IBM Cloud
Containers Workshop

Cloud Overview

Public Cloud

Clouds

Public Cloud

Dedicated Cloud

Private Cloud
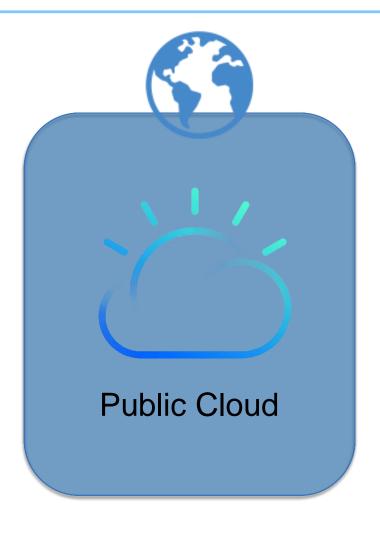
Public Cloud
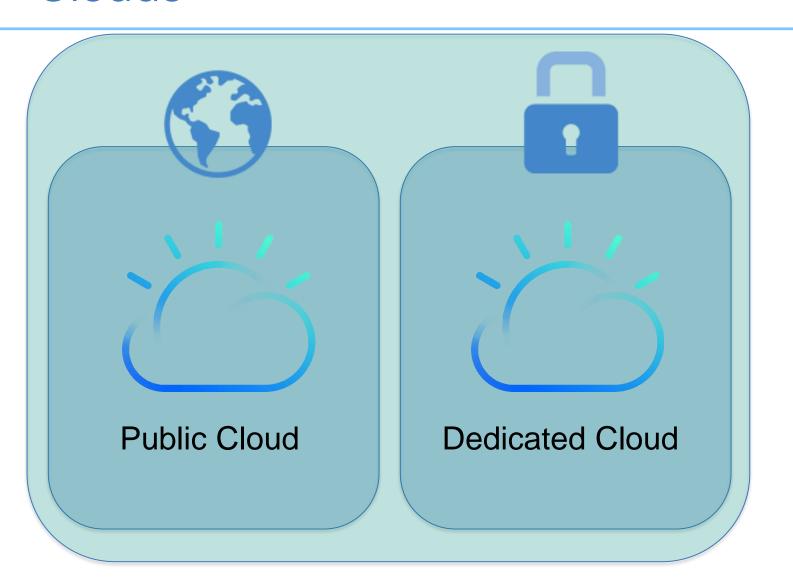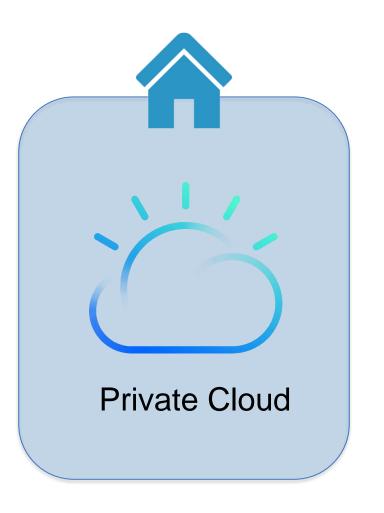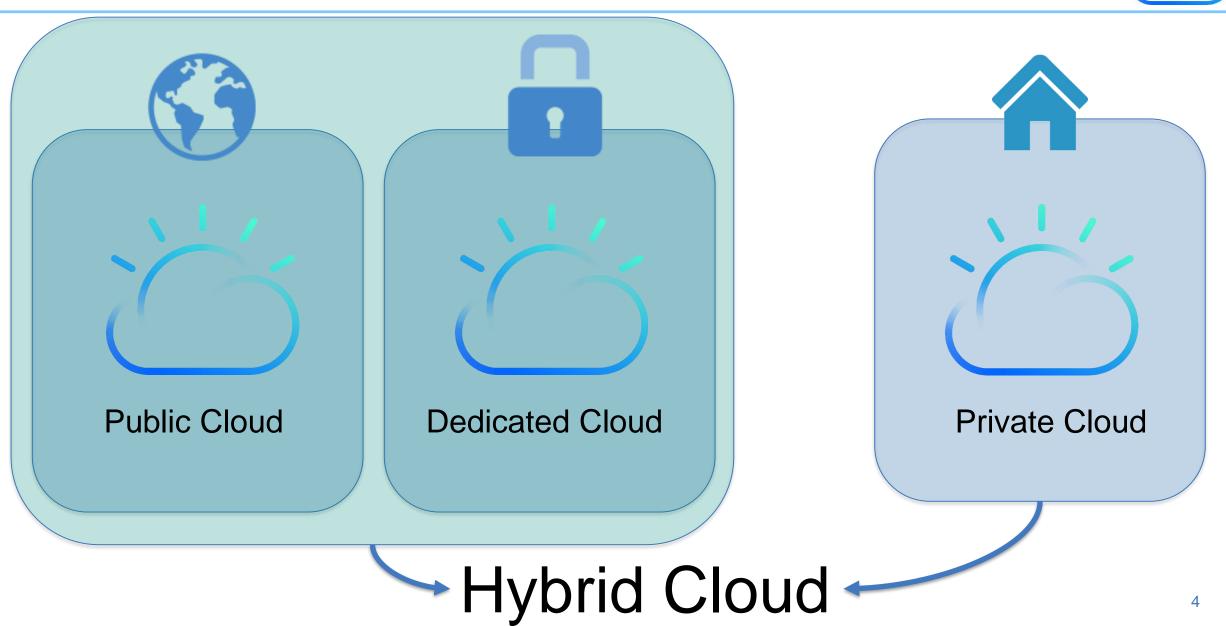
Dedicated Cloud

Private Cloud

Hybrid Cloud

IBM provides a choice of cloud adoption models

Choice with consistency

Hybrid integration

DevOps productivity

Powerful, accessible data and analytics

Cognitive solutions

PUBLIC

Maximize on cloud agility and economics

DEDICATED

Public cloud benefits, with dedicated infrastructure

PRIVATE

Behind the firewall for the most demanding workloads

Seamless Experience
Regardless of which combination you choose, you get a single, seamless experience.
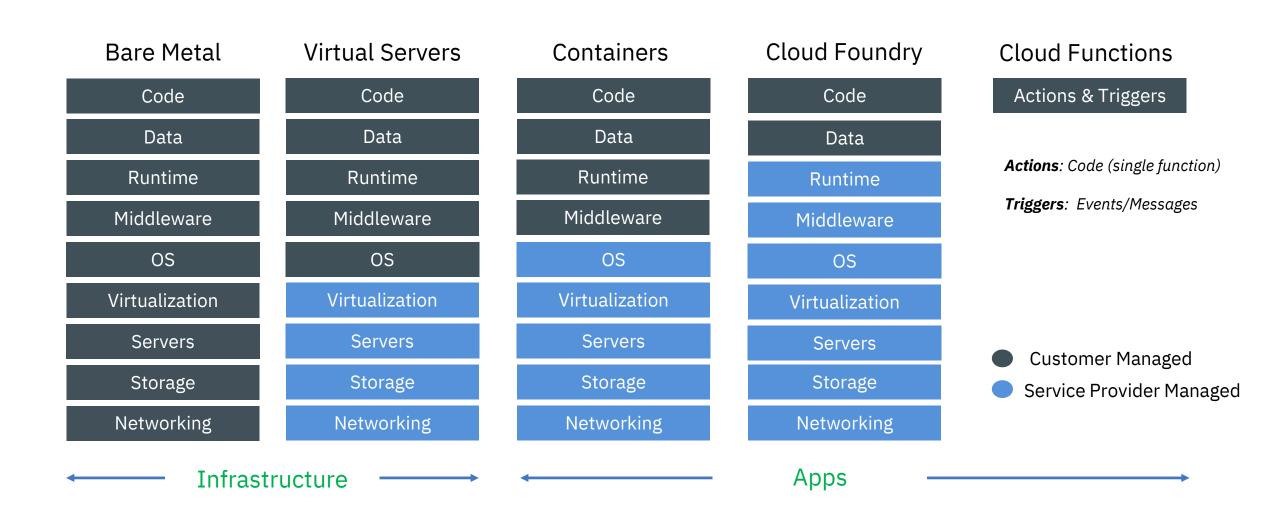
Agenda

- **Compute options**
  - Infrastructure
  - Cloud Foundry
  - IBM Cloud Function

- **IBM Cloud Services**
  - Watson Services
  - Watson Studio

- **IBM Cloud Account**
  - Promo Code
  - Prepare environment

Cloud Computing – Levels of Responsibility

Bare Metal	Virtual Servers	Containers	Cloud Foundry	Cloud Functions
Code	Code	Code	Code	Actions & Triggers
Data	Data	Data	Data	
Runtime	Runtime	Runtime	Runtime	
Middleware	Middleware	Middleware	Middleware	
OS	OS	OS	OS	
Virtualization	Virtualization	Virtualization	Virtualization	
Servers	Servers	Servers	Servers	
Storage	Storage	Storage	Storage	
Networking	Networking	Networking	Networking	

Actions: *Code (single function)*

Triggers: *Events/Messages*

● Customer Managed

● Service Provider Managed

← Infrastructure → ← Apps →

Flexible compute options

Bare Metal
- *Dedicated Compute*
- *High Memory*
- *Intensive Disk I/O*

Virtual Servers
- *Isolation*
- *Familiar*
- *Full Operating System Control*

Containers
- *Portable*
- *Flexible*
- *Light-weight*
- *Orchestration*

Cloud Foundry Apps
- *Speed*
- *Manage code, not infrastructure*
- *Multiple runtime choices*

Cloud Functions
- *Serverless*
- *Event-Driven*
- *Short-lived*

PERFORMANCE & CONTROL ← PORTABILITY → DEVELOPMENT SPEED

Compute Infrastructure

SAP Certified Servers

Build, deliver, and run SAP applications in the cloud

Bare Metal Servers

Raw IaaS horsepower for processor-intensive and disk I/O-intensive workloads

Virtual Servers

Fast deployment when resources are needed on the fly

GPU Computing

Handle complex, compute-intensive workloads, including analytics, graphics, and AI

POWER Servers

Develop, test, and run Linux applications

Server Software

Operating systems to control panels to simplify IaaS administration

IBM

Public Services

Block and File **Object** **Mass Data Migration** **Backup** **Mass Storage Servers**

For when you need...

- File sharing

- Local archiving

- Data protection

- Data bases

- Email servers

- RAID

- Virtual machines

- Huge data storage

- API driven web applications support

- Big archived backups

- Cost effective dynamic data accessibility

- To move TBs of data to the cloud

- Sensitive data solutions

- Economical storage to cloud pricing

- Limited internet connection support

- Data center decommission strategy

- Copies and instances of data

- Full control over maintenance, management, retrieval and restoration

- Customizable choices

- Turnkey or custom-built options

- Private SAN/NAS storage

- Unlimited access

- Data, intensive, redundant power solutions

- High performance and functionality

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PERFORMANCE & CONTROL ← → **PORTABILITY** ← → **DEVELOPMENT SPEED**

IBM Kubernetes Service

Combining Docker and Kubernetes to deliver powerful tools, an intuitive user experience, and built-in security and isolation to enable rapid delivery of applications - all while leveraging IBM Cloud Services including cognitive capabilities from Watson.

https://www.ibm.com/cloud/container-service

Kubernetes Certified Service Provider
Kubernetes Technology Partner
Kubernetes Service Providers

certified kubernetes 1.10

certified kubernetes 1.11

certified kubernetes 1.12

certified kubernetes 1.13

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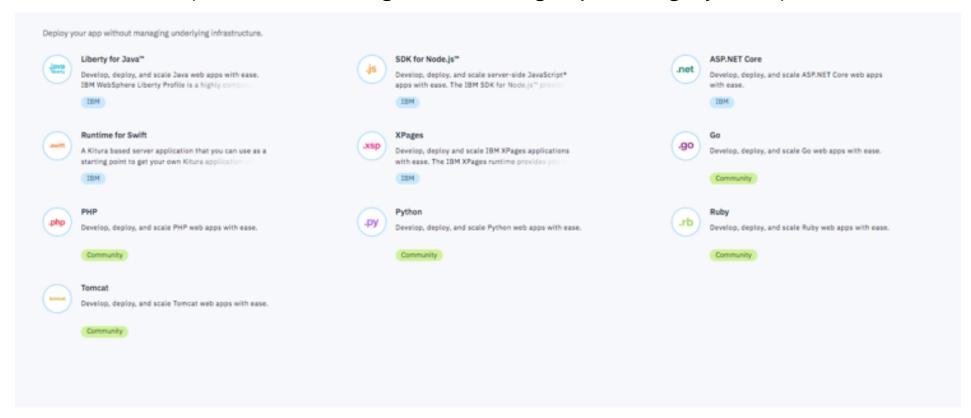- *Event-Driven*
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PERFORMANCE & CONTROL ← PORTABILITY → DEVELOPMENT SPEED

Cloud Foundry : Instant Runtimes

Cloud Foundry is an open source PaaS that lets developers **focus on their application code** and let the **platform handle the rest** (runtime, scaling, networking, operating system)

github.com/cloudfoundry-community/cf-docs-contrib/wiki/Buildpacks

IBM Cloud Foundry services - run you apps in seconds

Multiple language support

- Java Liberty, JavaScript, Ruby, Go, PHP, Python provided
- Bring any language from the community thru **Buildpacks**

No VM or middleware setup

- Provision runtimes in seconds
- Auto and manual scaling options

IBM Cloud extends Cloud Foundry

- Out-of-the-box managed runtimes
- Automatic binding of services
- enterprise-grade DevOps tooling,
- seamless overall developer experience

IBM Cloud Foundry Enterprise Edition

- Network isolation
- Dedicated hardware

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PERFORMANCE & CONTROL ◄———— **PORTABILITY** ————► **DEVELOPMENT SPEED**
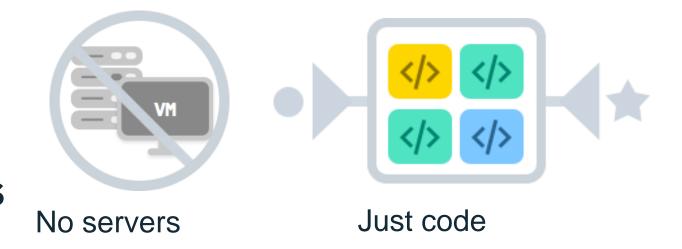
IBM Cloud Functions

A Serverless Platform for Event-Driven Compute
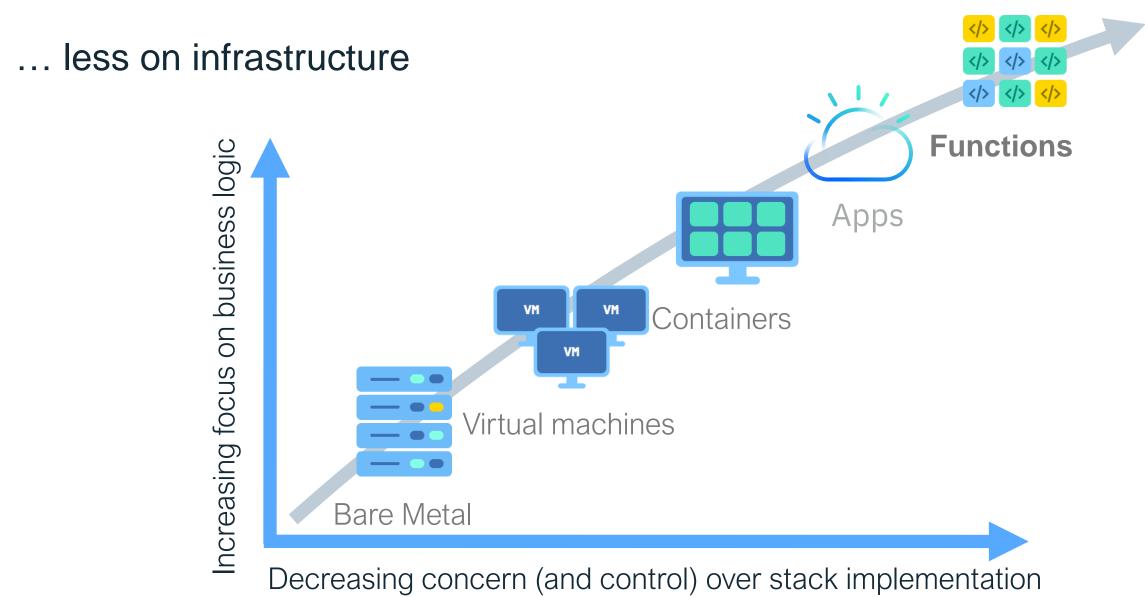
Runs code **only** on-demand on a per-request basis

No management and operation of **infrastructures**

Focus on developing **value-adding code** and on driving **innovations**

No servers

Just code

Focus more on code…

… less on infrastructure

Functions

Apps

Containers

Virtual machines

Bare Metal

Increasing focus on business logic

Decreasing concern (and control) over stack implementation

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IBM Cloud managed services

- Building blocks of applications running in IBM Cloud runtimes available as infrastructure or platform.

- Add ready to use features and functionality to application code

- Covers AI, Internet of Things, Analytics, DevOps, Blockchain, Storage and many more…

- Are provided by IBM, Open-source communities and third-party partners

Cloud Foundry

Containers
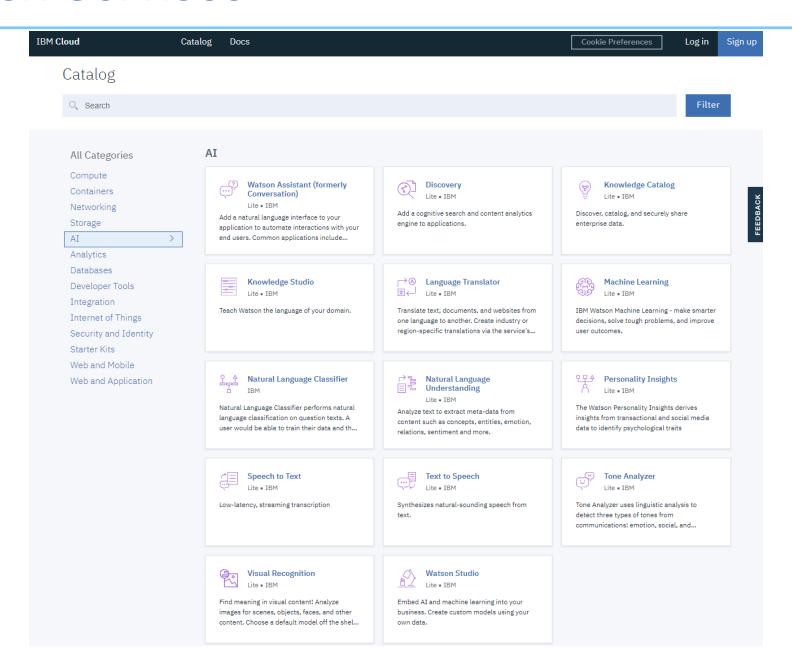
Infrastructure

VMware

Dashboard

APIs

Apple Development New

Blockchain

DevOps

Finance

Functions

Integrate

Mobile

Security

Watson

Web Apps

AI : Watson Services

Watson Studio
Supporting the end-to-end AI workflow

| Connect & Access Data | Search and Find Relevant Data | Prepare Data for Analysis | Build and Train ML/DL Models | Deploy Models | Monitor, Analyze and Manage |

Connect and discover content from multiple data sources in the cloud or on premises. Bring **structured** and **unstructured** data to one toolkit.

Find data (structured, unstructured) and AI assets (e.g., ML/DL models, notebooks, Watson Data Kits) in the **Knowledge Catalog** with intelligent search and giving the right access to the right users.

Clean and prepare your data with **Data Refinery**, a tool to create data preparation pipelines visually.
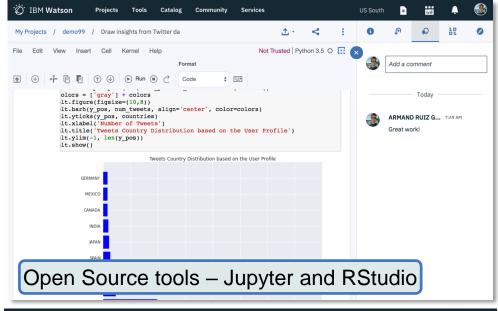Use popular open source libraries to prepare unstructured data.

Democratize the creation of ML and DL models. Design your AI models **programmatically** or **visually** with the most popular **open source** and IBM ML/DL frameworks or leverage transfer learning on **pre-trained** models using **Watson tools** to adapt to your business domain. Train at scale on **GPUs** and **distributed** compute
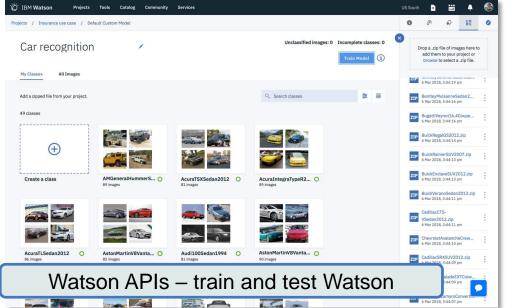
Deploy your models easily and have them **scale automatically** for online, batch or streaming use cases
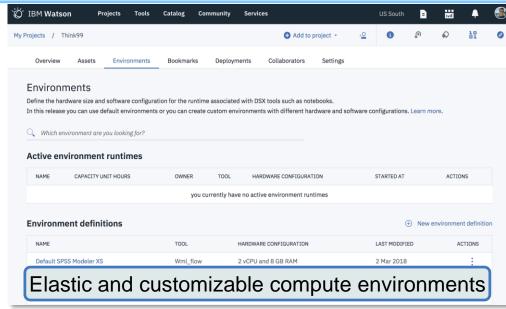
Monitor the performance of the models in production and trigger automatic retraining and redeployment of models. Build **Enterprise Trust** with Bias Detection, Mitigation Model **Robustness** and Testing Service Model **Security**.
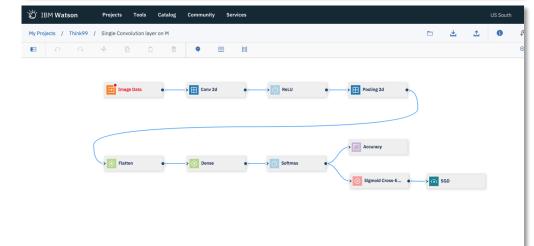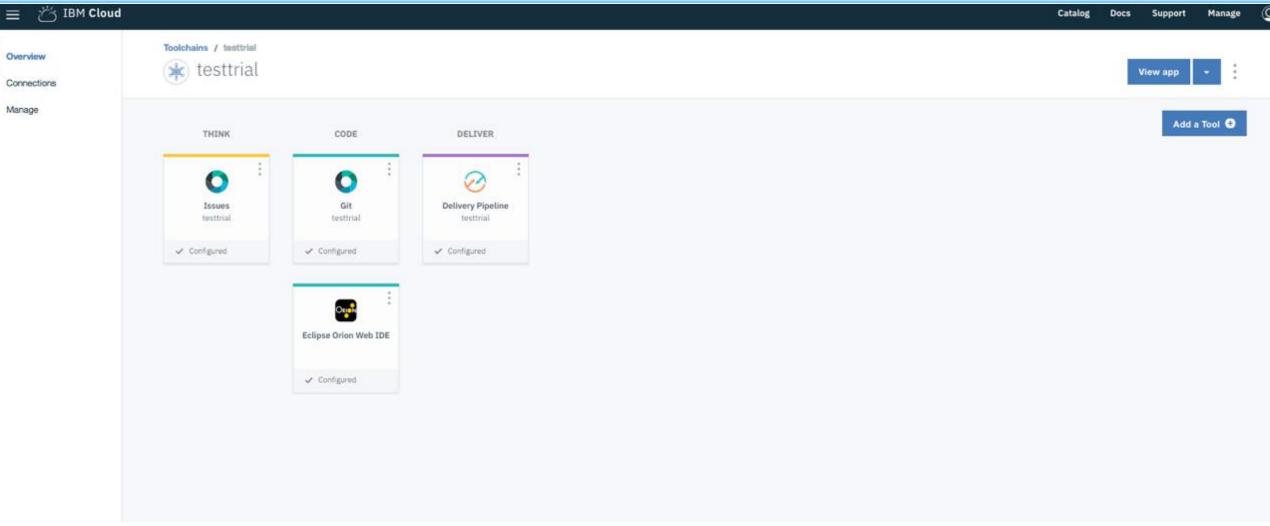
Watson Studio

Open Source tools – Jupyter and RStudio

Elastic and customizable compute environments

Watson APIs – train and test Watson

Create ML flows and design Neural Networks visually

DevOps Toolchain: Add tools to your toolchain
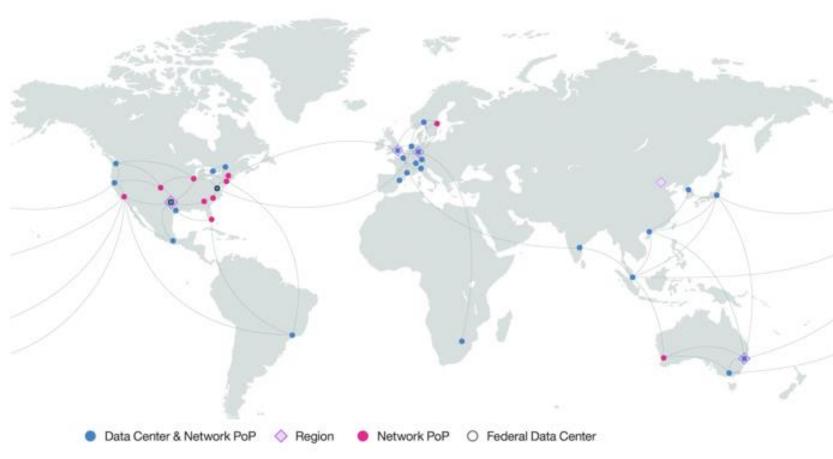
IBM Cloud Regions

Nearly 60 IBM Cloud data centers around the world:

Data Center & Network PoP   ◇ Region   ● Network PoP   ○ Federal Data Center

IBM Cloud Public Regions:

- Dallas (US South)
API endpoint: api.ng.bluemix.net
- Washington DC (US East)
API endpoint: api.us-east.bluemix.net
- London (United Kingdom)
API endpoint: api.eu-gb.bluemix.net
- Frankfurt (Germany)
API endpoint: api.eu-de.bluemix.net
- Sydney (Australia)
API endpoint: api.au-syd.bluemix.net
- Tokyo (Japan)
API endpoint: api.jp-tok.bluemix.net

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IBM Cloud lite account

- **Free** account
- **No time limit**
- Learn, explore and build POCs
- **One** Cloud Foundry **Organization** in one Region
- **One Resource Group**
- Auto sleep, garbage collection, alerts before approaching data thresholds
- 256 MB of Cloud Foundry runtime memory
- Kubernetes Cluster Lite Plan: 2 CPUs, 4 GB RAM
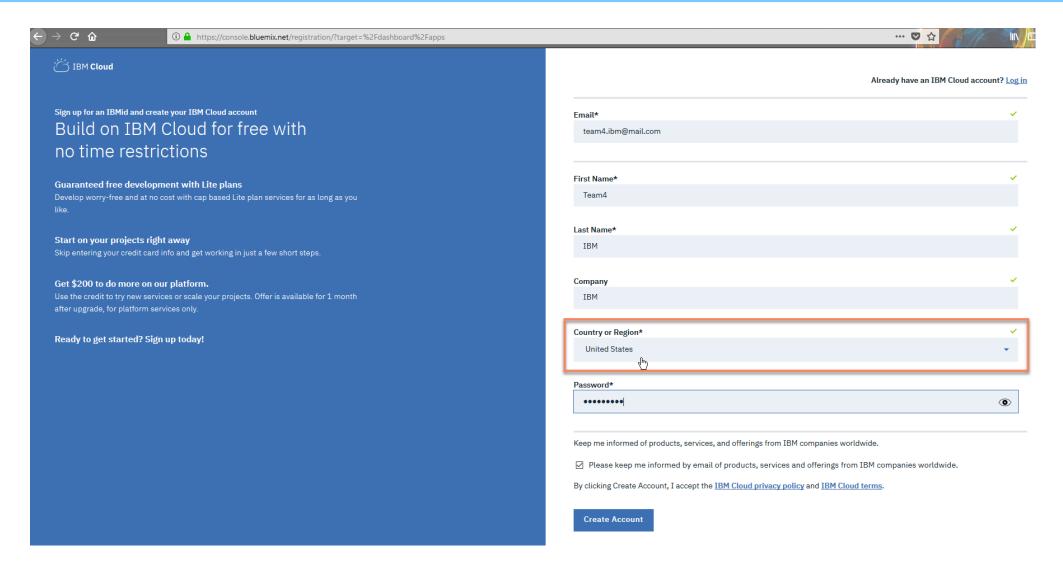- Access to usage capped plans for **services with** *Lite* **label**

Pay-As-You-Go and Subscription Accounts

- Access to the **full catalog**, including the **free plans**

- **Production use cases**

- **Multiple resource groups**

- **Pay-as-you-go**:
  - Monthly IBM Cloud invoice
  - charges are based on your use of IBM Cloud compute and services

- **Subscription**:
  - get a monthly discount based on a minimum monthly spending
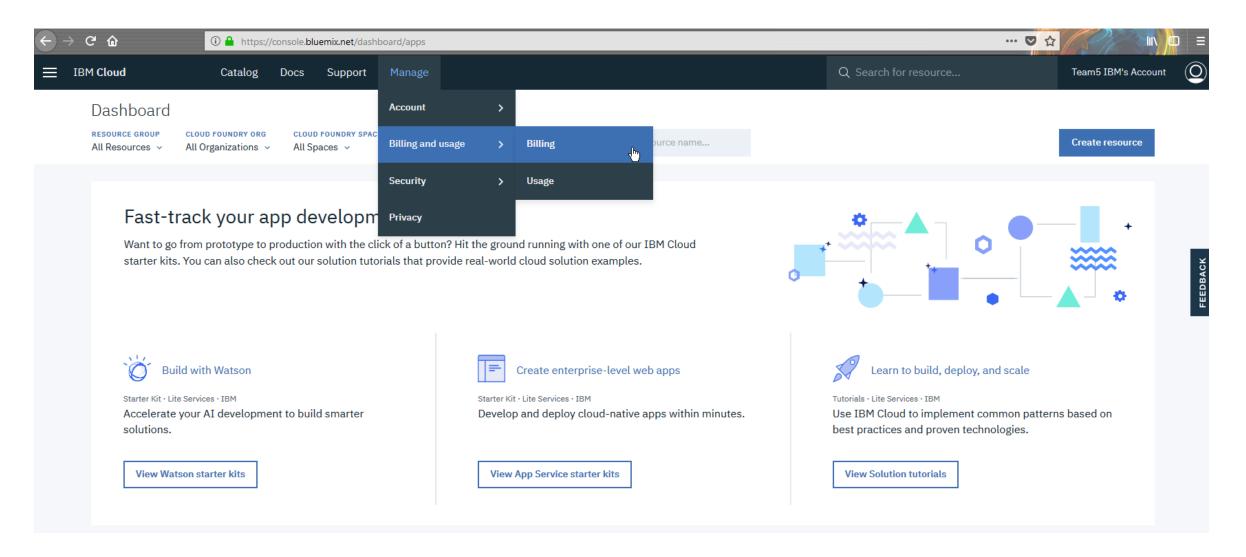 - commitment, negotiated pricing

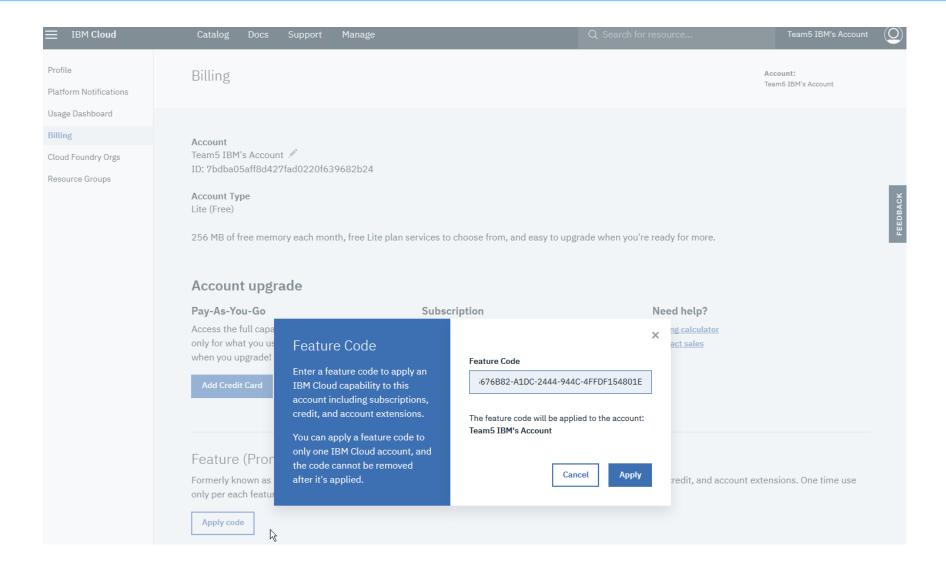# Create your IBM Cloud Account (US South Region)

Add promo code

Add promo code

Add promo code

Feature Code

Applied: 35676B82-A1DC-2444-944C-4FFDF154801E

The following changes have been applied to the account, Team5 IBM's Account.

- Converted Lite account to trial account.
- This trial account is valid for 185 days.
- Updated Cloud Foundry org quota to 16GB.

Enter another code   Close