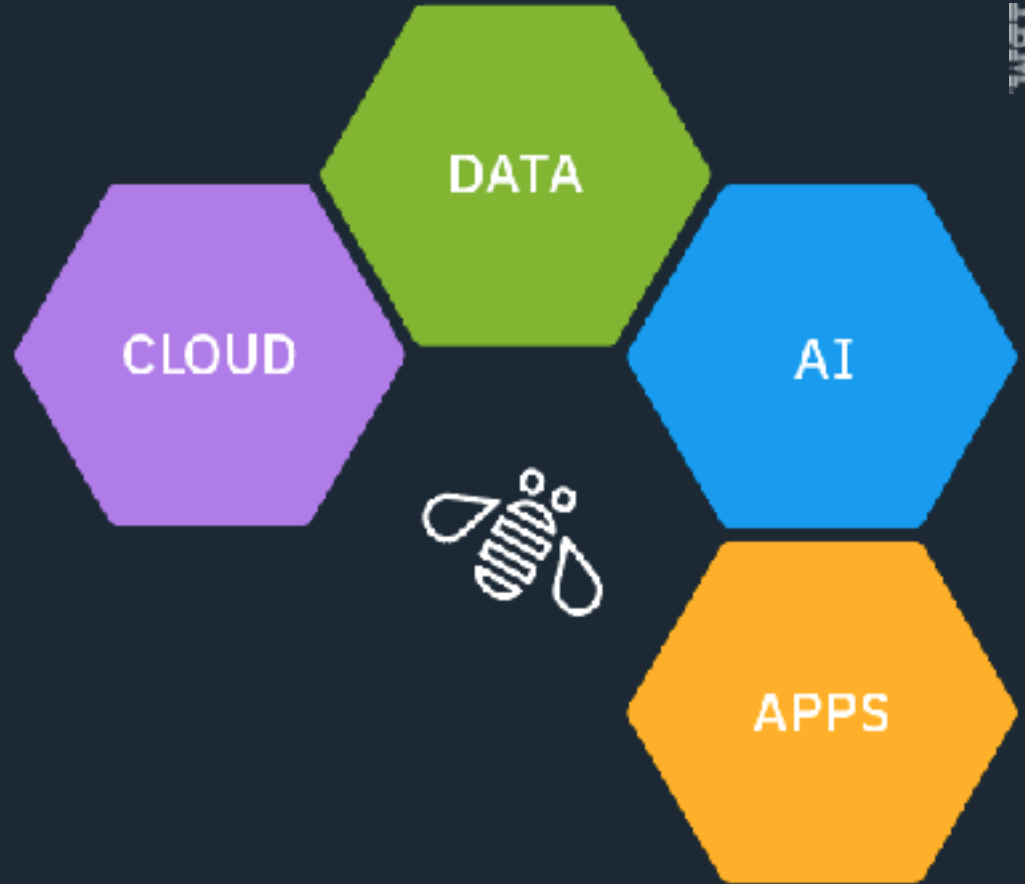


## The IBM Watson and Cloud Platform



The Enterprise Cloud Platform

# The IBM Watson and Cloud Platform

## Application

Healthcare

Financial  
Services

Logistics

Data  
Science

IoT

Virtual agent



+ more...

## AI

Conversation

Discovery

Compare  
+ Comply

Knowledge  
Query

Tone Analysis

Personality  
Insights

Visual  
Recognition

Speech

Document  
Conversion

Nat. Language  
Understanding

Nat. Language  
Classifier

+ more...



## Data



Public, Private, Licensed

Ingest



Enrich



Store



Analyze



Apply



## Cloud

Dev Services

Containers

Messaging

Blockchain

Logging

+ more...

Infrastructure

Storage

Compute

Physical Network

Infrastructure Mgmt

+ more...



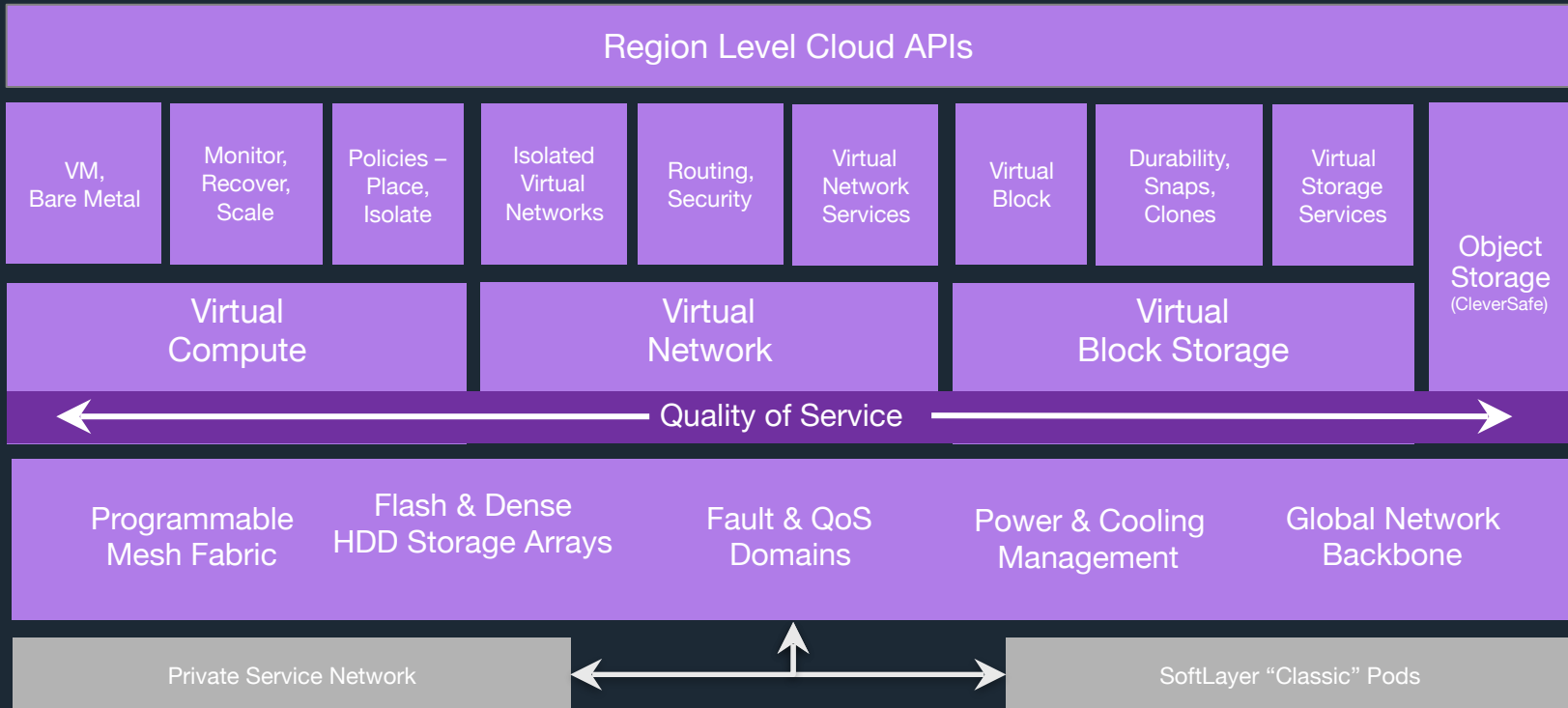
# Cloud - Infrastructure Services

Application

AI

Data

Cloud



# Cloud – Developer Services

[https://pages.github.ibm.com/CloudEngineering/system\\_architecture/portfolio\\_view/cloud-devsvc.html](https://pages.github.ibm.com/CloudEngineering/system_architecture/portfolio_view/cloud-devsvc.html)

Application

AI

Data

Cloud

DevOps (Open Toolchain) and Developer Experience

Logging

Analytics/Monitoring

Image Management

Language Runtimes (Node/  
Java/Swift)

Microservices Fabric (Istio)

Messaging (Kafka)

12-Factor Apps  
(Cloud Foundry)

Event-Driven  
Apps (Functions)

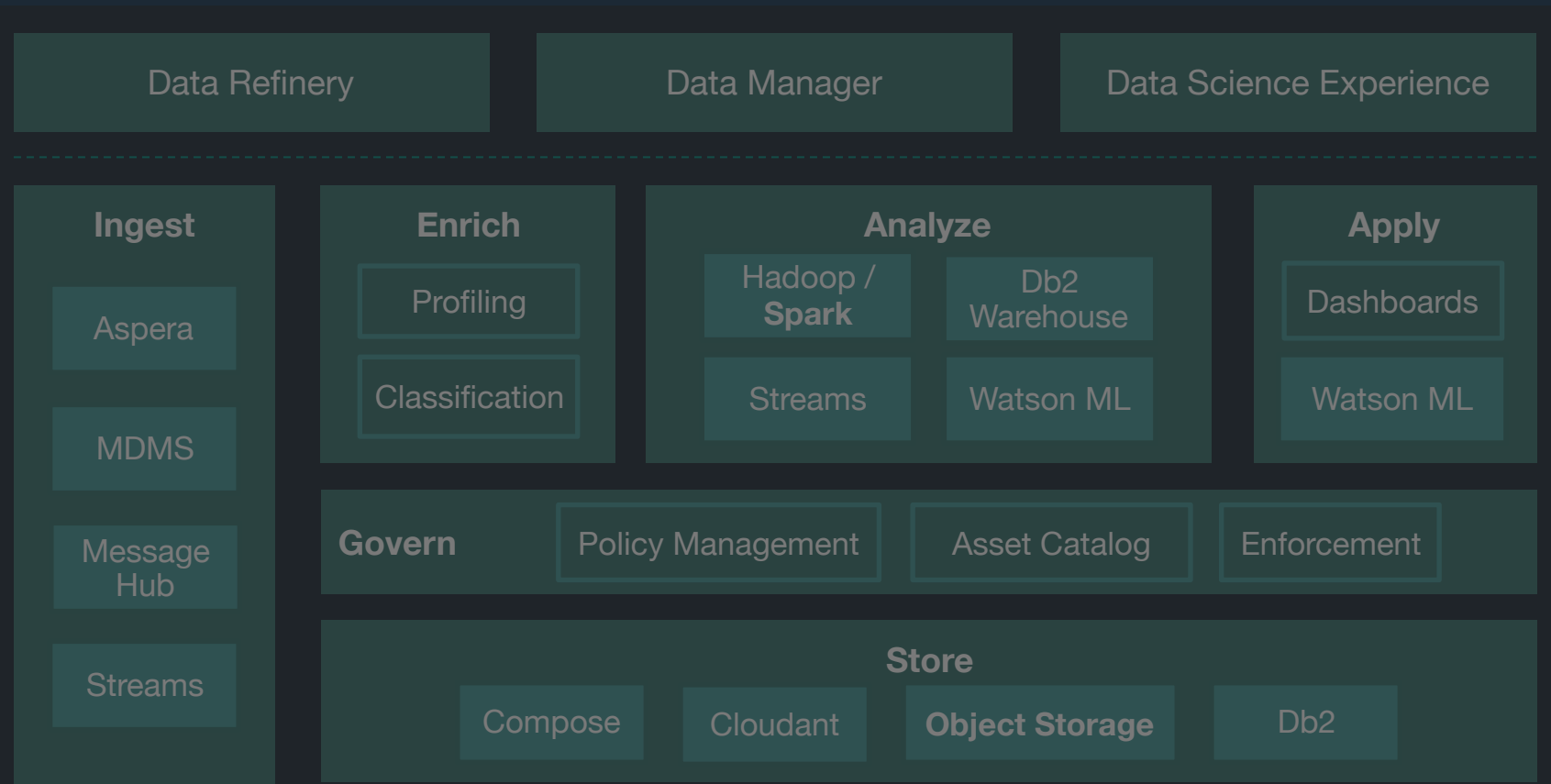
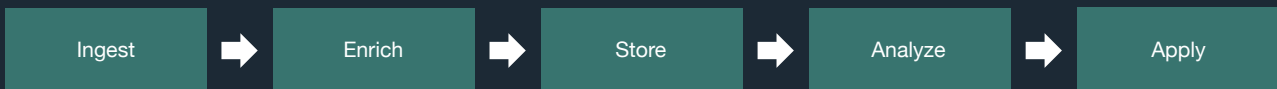
Environment Management (Terraform)

Security

Container Orchestration  
(Kubernetes)

Container  
Networking

Infrastructure



Service

Capability

Application

AI

Data

Cloud

# Watson Data Platform

Data Refinery

Data Manager

Data Science Experience

## Ingest

Aspera

MDMS

Message  
Hub

Streams

## Enrich

Profiling

Classification

## Analyze

Hadoop /  
**Spark**Db2  
Warehouse

Streams

Watson ML

## Apply

Dashboards

Watson ML

## Govern

Policy Management

Asset Catalog

Enforcement

## Store

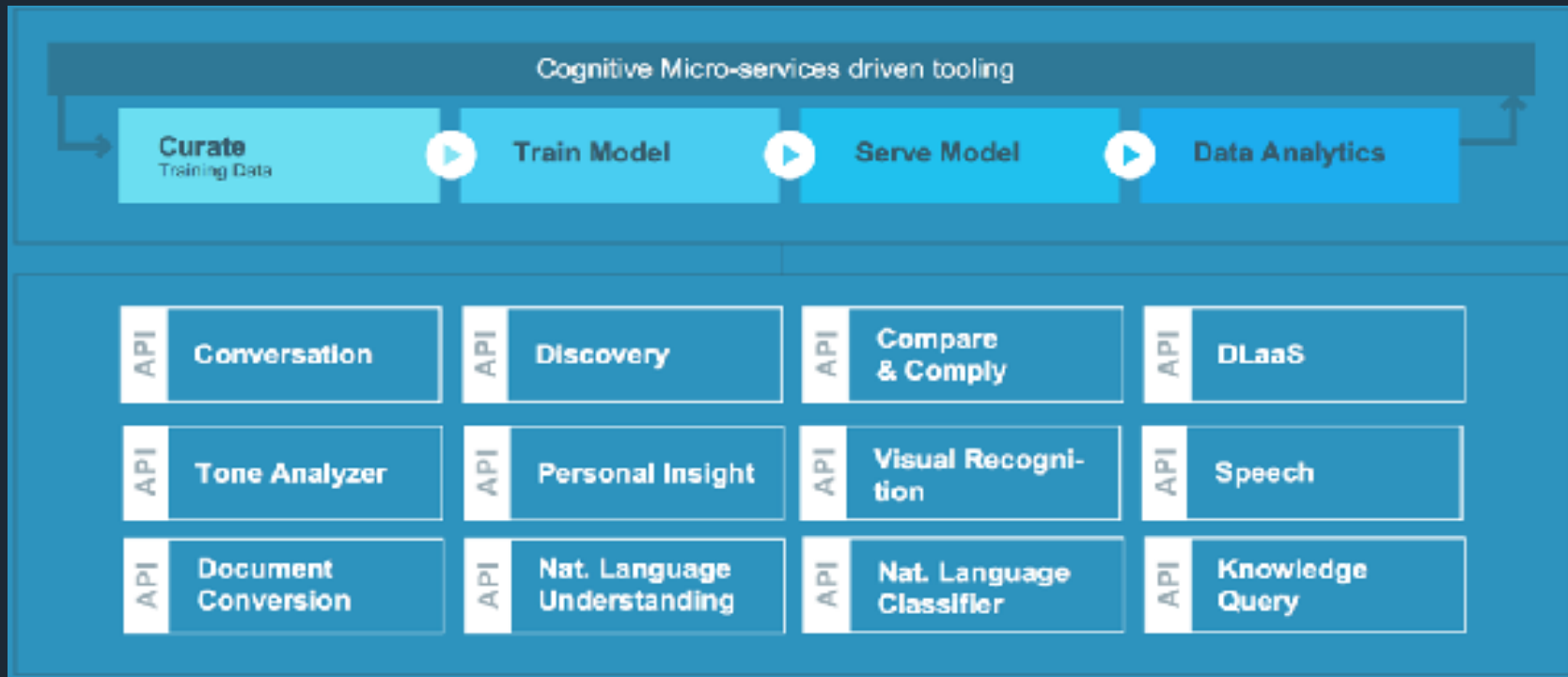
Compose

Cloudbant

Object Storage

Db2

# Watson Cognitive and AI Platform



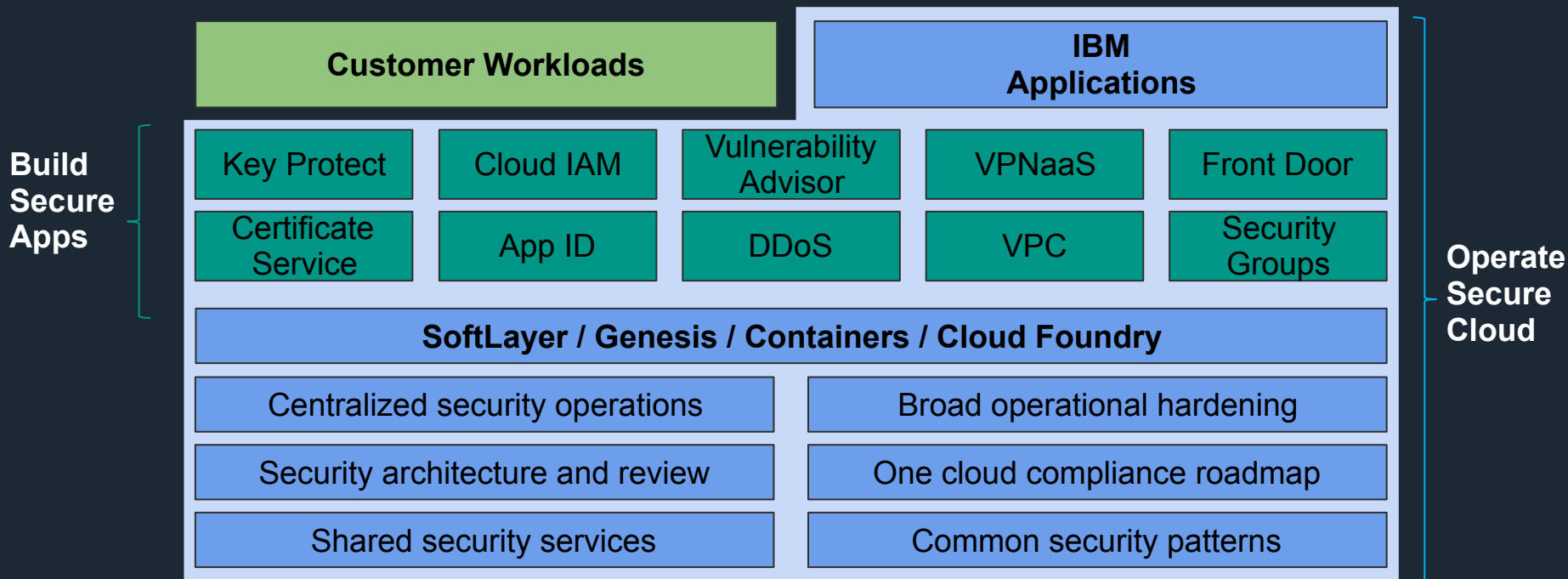
# Two Dimensions of IBM Cloud Security

**Cloud security offerings and capabilities** – that customers can use to secure their workloads, applications, services. These could range from capabilities offered as part of Cloud platform, as well as offerings that customers can use IBM Security (or other 3<sup>rd</sup> party security vendors)

**Cloud security and compliance** – policies, controls, technology & processes that customers expect that Cloud providers follow, complemented through compliance certifications, to gain trust with a Cloud provider.



# Secure services, built on secure, compliant infrastructure



# Flexible Delivery Models with Consistent Experience

## 2 | Dedicated

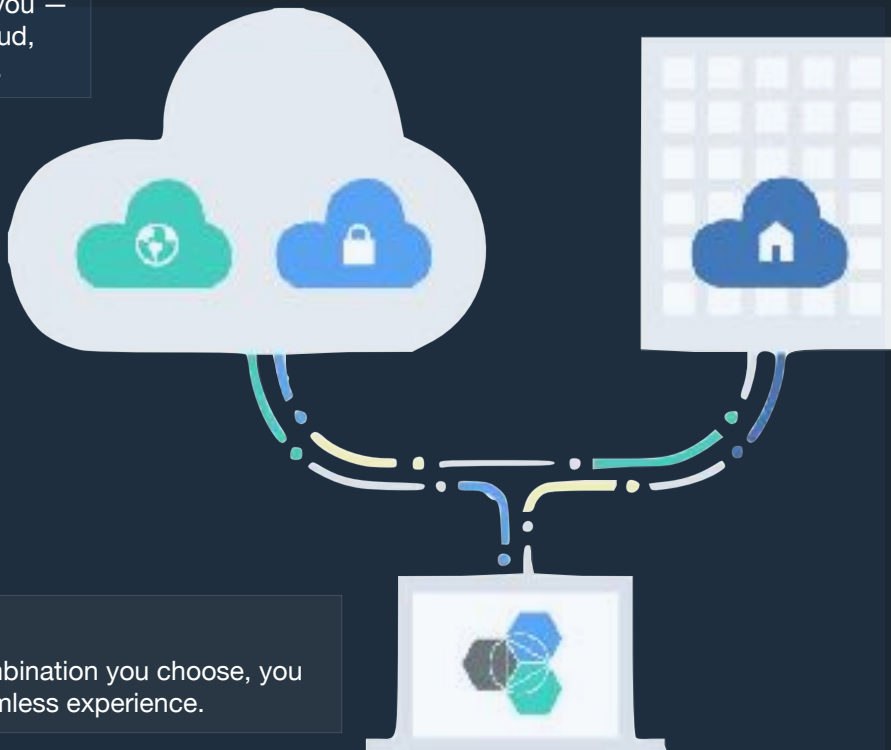
Everything is dedicated and connected to you — agility of public cloud, yet feels like home.

## 1 | Public

Maximize on cloud economics and agility.

## Seamless Experience

Regardless of which combination you choose, you can expect a single, seamless experience.



## 3 | Private

Behind the firewall for the most sensitive workloads.

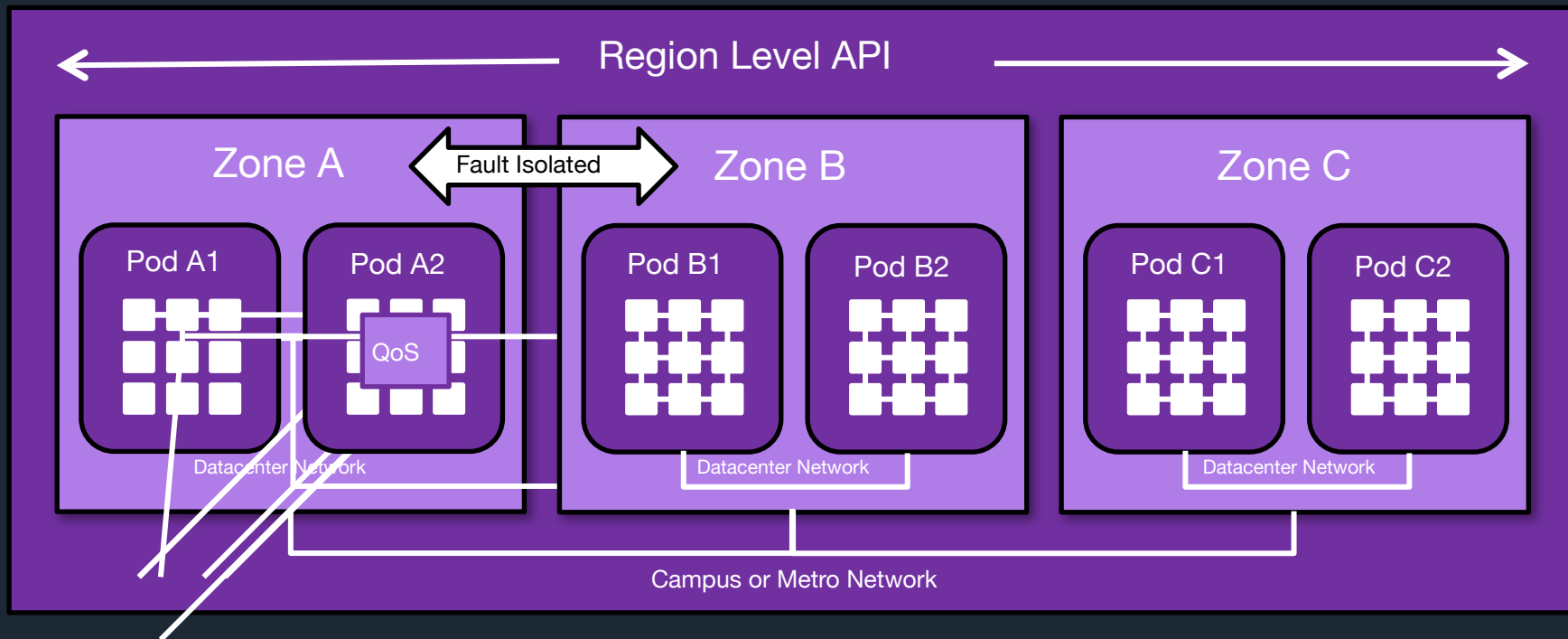
# Cloud - Regional Deployments

Application

AI

Data

Cloud



# Global Deployment Model



<https://www.ibm.com/cloud-computing/bluemix/data-centers>

Gen2 Hub Regions to coexist with Gen1 Spokes

Regions	Zones	Associated Gen 1 Spokes
us-south	us-south-1, 2, 3 (DAL 10,12,13)	DAL01, DAL05, DAL06, DAL07, DAL09, HOU02, SJC01, SJC03, SEA01, MEX01, SAO01
us-east	us-east-1, 2, 3 (WDC 04,06,07)	WDC01,, TOR01, MON01
eu-west	eu-de-1, 2, 3 (FRA 02,04*,05*) (* 2018Q1)	AMS01, AMS03 PAR01, MIL01, OSL01
cn-west	cn-chengdu-1, 2, 3	
eu-gb	eu-gb-1, 2, 3 (LON 02,04,06)	LON02
ap-north	jp-tok-1, 2, 3 (TOK 02,04*,05*) (*2018Q3)	SEO01, HKG02, SNG0
ap-south	au-syd-1, 2, 3 (SYD 02,04,05)	SYD01, MEL01, CHE01



## All Categories

## Applications

Cloud Foundry

Containers

Mobile

iPaaS

## Services

Data &amp; Analytics

Web

Internet of Things

APIs

DevOps

Application Services

Security

Integrate

## Infrastructure &gt;

Devices

Storage

Network

Security

Search IBM Bluemix Catalog...

Filter

## Compute

Order compute devices below. All compute device links will redirect to another site.



## Bare Metal Servers

Entry-level single processor servers to quad processor, low-cost, and even GPU-powered...

IBM



## Virtual Server (private mode)

Single-tenant environment with managed hypervisor ideal for stringent resource...

IBM

## Storage

Order storage below. All storage links will redirect to another site.



## Object Storage

Includes additional features including metadata search, data for large unstructured...

IBM



## File Storage

Comes in 625, 2, and 4 POS/GB for most common workload scenarios.

IBM



## Block Storage

Comes in 625, 2, and 4 POS/GB for most common workload scenarios.

IBM



## CDN

Content Delivery Network organizes, stores and streams content on the web for end users...

IBM

## Network

Order network below. All network links will redirect to another site.



## Citrix NetScaler VPX

Cost effectively deploy L4 load balancing, L3 traffic management, TCP and SSL offload...

Third Party



## Vyatta

Protect and optimize your cloud infrastructure. Create virtual routers, firewalls and VPN...

Third Party



## IPSec VPN

Facilitates connectivity from your secure network to IBM's private network. Dedicated...

IBM



## Local Load Balancer

Distribute processing and communications across service within a single data center...

IBM



## Subnets/VPs

Static, public or private IP in portable or global subnets. IP address ranges are available in IBM...

IBM



## VLANs

Partition network device and subnets on the IBM network using VLANs.

IBM

## Security

Order security below. All security links will redirect to another site.



## Hardware Firewall

Add On to give individual servers an additional layer of server security...

IBM



## Security Software

Protect devices from a variety of viruses, spyware, malware and host-based intrusions.

IBM



## FortiGate Security Appliance

FortiGate 320 series provides high-performance and enterprise-class firewall protection...

IBM



## CDN

Content Delivery Network organizes, stores and streams content on the web for end users...

IBM



## Block Storage

Comes in 625, 2, and 4 POS/GB for most common workload scenarios.

IBM



## Endurance

Comes in 625, 2, and 4 POS/GB for most common workload scenarios.

IBM



## Performance

Multiple 100 MB/s IOPS-based storage sizes 20GB to 10TB IOPS from 10K to 6,000...

IBM



## File Storage

Comes in 625, 2, and 4 POS/GB for most common workload scenarios.

IBM



## Endurance

Comes in 625, 2, and 4 POS/GB for most common workload scenarios.

IBM



## Performance

IOPS-based storage in sizes from 20GB to 10TB with IOPS ranging from 10K to 6,000...

IBM



## Subnets/VPs

Static, public or private IP in portable or global subnets. IP addresses are available in IBM...

IBM



## VLANs

Partition network device and subnets on the IBM network using VLANs.

IBM



## Hardware Firewall

Add On to give individual servers an additional layer of server security...

IBM



## Hardware Firewall (continued)

Dedicated Add-On to protect multiple servers that share the same VLAN...

IBM



## Security Software

Protect devices from a variety of viruses, spyware, malware and host-based intrusion.

IBM



## SSL Certificates

Yearly anti-phishing subscriptions may be ordered for each domain managed by IBM.

IBM

# Bluemix Public Services – IBM Provided

## Compute

- Cloud Foundry Runtimes
- Docker Containers
- OpenStack Virtual Servers
- OpenWhisk

## Networking

- Auto-scaling
- Blockchain
- CDN
- Load Balancer for Containers, and Virtual Servers
- VPN

## Storage

- Block Storage
- Object Storage

## Mobile

- IBM Push Notifications
- Mobile Analytics
- Mobile App Builder
- Mobile App Content Mgr
- Mobile Client Access
- Mobile Foundation
- Mobile Quality Assurance
- Presence Insights

## Watson

- AlchemyAPI
- Concept Insights
- Conversation
- Dialog
- Document Conversion
- Language Translator
- Natural Language Classifier
- Personality Insights
- Relationship Extraction
- Retrieve and Rank
- Speech to Text
- Text to Speech
- Tone Analyzer
- Tradeoff Analytics
- Visual Insights
- Visual Recognition

## IOT

- Context Mapping
- Driver Behavior
- IoT Platform
- IoT for Automotive
- IoT for Electronics
- IoT for Insurance
- IoT Real Time Insights
- IoT Workbench

## Data & Analytics

- Analytics Exchange
- Apache Spark
- BigInsights
- BigInsights for Apache Hadoop
- Cloudant NoSQL DB
- Compose RethinkDB
- dashDB , dashDB Transactional
- DataWorks
- Decision Optimization
- Elasticsearch by Compose
- Embeddable Reporting
- Geospatial Analytics
- IBM DataStage on Cloud
- IBM DB2 on Cloud
- IBM Graph
- IBM Master Data Mgmt on Cloud
- Insights for Twitter
- MongoDB by Compose
- PostgreSQL by Compose
- Predictive Analytics
- Redis by Compose
- Streaming Analytics
- Weather Company Data
- Xpages NoSQL Database

## Security

- Access Trail
- App Security on Cloud
- IBM Identity Mixer
- Key Protect
- Network Sec Groups-VMs
- Single Sign-On

## DevOps

- Active Deploy
- Availability Monitoring
- Auto-Scaling
- Automated Access. Tester
- Delivery Pipeline
- Deployment Risk Analytics
- Digital Content Checker
- Globalization Pipeline
- IBM Alert Notification
- IBM Operations Analytics
- Advanced Insights
- IBM Runbook Automation
- Integration Tester
- Monitoring & Analytics
- Open Toolchain Fabric
- Pattern Engine
- Track & Plan

## Application

- Business Rules
- Data Cache
- Document Generation
- Message Hub
- Message Hub Incubator
- MQ Light
- Session Cache
- WebSphere App Server
- Workflow
- Workload Scheduler

## Integrate

- API Connect
- API Harmony
- API Management
- Cloud Integration
- Connect & Compose
- Message Connect
- Secure Gateway
- Secure Broker
- Service Discovery
- Service Proxy

# An open ecosystem amplifies your value







# Flexible compute options



## Bare Metal

Maximum performance and control



## Virtual Server or VMware

Leverage existing languages and tools



## Containers

Maximum portability



## Cloud Foundry

Open PaaS environment



## OpenWhisk

Maximum speed with serviceless apps

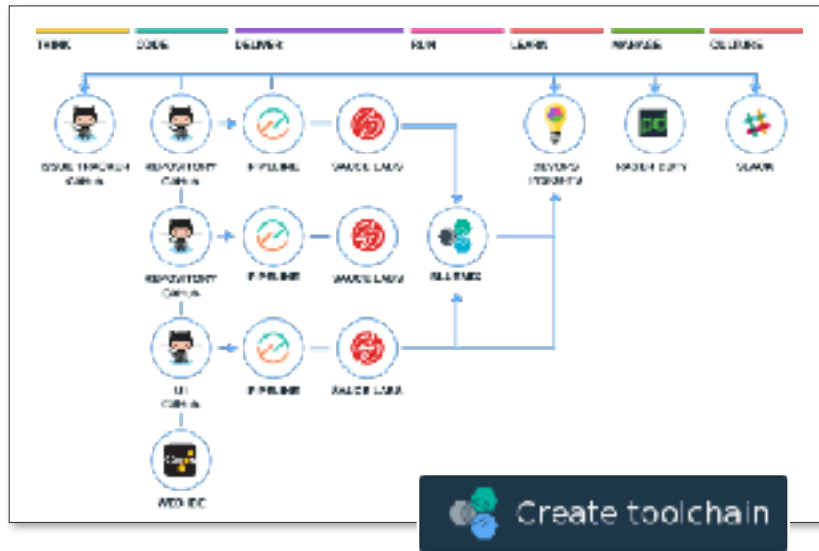
**PERFORMANCE &  
CONTROL**

**PORTABILITY**

**DEVELOPMENT SPEED**

# Create an integrated and open DevOps toolchain that works across the full DevOps lifecycle

*A sample open toolchain for building, and deploying and managing three microservices*



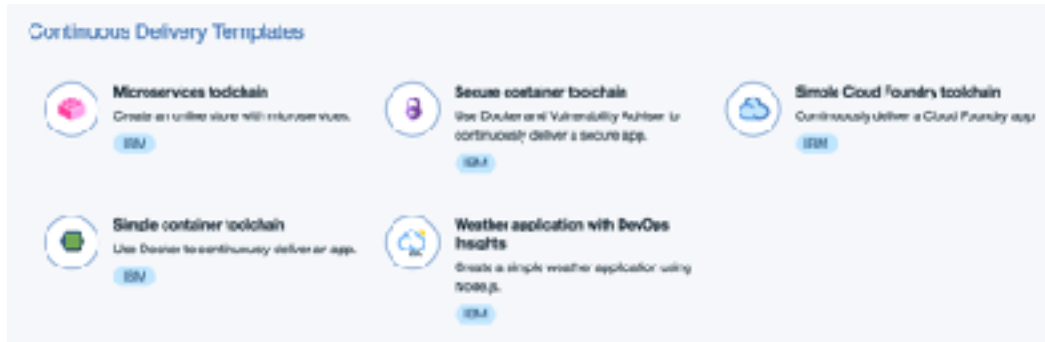
Toolchains provide an integrated set of tools that support the best practices to build, deploy and manage your apps.

You can create toolchains that include Bluemix services, open source tools, and third-party tools that make development and operations repeatable and easier to manage.

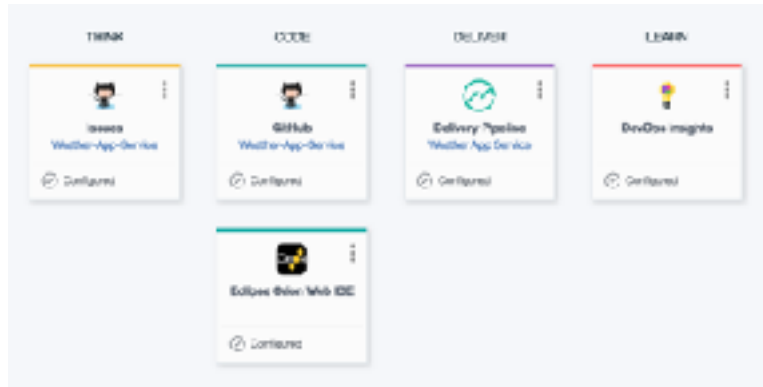
Rapidly instantiate new toolchains from templates to on-board new teams quickly.



# Integrated toolchains for Continuous Delivery



Tool chain templates to deploy microservices as cloud foundry applications or docker containers on IBM Bluemix



Tool chain automatically created based on the template, with pre-configured integrations.

To learn more visit:

<https://bluemix.net/devops/>

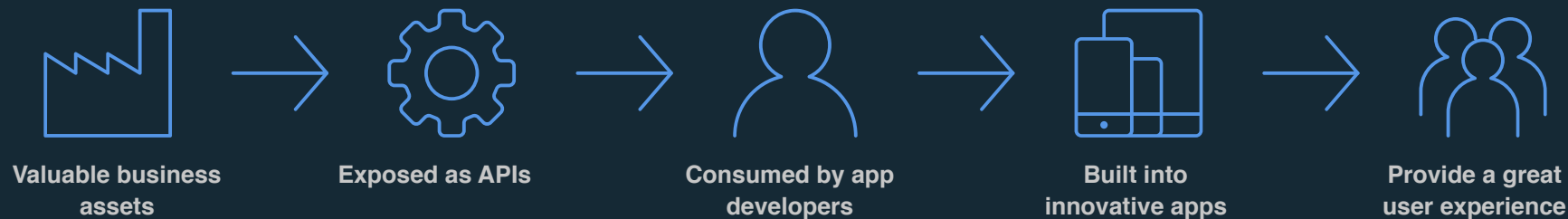
# IBM Cloud Object Storage

- Flexible, hybrid cloud object storage proven in production at massive scale
- Durable with **service resiliency** across regional and cross-regional modes to securely store, access and manage unstructured data



# IBM API Connect

Accelerating innovation and reducing time to market



- Integrated adaptors into IBM Middleware for easy API creation and management
- Publish APIs and services to Bluemix in minutes
- Integrated tools for performance monitoring, management and security

# Partnering to Go Faster & Further

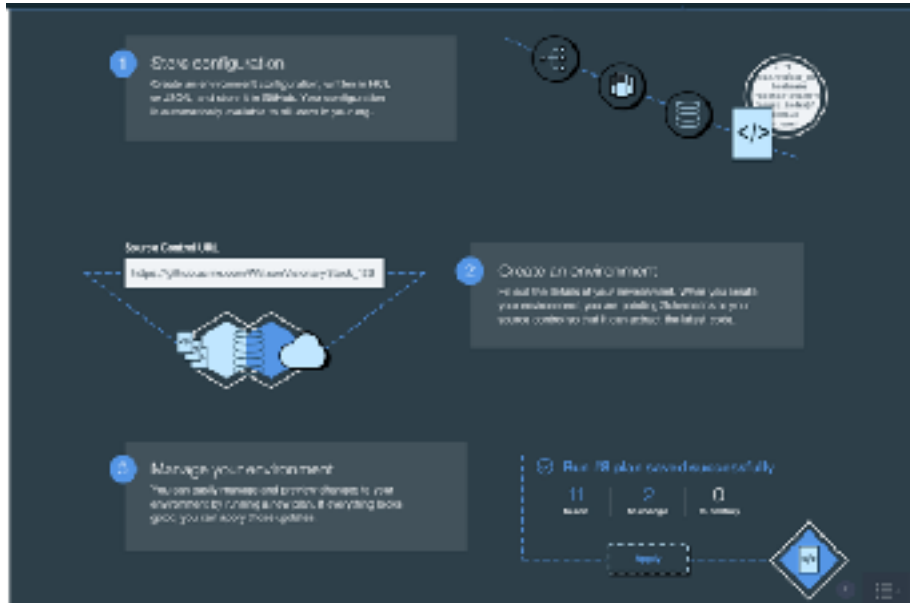


- Accelerate move to cloud & benefits
- Change nothing for the end-user
- Bridge to future apps & services



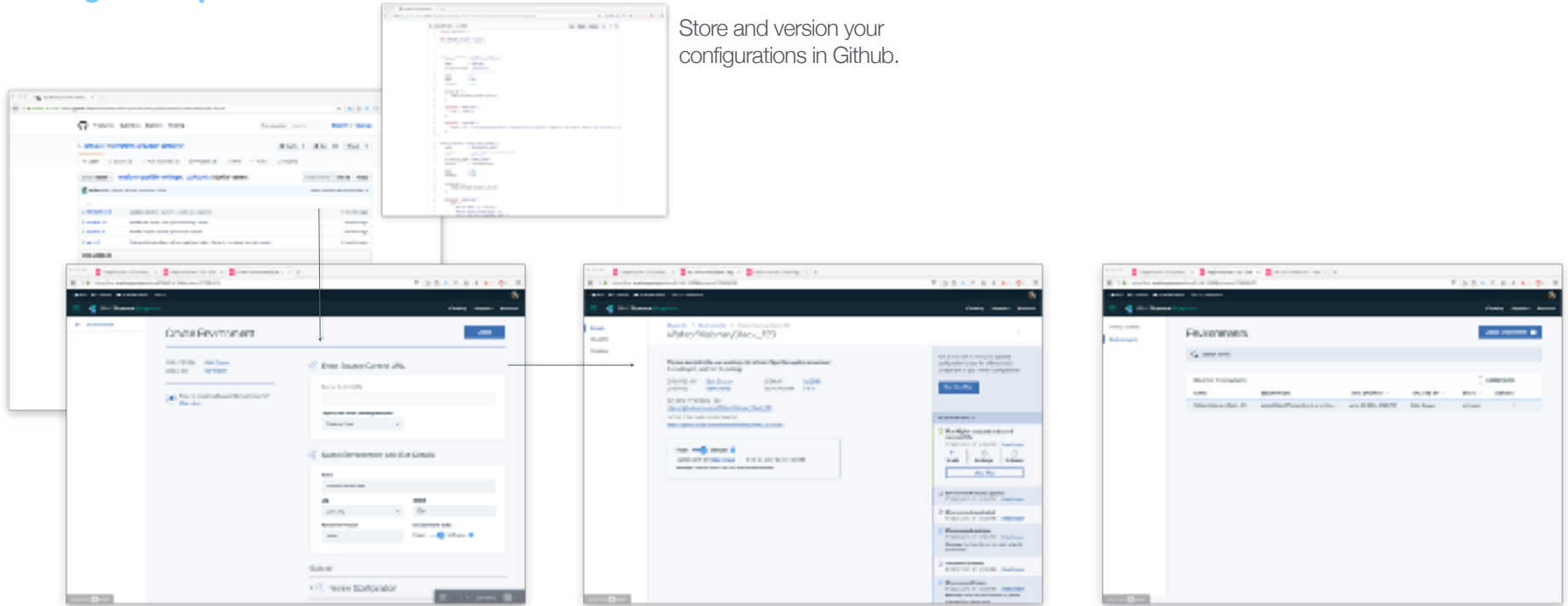


Drive usage and accelerate time to value by allowing users to **create, share, discover, use** and **manage** content for common use cases in a prescriptive, integrated, and automated manner.



- Open source engine
- Safe multiple user coordination
- Robust secrets management
- Re-usable templates across users, groups, and organizations which promotes code reuse

# Using a Blueprint



Store and version your configurations in Github.

Create an environment from the Terraform configuration stored on Github.

Manage your environment and see an activity log. Users can perform plan, apply, delete, destroy, and freeze environment action.

See all of your environments in one location. Share, duplicate, delete, and desc



