

# Mobile Innovation

*Personalized engagement, exceptional client experience  
and opening up new opportunities*

Dave Jeffries



**The world is changing...**

**Transforming  
how we act,  
interact and  
transact.**

**Our digital footprint is expanding...**

**2004-2014:**

**37x increase**

**in mobile transactions**

**per day per user**







**Consumers are empowered...**

**Customer experience  
is the new measure  
of success**



Gets us to the  
demographic  
**of one**

# The world's leading businesses depend on z Systems and mobile to provide new opportunities

**92** of the top 100 worldwide banks<sup>1</sup>



**90%**

Of mobile banking app users check account balances or recent transactions<sup>5</sup>

**23** of the top 25 US retailers<sup>2</sup>



**27%**

Of all 2014 Black Friday online sales were mobile<sup>6</sup>

**10** out of 10 of the world's largest insurers<sup>3</sup>



**73%**

Of insurers will offer mobile claims services by 2016<sup>7</sup>

**23** out of 25 of the world's largest airlines<sup>4</sup>



**44%**

Of travelers use mobile to research travel while traveling<sup>8</sup>

**91%** of surveyed CIOs said that new customer-facing applications are accessing the mainframe<sup>9</sup>



# Mobile driven growth in new interactions and transactions bring unprecedented pressures to the business and IT

## Time to Market



Best in class time to market adds **60%** to first year innovation sales<sup>10</sup>

## Transaction Volatility



Mobile driven transaction growth to average **35%** annually through 2017<sup>11</sup>

## Information Accuracy



**40%** have gone to a competitor's site after a bad mobile experience<sup>12</sup>

## Response Time



**57%** of mobile customers will abandon a site if they wait 3 seconds+ for a page to load<sup>13</sup>

# The perception of mobile apps... is simple

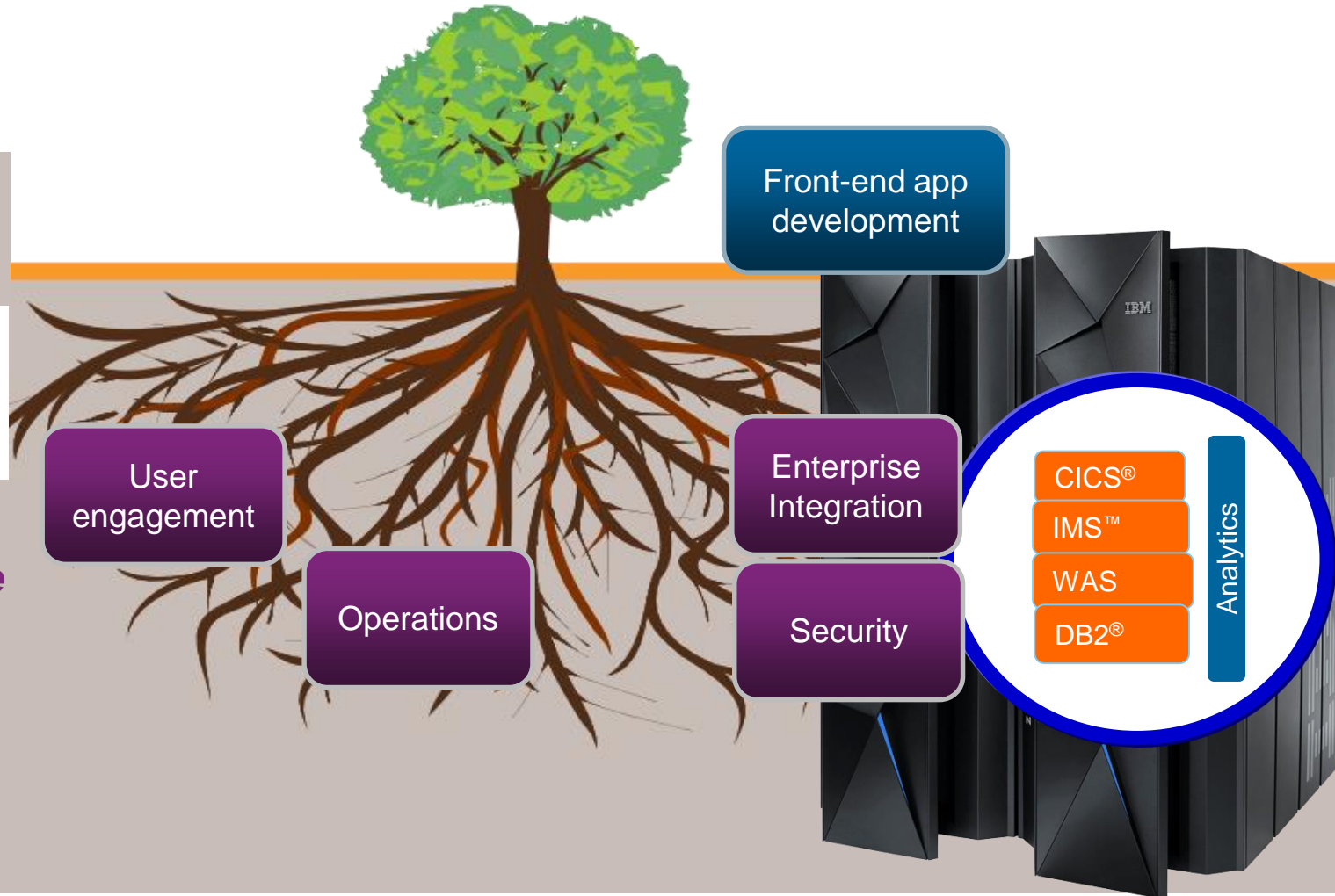


# z Systems Infrastructure Matters for Enterprise Mobility

**20%**  
of the effort is visible  
(mobile UI)

**80%**  
of the effort lies under  
the surface

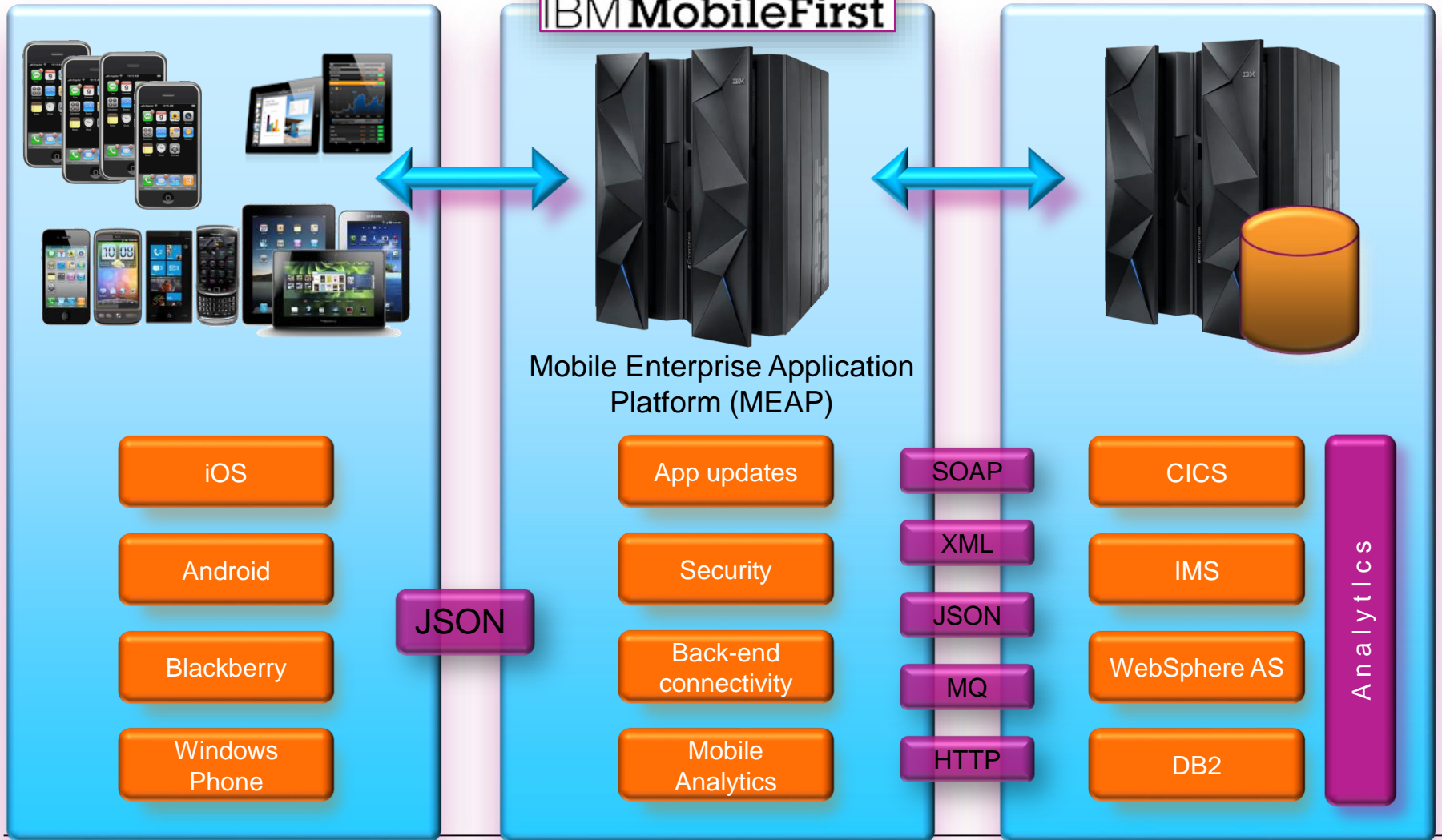
*We reduce the  
time clients  
spend on this*



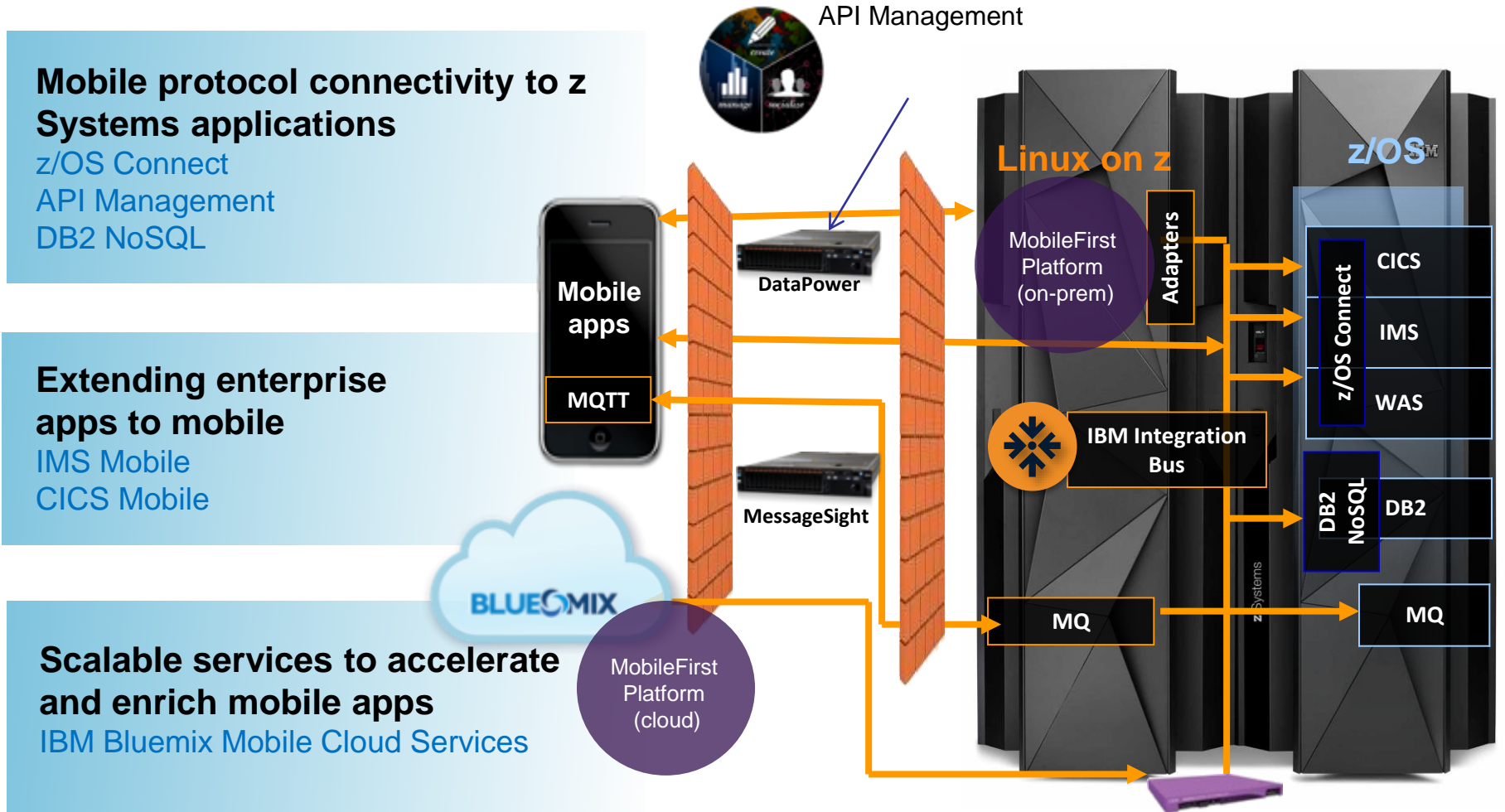


# Enterprise Modernization: Deliver at the speed of mobile

Mobile Devices      Systems of Engagement      Systems of Record

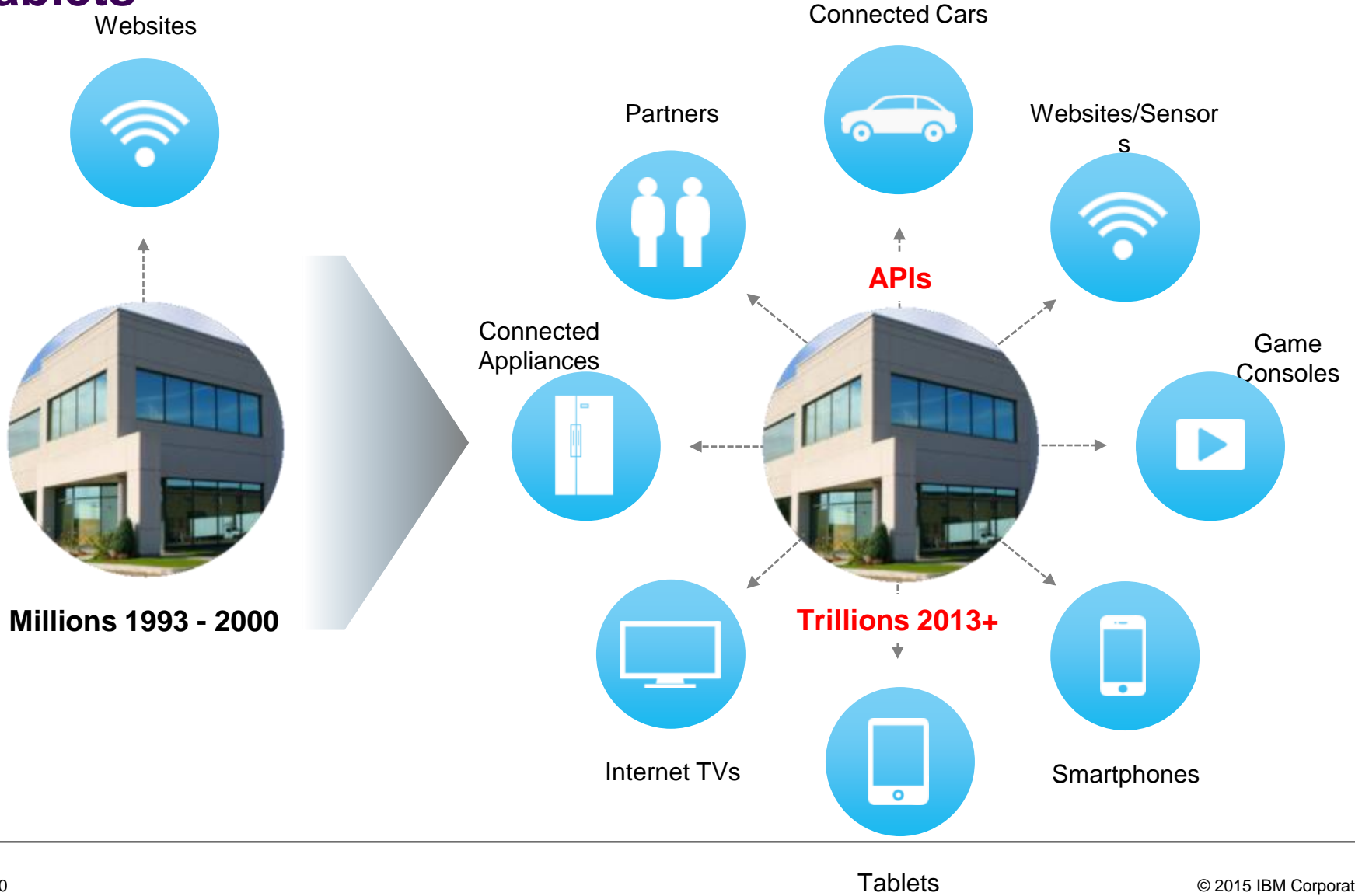


# Seamless Integration: Faster, simpler & greater flexibility



***On the new IBM z13 an unmatched scale to support billions of transactions per day  
Equivalent to 100 Cyber-Mondays. Every day.***

# Mobile: beyond web – and more than smartphones & tablets





# API Economy - Lifecycle

## API Economy Lifecycle

### *“The Building Blocks for Apps”*

- The “API economy” has changed how developers think about building apps, and how organisations deploy software in the cloud
- Many of the core business functions reside in z based services (CICS, IMS, WAS, TPF)
  - Eg Quote interest rate ad loan application
  - Checking room availability and reservation
  - Citizen information for customs check

**Business Assets**  
Exposable Enterprise Services

**Web APIs**  
APIs providing commercial access to the Business Assets

**Developers**  
Use APIs to create Apps

**Apps**  
Use backend services through Web APIs

**End Users**  
Increase revenue by using Apps with Business Assets



### The API Economy

Where companies [providers] expose their (internal) digital business assets or services in the form of (Web) APIs to third parties [consumers] with the goal of unlocking additional business value through the creation of new assets

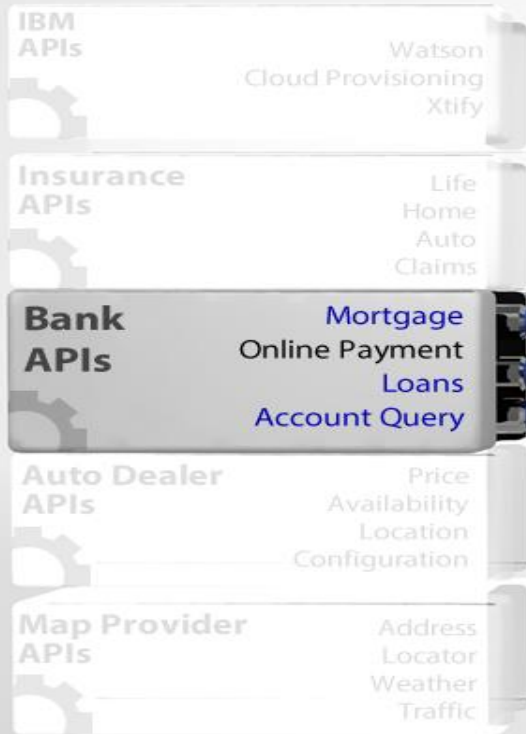
# API Economy

## API Economy Mobile App Assembly



# API Economy

## API Economy Provider Perspective



## Mobile App Assemblers Developers & Partners



## New Customers

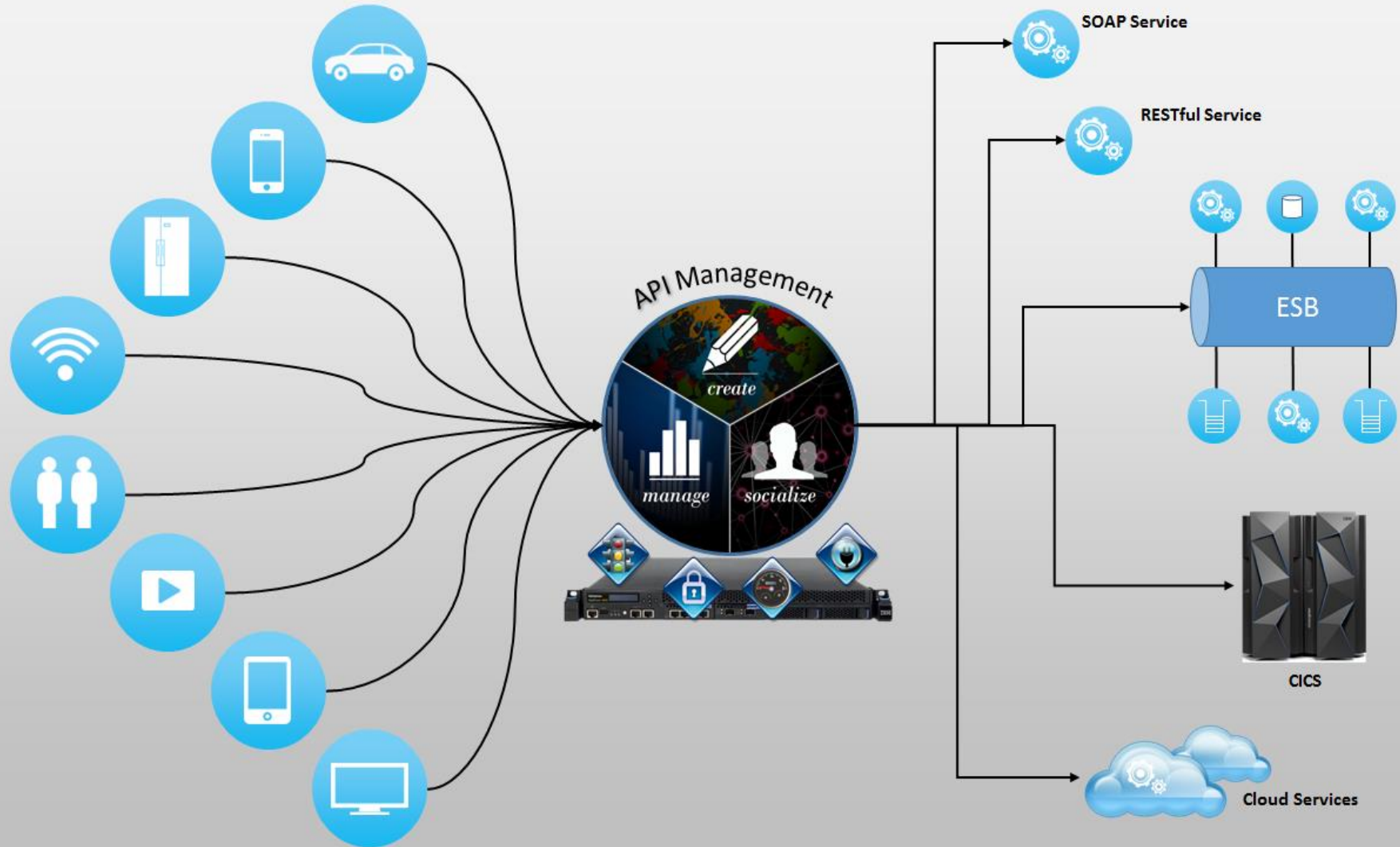


Providers

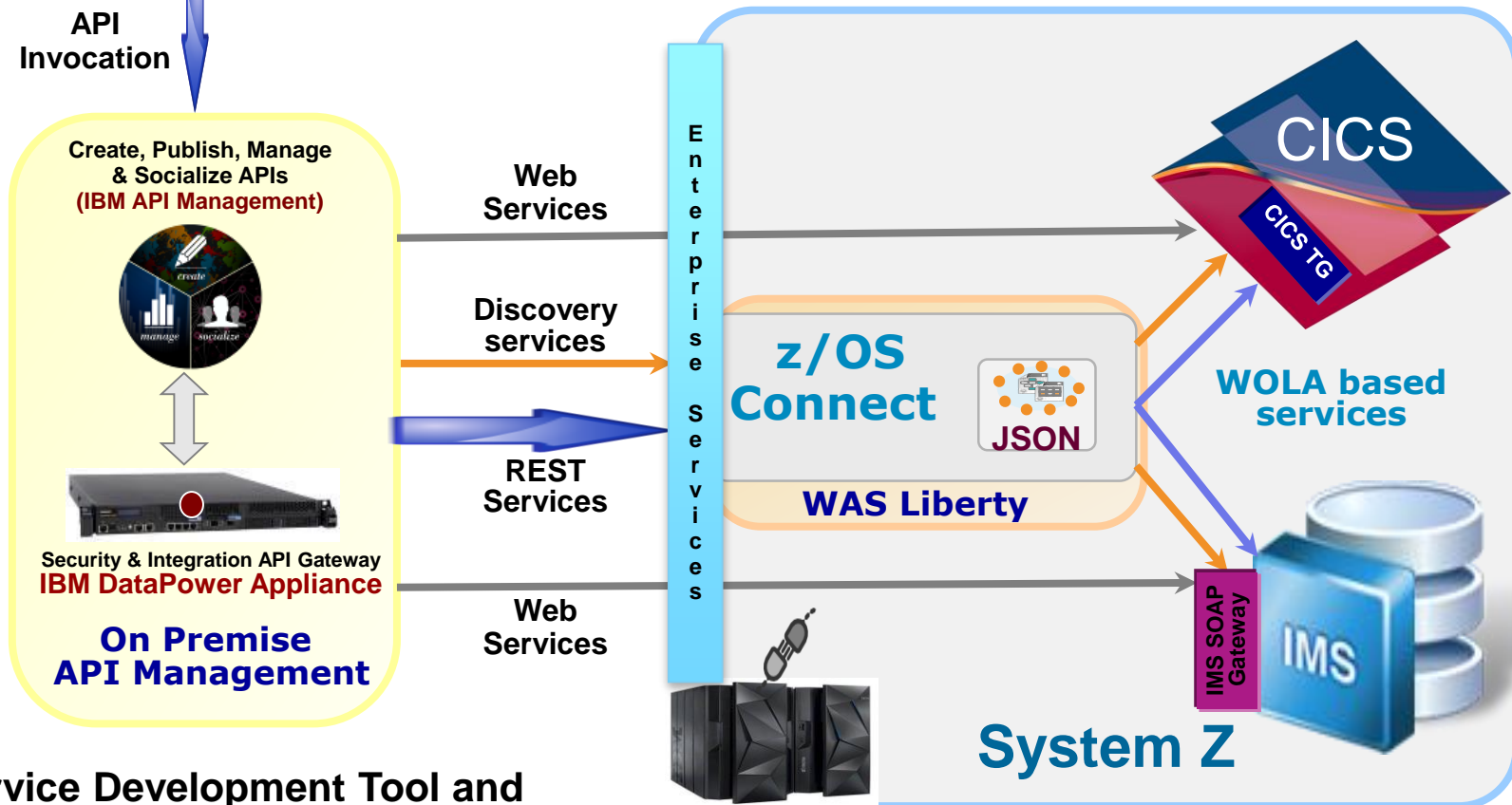
Consumers



# Where does API Management fit ?



# Discovery and invocation of System z based Services



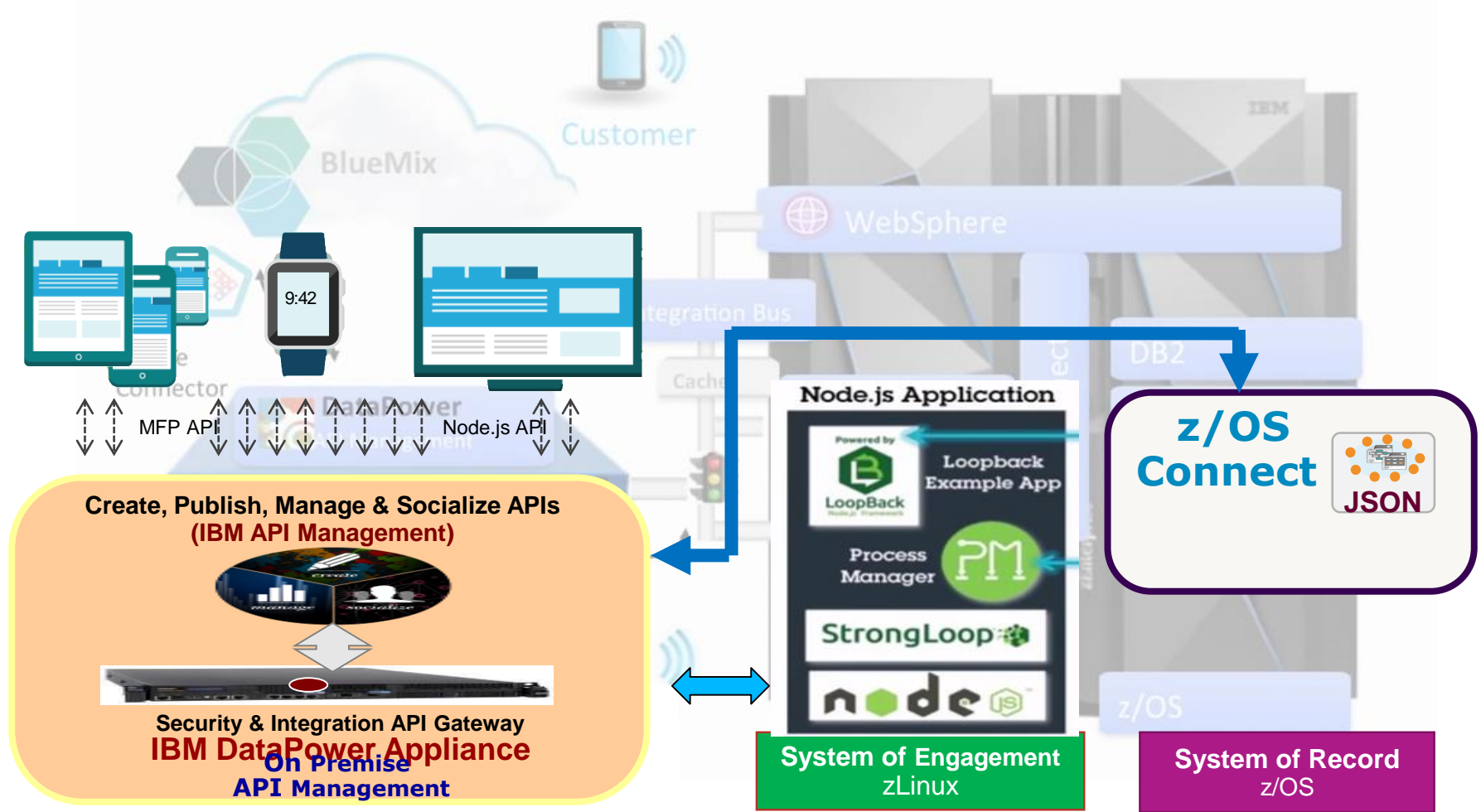
## Service Development Tool and Enablement Runtimes

- ❑ **Web Services**  
*CICS and IMS provides separate tools and runtimes; TPF provides runtime libraries*
- ❑ **REST/JSON**  
*CICS and IMS use common z/OS Connect runtime*

## Discovery of z Services for API Development

1. Get a list of deployed services (**Service Identification**)  
- Filter based on technical and business service attributes
2. Get schema for a specific service (**API Definition**)
3. Get additional deployment details for a service (**API Assembly**)  
- e.g., security protocol support, invocation uri

# Accelerating API Management with StrongLoop for Enterprise Systems





# Introducing StrongLoop Arc

Enterprise Node.js to build, deploy, scale, manage and monitor your APIs **StrongLoop**  
An IBM Company



**API Composer**  
Visual modeling



**Profiler**  
Root cause  
CPU & Memory



**Performance Metrics**  
Real-time  
production  
monitoring



**Build and Deploy**  
Automate  
Lifecycle



**Process Manager**  
Scale APIs



Open Source solution for server-side JavaScript

Open ecosystem of more than 150,000 pluggable components to accelerate delivery

Lightweight platform that favors prototyping and continuous delivery



**Rewrote critical backend APIs with Node.js**

Lightweight nature of Node.js & open ecosystem enabled them to release **2X** as fast with half the number of resources

# IBM z13 and IBM Java8

## Taking Java Performance to the Next Level

- Continued aggressive investment in Java on Z
- Significant set of new hardware features tailored and co-designed with Java
- **Simultaneous Multi-Threading (SMT)**
  - 2x hardware threads/core for improved throughput
  - Available on zIIPs and IFLs
- **Single Instruction Multiple Data (SIMD)**
  - Vector processing unit
  - Accelerates loops and string operations
- **Cryptographic Function (CPACF)**
  - Transparently accelerate IBMJCE security provider
  - Block ciphering, Secure Hashing and Public Key Cryptography
- New Instructions

Up to **50%**  
improvement  
for generic  
applications

Up to **2X**  
improvement in  
throughput per core  
for security  
enabled applications

<https://ibm.biz/BdE6H8>

# z System clients are enabled for mobile business



**240M** monthly mobile banking transactions with **< 30 milliseconds** end-to-end response time



**24/7** access to mobile services with lightning fast response time increases ticket sales by **11%**



Brings the branch to the client and enables personalized services to support **10M** new customers

# z Systems can help you accelerate mobile solutions

## Effective Mobile Enterprise

**Transactions** are high in quality and usability and as secure as they are convenient

**Develop and deliver** exceptional mobile applications with speed, flexibility and quality

**Fast** response time with **accurate** data

**Advanced analytics** to data from mobile interactions to derive insights, drive better decisions, and differentiate the customer experience



## z Systems

Pervasive best-of-breed **security, scalability, RAS**

Fastest response time with **real-time** access to System of Record, not a copy

Only z Systems can handle the **massive spikes** and growth of mobile workloads

**Bridges** system of record to system of engagement for rapid mobile service delivery

**Predictive analytics** that won't impact performance



# Mobile Computing converging with analytics

## Use of mobile devices continues to soar

The average mobile phone user checks their phone 150 times a day



### Mobile is driving customer interactions

96% year to year increase in mobile cyber Monday sales between 2012 and 2011<sup>(3)</sup>

### Mobile transactions are generating unprecedented amounts of data

Mobile data traffic will grow at 61%(CAGR) 2013 to 2018<sup>(4)</sup>

### Mobile delivery of Analytics at the “point of impact” is critical

75% of mobile shoppers take action after receiving a location based message<sup>(5)</sup>

### Mobile use of analytics insight directly impacts business performance

Worldwide smart connected devices (SCD) are forecast to grow 15.6% year over year in 2014, reaching close to 1.8 billion devices<sup>(1)</sup>... PC shipments will decline 1.7% to 74.4M<sup>(2)</sup>

(1) Worldwide Quarterly SCD Tracker – IDC, Jun 17 2014

(2) Worldwide Quarterly PC Tracker – IDC, Jul 9 2014

(3) IBM Coremetrics Retail Data – as published in 11/24/12 IBM Press Release

(4) VNI Mobile Forecast Highlights, 2013 – 2018

(5) JiWire Mobile Audience Insights Report Q42011

**Demo Time**

Oklahoma Friday June 26<sup>th</sup>, 2009



Fatigue is a prominent factor in truck accidents

**75%** of 107 heavy truck 'run-off-the road' crashes, fatigue was a significant factor.

Taken from <http://www.saferoads.org/~saferoad/truck-driver-fatigue> on 30th April 2015



## Associated costs of truck crashes

**\$99 Billion to the U.S. every year**

**25%** of insurance losses due to fatigue  
in the heavy vehicle industry.

Taken from <http://www.cdc.gov/media/releases/2015/p0303-truck-driver-safety.html> on 30th April 2015

Taken from <http://www.optalert.com/news/truck-crashes-fatigue> on 30th April 2015

Meet Mike.



**Mike Peterson**  
Truck Driver

- 0hr contract
- 9 years experience
- Never has a 'typical' day
- 33 years old
- Has a family with 2 sons

*“The best thing about truck driving is **not having someone looking over your shoulder.**”*

*But you have to realise that you're in charge of **a killing machine**, one lapse in attention could cost you the lives of 52 coach passengers”*

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## A day in the life of...



- Many truckers, feel under pressure to deliver goods on time.
- Some firms will be charged if a delivery is late.

*“Some trucks have an electronic on-board recorder which records the amount of driving hours but otherwise I will log my time using a log book.*

*If you are in a hurry, it can sometimes be difficult to work out when you need to stop for a break in terms of the truck driving regulations.*

*Normally, if I feel tired I will stop for a coffee and a short nap”*

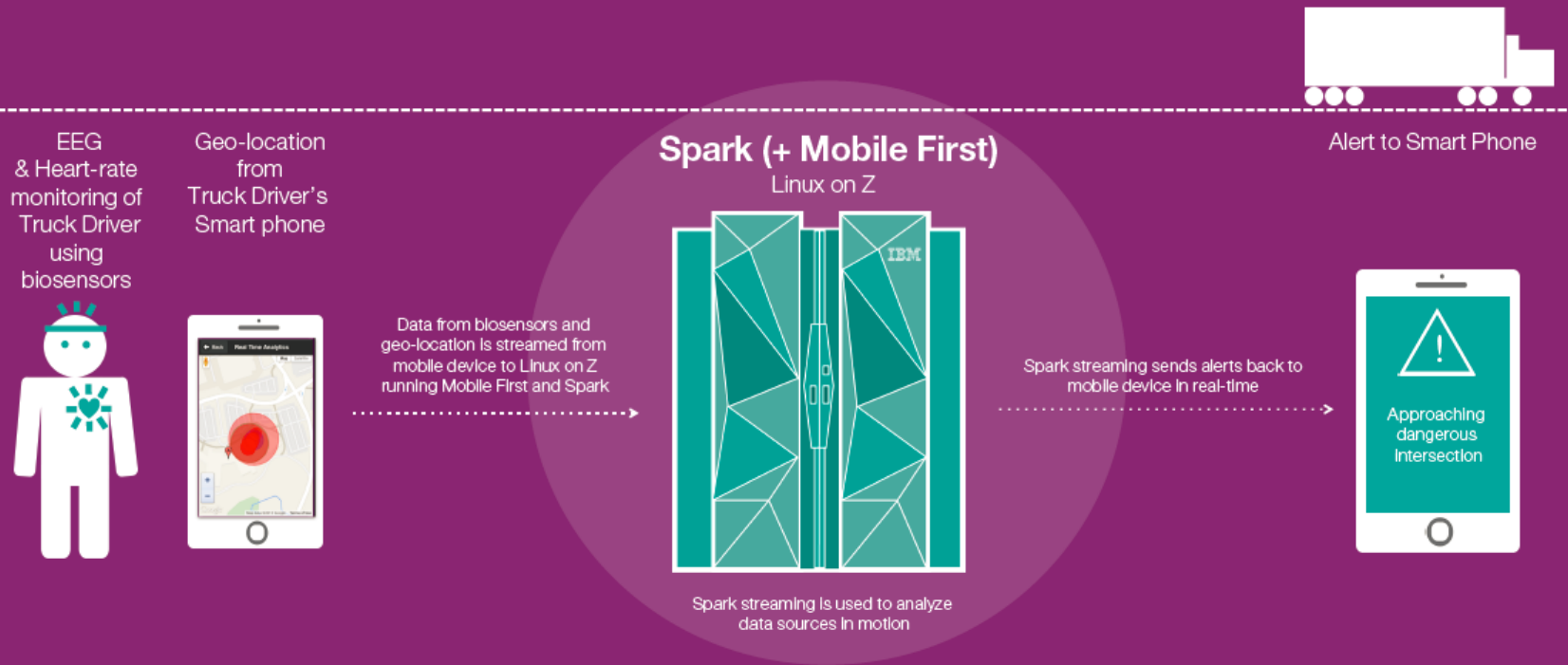
# Hill 1

Mike, the Truck Driver, can be notified in real-time through a mobile device when he is approaching a dangerous intersection that requires heightened attention



# Apache Spark Scenario

Mike, the Truck Driver, can be notified when he is approaching a dangerous intersection that requires heightened attention or when he is showing signs of fatigue in real-time.

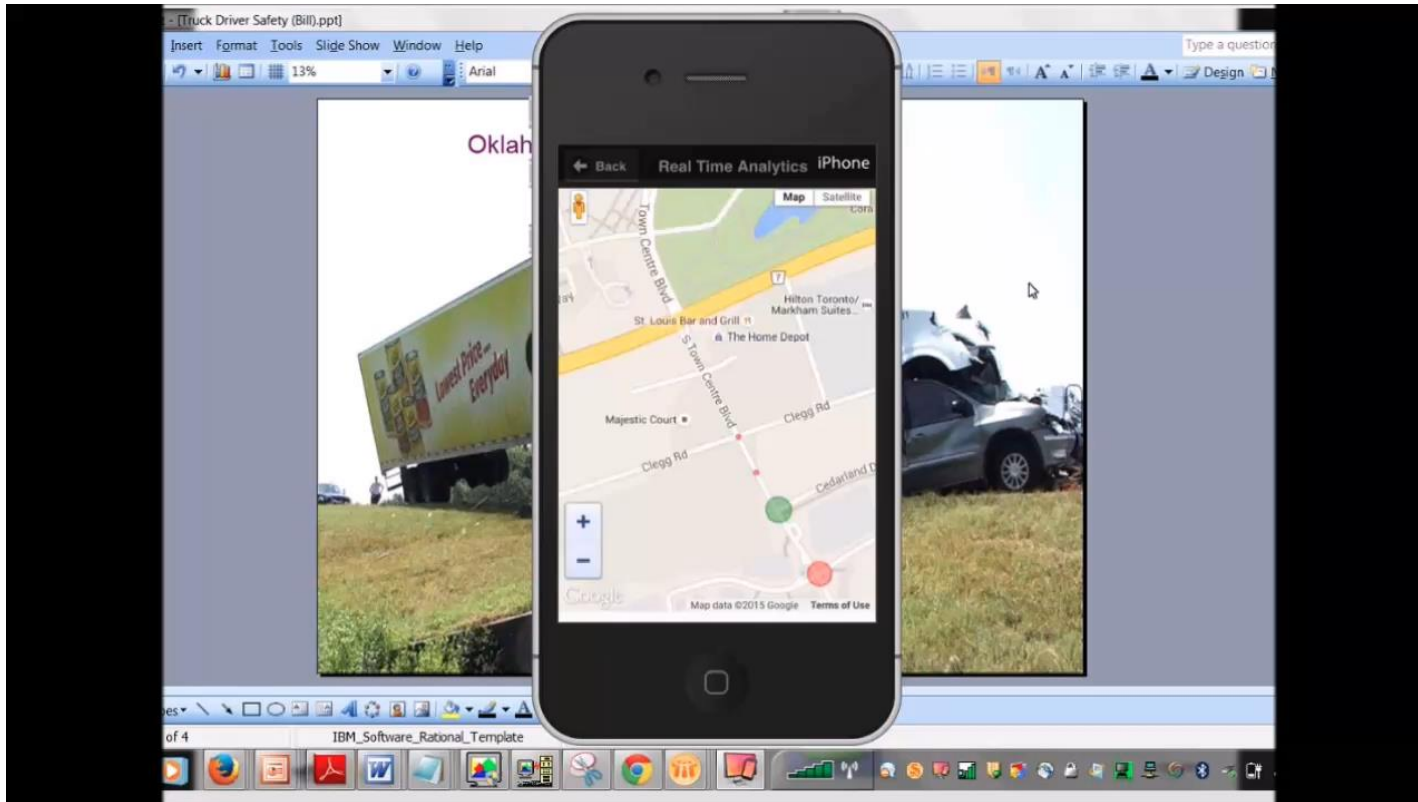


Performance

Real-time Analytics

Security

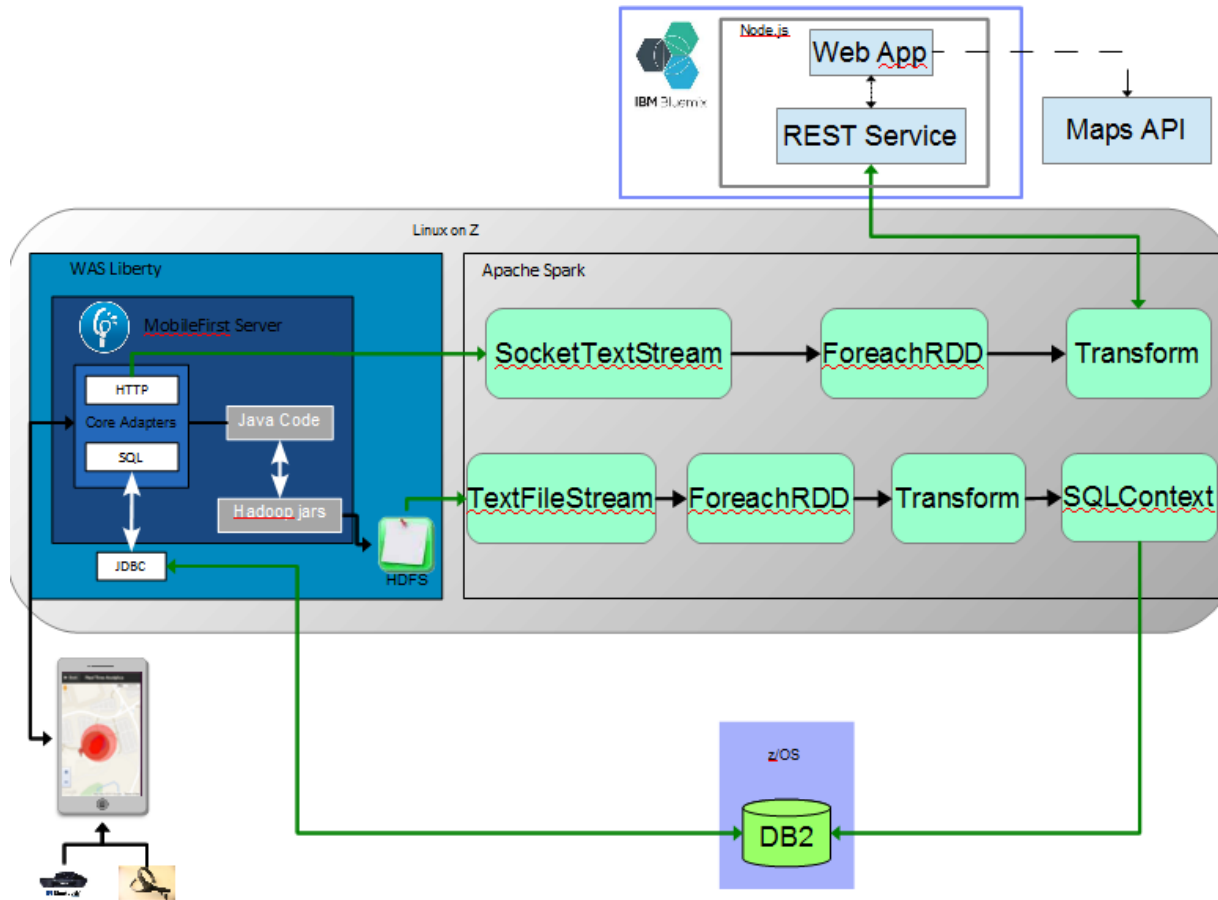
# Video demo: Truck driver Mobile app



# Why z Systems

- Security
  - Bio-sensor data is under increasing regulatory scrutiny
- Performance and responsiveness
  - Critical to effectiveness of solution
- High-availability
  - Life/death implications when the system fails

# Solution Architecture





Meet Nigel.



**Nigel Johnson**  
Fleet & Logistics  
Manager

- 40hr per week contract
- 12 years experience
- Works Mon-Fri, occasional weekends
- 37 years old
- Has a family with 1 daughter

*“Coordinating deliveries is no easy task. The hardest thing is trying to plan when they will get back for another job because traffic, work hours all need to be taken into account but **I need to be as lean as possible.**”*

***Making sure the trucks are maintained** is a whole other challenge I have to do”*

## A day in the life of...



- US legislations state truckers can drive for 11 hours, with no more than 14 hours on duty.
- This makes it harder to manage lean inventories.

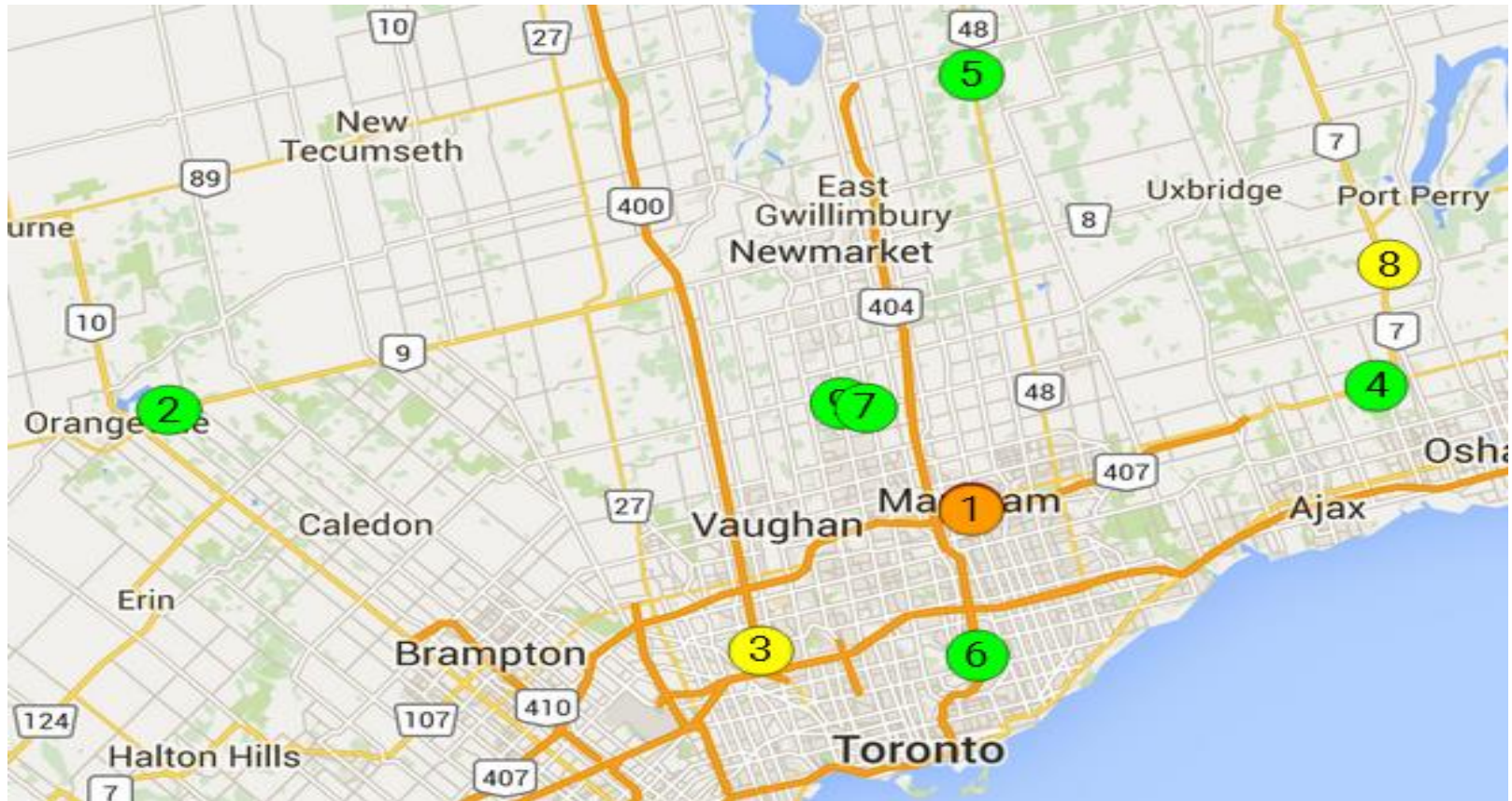
*“You never know when you will get that call to say one of your drivers has been involved in an accident, but it has happened. And it is costly with the insurance.*

*I have to be prepared to deal with these situations, on top of all my other duties. Ensuring the safety of our drivers has to be a priority. I mean there are legislations which help but fatigue can happen at anytime but some drivers feel under pressure to carry on”*

## Hill 2

Nigel, the Fleet Manager, can monitor and be alerted when a driver is displaying signs of fatigue to accommodate delivery changes and ensure the safety of his drivers in real-time.

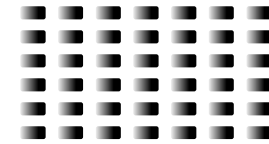
# Bluemix Powered Fleet Manager view



**Click map to launch connect  
to web app**



Thank You

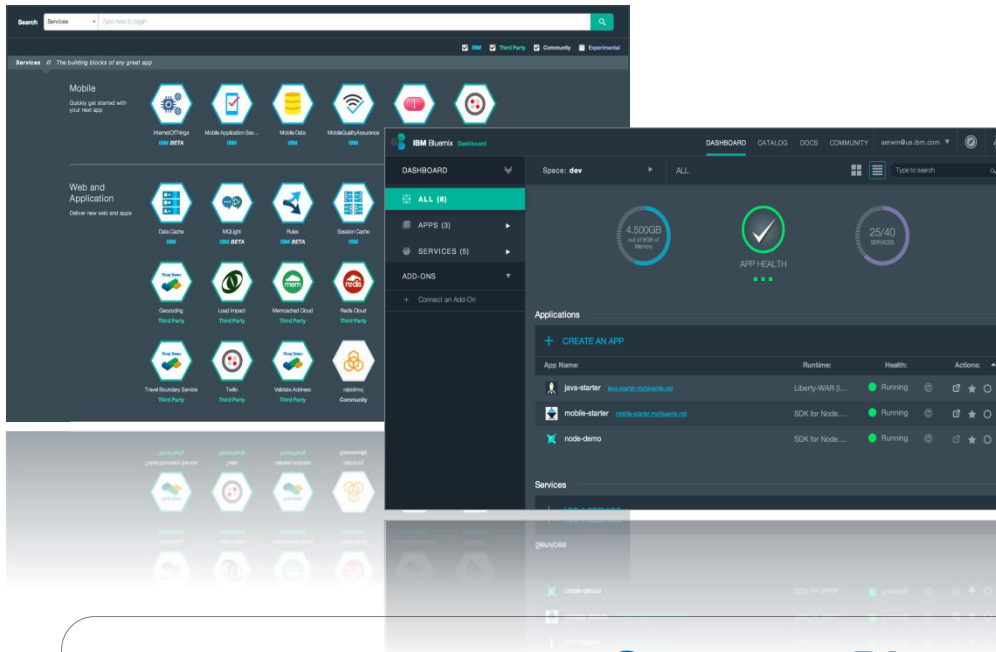




# Backup



# IBM Bluemix can help compose new applications using existing z services, data and transactions



- Platform as a service (PaaS) offering that delivers enterprise-level features & services that are easy to integrate into cloud apps
- Brings unparalleled speed to development and deployment
- 100% Open standards-based
- Use same proven API services as used on premise



## z Systems - Bluemix Integration

Expose services in a secure manner to achieve rapid open source based development while leveraging mainframe assets