What are we talking about?

How can your Capacity Planning team become more of a valued partner to your business owners?

Topics:
- Business value
- Terminology
- Idioms to help structure your thinking (Capacity Planning Stack)
- Examples & case study
- Recommendations on how to get started
How do you become a valued partner?

Providing more “Business Value”

How can your Capacity Planning team become more of a valued partner to your business owners?

Key ingredients* – Correlate cost to deliver to revenue gained:

- **Money**: Money is the unit of measure for value.
- **Transaction**: You cannot measure the business value of IT without a transaction.
- **Services**: You cannot measure the business value of IT until you have explicitly defined what the IT organization is delivering (IT services) in a way that the consumer completely understands.

Reference*:
- “10 Truths for Measuring the Business Value of IT”
- Heather Pemberton Levy
- November 10, 2015

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Terminology

- **Business Service**: A recognizable set of economic services (stock trades, mortgages, bill pay, etc.)
- **Business Service transaction (workload)**: Unit of work driving the Business Service
- **Cost**: Dollars required to deliver the Business Service
- **Revenue**: Business’ expected dollars generated from the Business Service

Correlate cost to deliver to revenue gained
The Capacity Planning Stack
A structured way to think about & perform Capacity Planning

Business

Demand

Application

Feedback

Cost

Total time to satisfy

Expected performance

Infrastructure

Volume & priorities

Performance requirements & SLAs

Resource footprint & Instances

Facilities

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↑

↑

↑

Capacity Planning Stack
- Multi-level hierarchy
  - Demand (down)
  - Feedback (up)
- Supports all elements of today's Digital Infrastructure
- Implementation is straightforward & transparent

Reference:
- “Capacity Planning: A Revolutionary Approach for Tomorrow's Digital Infrastructure”
- Amy Spellmann & Richard Gimarc
- CMG 2013

Sample Business Service Measures & KPIs
Schwab - Workload Counts & Revenue per Trade

<table>
<thead>
<tr>
<th></th>
<th>Schwab</th>
<th>Fidelity</th>
<th>TD Ameritrade</th>
<th>E*Trade</th>
<th>Vanguard</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4.95</td>
<td>$4.95</td>
<td>$9.99</td>
<td>$5.99</td>
<td>$7.10</td>
<td></td>
</tr>
</tbody>
</table>

$7.10 depending on number of trades

Clients’ Daily Average Trades
Week of 10/09 – 10/13

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue trades</td>
<td>307,027</td>
</tr>
<tr>
<td>Asset-based trades</td>
<td>110,070</td>
</tr>
<tr>
<td>Other trades</td>
<td>125,012</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>524,109</strong></td>
</tr>
</tbody>
</table>

Reference:
- https://www.aboutschwab.com/investor-relations
US Hotels - Revenue per Available Room

This statistic shows the monthly average revenue per available room of United States hotels from 2011 to 2017. In August 2017, the average revenue per available room for the U.S. hotel industry was 90.31 U.S. dollars.

RevPAR
- Revenue Per Available Room
- Avg daily room rate (ADR) x occupancy rate (0-100%)

Reference:

Snap - Revenue per Active User

“…Snap believes it can grow its business by generating substantially more revenue from each of its existing users — a strategy that would mean sales go up even if its user base doesn’t grow at the same rate.”

ARPU = Avg revenue [generated] per user

Reference:
Sample Business Service Measures & KPIs

Example – TPC-C Benchmark Results

<table>
<thead>
<tr>
<th>Server Processors/cores/threads</th>
<th>Database Manager</th>
<th>Operating System</th>
<th>Other Software</th>
<th>Number of Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/20/40 Intel Xeon E5-2670 v2 2.5GHz</td>
<td>SQL Anywhere 16</td>
<td>Microsoft Windows 2012 Standard x64</td>
<td>Microsoft IIS, Microsoft COM+</td>
<td>90,000</td>
</tr>
</tbody>
</table>

Workload volume
1 Number of users
2 Throughput (tpmC)

System cost
3 Total cost
4 Price/Performance

Reference:
- TPC Benchmark C - Executive Summary
- Benchmark Sponsor - SAP
- November 2014
- http://www.tpc.org/1794

We aren’t the only ones talking about this

“Ultimately, IT only has value if it has value to the business.”
- Lisa Kelly

“It is important to measure not only the services that are used, but also the business results that come from their use.”
- Chris Harding, The Open Group

Reference:
- “Understanding the real value of IT and proving it to the business”
- Lisa Kelly
- ComputerWeekly
- March 2014
We aren’t the only ones talking about this

“It is important to develop a process/service alignment mapping in order to measure the cost of IT services as they relate to the business processes they enable.”

“Unless you can accomplish this [value of IT services], your IT organization will forever be viewed as the cost center where technical stuff happens ...”

Reference:
- “How to Measure and Improve the Business Value of IT Service”
- Phil Weinzimer
- IT Today
- February 2015
- www.ittoday.info/ITPerformanceImprovement/Articles/2015-02Weinzimer.html

Business Service Arrival Pattern

Financial Institution – Wire Fraud Detection

- Peak at noon
- Friday is peak day of the week
Business Service Arrival Pattern
Pharmaceutical Distribution – Order-to-Cash

- One order may contain multiple order lines
- What is your planning metric?
  - Peak orders per day (Thursday)
  - Peak order lines per day (Monday)

Business Service Arrival Pattern
Posting Stock Trades

- Total per day: 353k
- Should your planning be based on
  - Daily total
  - Peak hour
  - Peak ½ hour
  - Peak minute
What needs to change?
Today vs. Tomorrow

Traditional Approach

1. Collect infrastructure metrics
2. Map infrastructure components to Business Service
3. Estimate infrastructure required for expected growth
4. Prepare & send reports every quarter

Business
Application
Infrastructure
Facilities

What needs to change?
Today vs. Tomorrow

Traditional Approach

1. Collect infrastructure metrics
2. Map infrastructure components to Business Service
3. Estimate infrastructure required for expected growth
4. Prepare & send reports every quarter

Business Focused Approach

1. Correlate Business Service cost to expected revenue
2. Determine cost to support NFU volume
3. Translate capacity planning results to NFUs

Correlate cost to deliver to revenue gained

Business
Application
Infrastructure
Facilities
Business Focused Approach
Translate capacity planning results to NFUs

NFU: Wire Fraud Detection transactions
NFU: Order-to-Cash transactions
NFU: Posted Trades

Business Focused Approach
Determine cost to support NFU volume

<table>
<thead>
<tr>
<th>Stack Level</th>
<th>Component</th>
<th>Cost Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>Software (OS &amp; App)</td>
<td>Development, Licenses, Maintenance &amp; Support</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Servers</td>
<td>Equipment, Support</td>
</tr>
<tr>
<td></td>
<td>Network</td>
<td>Equipment, Data Transfer, Support</td>
</tr>
<tr>
<td></td>
<td>Infrastructure Support</td>
<td>Manage, Monitor, Operate, Support</td>
</tr>
<tr>
<td>Facilities</td>
<td>Data Center Facilities</td>
<td>Space, Power Usage</td>
</tr>
</tbody>
</table>
Business Focused Approach

Costing resources

- AWS Simple Monthly Calculator
- AWS Total Cost of Ownership (TCO) Calculator
  - https://awstcocalculator.com/
- SoftLayer Total Cost of Ownership (TCO) Calculator
  - http://www.softlayer.com/tco/?direct
- Google Cloud Platform Pricing Calculator
  - https://cloud.google.com/products/calculator/
- Microsoft Azure Pricing Calculator
- Unigma - Cloud Cost Comparison Calculator: AWS, Azure & Google Cloud
  - https://calculator.unigma.com/

Business Focused Approach

Correlate Business Service cost to expected revenue

How do you get expected revenue per NFU?

- Must come from the Business
- Business records and tracks revenue
- How do you get them to share?
- Correlation is how you become a valued partner to the Business (our goal)
Case Study

Size & specify infrastructure for a new cloud-based application

Business Demand
- Business is introducing a new cloud-based social media application
- Goal is to support 10,000 daily active users
- Expected revenue is $1.25 per daily active user

Capacity Planning Tasks
- Determine infrastructure required to support 10k users
- Provide cost feedback to the Business

Assumptions
- Use AWS to host the application
- Stack: Business ↔ Application ↔ Infrastructure

Case Study

Application Planners – develop infrastructure requirements

1) Application Planners develop infrastructure requirements

<table>
<thead>
<tr>
<th>Tier</th>
<th>Instances</th>
<th>Type</th>
<th>vCPU</th>
<th>GB Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web</td>
<td>40</td>
<td>Linux on t2.xlarge</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>App</td>
<td>10</td>
<td>Linux on t2.2xlarge</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>DB</td>
<td>1</td>
<td>Linux on d2.4xlarge</td>
<td>16</td>
<td>122</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier</th>
<th>Volumes</th>
<th>Volume Type</th>
<th>Storage GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Data</td>
<td>40</td>
<td>Throughput Optimized HDD</td>
<td>4</td>
</tr>
</tbody>
</table>

Next step – Forward demand to Infrastructure Planners
Case Study

Business feedback – “Can we do better on cost?”

4) Infrastructure Planners change to “3 Yr Partial” pricing

<table>
<thead>
<tr>
<th>AWS per Mth</th>
<th>Workload (Users)</th>
<th>Billing Option</th>
<th>AWS per Qtr</th>
<th>AWS per user Per Qtr</th>
<th>Expected Revenue per User per Qtr</th>
<th>Expected Revenue per Qtr</th>
<th>Revenue-Cost per Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,952</td>
<td>10k</td>
<td>On-Demand</td>
<td>$32,857</td>
<td>$3.29</td>
<td>$1.25</td>
<td>$12,500</td>
<td>-$20,357</td>
</tr>
<tr>
<td>$3,988</td>
<td>10k</td>
<td>1 Yr Partial Upfront</td>
<td>$11,964</td>
<td>$1.20</td>
<td>$1.25</td>
<td>$12,500</td>
<td>$536</td>
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<tr>
<td>$2,921</td>
<td>10k</td>
<td>3 Yr Partial Upfront</td>
<td>$8,763</td>
<td>$0.88</td>
<td>$1.25</td>
<td>$12,500</td>
<td>$3,736</td>
</tr>
</tbody>
</table>

Next step – Looks much better – feedback to Business owner

Case Study

Final Result

Business Demand
- Business is introducing a new cloud-based social media application
- Goal is to support 10,000 daily active users
- Expected revenue is $1.25 per daily active user

Capacity Planning Tasks
- Determine infrastructure required to support 10k users
- Select a billing option (cost) that satisfies the Business requirements

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Wrap-up & Recommendations [1/2]

How can your capacity planning team become more of a valued partner to your business owners?

- Expand Capacity Planning practice to include
  - Business Service aligned view
  - NFU
  - Cost of Digital Infrastructure per NFU
  - Revenue per NFU

- Enhance relationship with business owner
  - Build a working relationship with business owner
  - Demonstrate that you can speak their language
  - Conduct regular updates from your Capacity Planning team

“Counting is easy; measuring value is hard.”

“People count quantities (easy) rather than measure importance (hard) and as a result sometimes make faulty decisions.”

- Perfect attendance award vs. whether you learned anything in school
- Billable hours (e.g., lawyers) vs. quality of their work
- Basketball – number of blocked shots vs. value of a blocked shot

We know how to count, next steps are

- Correlating cost to revenue gained
- Communicating with the Business

Reference:
- "Scorecasting: The Hidden Influences Behind How Sports Are Played and Games Are Won" Tobias Moskowitz & L. Jon Wertheim
- 2011

Wrap-up & Recommendations [2/2]
Questions?