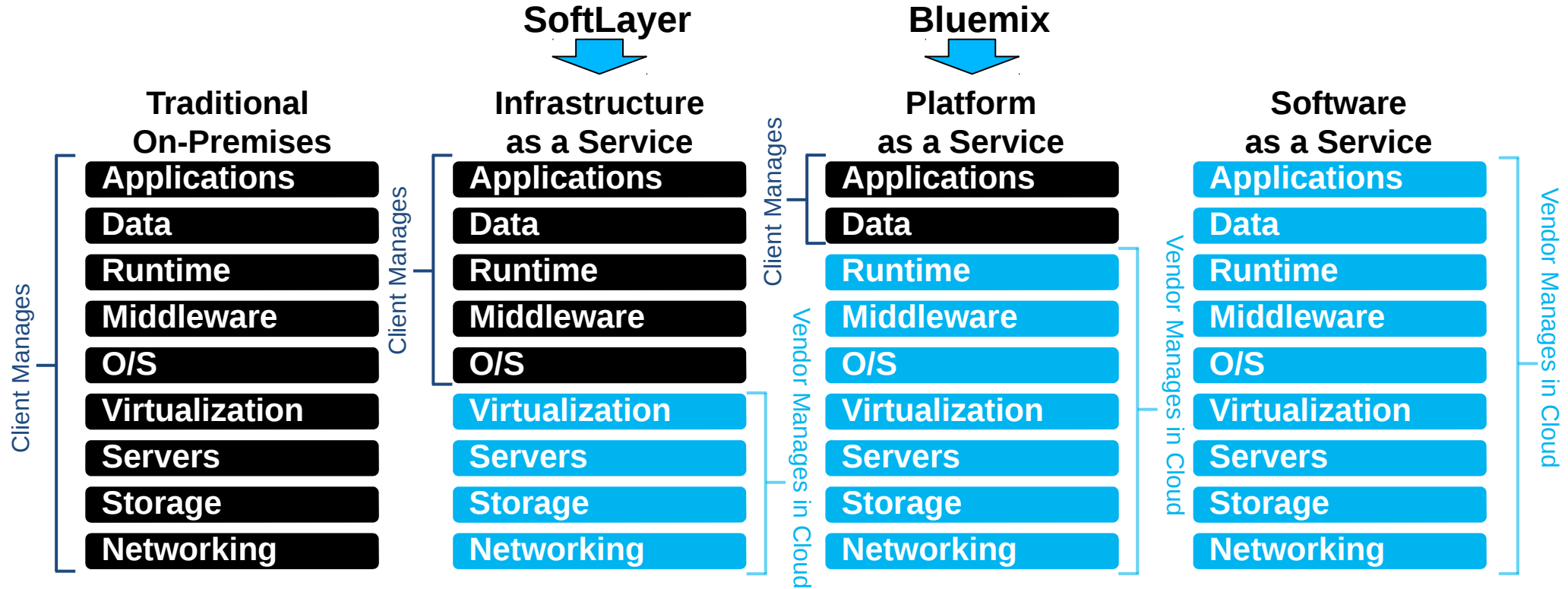


Integrated



Flexible

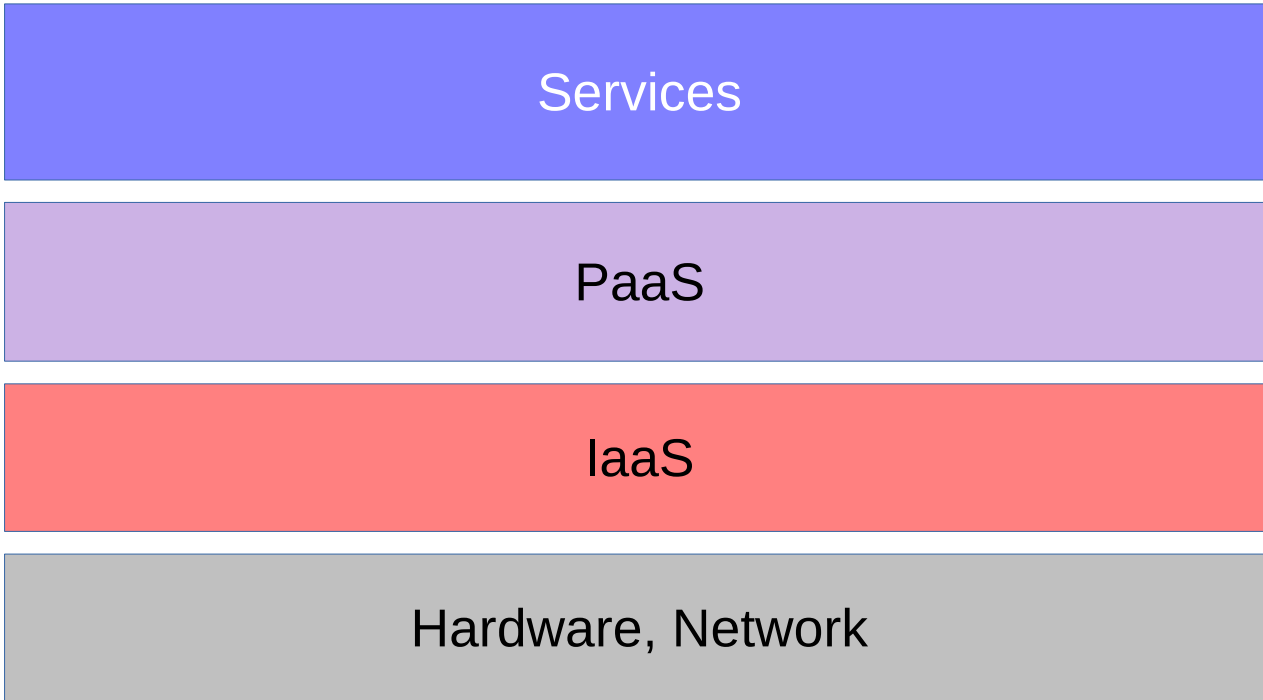
Platform as a Service Cloud Offering



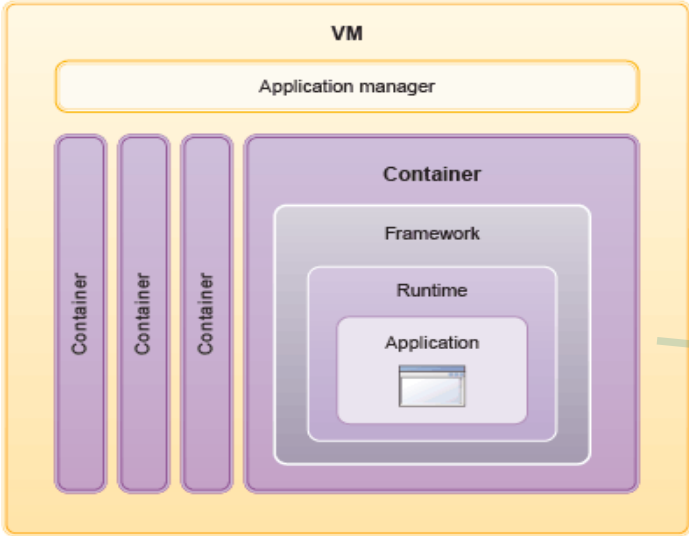
Customization; higher costs; slower time to value

Standardization; lower costs; faster time to value

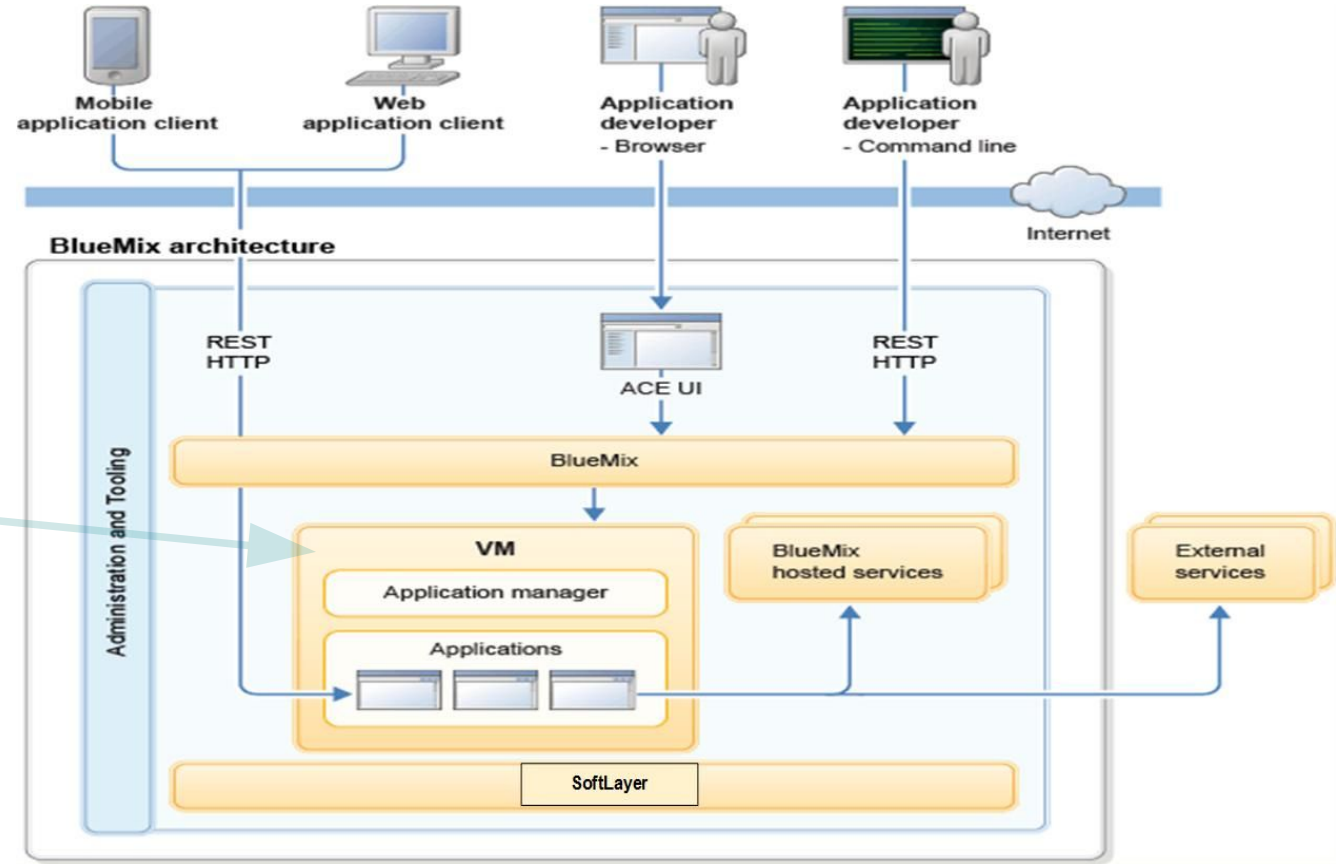
Bluemix Stack



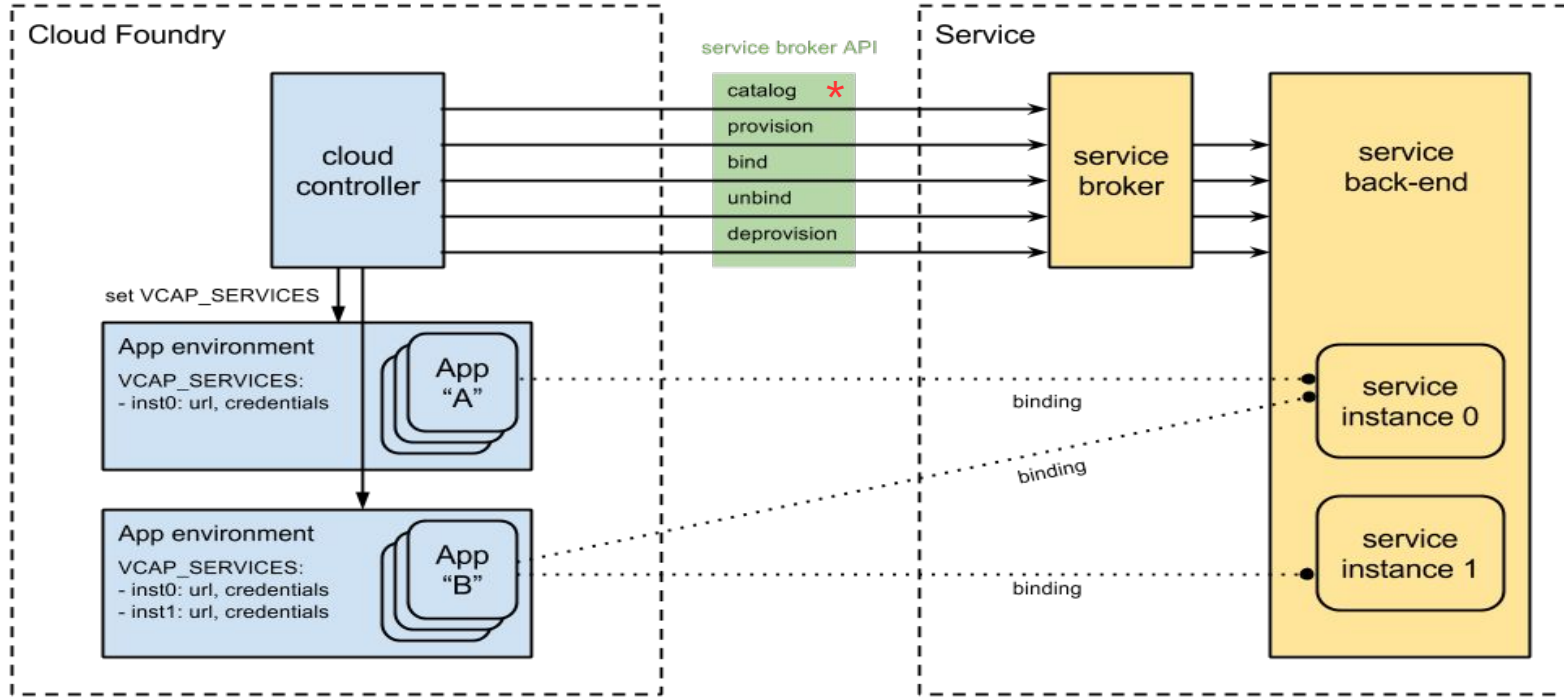
Bluemix Architecture



VM running apps in Warden Containers



Cloud Foundry Services

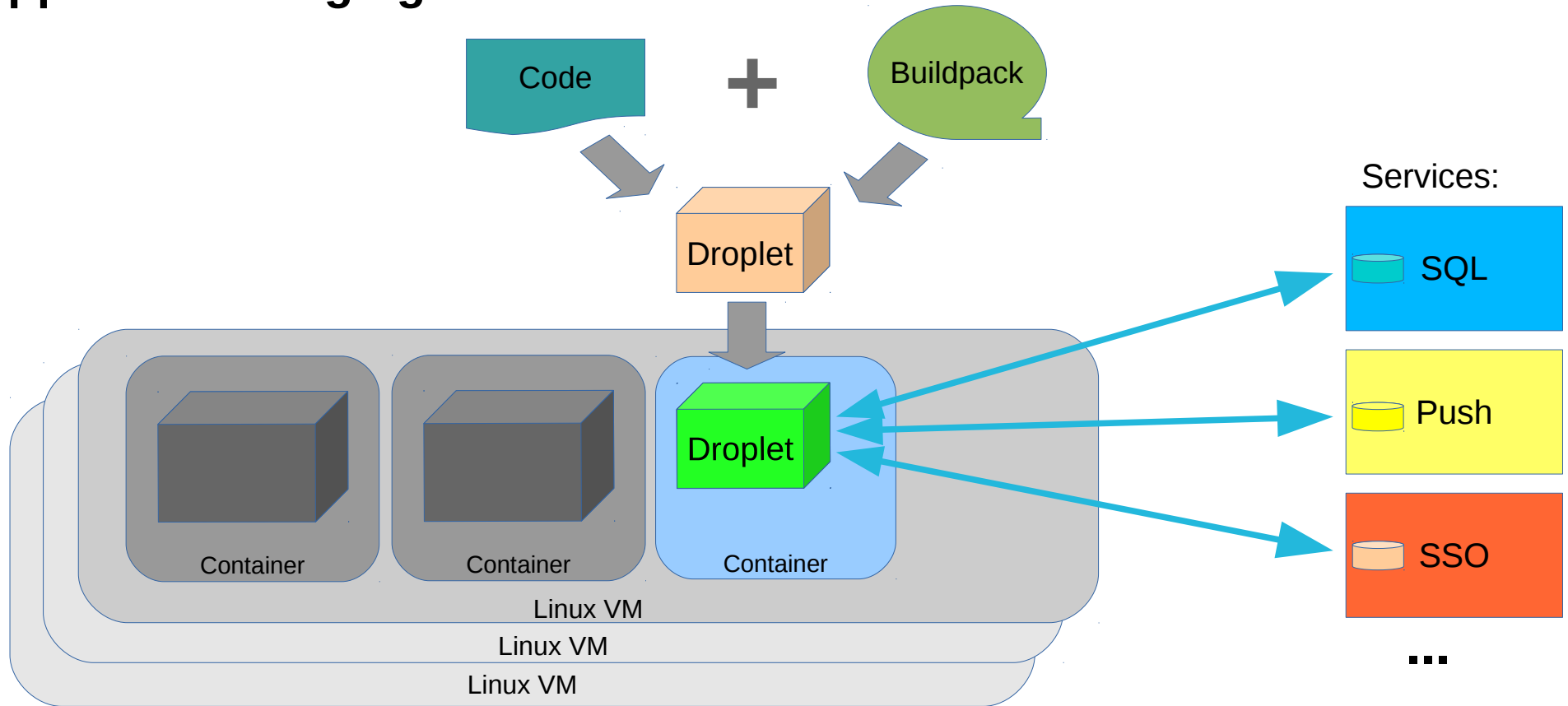


*) *catalog = cf marketplace*
provision = cf create-service
bind = cf bind-service
 etc.

Buildpack

- Provides runtimes and frameworks
 - Contains everything needed to run the application
 - E. g.: Liberty buildpack contains JRE and Liberty profile
- Can be internal or external
 - Bluemix internal: Liberty, Node.js, Ruby on Rails, Ruby Sinatra
 - External buildpacks downloaded on request from github
 - Heroku buildpacks can be used: PHP, Clojure, Python, Haskell, etc.
- Buildpack API
 - *detect*: Can the selected Buildpack service the app?
 - *compile*: Buildpack transformation
 - *release*: Provide metadata (YAML) back to Cloud Foundry to run the application

Application Staging



What is Liberty?

- Introduced with IBM WebSphere Application Server 8.5
- Dynamic profile, provision only features required by application
 - Minimize footprint, lightweight
 - Start / restart quickly
- Configured through simple XML file (server.xml)
 - Add / remove features like JDBC, JPA, JCA, JMS, etc.
- Deploy application by dropping it in a directory
- Plugin and runtime available for Eclipse

<https://developer.ibm.com/wasdev/downloads/>

What is Liberty Buildpack?

- Run Java apps on Liberty profile on Bluemix
- Replaces the standard Java buildpack of Cloud Foundry
- Auto generates Liberty server.xml for several bound services
 - Based on VCAP_SERVICES environment variable
 - SQLDB (= DB2), DataCache, SessionCache, Mongo, ElasticMQ, etc.
 - Service name is mapped to JNDI name
- Special packaging of Liberty for Bluemix / Cloud Foundry
- Special packaging of IBM JRE for Bluemix / Cloud Foundry

- Code Repository
 - Git
 - IBM SCM
 - github (external)
- Delivery Pipeline
 - Build and deploy directly to Bluemix
- Track & Plan
 - Task Management
 - Simple or Scrum
 - Collaboration
- Edit code in Browser
 - Orion editor
- Register at hub.jazz.net

Create a project

haralduebele | ✓

URL: <https://hub.jazz.net/project/haralduebele/MyProject>

Choose where your code will be (required)



Use Jazz SCM



Create a Git repository

or



Connect to an external
GitHub repository

Git Repository URL: <https://hub.jazz.net/git/haralduebele/MyProject>

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. [i](#)

Deploy to Bluemix

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

Please select an organization and space:

Bluemix Organization

Bluemix Space

These selections can be changed later in Project Settings.

To deploy your application to [Bluemix](#) we need to connect your project to a Bluemix account.

If you prefer to do this later just uncheck "Deploy to Bluemix" to continue.

CREATE

CANCEL

Bluemix Demo

Call to Action



200 IBM Bluemix Days

- Come learn about IBM's new cloud development platform: IBM Bluemix
- **Bluemix Hands-On Workshops:** Take the opportunity to build and deploy applications and services like DevOps and Data in a matter of hours on Bluemix! As part of this workshop you will be able to:
 - Learn the fundamentals of building and deploying your application in the Cloud (Bluemix DevOps Services)
 - Work with Bluemix experts on how to use the product and migrate your application
 - Help shape Bluemix with your input and feedback
- Next workshop:
 - **29.7.2014** at IBM Ehningen
 - 10:00 to 17:00
 - Lecture and Hands-On Labs
 - Interested? Register here: <https://ibm.biz/BdFF2C>
 - List of all Bluemix events: <https://ibm.biz/BdFFJz>

Resources

- IBM Innovation Center Ehningen
https://www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/isv_inv_tsp_iic_ehningen_overview
- Bluemix site <http://bluemix.net>
- Liberty site <https://developer.ibm.com/wasdev/>
 - Download Liberty Code
 - Getting started documentation
https://developer.ibm.com/wasdev/docs/getting_started_with_the_was_liberty_profile/
- Cloud Foundry <http://cloudfoundry.org>
- Elaborate Bluemix presentation <http://www.slideshare.net/RyanBaxter/dev-nirvanablue mix>
- Liberty Buildpack <http://www.slideshare.net/kelapure/1713-deep-diveliberty-buildpack>
- IBM Eclipse Tools for Bluemix
<https://developer.ibm.com/wasdev/2014/06/30/announcing-ibm-eclipse-tools-bluemix/>
- More <http://www.slideshare.net/kelapure/1733-integrating-serviceslibertybuildpack>

Bluemix Screenshots

(Backup)

Runtimes, Services, Add-Ons

The screenshot displays the IBM Bluemix Catalog interface. At the top, there is a navigation bar with 'DASHBOARD', 'CATALOG', 'DOCS', and 'COMMUNITY' tabs, and a user profile 'uebele_org'. A search bar is located on the left. Below the navigation, there are filter options for 'IBM Created', '3rd Party', 'Community', and 'Experimental'. The main content is organized into several sections:

- Boilerplates:** A row of six large, colorful tiles representing different boilerplate templates: 'Internet of Things', 'JAVA Web Starter', 'Mobile Cloud', 'NODE JS WEB STARTER', 'Node-RED', and 'JAVA+DB Web Starter'.
- Runtimes:** A section titled 'Runtimes' with the subtitle 'Code in the language that works for you.' It features five circular icons: 'Liberty for Java™ IBM Created', 'Node.js IBM Created', 'Ruby on Rails Community', 'Ruby Sinatra Community', and 'Bring Your Own Community'.
- Add-Ons:** A section titled 'Add-Ons' with the subtitle 'Manage and monitor your applications.' It features four hexagonal icons: 'Auto-Scaling IBM Created', 'CloudIntegration IBM Created', 'Monitoring and Analytics IBM Created', and 'RapidApps IBM Created'.
- Web and Application:** A section titled 'Web and Application' with the subtitle 'Leverage enterprise grade capabilities in your applications.' It features two rows of hexagonal icons: the first row includes 'CastIronLive IBM Created', 'DataCache IBM Created', 'LogAnalysis IBM Created', 'MQLight IBM Created BETA', 'Rules IBM Created', and 'SessionCache IBM Created'; the second row includes 'SSO', 'CloudAMQP', 'Geocoding', 'Memcached Cloud', 'Redis Cloud', and 'Reverse Geocoding'.

hueCloudTrader
Liberty
⚙️

OVERVIEW

- Runtime
- Files and Logs
- SERVICES (1)
- SQLDB
- ADD-ONS (1)
- Monitoring and Analytics

Resources

Instances:

Memory Quota (Instance):

SAVE
RESET

Memory Quota	Current	After
Total:	8.000GB	--
Other Apps:	3.312GB	--
This App:	512.0MB	512.0MB
Per Instance:	512.0MB	512.0MB
Instances:	1	1
Available:	4.188GB	4.188GB

Instance Details

Instance	State	CPU	Memory Usage	Disk Usage	Start Time
0	Running	1.1%	387.6MB / 512MB	232.9MB / 1...	Jun 15, 2014, 10:44:46 AM

Environment Variables

VCAP_SERVICES
USER-DEFINED

```

{
  "SQLDB-1.0": [
    {
      "name": "TradeDataSource",
      "label": "SQLDB-1.0",
      "plan": "SQLDB_OpenBeta",
      "credentials": {
        "hostname": "192.155.243.185",
        "host": "192.155.243.185",
        "port": 50000,
        "username": "u936918",
        "password": "DL70UI5IUz",
        "db": "I_311732",
        "jdbcurl": "jdbc:db2://192.155.243.185:50000/I_311732",
        "uri": "db2://u936918:DL70UI5IUz@192.155.243.185:50000/I_311732"
      }
    }
  ]
}
                
```

Auto-Scaling: Increase or decrease number of running instances for elasticity

Space: dev Connected to: DOCS

Auto-Scaling-y4 Automatically Increase or decrease the num...

Select application: hwBlueC [← Back](#)

Policy Configuration Metric Statistics Scaling History

[← Back](#) | Edit Auto Scaling Policy

The name of the policy:

The minimum number of application instances:

The maximum number of application instances:

Scaling Rule(s)

▼ Rule 1
 Add 1 instance if CPU Average exceeds 80% for 300 seconds.
 Remove 1 Instance if CPU Average is below 30% for 300 seconds

Metric Type:

Scale Out: If average CPU utilization exceeds % , then increase

Scale In: If average CPU utilization is below % , then decrease

▶ Advanced Configurations

ADD A RULE

There are unsaved changes.

Monitoring

