The Mainframe: The Latest Disruptive Technology in Cloud

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Cloud Definition

C onvenient

L everaging

O f

U ncertain

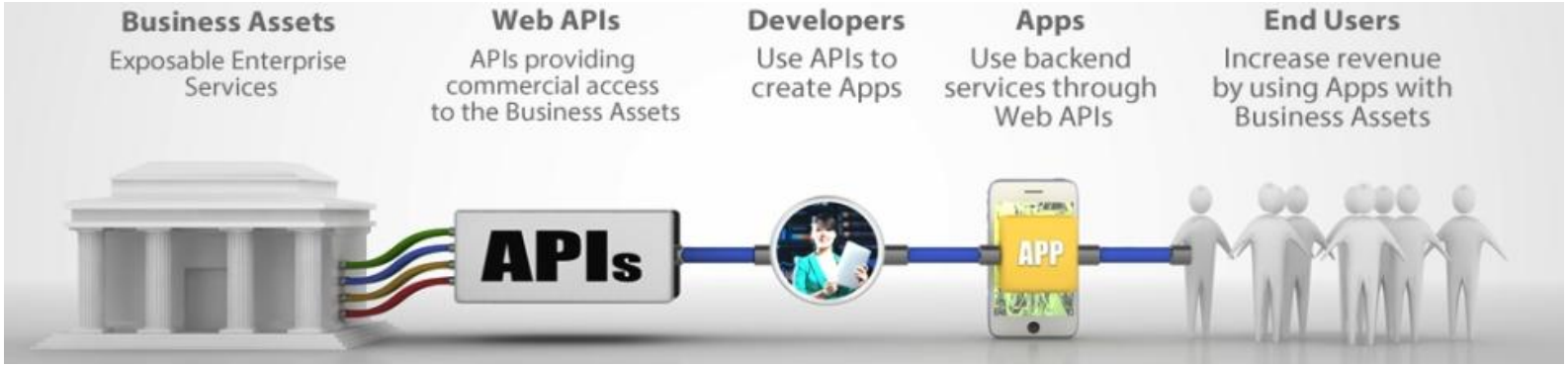
D efinitions

The Best Way to go!

The New Aggregation Point

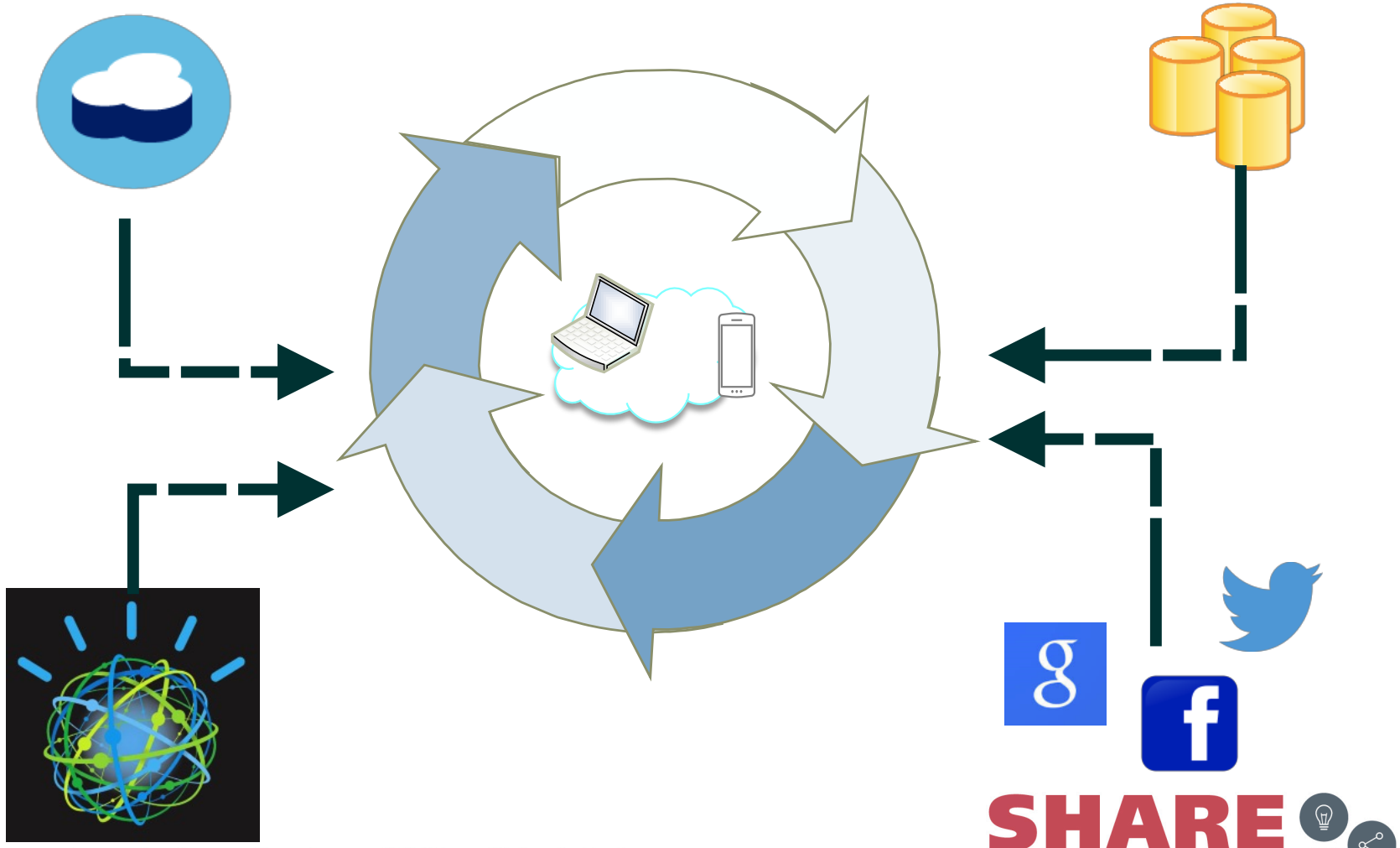
Monolithic Applications Inhibit Growth

An API Economy of Providers and Consumers



Segment	Company	Description	Client	Client Value
Payment Services	PayPal	Seamless payment mode integrated into POS	The Home Depot	Home Depot customers can pay with PayPal at the point of sale, reducing fraud incidents and cutting on larger credit card fees Rolled out to nearly 2000 stores in 2 weeks
Communi-cation Services	twilio	All telco offerings, including line provisioning, phone calls, SMS are provided through APIs	intuit	Intuit very quickly built (PoC in a weekend to production in 1 month) a service based 2nd factor authentication solution using the SMS messaging API from Twilio
Telco	at&t	API suite includes APIs for contacts, SMS, MMS, advertising & payment	facebook	AT&T subscribers will benefit from directly charging **in-app purchases** to phone bill
Finance	American Express	Drive **promotion campaigns** for brick & mortar store customers	facebook foursquare	Merchants provided insight into success of their campaigns. "**Tweet to Transaction**" model to increase revenue

Develop in Days..

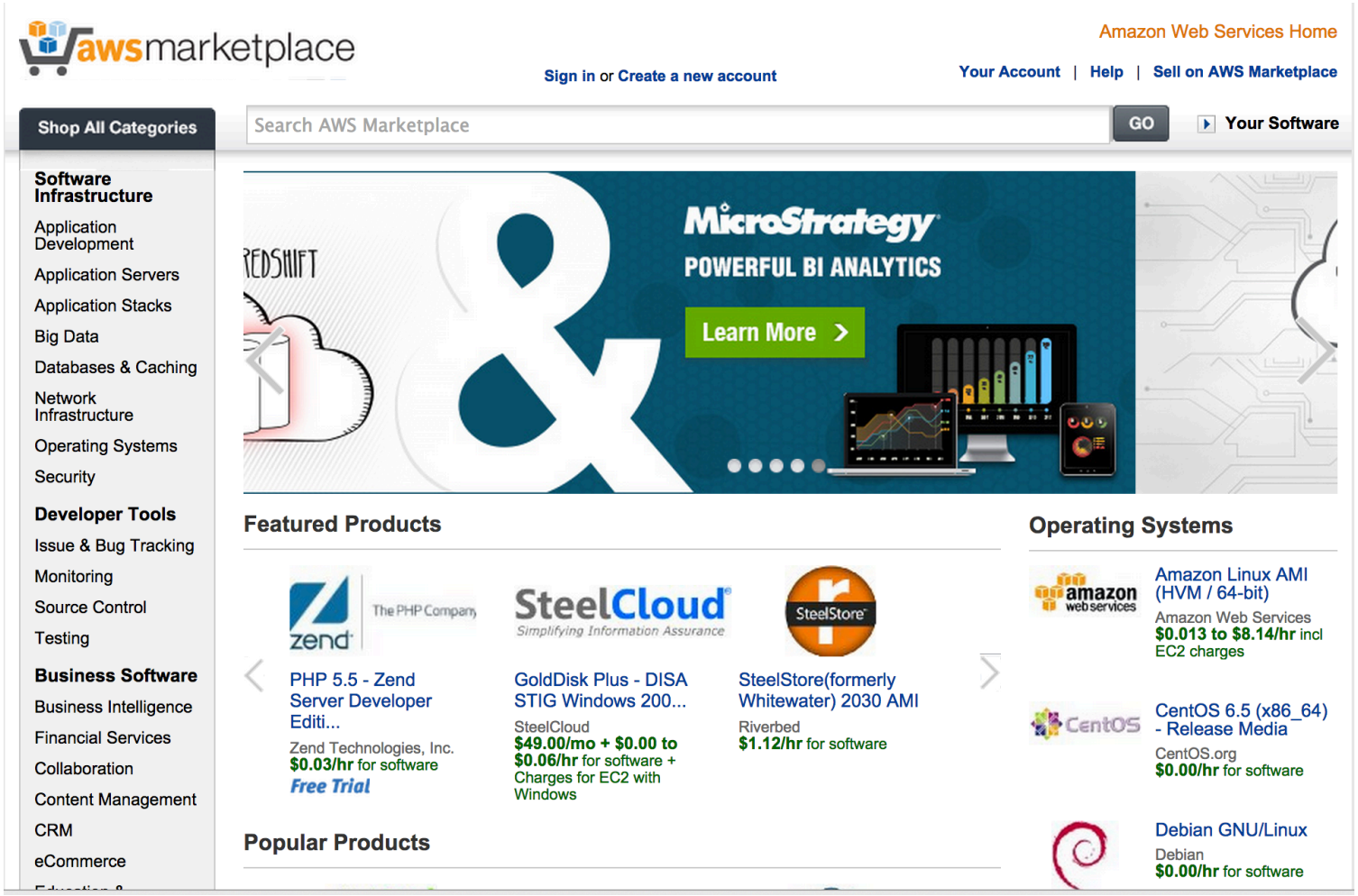


New Business Programming Model

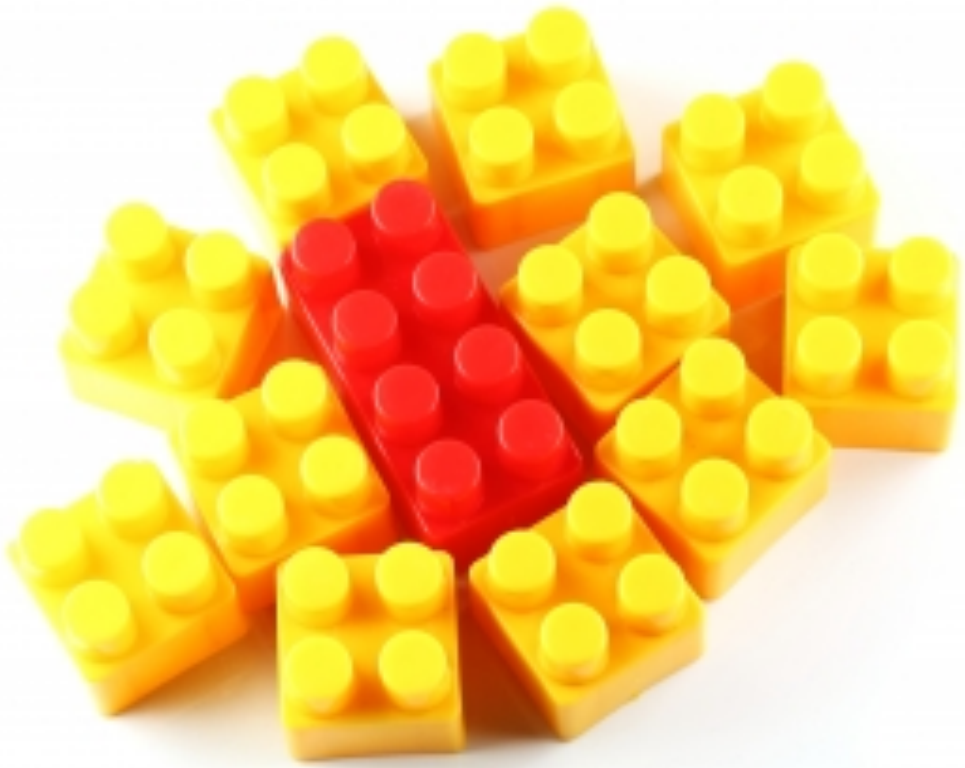
SCRIPTERS

HARDCORES

Redefining the business



Winners will be the service providers



Is integration using APIs just a new name for SOA?

There are many similarities – but one very important difference:
The objective most have been focusing on achieving with them

"How can I increase the **pace of innovation**?"

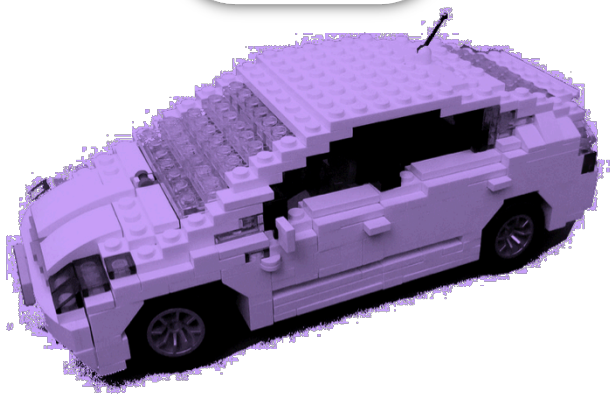
APIs

Reuse → Speed to deliver
Sharing → Expediency
Encapsulate → Less to learn

REST (over HTTP), JSON,

"How can I increase the **agility and effectiveness of delivery**?"

SOA



Reuse → Effort to deliver
Sharing → Effectiveness
Encapsulate → Less to change

WebServices, SOAP, XML

REST and JSON for APIs

http://www.anystore.com/api/Your_Key/Stock/q/CA/San_Francisco.json

- REST stands for **Re**presentational **S**tate **T**ransfer.
- An architecture style for designing networked applications.

SOAP & XML
(as used in SOA)

Vs

/Resource
GET
PUT
POST
DELETE

Post Card

Get me the price of Apples

To:
The Web Server
www.anystore.com

REST & JSON

/Orders
GET – list of all orders
PUT – unused
POST – add a new order
DELETE – unused

/Orders/(id)
GET – get order details
PUT – up date order
POST – unused
DELETE – delete order

/Customers
GET – list of all customers
PUT – unused
POST – add a new customer
DELETE – unused

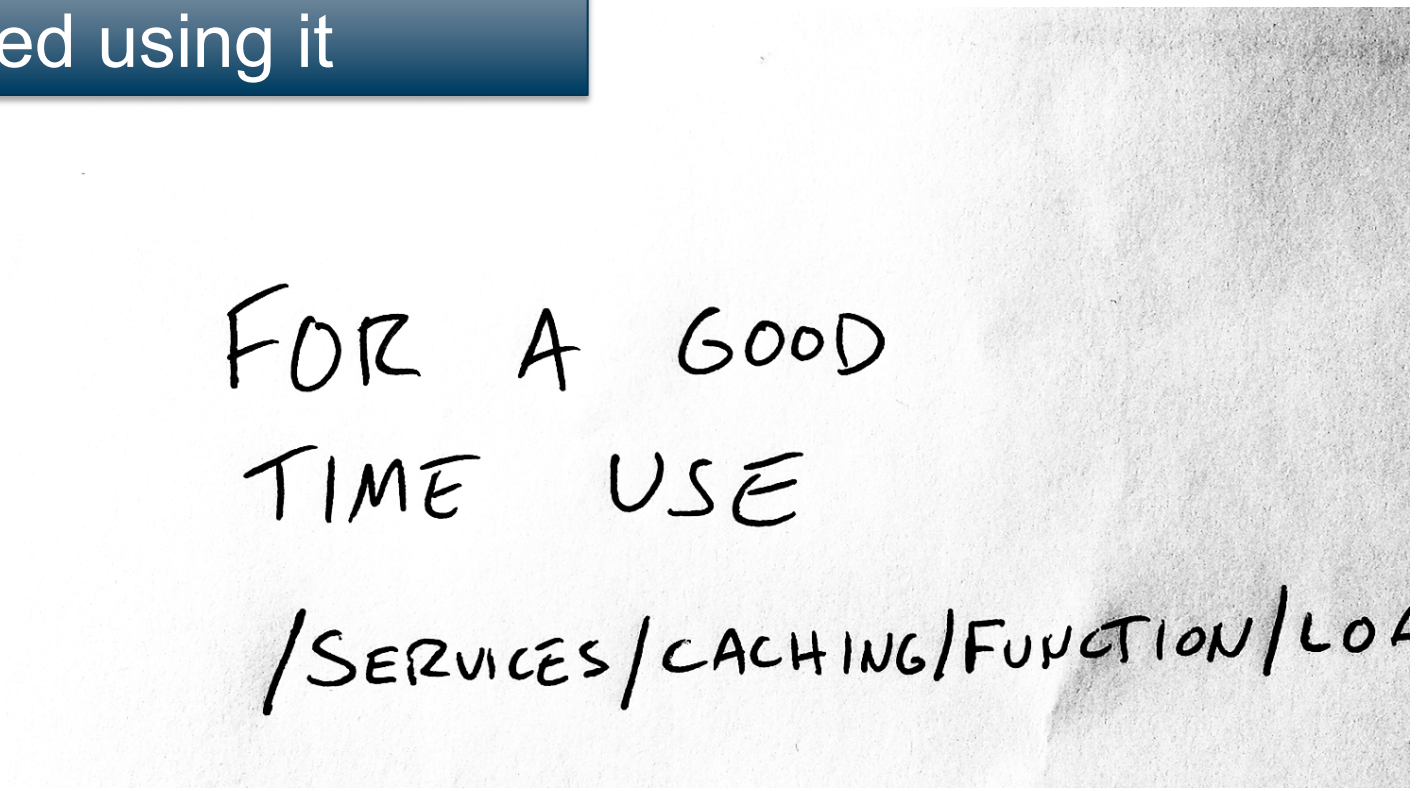
/Customers/(id)
GET – get customer details
PUT – up date customer
POST – unused
DELETE – delete customer

An Interesting Thing Happened…

- A Mainframer created a caching service for distributed guys
- Marketed and pushed to a single developer
- After a short period of time, resource utilization went way beyond what was projected

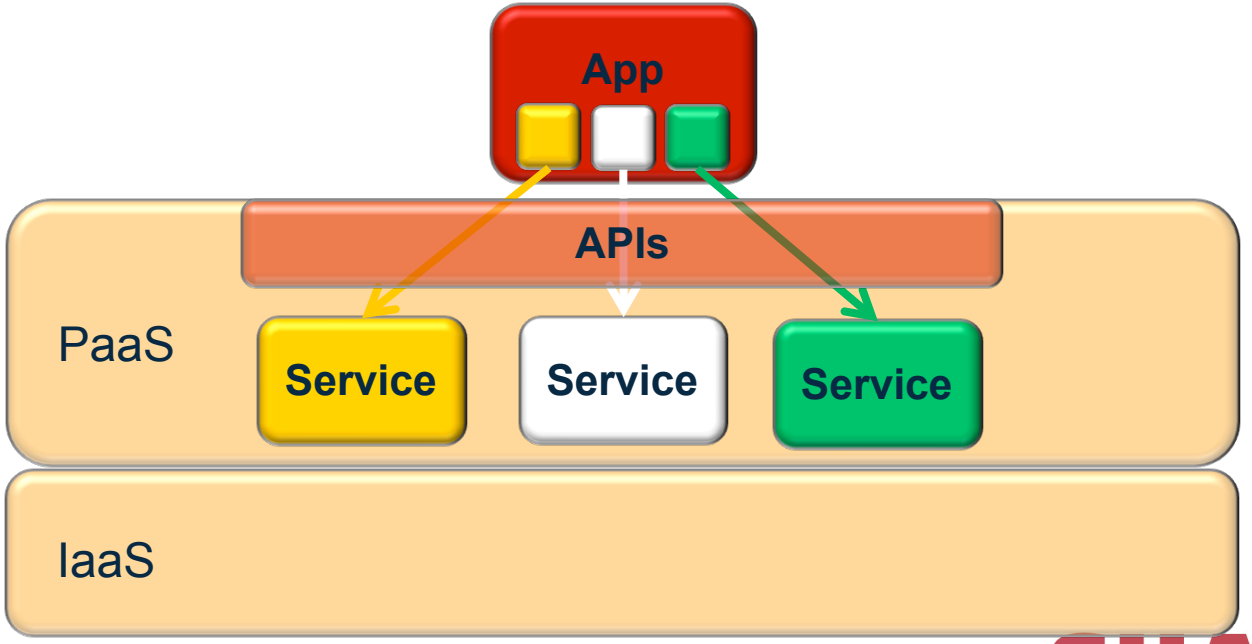
Why did utilization explode?

Word got out and people started using it



Microservices Architecture

- Microservices Architecture is the approach of designing applications as collections of smaller, independent services
  - Evolution of SOA/Web Services
  - Style is encouraged by the emergence of Cloud Computing
  - Instances of small, limited function services



Some of Our Services

- Cache as a Service
  - Enterprise Distributed Cache as a Service
- UID as a Service
  - Unique Identifier Generator as a Service
  - Guaranteed unique
- Crypto Service
- KVS as a Service
  - NoSQL data store
  - Basic Mode
    - Strict key-value object store
  - Query Mode
    - Secondary Column Indexes
    - zQL (SQL-like interface)

Value

- Speed to Market
- Productivity
- Agility
- Flexibility

Services/Cloud Model

- RAS
- Elasticity
- Efficiency
- Security

z/OS Parallel Sysplex

Response from Developers

"my run time got reduced from 20sec down to 80-120ms. this thing is awesome!"

"With the simplicity to setup and the cheap cost, how could you not consider using it"

"Based on my experience so far, I think this KVS service will improve speed to market, I have seen faster performance in lab than our fileserver virtual in production, it's more flexible, and the security model we discussed is not available with our current setup."

"using the KVS service only takes 80-120ms after the initial load (once data is moved to KVS). This is a great improvement especially if we consider minimal code changes that had to be done to our program and the time spent setting up a new KVS data store."

"the load it undertakes and performance are impressive. This provides us with a great deal of confidence that we can deploy and scale our applications."

"I will share my experience with my team, and I will look forward to leveraging this tool for other applications in the future. Thanks"

Cache Service Adoption

Customer	Platform	Status	Volume per day (or target production date)
ISD	Windows	Production	15,000,000
ISD	Windows	Production	45,000
GeC	x86 mobile	Development	1st Quarter 2015
GeC	x86 mobile	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015
ISD	Windows	Production	10,000
GeC	x86 mobile	Production	250,000
ISD	z/OS	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015
ISD	z/OS	Production	2,500,000
GeC	x86 mobile	Development	1st Quarter 2015
ISD	x86	Production	1,500
ISD	x86	Development	1st Quarter 2015
ISD	DataPower	Production	25,000
ISD	z/OS and x86	Development	5,000
ISD	DataPower	Development	1st Quarter 2015
ISD	DataPower	Development	1st Quarter 2015
ISD	x86	Production	25,000
ISD	x86	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015
GeC	x86 mobile	Production	25,000,000 (80 million on BlackFriday and CyberMonday)
ISD	MessageBroker	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015
GeC	x86 mobile	Development	180,000
ISD	x86	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015
ISD	z/OS	Development	1st Quarter 2015

Login and Session info for large distributed app

Customized discount info accessed in real time from kiosks, POS, and web

Mobile App HTML components and text info

KVS Service Adoption

Customer	Platform	Status	Volume per day
ISD	z/OS	Production	1,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	25,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	1,000
ISD	z/OS	Production	700,000
ISD	x86	Production	1,000
ISD	x86	Production	80,000
ISD	x86	Production	1,000
ISD	x86	Production	50,000
ISD	z/OS & x86	Production	150,000
ISD	x86	Production	6,000
ISD	x86	Production	150,000
ISD	z/OS & x86	Production	1,000,000
ISD	z/OS & x86	Production	1,000,000

PDF documents pulled down to Pharmacy sites for printing on as-needed basis

KVS Service Adoption

Customer	Platform	Status	Target production date
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	z/OS	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	x86	Development	OCT 2014
ISD	x86	Development	OCT 2014
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS	Development	1Q2015
ISD	z/OS	Development	1Q2015
ISD	MessageBroker	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	MessageBroker	Development	1Q2015
ISD	z/OS	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015
ISD	z/OS	Development	1Q2015
ISD	x86	Development	1Q2015
ISD	z/OS & x86	Development	1Q2015

UID Service Adoption

Customer	Platform	Status	Volume per day (or target production date)
ISD	z/OS	Production	43,000,000
ISD	z/OS	Production	5,000
ISD	x86	Production	150,000
ISD	x86	Production	100,000
ISD	x86	Production	10,000

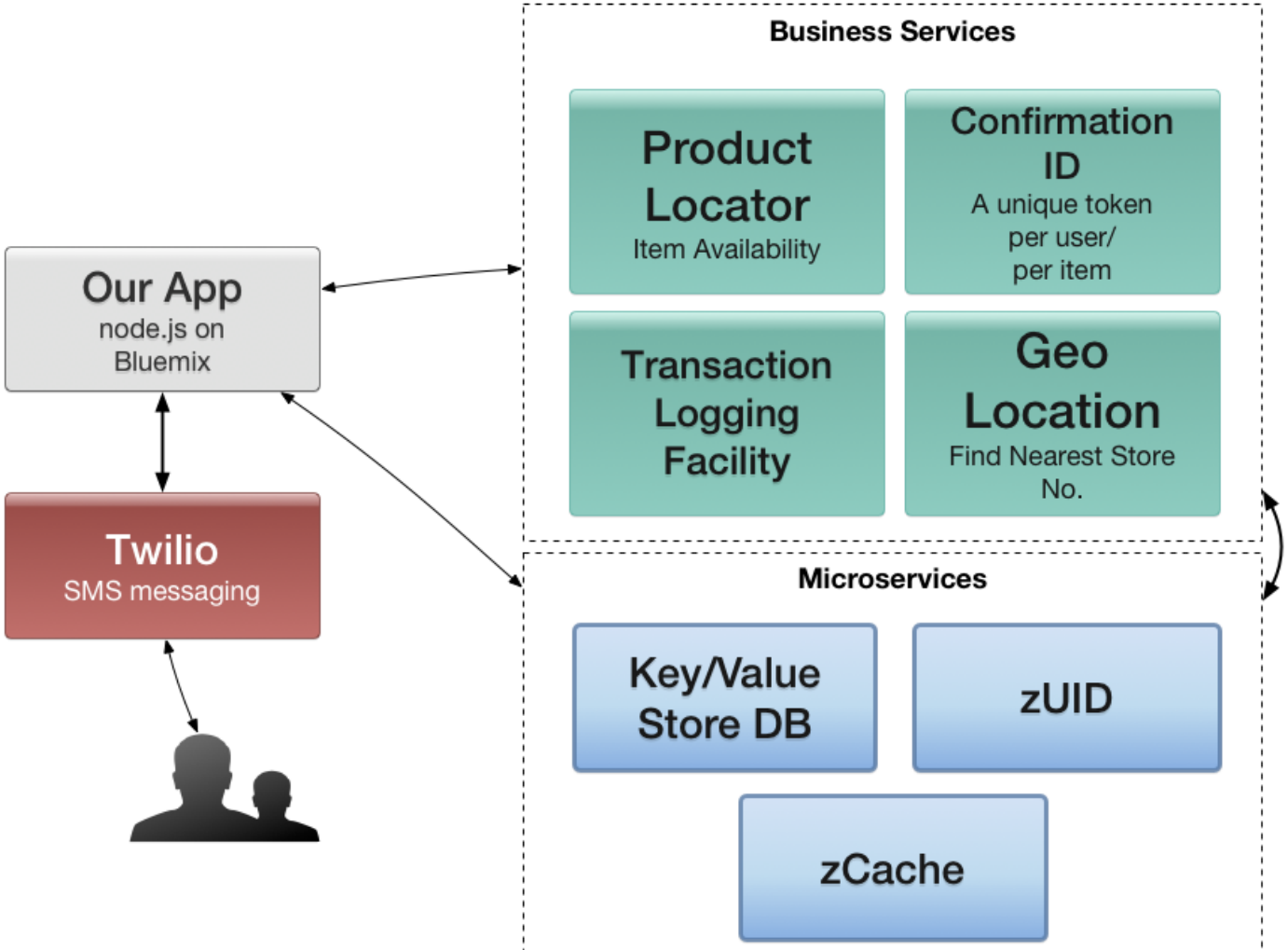
Various sources as part of composite services

Demo

Business Problem - Retail

We want to allow our customers to reserve an item that is in our catalog before they get into the store.

At Your Service



Summary

- Cloud is a business model enterprises must adopt
- Unleashing current business applications as services provides huge advantages
  - Existing capability in new hands
  - Quick new usage models
  - Rapid Development
- Combining cloud service model with z/OS parallel sysplex is a winner