CMG Webcast
Capacity Planning

Sprint Corporation
January 27, 2015
Gerald Lewis, Manager- Performance and Capacity Management, Sprint

Gerald is the Manager of Capacity & Performance Management at Sprint Corporation for the last 14 years. He heads a staff of nine capacity and performance specialists who capacity plan for 1,492 applications and over 7,000 individual servers. Gerald has been working in the IT field for more than 45 years at both Sprint, and US West, Inc. One of Gerry’s team members, Peg McMahon was the 2007 winner of prestigious CMG Mullen award for best presentation and has been the President of the KCCMG organization for the past 10 years.

Moderated by Amy Spellmann, Global Practice Principle, The 451 Group

Amy is a Global Practice Principal with The 451 Group (451 Advisors), where she specializes in cloud and digital infrastructure capacity planning and application performance. She also serves as a director on the CMG Board where she chairs the Marketing Committee.
Different Methods of Capacity Planning

Buy more hardware

Tune Software and Review Capacity
Sprint’s Capacity Management – Then and Now

2002

Traditional View:
CPU, Memory, Storage, Network Metrics plus application workloads

2016

Application Growth Analysis:
Virtual Environments based upon Transactional data workloads, Cloud, plus the traditional View metrics
Sprint’s Capacity Management Areas of Responsibility

- Capacity Modeling
- Performance Tuning
- Proactive Monitoring
- Tool Development
Sprint’s Capacity Management Service Catalog

• **Modeling the continuous behavior of IT applications** to assure they will run as designed with both sustained and project growth factors

• **Centralization of critical forecasts** – providing aggregation of the various business forecasts that drive application/system growth

• **Developers of the IT Capacity Budget** – funding appropriate server/storage increases to support sustaining growth

• **Producers of capacity models** – reflecting how growth will impact system performance due to **new IT projects**

• **Producers of “what-if” models** – assisting IT CIS Engineering in providing configuration and systems options

• **Providers of the load test targets** – supporting the release team by setting the bar for successful load tests performance

• **Designers/implementations of performance metrics tools** that aids the rapid resolution of performance problems thus enabling support teams to assess better a system performance issue and discover potential constraints

• **Serving as on-demand performance consultants**
Capacity and Performance Management Methodology

1. Identify Workloads
2. Identify and Classify Architecture
3. Monitor and Measure
4. Analyze Capacity Usage
5. Validate Effective Use of Resources
6. Model growth impact scenarios

Performance:
- Perf 1.) Engage
- Perf 2.) Investigate
- Perf 3.) Recommend
- Perf 4.) Act
- Perf 5.) Validate

Capacity:
- Input: Projects Support Teams
- Output: System Stability

Business Demand:
Sprint’s Capacity Management Tools Breakdown

HP Openview (OVPA, OVPM, Reporter)
IBM NMON, VMware - Vsphere
Microsoft SCOM
Virtual Instruments Probes

CA:
- Data Manager
- Command Center
- Capacity Manager
- Analytics Engine
SARS Database
Virtual Instruments:
- Virtual Wisdom

Note: strikethrough indicates non-supported products.
Sprint’s Capacity Management Sustaining Growth Policy
Sprint’s Capacity Management Sustaining Growth Policy

What is allowed:

Growth caused by increases in normal business activities due to subscriber growth:

- Call center Associates
- Retail store Growth or Expansion
- Increases in Call Detail & Billing Records
- Accounts Receivable or Accounts Payable
- Data Warehouse increases due to subscriber growth

What is not allowed:

- New Design
- New Features
- New Functionality
- Adding a new Business Group
- Additions to non-production environments
Sprint’s Capacity Management Handling of Adhoc Capacity requests

- Question we ask today:
  - What is your business justification for the request?
  - Why does your Team believe that the application needs additional resources?
  - Does your request adhere to the Sprint retention policy?
  - Can your storage needs be met by clearing our logs or deleting older data?
  - Can your storage needs be met by handling the request through an existing project?
Sprint’s Capacity Management Facts

- We Model for 345 Critical Applications running on 7,456 servers:
- We have 1,437 individual CA Hyperformix capacity models, our model accuracy is at 93% of all models
- This year we are working 494 individual projects
- We have a Capacity Budget for Servers $5,826,936 and Storage $6,316,000
- Use Heat Maps to determine additional capacity needs and accuracy of each model month or month
Sprint Capacity Management’s Goals for the Team

- Zero Quarterly Sustaining Capacity Issues; today 40 Quarters
- Zero Holiday & Product Launch Sustaining Issues; today 12 launches in a row
- 100% of Critical Application models; today 96%
- 97% Accuracy of Capacity Models; today 93%
- 5% Adhoc Capacity Increases per year; today 9%
- Automate capacity models using new CA Analytics tool
- Using the new CA Analytics tool create capacity models the remainder of IT applications
- Introduce Cloud Capacity Management and Transaction Data into capacity models
Sprint Capacity Management’s Use of CA Analytic Tool

**CPU Projection:**
- **Reduction Interval:** 90 Days
- **Number of VMs:** 677
- **% of VMs over Threshold:** 2.22%
- **% of VMs:** 98

**MMI Projection:**
- **Reduction Interval:** 90 Days
- **Number of VMs:** 677
- **% of VMs over Threshold:** 2.22%
- **% of VMs:** 98

1/29/2015
### Sprint Capacity Management’s Use of CA Analytic Tool (cont.)

#### Physical Server CPU-MEM Projection - all_servers 10%

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<th>Server</th>
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Sprint Capacity Management’s Use of CA Analytic Tool (cont.)

[Image of a colorful graph showing resource utilization and projections for various virtual machines]
Register for a live demo of the capacity planning solution covered in today’s webcast!!

- Registration via URL in webcast chat window
- Or register via the webcast email invite
Questions and Answers