

Université IBM i 2017

17 et 18 mai – IBM Client Center de Bois-Colombes

S18 – Que faire avec IBM Bluemix ?

Mercredi 17 mai – 16h00-16h40

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In today's race to succeed, leaders create

A compelling customer experience



81%

of companies place the personalized customer experience in their top three priorities, with 39 percent reporting it as their top priority¹

New innovative business models



80%

of CxOs are experimenting with different business models or thinking of doing so²

Fast and flexible operational processes



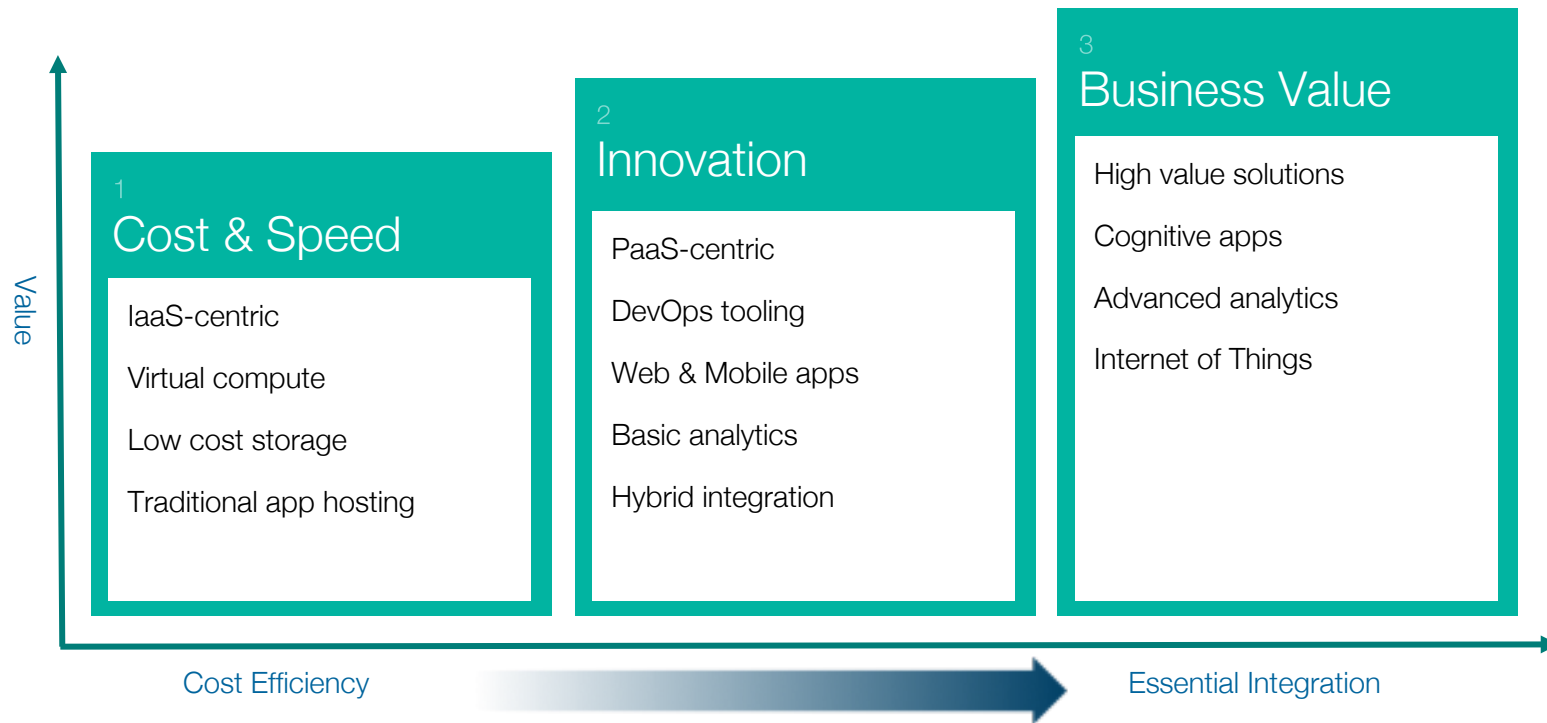
100+

Global enterprises have launched internal incubators in the last 3 years, including Airbus, Barclays, Telstra and Target³

Sources:

1. Accenture, "Digital Business Era: Stretch Your Boundaries", 2015
2. Redefining Boundaries, Insights from the Global C-suite Study, IBM Institute for Business Value, 2015
3. Deloitte, "Corporate accelerators: Spurring digital innovation with a page from the Silicon Valley playbook", 2016

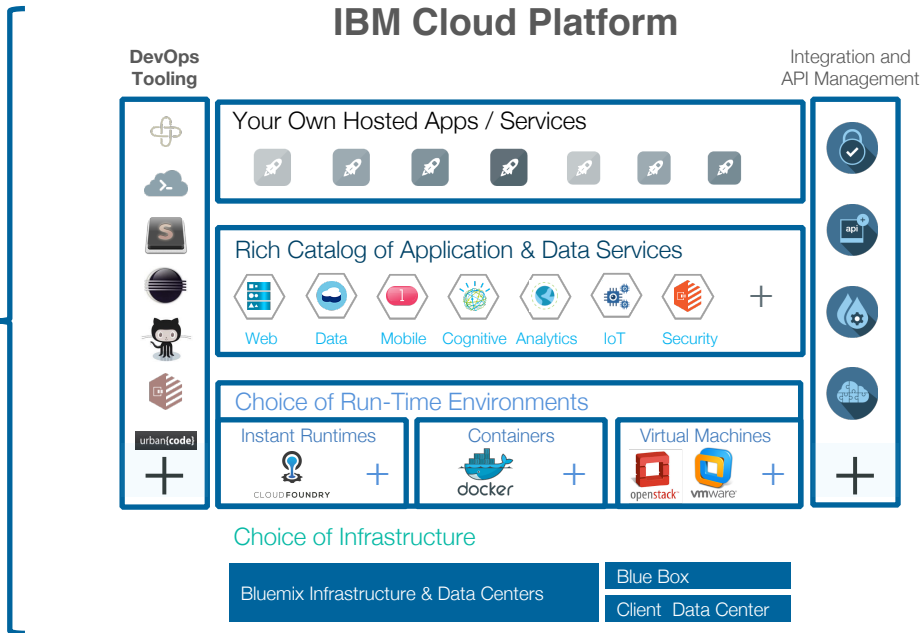
Cloud is maturing into an environment for innovation and business value



Guiding principles define the IBM Cloud platform

IBM Cloud[®]
Guiding Principles

- DevOps Productivity
- Hybrid Integration
- Powerful, Accessible Data and Analytics
- Cognitive Solutions
- Choice with Consistency



What is Bluemix?



What is Bluemix ?

Bluemix is an **open-standard**, cloud-based **platform** for **building, managing**, and **running applications** of all types
(web, mobile, big data, new smart devices, ...)

Bluemix is an open and versatile cloud innovation platform

Bluemix is anything but locked down. You choose how you build, deploy, and manage your apps. Bluemix takes care of the rest.

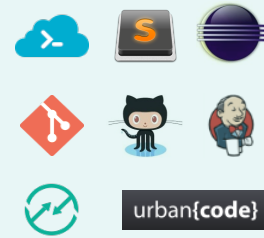
Compute

Choose the level of **infrastructure abstraction** based on your app's architectural needs.



Dev Tooling

From editors to source code management to continuous delivery, you can **use Bluemix' powerful tooling** or easily **bring your own**.



Location

Deploy apps to Bluemix **Public** (in a growing number of geos), your own **dedicated cloud** Bluemix, or one that runs **within your data center (Local*)**.



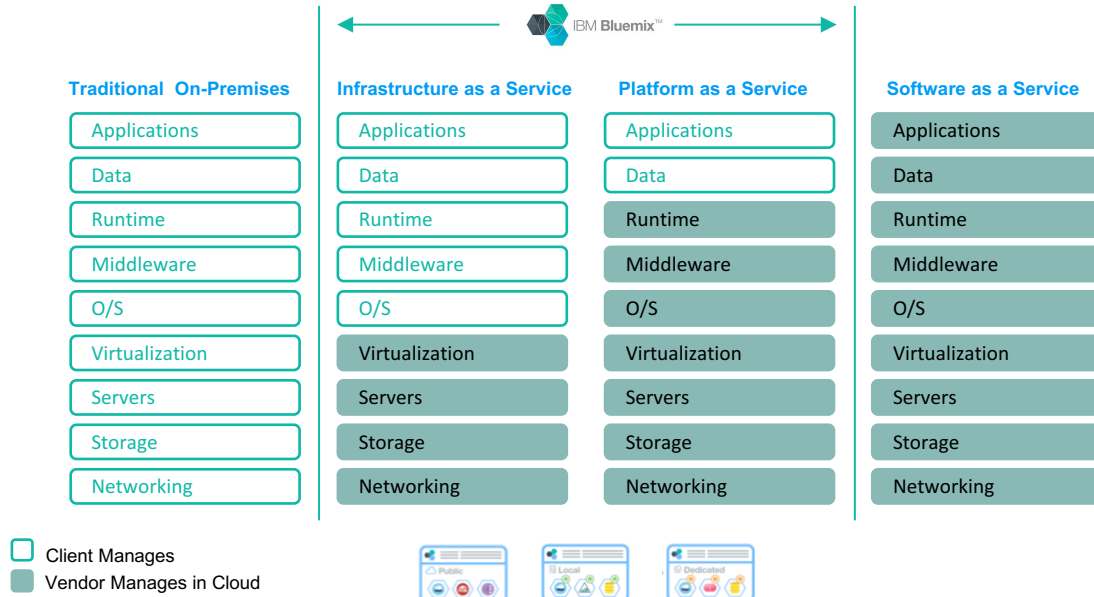
Services

Pick from a catalog of **IBM, third party, open source**, or **your own** services to extend your apps.



Bluemix is PaaS, but not only...

- Capabilities in Bluemix now span PaaS and IaaS and can be delivered as a public, dedicated, or on-premises implementation.








New (Oct. 2016): unified catalog PaaS + IaaS

- All Categories >
- Infrastructure
 - Compute
 - Storage
 - Network
 - Security
 - Apps
 - Boilerplates
 - Cloud Foundry Apps
 - Containers
 - Mobile
 - Services
 - Data & Analytics
 - Watson
 - Internet of Things
 - APIs
 - Network
 - Storage
 - Security
 - DevOps
 - Application Services
 - Integrate



Infrastructure

Compute
Build your virtual environments.













- Bare Metal Server (Hourly)**
Bare metal servers provide the raw horsepower you demand for your processor-intensive and disk I/O. 
- Bare Metal Server (Monthly)**
Bare metal servers provide the raw horsepower you demand for your processor-intensive and disk I/O. 
- Virtual Server (Hourly)**
Our virtual servers deliver a higher degree of customization, transparency, predictability, and... 
- Virtual Server (Monthly)**
Our virtual servers deliver a higher degree of customization, transparency, predictability, and... 
- VMware Solutions**
Order VMware Cloud Foundation or VMware vCenter Server instances. 

Storage
Order storage.

- Block Storage - Endurance (0.25 IOPS/GB)**
- Block Storage - Endurance (2 IOPS/GB)**
- Block Storage - Endurance (4 IOPS/GB)**

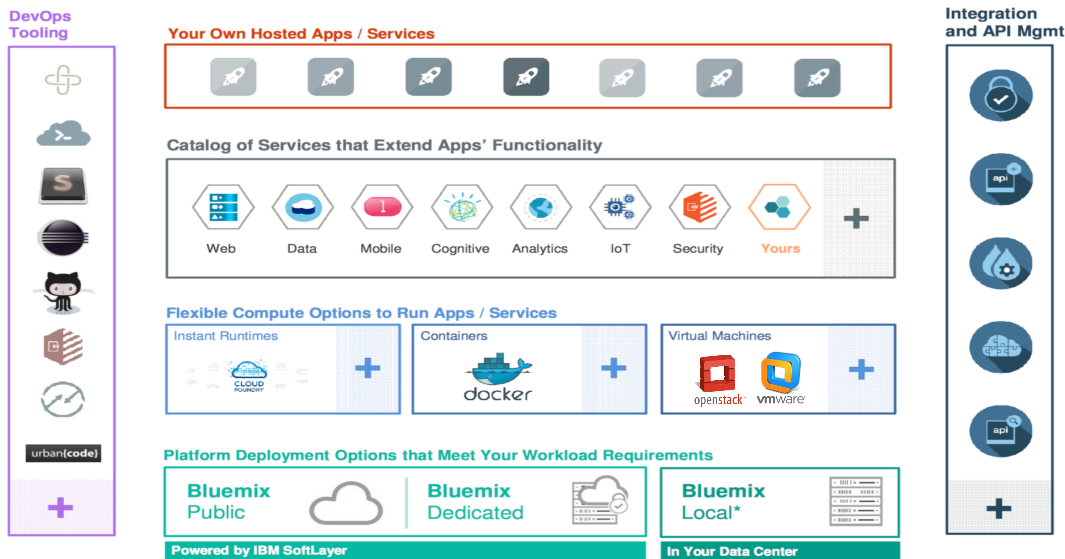
Apps

Boilerplates
Get started with a new app, now.

- ASP.NET Core Cloudant Starter**
Use the Cloudant NoSQL DB Service in an ASP.NET Core application. 
- Internet of Things Platform Starter**
Get started with IBM Watson IoT platform using the Node-RED Node.js sample application. With the... 
- IoT for Electronics Starter**
IoT for Electronics is an integrated end-to-end solution (made of multiple services and apps) that enables... 
- Java Cloudant Web Starter**
Use the Cloudant NoSQL DB service with the "Liberty for Java"™ runtime. 
- Java Workload Scheduler Web Starter**
This application demonstrates how to use the Workload Scheduler service, with the "Liberty for Java"™ runtime. 
- LoopBack Starter**
This is a sample StrongLoop LoopBack Node.js application, powered by the open source LoopBack... 
- MobileFirst Services Starter**
Start building your next mobile app with mobile services on Bluemix. 
- Node.js Cloudant DB Web Starter**
Use the Cloudant NoSQL DB service with the "SDK for Node.js"™ runtime. 
- Personality Insights Java Web Starter**
A simple Java app that uses the Personality Insights service to analyze text to derive personality traits. 
- Personality Insights Node.js Web Starter**
A simple Node.js app that uses Personality Insights to analyze text to derive personality traits. 
- StrongLoop Arc**
This application is the StrongLoop Arc graphical UI, which includes tools for building, profiling and monitoring... 
- Mendix Rapid Apps**
Model driven rapid app platform that allow users to build, integrate and deploy web and mobile applications. 
- Node-RED Starter**
- Python Flask**
- Ruby Sinatra**

Build your apps, your way

- Bluemix is underlined by three key open compute technologies: Cloud Foundry, Docker, OpenStack. It extends each of these with a growing number of services, robust DevOps tooling, integration capabilities, and a seamless developer experience.



Where Bluemix reaches

Over 26 global locations with geographic disperse network PoPs

Carrier grade private network with over 2,000 Gbps of connectivity

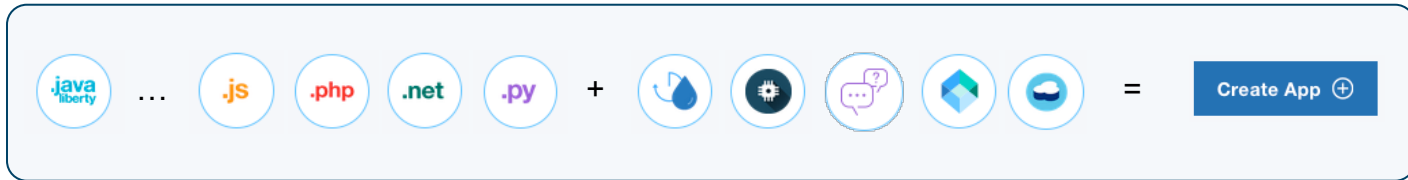


POWERED BY
~~SOFTLAYER~~
Bluemix Infrastructure

- Dedicated network backbone = Economic and speed benefits apply to Bluemix
- Bare Metal allow for optimized services (e.g. Hadoop, DB on iSCSI/SSD)
- Geographic footprint

How does it work: Bluemix Cloud Foundry Example

- With Bluemix PaaS, installing and maintaining environment cost and overhead disappear.
 - Choose your runtime (Java, PHP, JavaScript, etc.).
 - Choose the services you need (IBM, community or third party services) from the Bluemix catalog.
 - Create your application* with a reduced development cycle.



- Or... use boilerplate !!



The screenshot displays three boilerplate templates available in Bluemix:

- MobileFirst Services Starter**: Start building your next mobile app with mobile services on Bluemix. (IBM)
- Node.js Cloudant DB Web Starter**: Use the Cloudant NoSQL DB service with the 'SDK for Node.js™' runtime. (IBM)
- Personality Insights Java Web Starter**: A simple Java app that uses the Personality Insights service to analyze text to derive personality traits. (IBM)

Other templates partially visible include 'Personality Insights Node.js Web Starter', 'StrongLoop Arc', and 'Mendix Rapid Apps'.

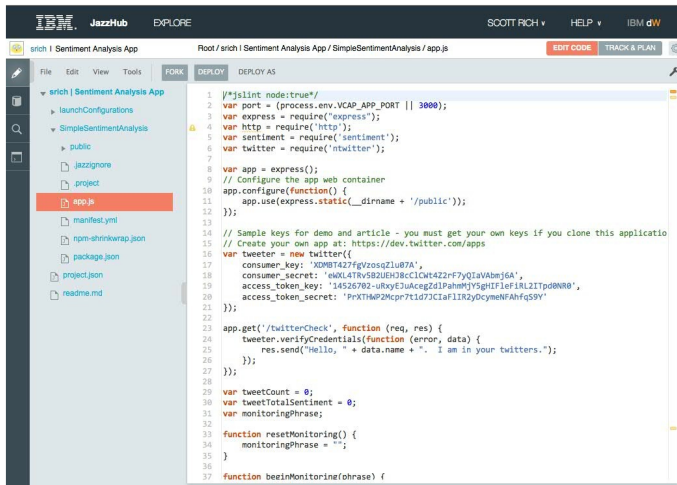
* DevOps or Local Eclipse IDE with CF plugin or any IDE with CF CLI

Pick your own development tooling

Code wherever you work best. Deploy in seconds.

IBM provided

Fully integrated repository and web editor to deploy directly to Bluemix.

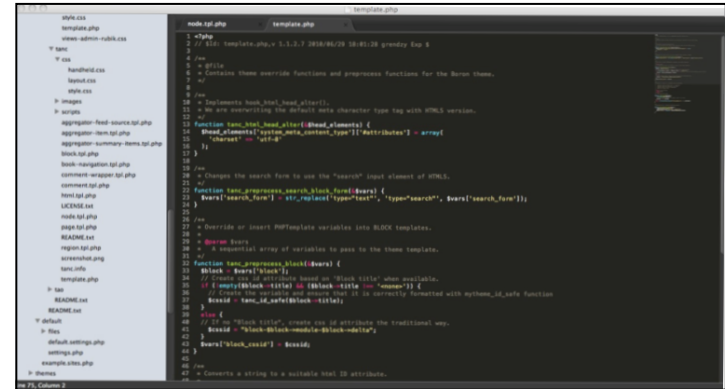


```

1 |>|jshint nodetru*/
2 var port = [process.env.VCAP_APP_PORT || 3000];
3 var express = require('express');
4 var http = require('http');
5 var sentiment = require('sentiment');
6 var twitter = require('ntwitter');
7
8 var app = express();
9 // Configure the app web container
10 app.configure(function() {
11   app.use(express.static(__dirname + '/public'));
12 });
13
14 // Sample keys for demo and article - you must get your own keys if you clone this applicatio
15 // Create your own app at: https://dev.twitter.com/apps
16 var tweeter = new Twitter({
17   consumer_key: 'XDM9T4Z7fgVzsqz1u87A',
18   consumer_secret: 'n6k147Rv5B2U93kC10a22z7Yq1aV4b6J5d',
19   access_token_key: '14525792-u8yE3uAcqz21PahmQY5GHf1f8L21Tpd9N8B',
20   access_token_secret: 'PrXTHaP2Mcpr71d73CiaF1IRzDcyMeNFahfG59V',
21 });
22
23 app.get('/twitterCheck', function (req, res) {
24   tweeter.verifyCredentials(function (error, data) {
25     res.send("hello, " + data.name + ". I am in your twitters.");
26   });
27 });
28
29 var tweetCount = 0;
30 var tweetTotalSentiment = 0;
31 var monitoringPhrase;
32
33 function resetMonitoring() {
34   monitoringPhrase = '';
35 }
36
37 function beginMonitoring(phrase) {
  
```

Use your own

Use your editor (e.g. Sublime, Eclipse) and deploy through the Cloud Foundry command line.



```

1 |>|
2 //: template.php,v 3.1.2-7 2016/06/29 10:01:20 gresday Exp 8
3
4 #
5 #
6 # Contains these override functions and progress functions for the Bosh theme.
7
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100 #
  
```

Create apps quickly with prebuilt services

A full range of capabilities to suit any great idea.

Choice

- Runtimes, services, and tooling up to you

Industry Leading IBM Capabilities

- Services leveraging the depth of IBM software
- Full range of capabilities

Completeness

- Open source platform and services
- Third party to enable key use cases



Security without the headache

You focus on your apps and their data. IBM manages the rest.

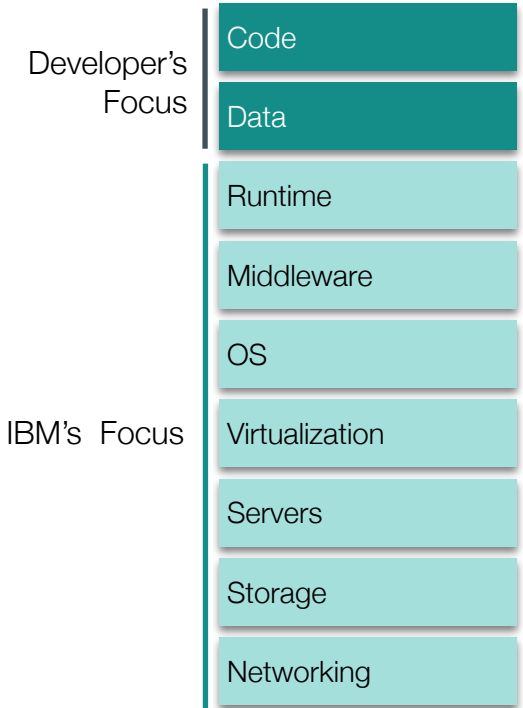
Exploiting IBM portfolio of capabilities

- Leveraging SoftLayer and IBM hosting experience
- Adheres to rigorous IBM security standards:

- Defense in depth
- Intrusion protection/penetration testing
- Data isolation in virtualized components
- Automated patch management

Tools to secure your apps


- SSO for multiple applications and social logins
- Appscan for web and mobile to detect vulnerabilities



Integrate with your on-premise applications

Securely connect to and leverage data from your existing systems.


Integrate ▾



API Connect

IBM


[More info...](#)



App Connect

IBM Beta


[More info...](#)



Product Insights

IBM

[More info...](#)



Secure Gateway

IBM

[More info...](#)

IBM API Connect Flight Information 1.0.0

← All APIs Design Source Assemble

Info

Host

Base Path

Schemes

Consumes

Produces

Lifecycle

Policy Assembly

Security Definitions

Security

Swagger Extension

Properties

Paths

/airlines/bookings

/airlines/

/airlines/bookings/{id}

/airlines/availability

Parameters

Definitions

Flight


Airline

Booking

CreditCard


Tags


Paths


Path: /airlines/bookings Add Operation 

Parameters: Add Parameter

No parameters defined


GET /airlines/bookings 


POST /airlines/bookings 

Path: /airlines/ Add Operation 

Parameters: Add Parameter

No parameters defined

GET /airlines/ 

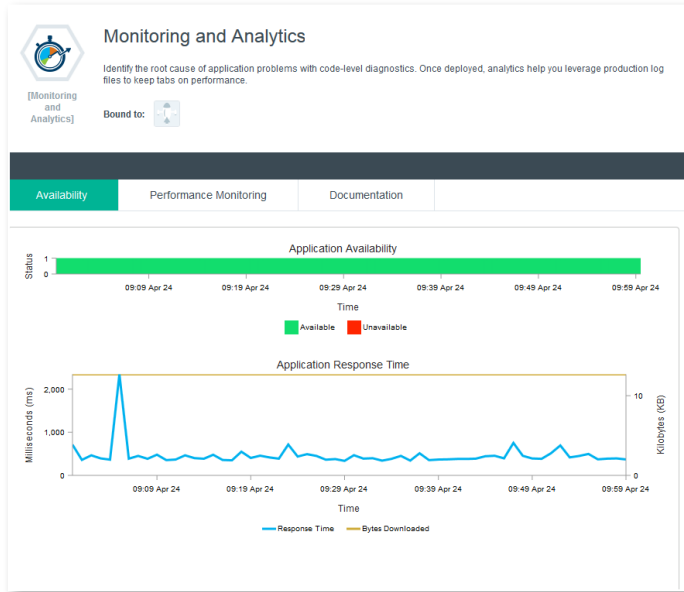
Path: /airlines/bookings/{id} Add Operation 

Parameters: Add Parameter

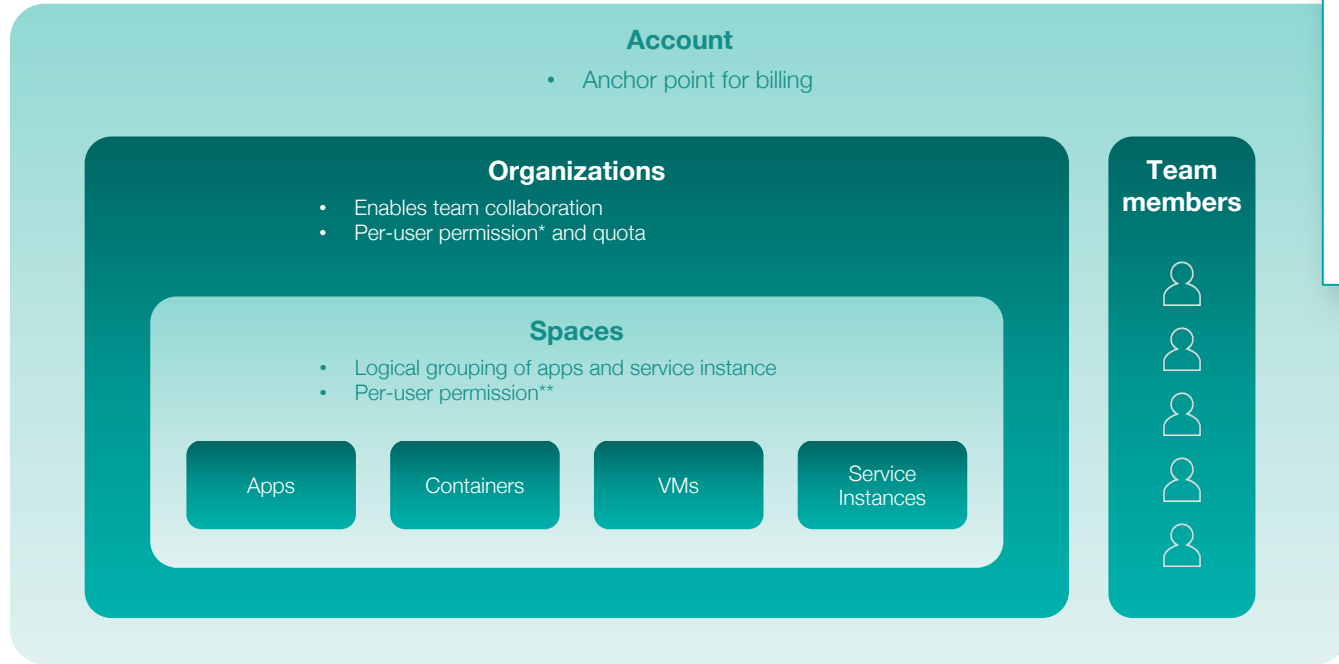
No parameters defined

Monitor your apps in real time

Integrated diagnostics for detailed application behavior.



Administering



* Organization Roles

- Organization managers** can create spaces and add users to the organization or spaces.
- Billing managers** can view organization charges.
- Auditors** can view all organization and space content.

** Space Roles

- Space managers** can add users to the space.
- Developers** can add and configure applications and services.
- Auditors** can only view content in the space.

How does it work: Billing

- Pay as you Go (per GB, per service, per connected device, etc...)
 - Price and configure Bluemix for your own scenario → Price Calculator
- Subscriptions
 - Consult your IBM representative

Trial

FREE!

Use Bluemix free for 30 days

Up to 2GB runtime and container memory, and access to many IBM services

No credit card required

[Start your free trial](#)

Pay As You Go

Only pay for what you use

Half a GB of free runtime and container memory

[Estimate your costs with our calculator](#)

[Create an account](#)

Subscription

Custom discounted pricing

Fixed monthly billing
Customized discounts
Public, Dedicated, or Local Environments

[Contact us](#)

What Bluemix offers (recap)



Compute

With offerings spanning from bare metal to serverless programming, Bluemix supports apps and workloads with nearly any set of requirements.



Hybrid

Bluemix is delivered across public, dedicated and on-premises deployment models, helping companies accelerate delivery on both sides of the firewall.



Global

Bluemix is available in over 25 data centers around the globe, addressing critical needs around performance and data sovereignty.



Services

Bluemix offers over 150 services across Watson, data, mobile, DevOps to help companies accelerate the delivery of transformative apps and services.



Open

Built upon IBM's support for Open Governance and Open Architecture, Bluemix puts leadership in OpenStack, Cloud Foundry, Node, Docker and more into practice for the enterprise.

What differentiates Bluemix (recap)

- A wide range of compute options and a broad catalog of services built on open architectures allows you to meet the needs you have today and change over time.

Accelerate Innovation

Compute Choice: Bluemix offers infrastructure and runtime options including:

- Docker
- Cloud Foundry
- OpenWhisk
- Bare Metal
- Virtual Machines
- OpenStack

Flexible Deployment: Get the benefits of the cloud where you need it:

- Public
- Dedicated
- Local

Extract Insight & Value from Data

Cognitive Services:

- 16 Watson APIs (growing to 29 by 2017),
- Tools to build apps that understand, reason, and learn.

Data & Analytics: Ingest, manage, and leverage data with services including:

- Cloudant (NoSQL database)
- IBM Analytics for Apache Spark
- GraphDB
- Hadoop

Optimized Performance

Microservices:

On Bluemix, the microservice architectures serves as:

- Support scalably complex application logic
- Enable continuous delivery to meet evolving customer demands.

DevOps:

Bluemix DevOps services enable:

- Rapid experimentation using Active Deploy
- Process transformation via Urban Code
- Startup agility at enterprise scale with DevOps Tool Chain

Integrate Bluemix with IBM i

Typical use cases



Hybrid cloud is the path to the business outcomes you want

Speed

change only what you need to change to get value faster

Flexibility

positioning workloads to best deliver on business objectives

Innovation

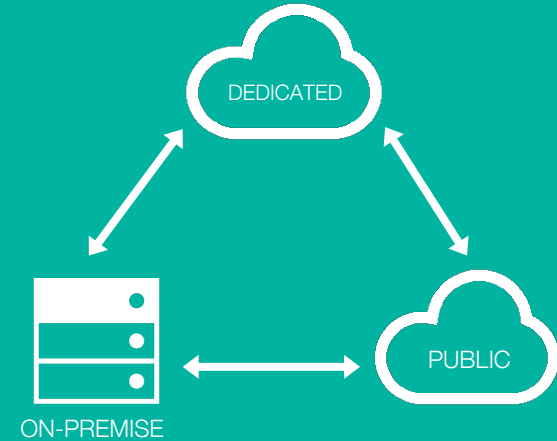
Integrate cloud services, open communities and emerging technologies (cognitive, blockchain, IoT, etc.) to maximize opportunity

Insight

combine your data and processes with new sources of information to get to the best outcomes

85 percent of hybrid leaders report that hybrid cloud is accelerating digital transformation in their organization.*

*Source: Growing up hybrid - Coming of age in the era of digital business, IBM Center for Applied Insights, 2015



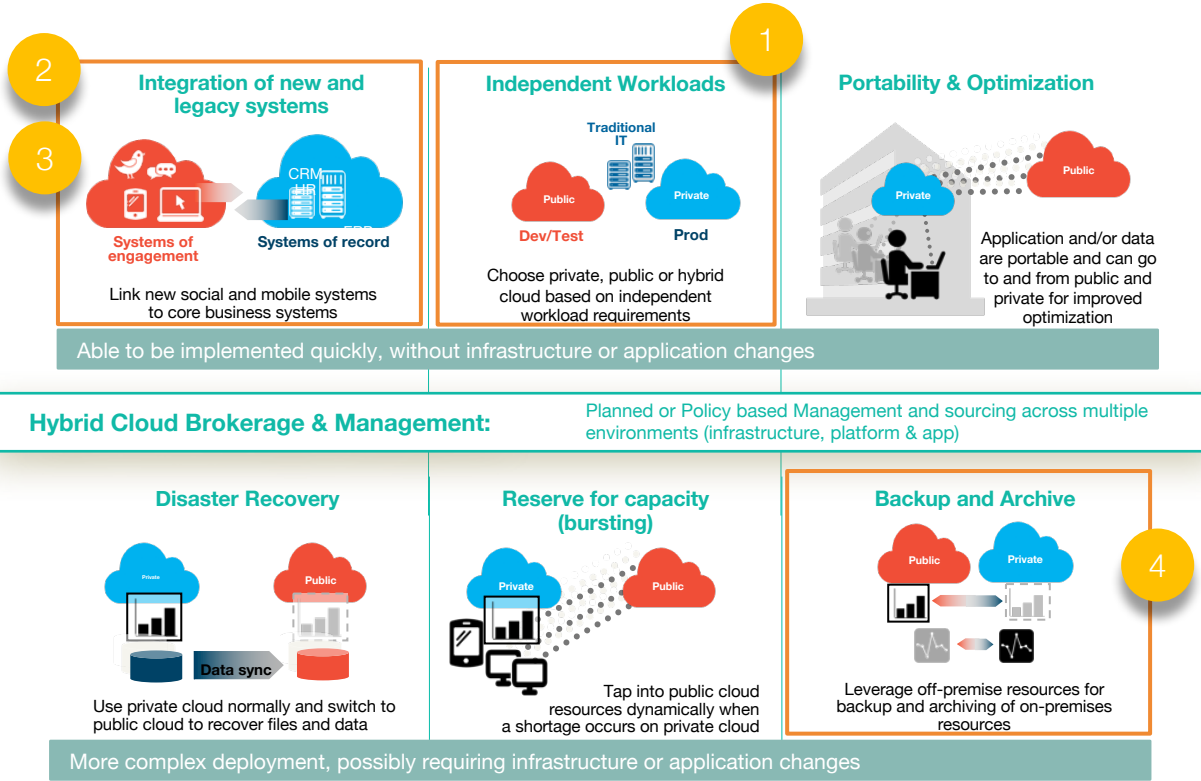
Hybrid is the connection of one or more clouds to on-premises systems and/or the connection of one or more clouds to other clouds

Hybrid cloud use cases

Empower Business Innovation

Business Velocity

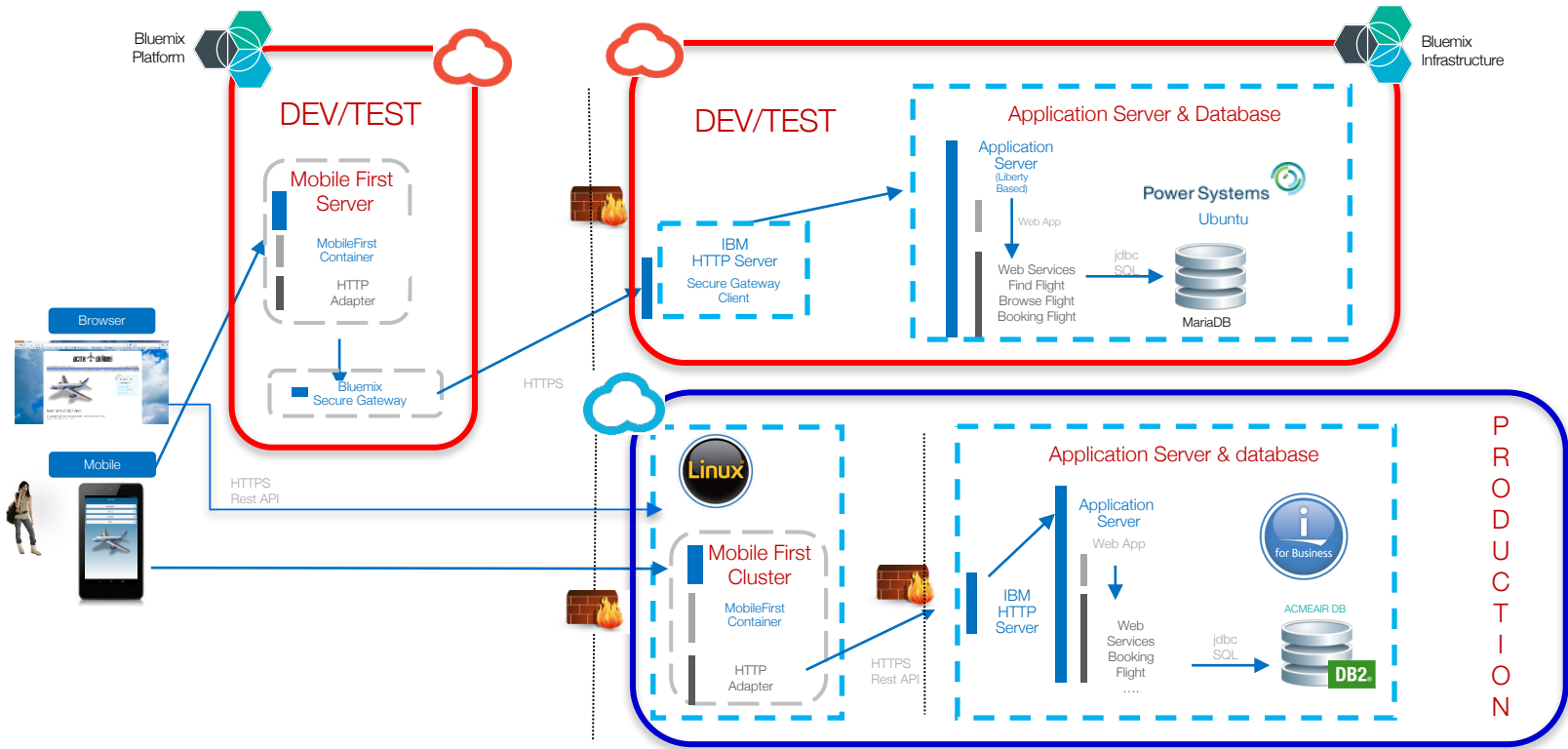
IT Agility



1_Independant Workload - development

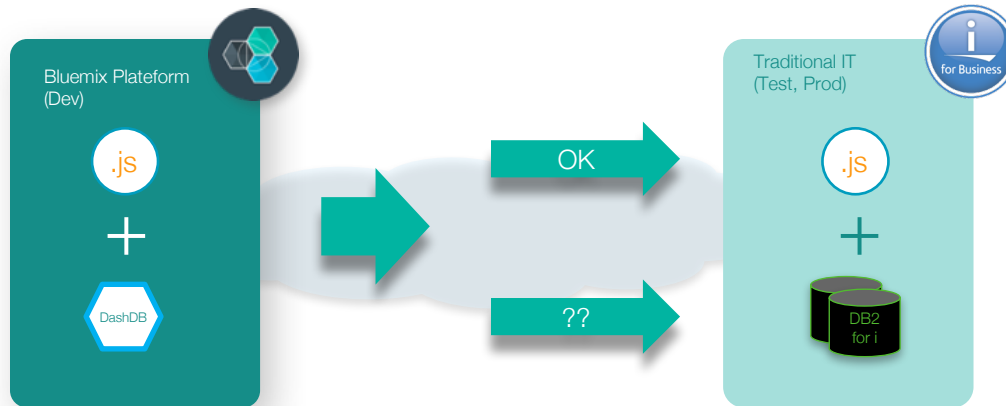
- Choose private, public or hybrid cloud, based on independent workload requirements
- Example:
 - Use Bluemix as a development environment to quickly compose a New Power Application and Deploy on Premise
 - Why?
 - Increase agility for development
 - Reduce Dev/Test cost
 - Accelerate deployment and deliver new services faster
 - Supported Runtimes (Bluemix & IBM i) : PHP, Node.js, Java, Python, Ruby

1_Independant Workload – development incl. IBM i, Bluemix & Mobile Solution



1_Independant Workload - development

- Warning:
 - Adherence to standards to limit the level of changes required when moving workloads between clouds.
 - Dependent services and middleware (DB2 for i vs DashDB ?)



2_ Integration of new and legacy systems



- Securely Connect Systems to Provide Cloud Services to my Customers
- In today's world, the volume and variety of data workloads require systems that can scale to manage the required data integration and management.
- IBM POWER8-based systems can manage on-premises mission-critical applications and database and also improves the I/O and memory bandwidth making the integration between cloud and on-premises systems faster.
- Bluemix : 3 main Integration Services
 - API Connect
 - Data Connect
 - Secure Gateway

2_ Bluemix Integration Services: API Connect







- IBM API Connect for Bluemix integrates IBM API Management and IBM StrongLoop into a single offering that provides a comprehensive solution to create, run, manage, and secure APIs to drive digital content.
- The built-in LoopBack framework allows Developers to implement APIs, test them locally, and publish them to Bluemix.

2_ Bluemix Integration Services: Data Connect

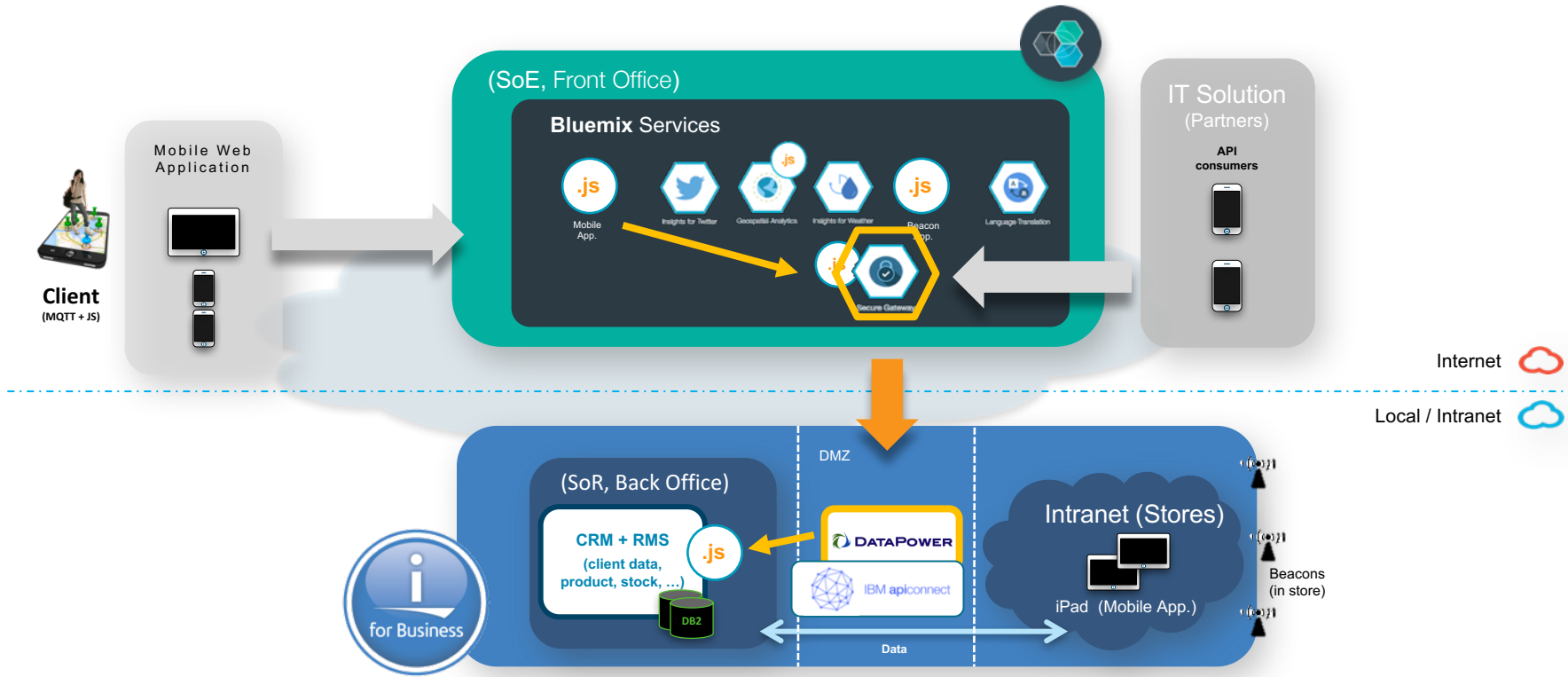
- IBM Bluemix Data Connect is a fully managed, data preparation and data integration service.
- Data Connect empowers Data Scientists, Data Analyst, and Data Engineers to discover, cleanse, standardize, shape, transform and move data to support their analytic or application development adventures.
- Use Data Connect to tap into multiple data sources, including multiple databases, applications and across different cloud platforms in order to generate actionable insights faster and build great applications.

2_ Bluemix Integration Services: Secure Gateway

- Use the IBM Secure Gateway for Bluemix service when you need a secure way to connect Bluemix applications to remote locations on-premises or in the cloud.
- The secure gateway provides secure connectivity and establishes a tunnel between your Bluemix organization and the remote location that you want to connect to.
- Secure Gateway service available for **application level integration**.
- Clients:
 - Docker
 - DataPower (some limitations)
 - Linux (x86, Power & z), Apple MacOS, Microsoft Windows

	Windows
	Mac OS X
	Ubuntu 14+
	Ubuntu 14+ PPC
	Ubuntu Z-Linux
	RHEL 6+

2_ Secure Gateway : Architecture Overview (example)

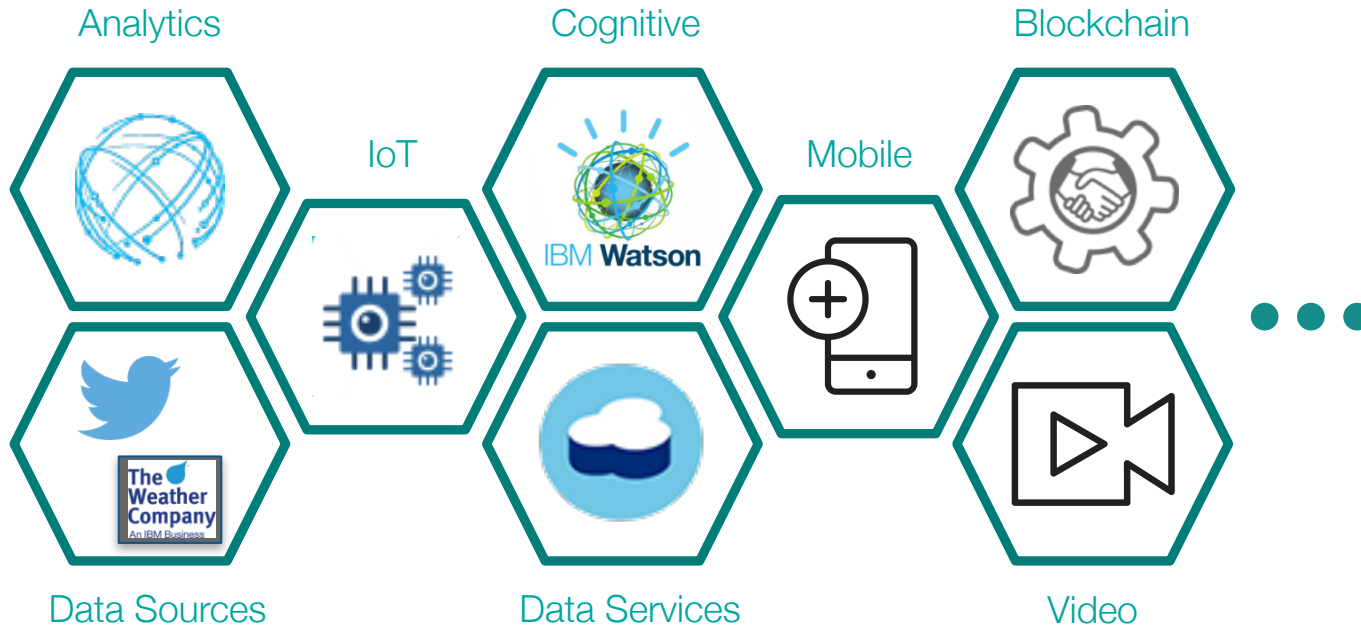


3_ Integration of new and legacy systems

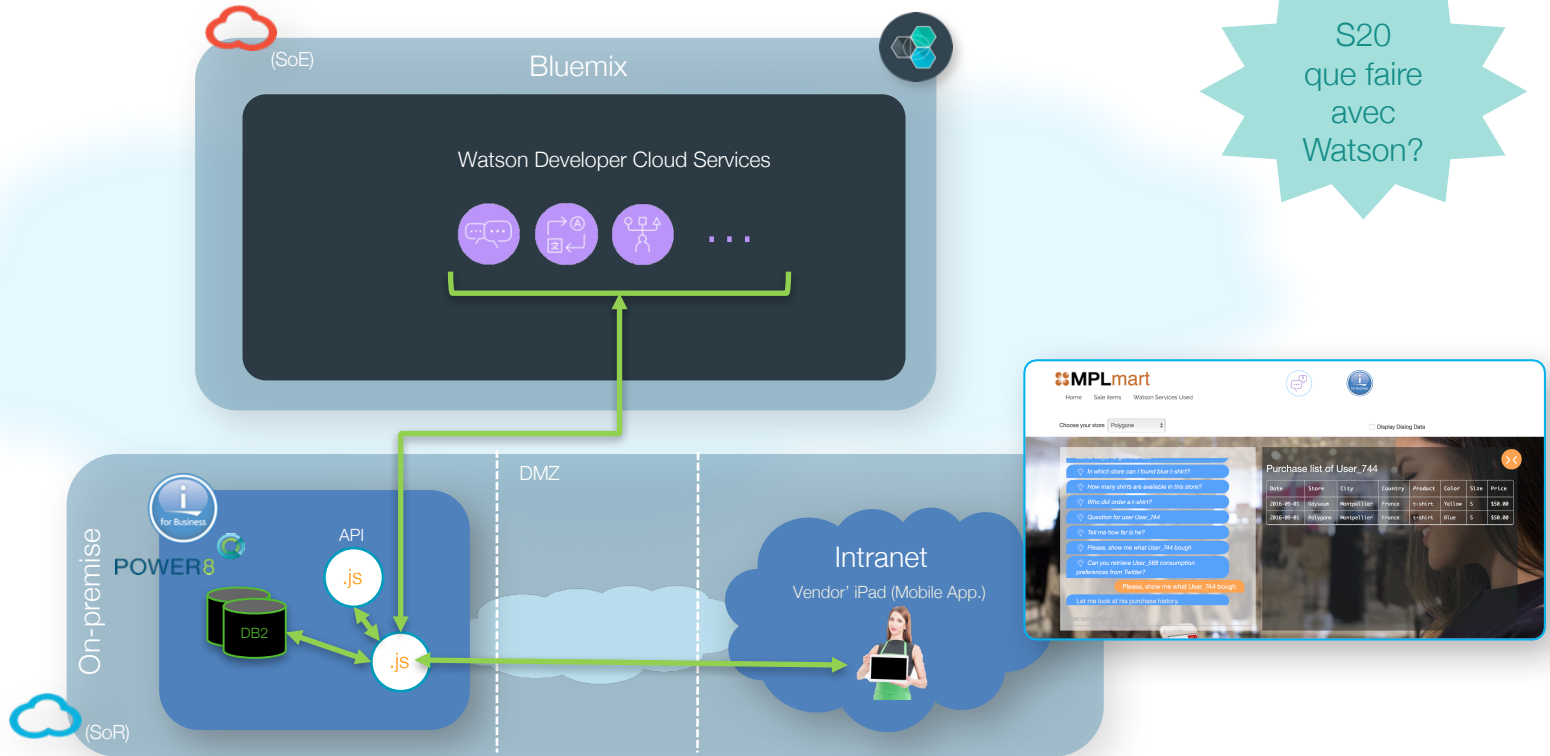
- Integrate off premise Services & Data into Legacy Solution
- Why ?
 - Accelerate digital transformation,
 - transform your (internal) business
- Bluemix Data & Services
 - Weather Company Data
 - Insight for Twitter
 - Watson Developer Cloud
 - ...

Do you know how Integrate external Services/data into IBM i using REST APIs ?

3_ Domain services let you differentiate with data



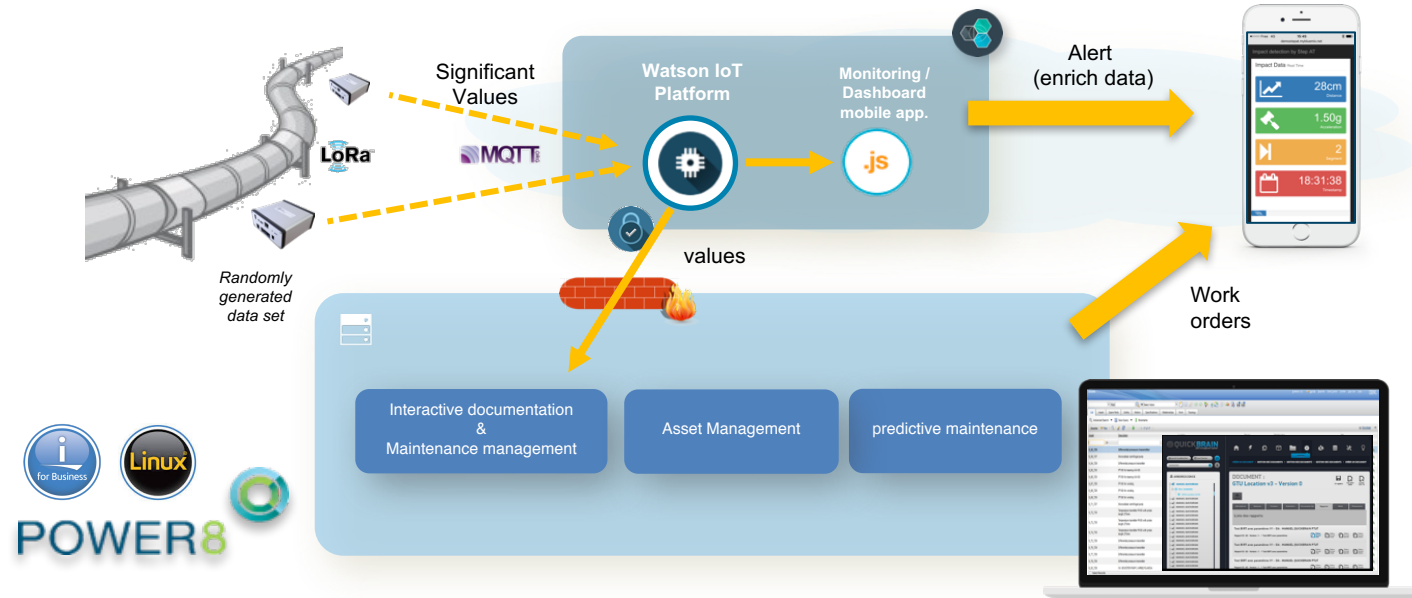
3_ Service Integration example : on-premises cognitive chatbot



S2O
que faire
avec
Watson?

3_ Data integration example: IoT

- Internet of Things & Power System: Connected Pipeline



4_ Backup and Archives

- Leverage off-premise resources for backup and archiving of on-premises resources
- Challenges
 - Data Policy
 - Business perspective (costs)
 - Technical perspective (RTO, RPO)
- Bluemix Services for IBM i backup/restore
 - Cloud Object Storage (Bluemix infrastructure)

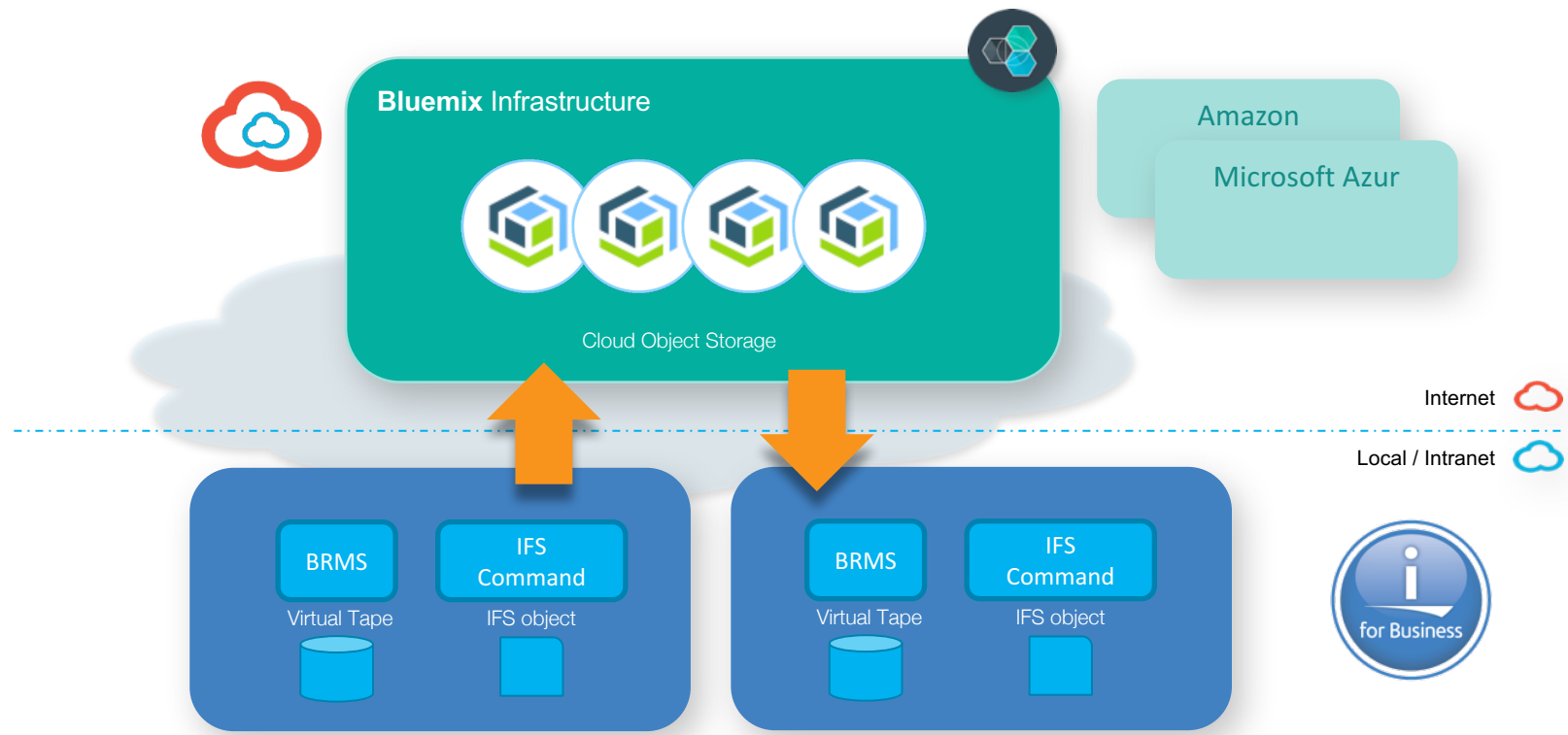


Cloud Object Storage

4_ Backup and Archives

- IBM Cloud Storage Solutions for i
 - Initial target audience
 - Systems with < 1TB of data to back up
 - Connect to a public or private cloud
 - Features
 - Use standard Cloud Object Storage
 - GUI Management
 - Integrates with BRMS for virtual tape
 - Secure connection with compression
 - Value Proposition
 - Eliminate need for local tape device
 - Easy-to-use recovery operations for data
 - Do-it-yourself backup and recovery operations to a public cloud

4_ IBM Cloud Storage Solutions for i



Every business is becoming an ecosystem

Getting new value from third parties

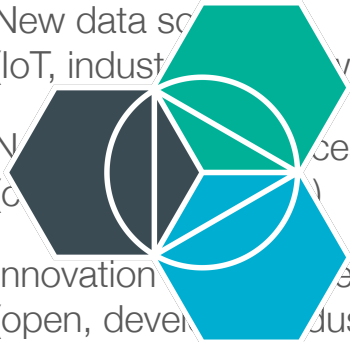


Extracting value from your entire business

New data sources
(IoT, industrial, weather)

New processes
(cloud, mobile)

Innovation
(open, developer, industry, cognitive, etc.)



Data
(customer, product, etc.)

Applications
(ERP, CRM)

Expertise
(industry, domain, customer)





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