Capacity Planning in the Application Driven Economy

Jeremy Rossbach
Richard Gimarc

June 1, 2015
Abstract

The Application Driven Economy is upon us. Businesses today are currently faced with a rapidly growing number of applications that must succeed on the first try to gain competitive edge. Their success is enabled by the supporting IT infrastructure and data center. So how does this affect our job as capacity planners? Is it business as usual, or do we need to revise our approach?

This session will examine the new Application Driven Economy and explore how our job as capacity planners must adapt to the new demand. The good news is that we have the tools and methodologies today to address this challenge, we simply need to change our focus.
Our Speakers

Jeremy Rossbach has spent the last 8 years at CA Technologies in a variety of roles, including Pre Sales Engineer to Product Management and currently supports the CA Capacity Management solution. Prior to CA, he spent 15 years in IT, across public and private sectors, managing data centers for startups, healthcare, financial and federal system integrators. Previous roles as data center administrator, engineer, architect and manager have provided him invaluable insights into the challenges and goals of IT consumers.

Richard Gimarc, CA Technologies, is a member of the capacity management services team at CA Technologies. In that role he works with customers during the planning, design, implementation and institutionalization of the CA Capacity Management Solution.

Richard is a recognized industry expert in capacity planning, performance engineering and performance analysis. Over the years he has developed and applied his performance and capacity planning expertise to a variety of complex, diverse and challenging environments. Richard has authored 30+ papers covering a wide range of performance related topics including application scalability, green capacity planning and cloud performance. He is also a regular speaker at both CMG international and regional conferences.
Capacity Planning in the Application Driven Economy

Global transformation [REF01]
- We are in the midst of a global transformation in the way people consume & interact with information
- The transformation is being fueled by software & mobile devices

Application-driven economy [REF02]
- Customers are no longer loyal to a brand, product or service
- Customers are loyal to the complete experience & that is dependent on the application
- This means that applications must deliver the expected functionality & performance

Requirements to support the Application-Driven economy
- Applications, IT infrastructure and the data center are the bedrock of the application driven economy
  - Applications - driven by business requirements
  - Hardware - driven by application requirements
  - Facilities - driven by hardware requirements
Telling A Story
We are going to talk about a number of ideas and show how they are related
Poll Question #1

Have you seen an increased emphasis on application-level capacity planning over the past year?

a) No change – today is the same as it was last year
b) Some change – people are talking about application capacity planning
c) Large change – org changes made for app capacity planning
“With IoT, IT is becoming an integral part of the product itself. It is doing this by infusing sensors, processors and software in every product imaginable and coupling it with analytics. That combination will change how businesses operate, how they deliver their products and how they interact with customers.”

- Harvard Business Review [REF03]
IoT is all around us
Applications are changing the world of business

...and the web is going away
IoT will be a driver of the Application Economy

The proliferation of connected devices will drive the number of new apps

From 2B to 7.3B

From .5B to 26B

2.6M IoT applications in the next 5 years*

Source: Gartner (November 2013) [REF04]
Application quality & user experience will be impacted

The result of doing nothing...

25% of users will abandon a web application after just three seconds of delay*

80-90% of all consumer applications will only be used once

$500M cost of trading losses during Facebook IPO due to “system problems”

Sources:
Aberdeen Group, *Reaching the Top of the Web Performance Mountain*, May 2013 [REF05]
Digital Trends, *Are you a rarity? Only 16 percent of people will try out an app more than twice*, March 2013 [REF06]
RT.com, *NASDAQ longest downtime adds to woes over glitches in electronic trading*, August 2013 [REF07]
Are You Ready?

Processed in real time will increase workloads and data center investments

“The enormous number of devices, coupled with the sheer volume, velocity and structure of IoT data, creates challenges...managers need to deploy more forward-looking capacity management in these areas to be able to proactively meet the business priorities associated with IoT.” [REF08]
Poll Question #2

Does your organization have separate capacity planning groups – application & infrastructure?

a) Yes

b) No
ca.com/itcomics – Vote for your favorite!!!
Recent IT Blunders

Sources: [REF09], [REF10] & [REF11]
Something has to change!!
The app must succeed on the first try
Ensure resiliency throughout the IT Supply Chain

The Capacity Planning Stack [REF12]
- Driven by business requirements
- End-to-end view across the Digital Infrastructure
- Efficiency metrics used as “measures of success”
- Conceptually transparent and straightforward
- Cost allocation across all components of the Digital Infrastructure
We have the data...it’s what we do with it

Source: [REF13]
A good start to a resilient IT supply chain
A more detailed example based on the Stack

1. Business Demand
   - Current business transaction volume
   - Projected new business transaction volume

2. Application Capacity Planners
   - Translate
     - Current application transaction volume
     - Projected new application transaction volume
   - Estimate new IT resource demand based on current application profile
     - Instances
     - CPU
     - Memory
     - I/O
     - Network

3. Infrastructure Capacity Planners
   - Instance count
   - Application transaction volume
   - IT resources
A resilient IT supply chain model servicing the App Economy

User

Application Capacity

10 tx/s
5 tx/s

Infrastructure Capacity

Request capacity
Allocate capacity

Data Center Capacity

Request capacity
Allocate capacity

Application Resources
APM

Infrastructure Resources
VMware
EMC
UIM

Data Center Resources
Power
Space
Cooling
Poll Question #3

How closely does your capacity planning group work with the data center (facilities) planners?

a) No communication
b) Some communication
c) Work very closely
The Application-Centric Dashboard

![Application-Centric Dashboard Image]

<table>
<thead>
<tr>
<th>Application</th>
<th># of Servers</th>
<th>Days to Threshold</th>
<th>Server Alerts</th>
<th>Storage Alerts</th>
<th>Facility Alerts</th>
<th>Network Alerts</th>
<th>Applicator Alerts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sap</td>
<td>39</td>
<td>18</td>
<td>42 Health</td>
<td>3 LPRBA-Servers</td>
<td>3 RAID</td>
<td>0 Alert</td>
<td>36 Alert</td>
</tr>
<tr>
<td>TixChange</td>
<td>30</td>
<td>135</td>
<td>37 Alert</td>
<td>3 LPRBA-Servers</td>
<td>1 RAID</td>
<td>11 Alert</td>
<td>34 Alert</td>
</tr>
<tr>
<td>ForwardInc.com</td>
<td>11</td>
<td>35</td>
<td>0 Alert</td>
<td>1 RAID</td>
<td>3 Storage</td>
<td>0 Alert</td>
<td>5 Alert</td>
</tr>
</tbody>
</table>
The Application-Centric Dashboard
Each link in the IT supply chain is crucial
...and depends on the link before

So a **healthy, resilient, cost-effective** IT supply chain management starts with the application.
Public cloud services market expected to grow 17.8% in 2014 to $153 billion\(^1\)

By 2017, mobile apps will be downloaded more than 268 billion times\(^3\)

By 2018, more than 50% of B2B collaboration will take place through Web APIs\(^2\)

Sources: [REF14], [REF15] & [REF16]
Poll Question #4

What is your biggest challenge to support application capacity planning?

a) The business owners do not work with us
b) We do not have time to look at all of our applications
c) The infrastructure team does not give us the planning data we need
d) All capacity planning work is out-sourced
Register for a live solution demo and Q&A session this Wednesday, June 3, 2015

- Register here: http://cainc.to/PhpGt (case sensitive)
- Or register via the webcast email invite
Join us in San Antonio for the 2015 CMG Conference!

Save the dates:
November 2nd to 5th at The St. Anthony in downtown San Antonio
***3 blocks to both the Alamo and the Riverwalk***
Thank you
References

REF01 - "The Application Economy", Marco Comastri, CA Technologies, January 2015,
http://www.huffingtonpost.com/marco-comastri/the-application-economy_b_6526530.html

REF02 - "Application economy to fuel customer relationships: CA Technologies", Mike Gregoire, CA Technologies, CA World 2014,


REF05 - “Reaching the Top of the Web Performance Mountain”, Jim Rapoza, Aberdeen Group, May 2013

REF06 - “Are you a rarity? Only 16 percent of people will try out an app more than twice”, Joshua Pramis, Digital Trends, March 2013

REF07 - “NASDAQ longest downtime adds to woes over glitches in electronic trading, RT.com, August 2013

REF08 - "The Impact of the Internet of Things on Data Centers", Fabrizio Biscotti, Joe Skorupa, et al., Gartner ID: G00250562, February 2014

REF09 - "Obamacare Window Shoppers Meet Bottleneck in Slow Sign-Up", Drew Armstrong. Alex Nussbaum & Shannon Pettypiece, October 2013,

REF10 - ”SimCity EU servers suffer intermittent outages”,

REF11 - "Best Buy's website suffers Black Friday outage", Krystina Gustafson, November 2014,
http://www.cnbc.com/id/102223815


REF15 - Gartner Press Release, “Gartner Says by 2017, Mobile Users Will Provide Personalized Data Streams to More Than 100 Apps and Services Every Day”, January 2014,
http://www.gartner.com/newsroom/id/2654115