

# The Mainframe: The Latest Disruptive Technology in Cloud

*Frank J. De Gilio*

*IBM Corporation*

*March 2, 2015*

*Session: 16916*

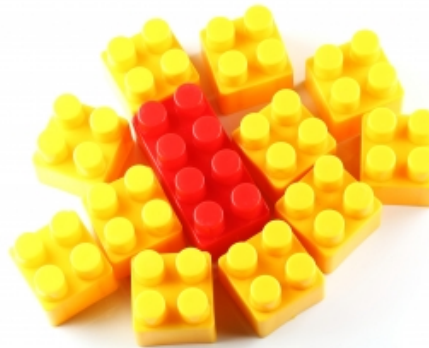
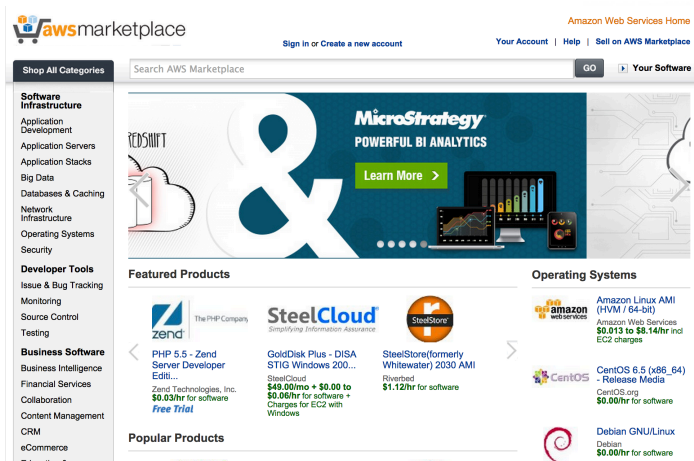


#SHAREorg



SHARE is an independent volunteer-run information technology association  
that provides education, professional networking and industry influence.





Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# Business is Under Attack!



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# Business people want to buy not build



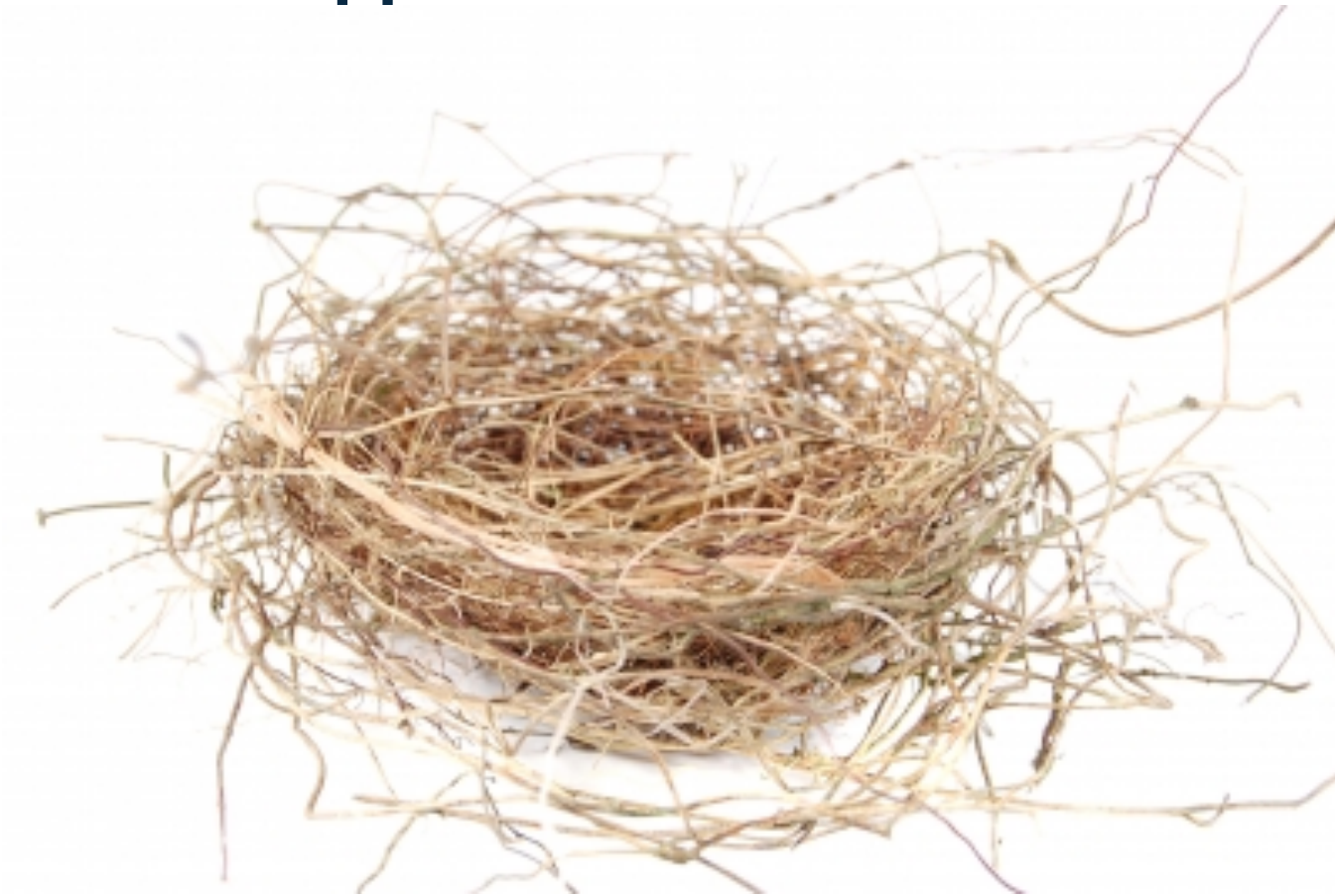
Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# The New Aggregation Point



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# Monolithic Applications Inhibit Growth



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# New Business Programming Model



**SCRIPTERS**

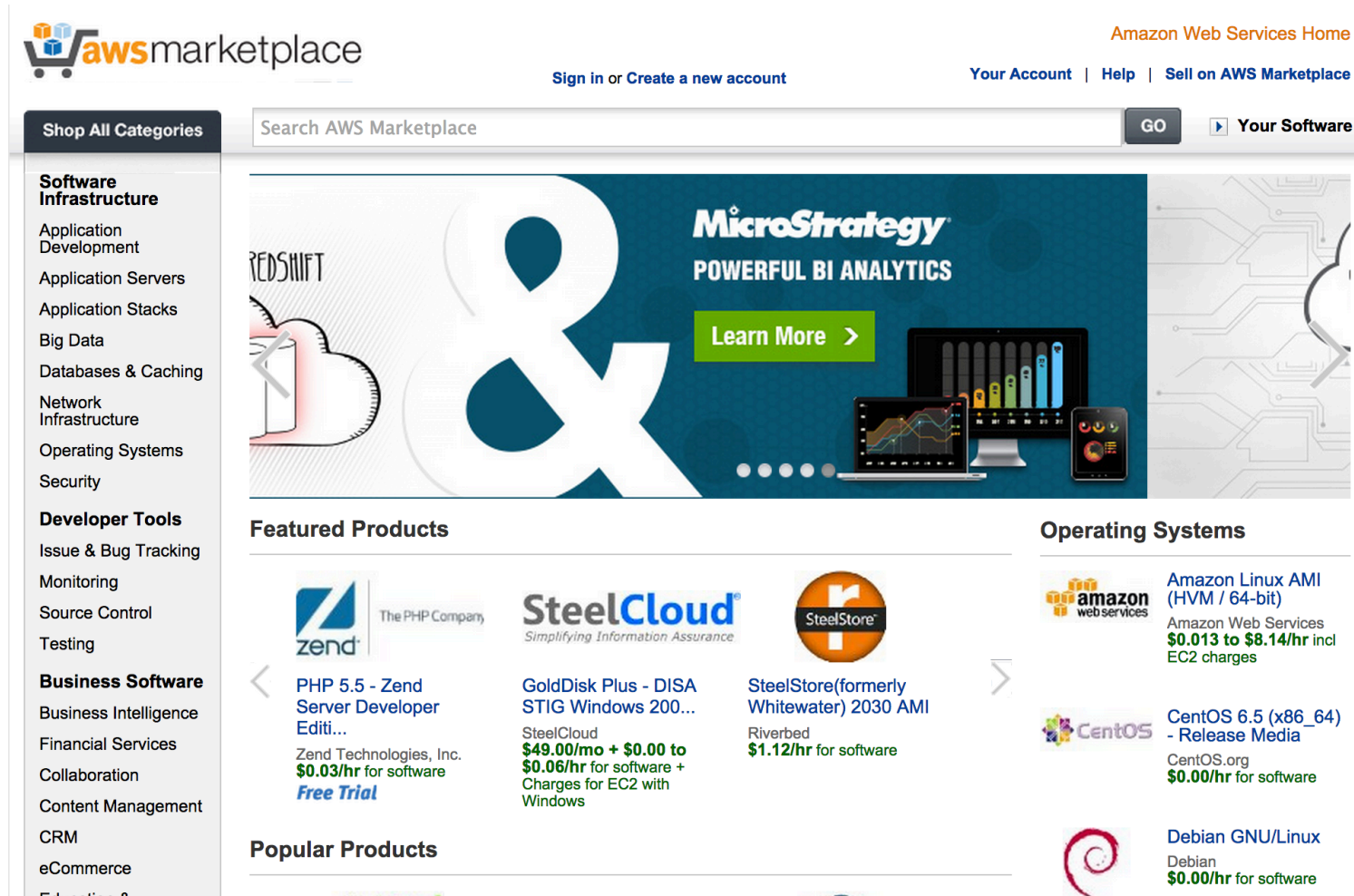


**HARDCORES**



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# Redefining the business



The screenshot shows the AWS Marketplace homepage. At the top, there's a navigation bar with the AWS Marketplace logo, a search bar, and links for 'Sign in or Create a new account', 'Your Account', 'Help', and 'Sell on AWS Marketplace'. Below the navigation bar, there's a 'Shop All Categories' sidebar on the left, listing various software categories like Software Infrastructure, Developer Tools, and Business Software. The main content area features a large banner for 'MicroStrategy POWERFUL BI ANALYTICS' with a 'Learn More' button. Below the banner, there are three sections: 'Featured Products' (listing PHP 5.5 - Zend Server Developer Edition, SteelCloud GoldDisk Plus - DISA STIG Windows 200..., and SteelStore(formerly Whitewater) 2030 AMI), 'Operating Systems' (listing Amazon Linux AMI, CentOS 6.5, and Debian GNU/Linux), and 'Popular Products'.

**Software Infrastructure**

- Application Development
- Application Servers
- Application Stacks
- Big Data
- Databases & Caching
- Network Infrastructure
- Operating Systems
- Security

**Developer Tools**

- Issue & Bug Tracking
- Monitoring
- Source Control
- Testing

**Business Software**

- Business Intelligence
- Financial Services
- Collaboration
- Content Management
- CRM
- eCommerce
- Education

**Featured Products**

- PHP 5.5 - Zend Server Developer Edition**  
Zend Technologies, Inc.  
\$0.03/hr for software  
**Free Trial**
- GoldDisk Plus - DISA STIG Windows 200...**  
SteelCloud  
\$49.00/mo + \$0.00 to \$0.06/hr for software + Charges for EC2 with Windows
- SteelStore(formerly Whitewater) 2030 AMI**  
Riverbed  
\$1.12/hr for software

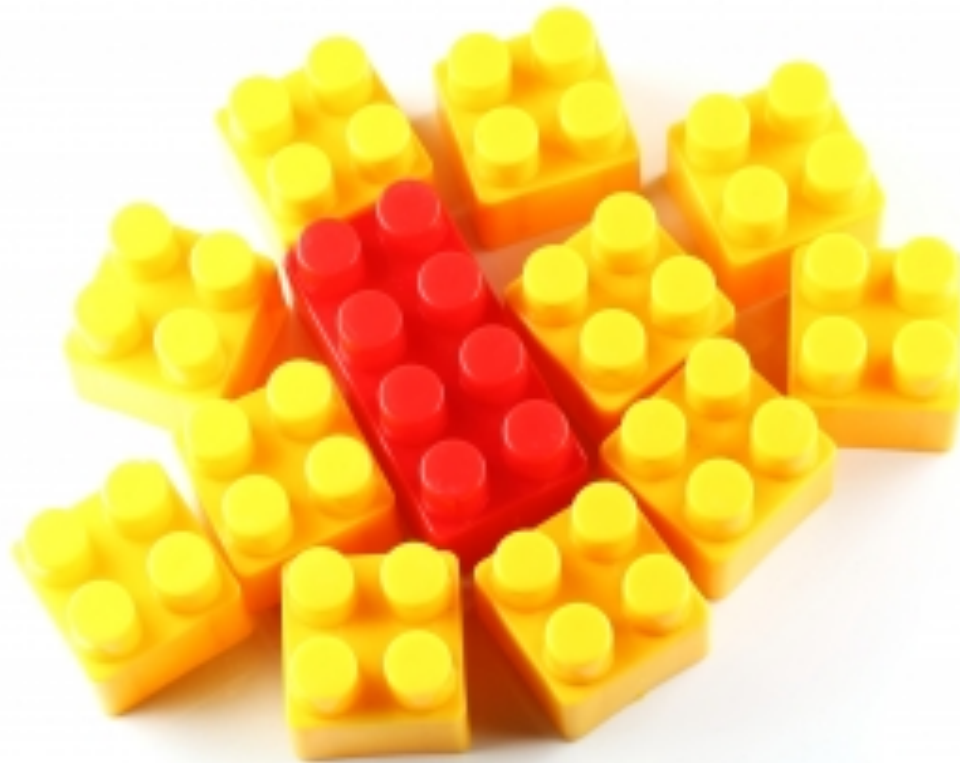
**Operating Systems**

- Amazon Linux AMI (HVM / 64-bit)**  
Amazon Web Services  
\$0.013 to \$8.14/hr incl EC2 charges
- CentOS 6.5 (x86\_64) - Release Media**  
CentOS.org  
\$0.00/hr for software
- Debian GNU/Linux**  
Debian  
\$0.00/hr for software

**Popular Products**

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# Winners will be the service providers



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

# It's more than Tech!



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)

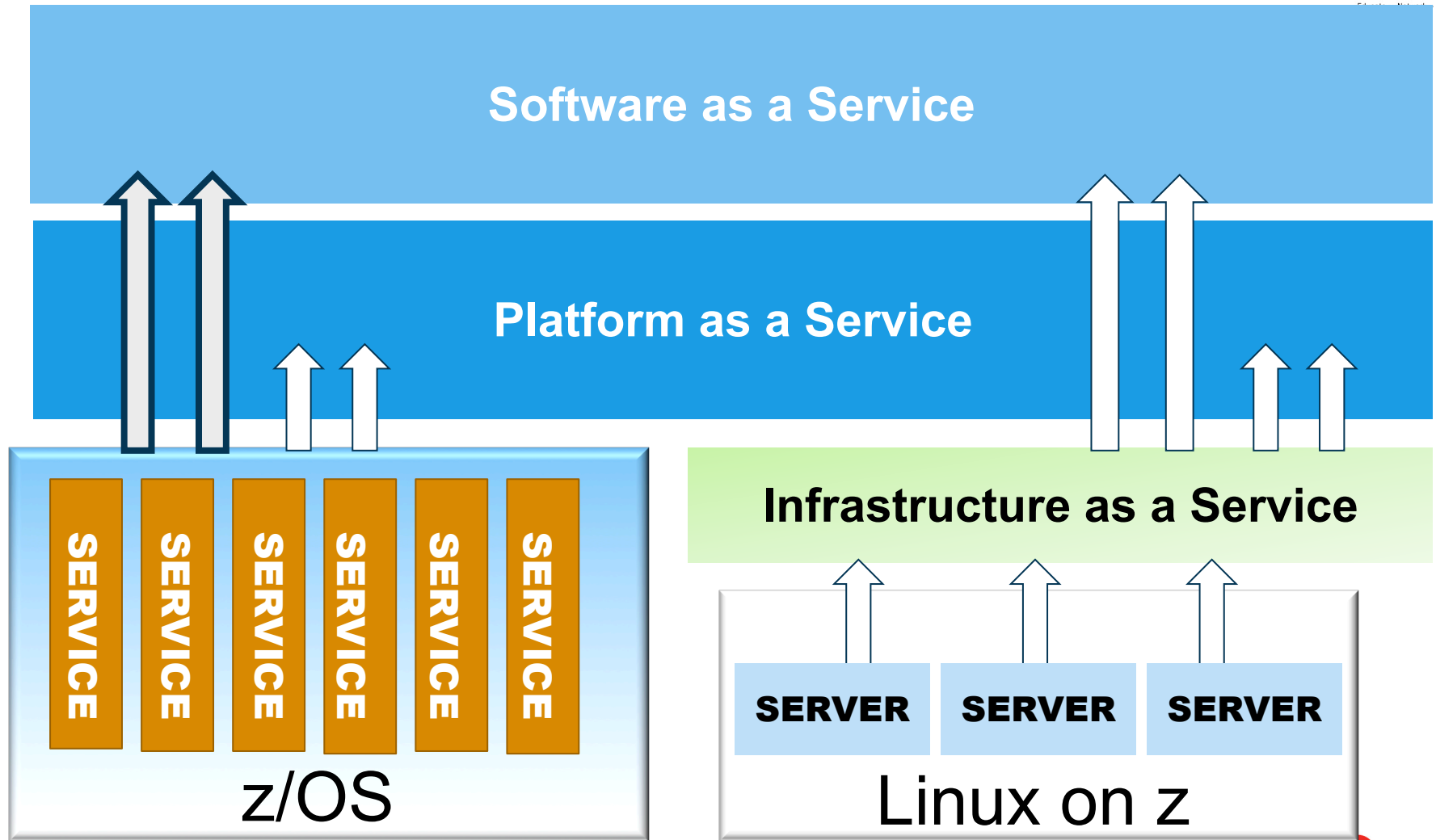
## **Platform as a Service**

41% CAGR<sup>1</sup> through 2016  
\$4.8 Billion  
24% of Cloud Revenue

## **Software as a Service**

29% CAGR<sup>1</sup> through 2016  
\$5 Billion  
25% of Cloud Revenue

# z/OS Providing Higher Level Cloud Services



# An Interesting Thing Happened on The Way to The Market

- Large retailer was having trouble caching data across nodes in a cluster
- 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



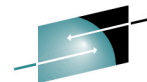
# Why did utilization explode?

Word got out and people  
started using it

FOR A GOOD  
TIME USE

/SERVICES/CACHING/FUNCTION/LOAD

# Cache During Black Friday



**SHARE**  
Engage • Innovate • Influence

The cache is averaging 500 TPS and has hit spikes of 1400 TPS for short durations. Response time for GET requests averages 1ms. This service is defined to 12 servers across 2 LPARs in our CloudPlex.

```
01DEC2014 10:01:25 ----- MAINVIEW WINDOW INTERFACE (V6.1.00) -----  
COMMAND ===>                                SCROLL ===> CSR
```

```
CURR WIN ===> 1          ALT WIN ===>
```

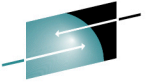
```
>W1 =CHIST===== (ALL=====CIC10AA=) 01DEC2014==09:57:27====MVCICS===D=9874
```

Task Num	CICS System	Lcl Task End Date	Lcl Task End Time	Tran ID	Response Time	CPU Time	Storage HWM	I/O Calls	Term ID
29927	CIC10AA	01DEC2014	09:30:10	ZC28	0.00118	0.00041	115216	2	
29935	CIC10AA	01DEC2014	09:30:10	ZC28	0.00122	0.00037	115216	2	
29945	CIC10AA	01DEC2014	09:30:10	ZC28	0.00132	0.00051	115216	2	
29949	CIC10AA	01DEC2014	09:30:10	ZC28	0.00182	0.00039	115216	2	
29953	CIC10AA	01DEC2014	09:30:10	ZC28	0.00120	0.00041	115216	2	
29965	CIC10AA	01DEC2014	09:30:10	ZC28	0.00139	0.00040	115216	2	
29967	CIC10AA	01DEC2014	09:30:10	ZC28	0.00156	0.00053	115216	2	
29971	CIC10AA	01DEC2014	09:30:11	ZC28	0.00154	0.00064	115216	2	
29975	CIC10AA	01DEC2014	09:30:11	ZC28	0.00118	0.00040	115216	2	
29977	CIC10AA	01DEC2014	09:30:11	ZC28	0.00132	0.00047	115216	2	

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)



# Load Balanced Across 12 “Servers”



**SHARE**  
Educate • Network • Influence

Totals for 12 Servers:

>W1 =CTRNCLA==CTRNCLAZ(ALL=====\*)01DEC2014==10:04:34===MVCICS===D==133

CMD	Class	Count	Target	Max	Pur	Tran	<--- Active --->	<--- Queued --->
---	Name			Act	Thr	Cnt	Curr Total HWM	Curr Total HWM
	TCLZC28	12	CIC10A**	200	50	1	0 8.6M 11	0 0 0

>W1 =CTRNCLA==CTRNCLA=(ALL=====\*)01DEC2014==10:04:12===MVCICS===U==12

CMD	Class	SSI	Target	Max	Pur	<--- Active --->	<--- Queued --->	P
---	Name	System		Act	Thr	Curr Total HWM	Curr Total HWM	T
	TCLZC28	WMCA	CIC10AA	200	50	1 736090 8	0 0 0	
	TCLZC28	WMCB	CIC10AB	200	50	0 688010 11	0 0 0	
	TCLZC28	WMCA	CIC10AC	200	50	0 736116 6	0 0 0	
	TCLZC28	WMCB	CIC10AD	200	50	0 687963 8	0 0 0	
	TCLZC28	WMCA	CIC10AE	200	50	0 736098 6	0 0 0	
	TCLZC28	WMCB	CIC10AF	200	50	0 688049 7	0 0 0	
	TCLZC28	WMCA	CIC10AG	200	50	0 736101 9	0 0 0	
	TCLZC28	WMCB	CIC10AH	200	50	0 687981 8	0 0 0	
	TCLZC28	WMCA	CIC10AI	200	50	0 736091 9	0 0 0	
	TCLZC28	WMCB	CIC10AJ	200	50	0 688018 7	0 0 0	
	TCLZC28	WMCA	CIC10AK	200	50	0 736096 7	0 0 0	
	TCLZC28	WMCB	CIC10AL	200	50	0 687882 10	0 0 0	

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)



# Cache Service Adoption



Platform	Status	Volume per day
Windows	Production	12,000,000 to 15,000,000
Windows	Production	45,000
x86 mobile	Development	1st Quarter 2015
x86 mobile	Development	1st Quarter 2015
z/OS	Development	1st Quarter 2015
Windows	Production	10,000
x86 mobile	Production	250,000
z/OS	Development	1st Quarter 2015
z/OS	Development	1st Quarter 2015
z/OS	Production	2,500,000
x86 mobile	Development	Oct-14
x86	Production	1,500
x86	Development	1st Quarter 2015
DataPower	Production	25,000
z/OS and x86	Development	Oct-14
DataPower	Development	1st Quarter 2015
DataPower	Development	1st Quarter 2015
x86	Production	15,000
x86	Development	1st Quarter 2015
z/OS	Development	1st Quarter 2015
x86 mobile	Production	10,000,000 (200 million on BlackFriday thru CyberMonday)
MessageBroker	Development	Oct-14
z/OS	Development	1st Quarter 2015
x86 mobile	Development	Oct-14
x86	Development	1st Quarter 2015
z/OS	Development	1st Quarter 2015
z/OS	Development	1st Quarter 2015
z/OS	Development	1st Quarter 2015

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)



# Response from Developers



*“This thing is awesome!”*

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

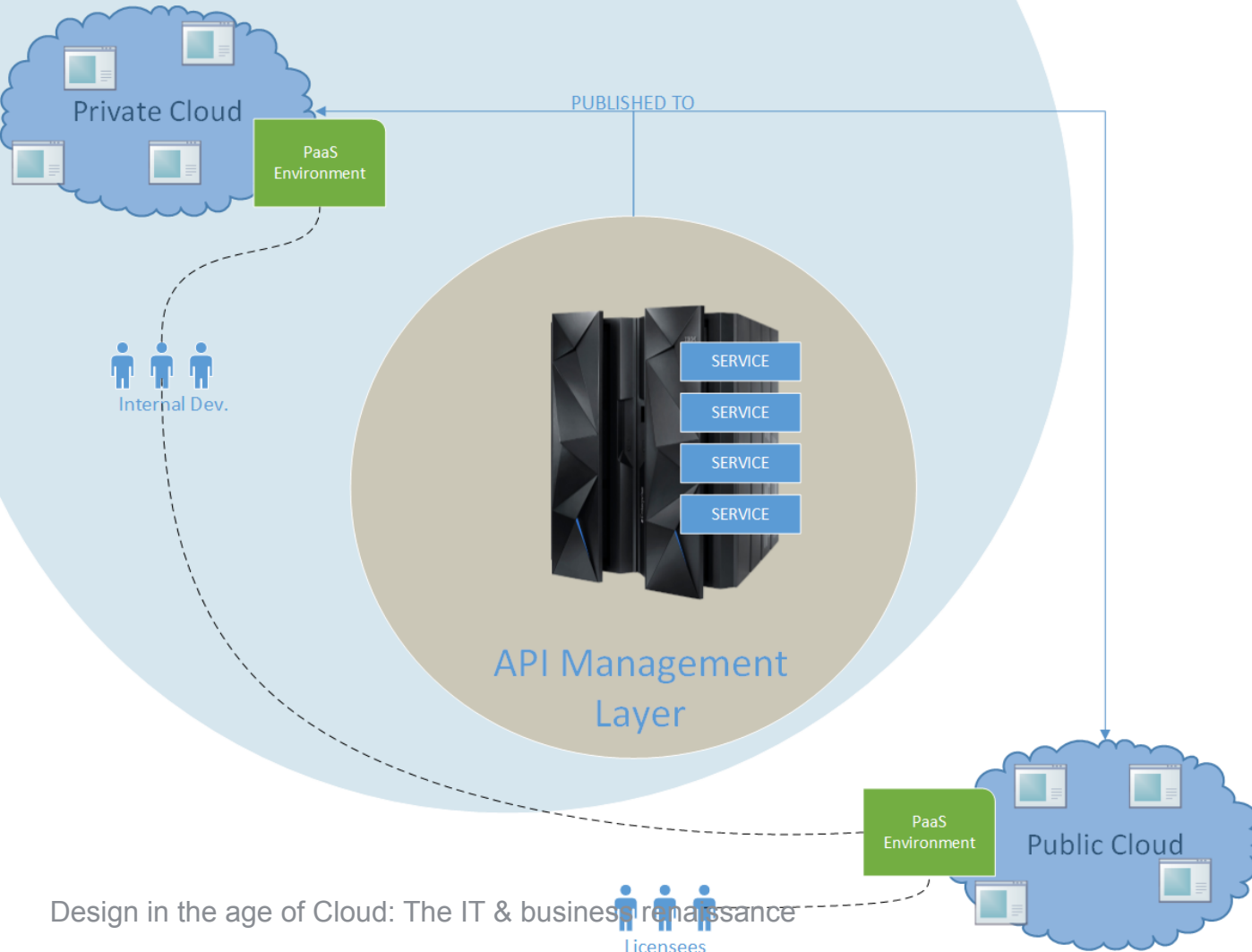
*“Based on my experience so far, I think zFAM will **improve speed to market**, ..., it's **more flexible**, and the security model we discussed is not available with our current setup.”*

*“using zFAM **only takes 80-120ms** ...). This is a great improvement especially if we consider **minimal code changes** that had to be done to our program ...”*

*“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**.”*

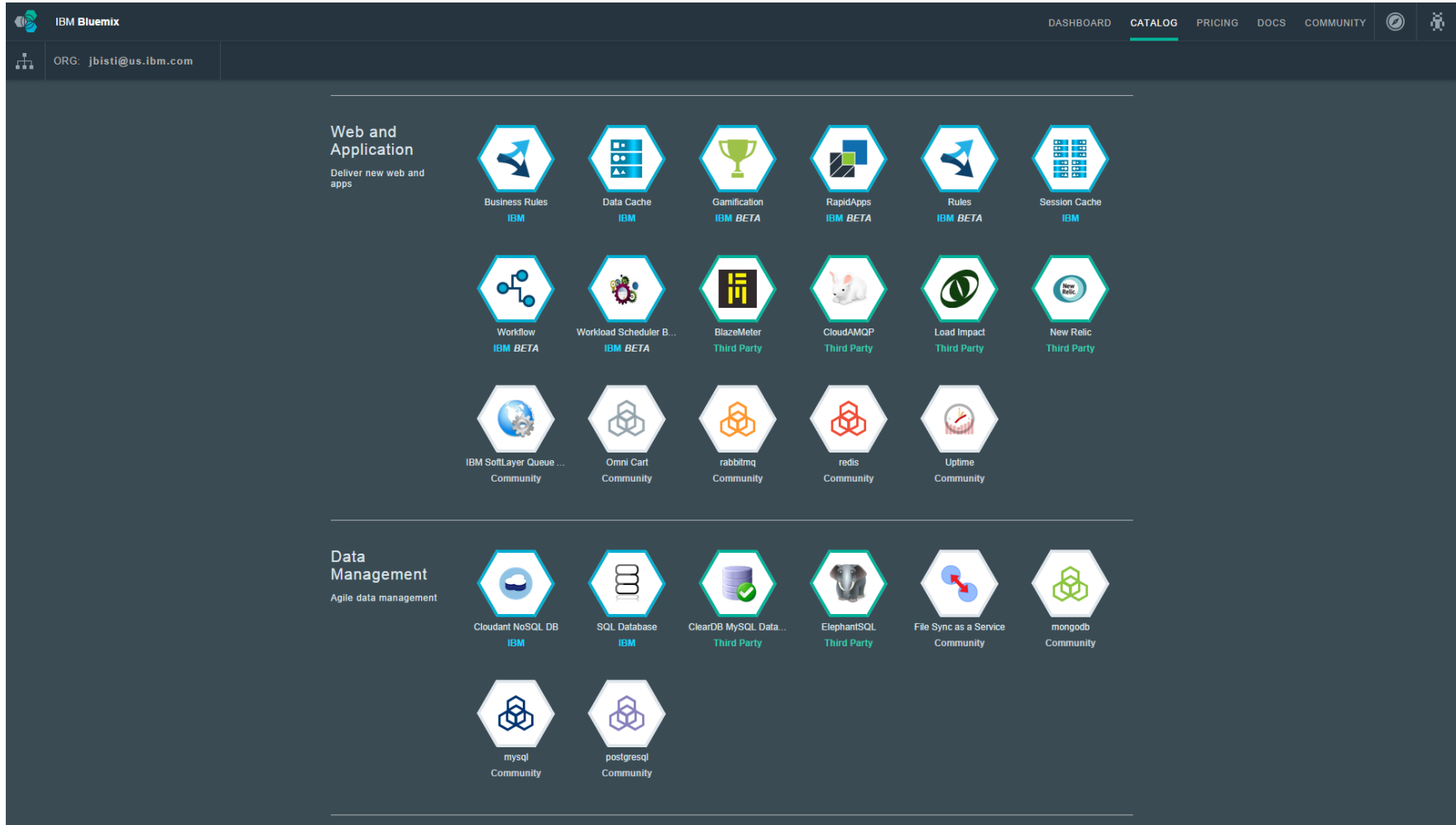
*“I will share my experience with my team, and I will look forward to **leveraging this tool** for other applications in the future. Thanks”*

# How it fits together



Web & Mobile  
Devices

# Bluemix – A Platform for Scripters



The screenshot displays the IBM Bluemix Catalog interface. At the top, the header includes the IBM Bluemix logo, the user's organization (ORG: jbsti@us.ibm.com), and navigation links for DASHBOARD, CATALOG (active), PRICING, DOCS, and COMMUNITY. The main content area is divided into two sections: "Web and Application" and "Data Management".

**Web and Application**  
Deliver new web and apps

- Business Rules (IBM)
- Data Cache (IBM)
- Gamification (IBM BETA)
- RapidApps (IBM BETA)
- Rules (IBM BETA)
- Session Cache (IBM)
- Workflow (IBM BETA)
- Workload Scheduler B... (IBM BETA)
- BlazeMeter (Third Party)
- CloudAMQP (Third Party)
- Load Impact (Third Party)
- New Relic (Third Party)
- IBM SoftLayer Queue... (Community)
- Omni Cart (Community)
- rabbitmq (Community)
- redis (Community)
- Uptime (Community)

**Data Management**  
Agile data management

- Cloudant NoSQL DB (IBM)
- SQL Database (IBM)
- ClearDB MySQL Data... (Third Party)
- ElephantSQL (Third Party)
- File Sync as a Service (Community)
- mongodb (Community)
- mysql (Community)
- postgresql (Community)

Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)



Complete your session evaluations online at [www.SHARE.org/Seattle-Eval](http://www.SHARE.org/Seattle-Eval)