The Mainframe:
The Latest Disruptive Technology in Cloud

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IBM Corporation
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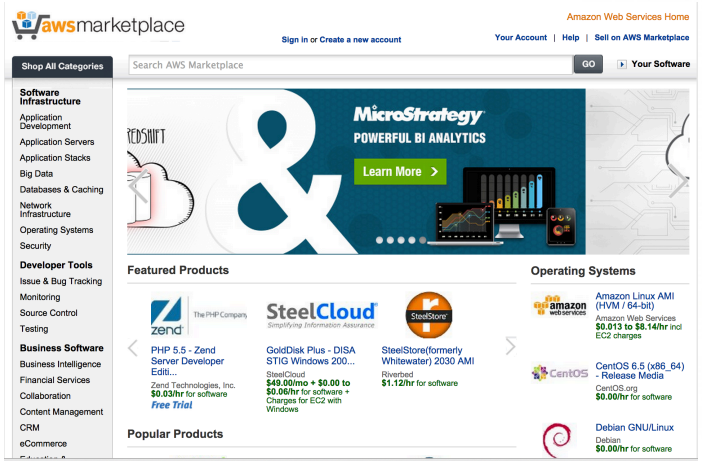

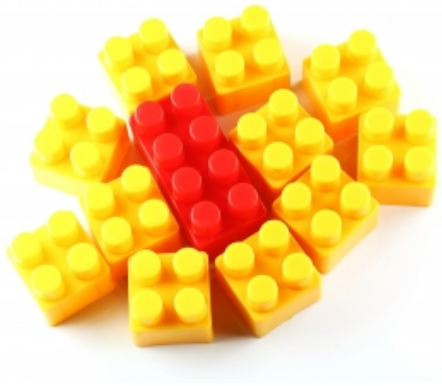

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Business is Under Attack!

Business people want to buy not build

The New Aggregation Point

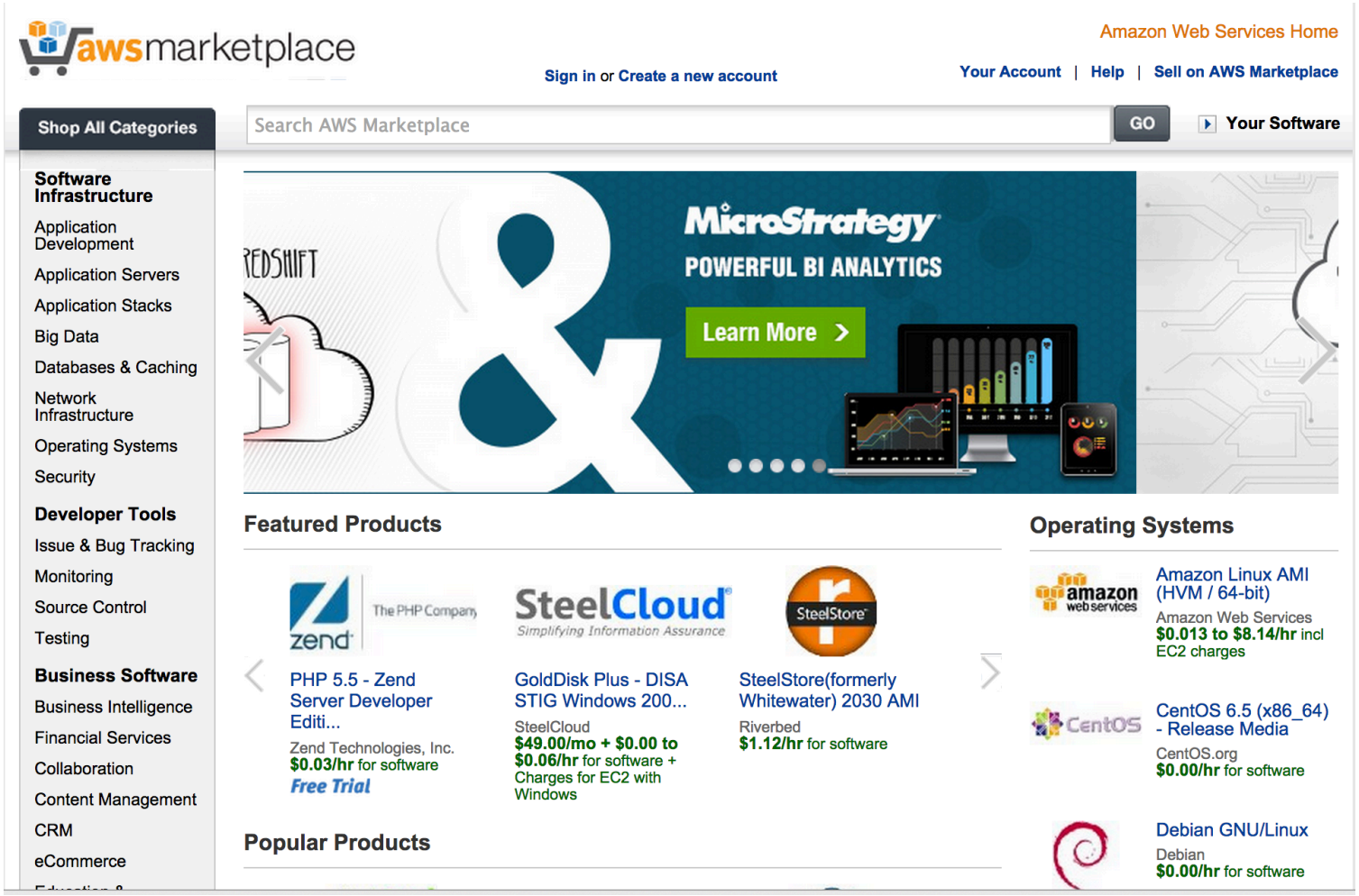
Monolithic Applications Inhibit Growth

New Business Programming Model

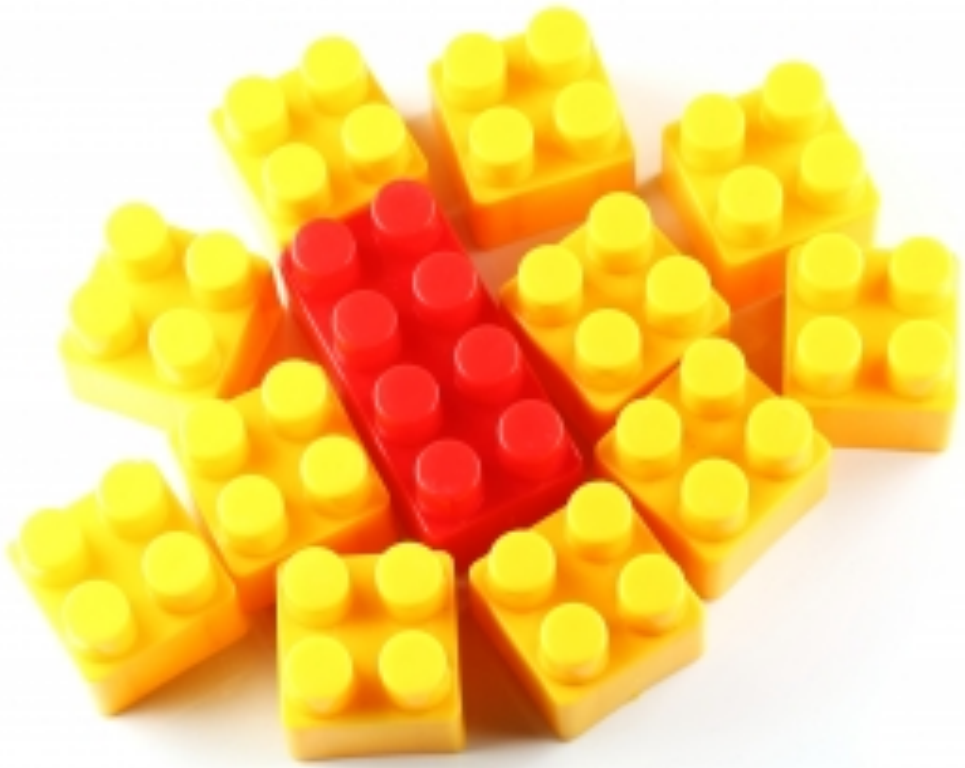
SCRIPTERS

HARDCORES

Redefining the business



Winners will be the service providers



It's more than Tech!

Platform as a Service

41% CAGR[1] through 2016

$4.8 Billion

24% of Cloud Revenue

Software as a Service

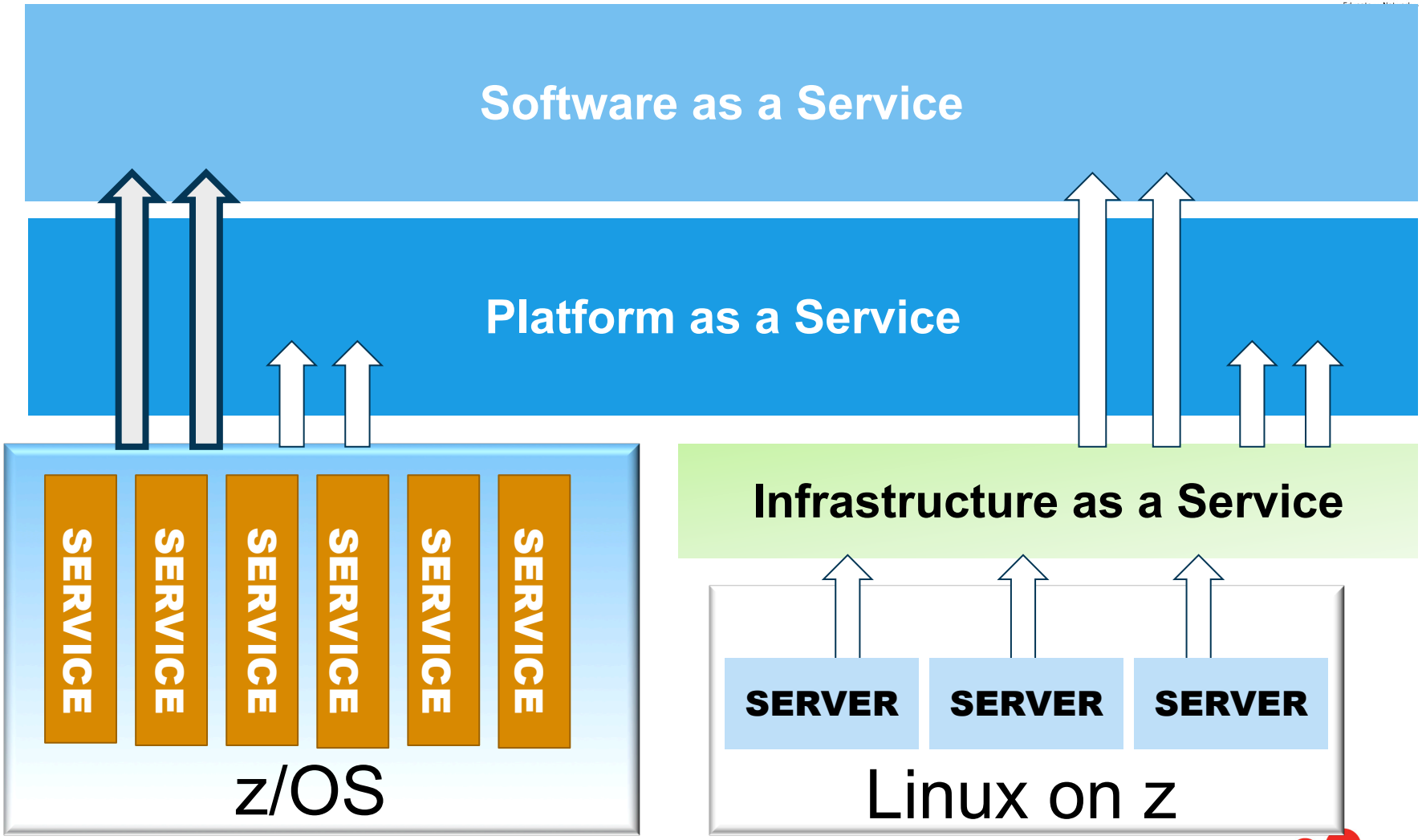
29% CAGR[1] through 2016

$5 Billion

25% of Cloud Revenue

[1]Compound Annual Growth Rate

z/OS Providing Higher Level Cloud Services

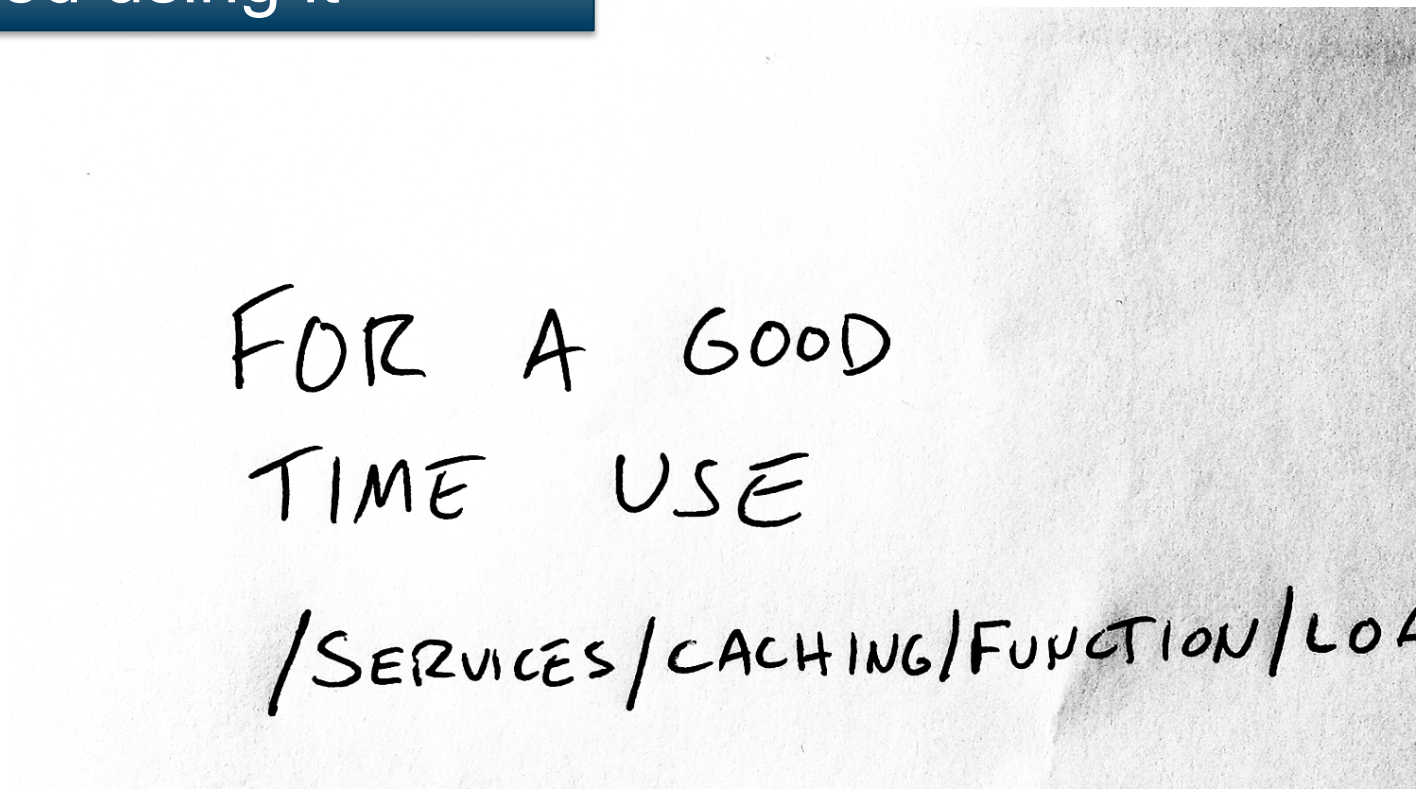


An Interesting Thing Happened on The Way to The Market

- 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



Cache During Black Friday

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    CICS   Lcl Task   Lcl Task Tran Response    CPU    Storage  I/O  Term
  Num    System  End Date   End Time  ID    Time      Time     HWM   Calls  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
```

Load Balanced Across 12 “Servers”

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
```

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

Response from Developers

"This thing is awesome!"

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

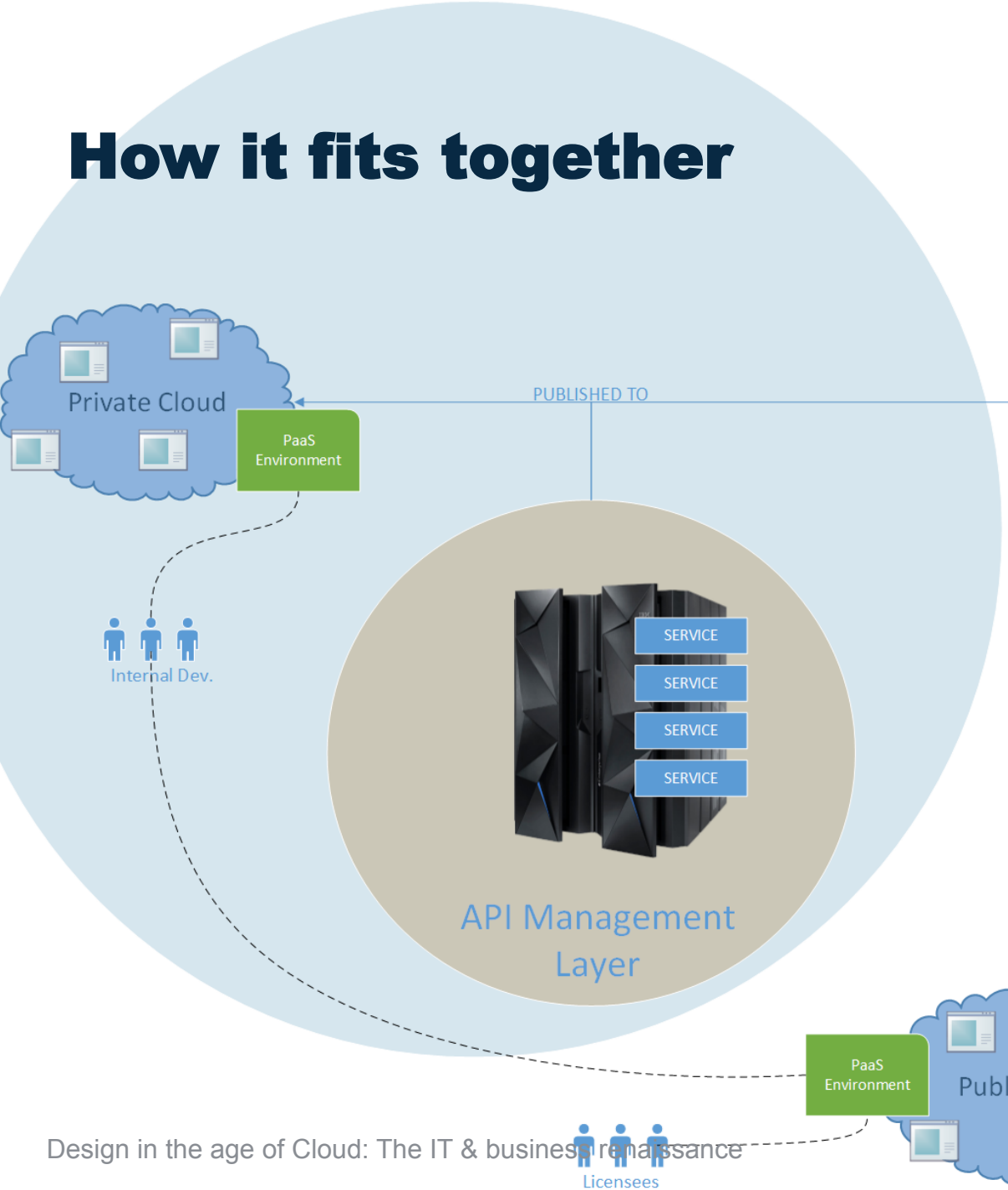
"Based on my experience so far, I think zFAM will improve speed to market, …, it's more flexible, and the security model we discussed is not available with our current setup."

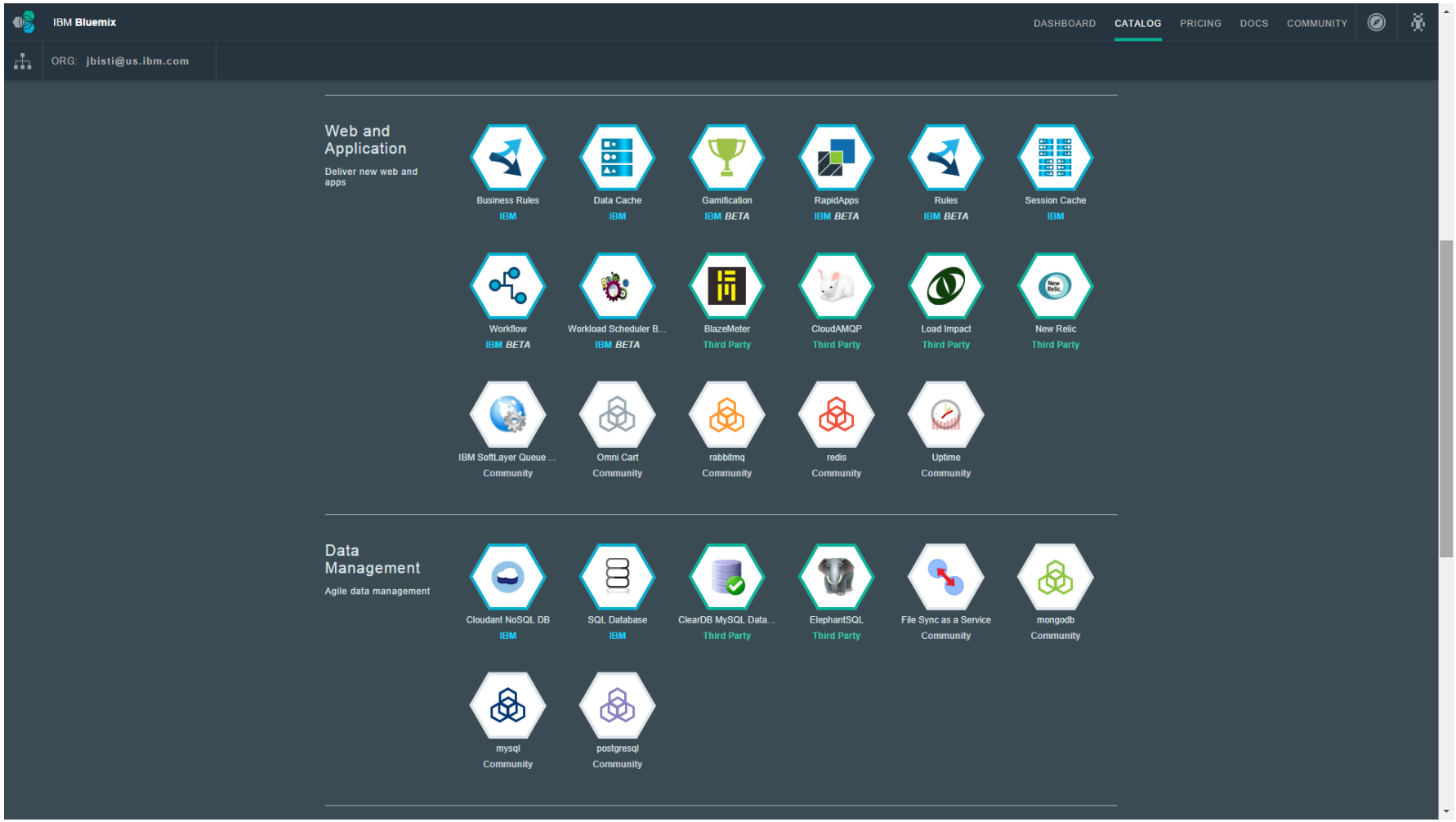
"using zFAM only takes 80-120ms …). This is a great improvement especially if we consider minimal code changes that had to be done to our program ..."

"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