



IT Service Optimization

Best Practices for IT Service Delivery

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- IT Infrastructure Library Overview
- IT Service Optimization Overview
- IT Service Optimization Best Practices
- IT Service Optimization Case Study
- Summary

IT Infrastructure Library

- Was developed in the late 1980s as a guide for United Kingdom government IT facilities
- Is now the de facto standard for IT best practices
- Was recently refurbished to address new technologies and best practices
- Is a framework of best practices to improve, optimize IT
- Defines IT Service Management by addressing best practices in organization, processes, tools, and metrics

What are the benefits of ITIL?

- Improved quality of service
- Cost justifiable levels of service
- Services that meet Business and Customer requirements
- Enterprise view in service areas so single point of management and control
- Well-defined roles and responsibilities, both from IT and Business perspective
- Demonstrable performance metrics

What are the benefits of ITIL?

- Common basis of understanding within IT, and between IT and Business
- Consistency – from both your IT shop and your service providers
- Appreciation of the relationship between processes and functions
- No need to reinvent the wheel
- Preparation for outsourcing

What problems does it solve?

- Inconsistent service delivery
- Unproductive and/or unauthorized work
- Dropped hand-offs
- Misunderstanding between IT and Business regarding content, quality of services provided
- Overlapping responsibilities and duplication of work

What problems does it solve?

ITIL-based processes maximize the use of your people and tools

- For performance management, it defines strategies, roles, and tactics for
 - Monitoring
 - Mitigation
 - Resolution
- For capacity management, it forces a service level view that
 - Includes the business perspective
 - Relates business demand to IT service demand
 - Supports efficient utilization via consolidation and sharing

- Deliver IT Services
- Support IT Services
- Managing Applications
- The Business Perspective
- Manage the Infrastructure

What is IT Service Optimization?

- Yet another darned four letter acronym? 😊
- Yes, but it is also a way to look at ITIL processes that have a common thread
 - They improve the quality of a service, or
 - They decrease the cost of delivering the service
 - More focuses on process interfaces and relationship to tools

What is IT Service Optimization?

- A set of interrelated IT processes focused on optimizing IT service delivery
- It is both a subset and a superset of ITIL processes
- Provided as an adjunct framework to ITIL that serves as a good place to start
- Provides a very high ROI and shorter time to completion than full ITIL
- But is better than just picking one ITIL process to start with

**Help IT organizations
consistently meet IT service levels
while minimizing infrastructure costs
and mitigating risks**

Elements of Optimized Service Delivery

- Processes
 - Service level management
 - Capacity management
 - Important interface to a variety of other IT processes
- Software
 - Plan and provision for IT services
 - Manage service performance
 - Analyze performance issues
 - Adjust for changes

What are the benefits of IT Service Optimization?

- Provides a focus for navigating ITIL process implementation
- Skips harder to justify processes and adds key missing processes
- Focuses on process integration both within ITSO and with other ITIL processes

What are the benefits of IT Service Optimization?

- Reduced TCO
- Consistent service delivery
- Improved asset utilization
- Enterprise view of IT
- Business and IT alignment

IT Service Optimization Best Practices

- IT Service Optimization Processes
- Understanding Business Requirements
- Service definitions and the service catalog
- Scalability Testing/Production Engineering
- Consolidation as an ongoing process
- The Role of Business Data in Service Optimization
- Managing the Risk

Typical IT Project Life-Cycle

Activity	Description
Preparation	Business case, requirements definition, poc tests
Design	All logical and data design activities
Development	Development of UI, business logic, databases, integration
Testing & QA	Unit and integration testing, functional and load testing
Provisioning	Software license fees, hardware, network equipment
Deployment	Installation, configuration, optimization, training
Operations	Administration and ongoing support
Maintenance	Bug fixes, enhancements, new releases

Source: April 23, 2003, IdeaByte "IT Project Life Cycle: Quantify Your Full Costs So You Know Where To Cut"

IT Service Optimization Processes

Business
Requirements

Scalability
Testing

Production
Monitoring

Capacity
Adjustments

Risk
Assessment

Provisioning/
Consolidation

Problem
Mitigation

Service
Improvement

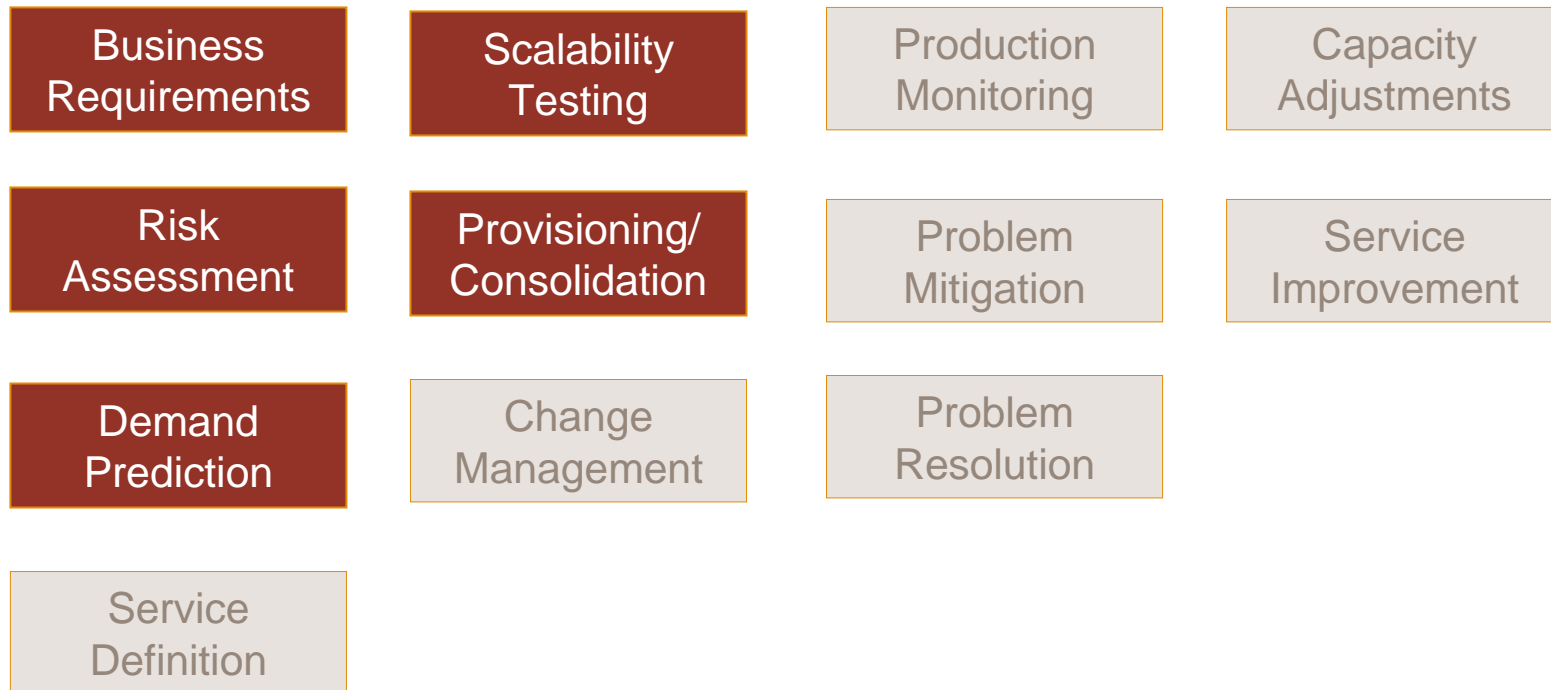
Demand
Prediction

Change
Management

Problem
Resolution

Service
Definition

IT Service Optimization Processes



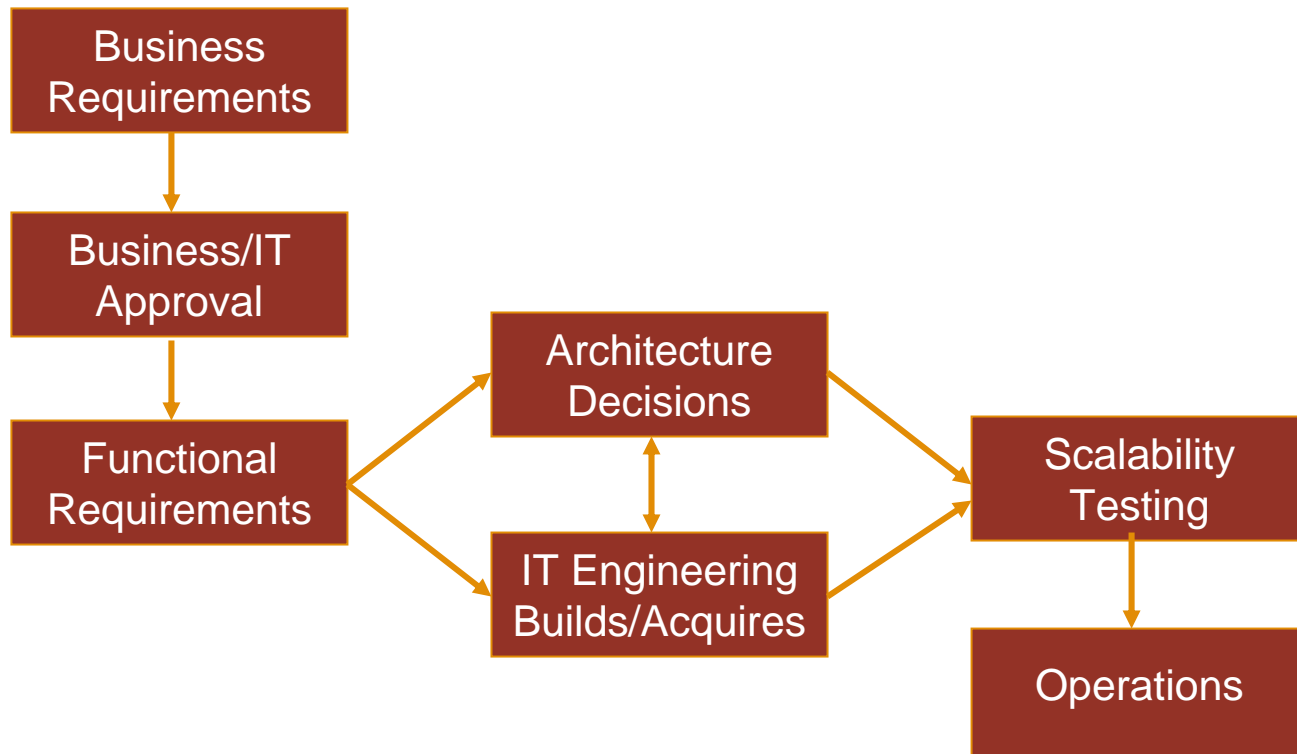
Understanding Business Requirements

- Perhaps the hardest part of the entire process
- Probably the most important aspect of the entire process
- Key points to understand:
 - Priority
 - Demand profile
 - Business variables
 - Technical variables
 - Service evolution
 - Architectural restrictions

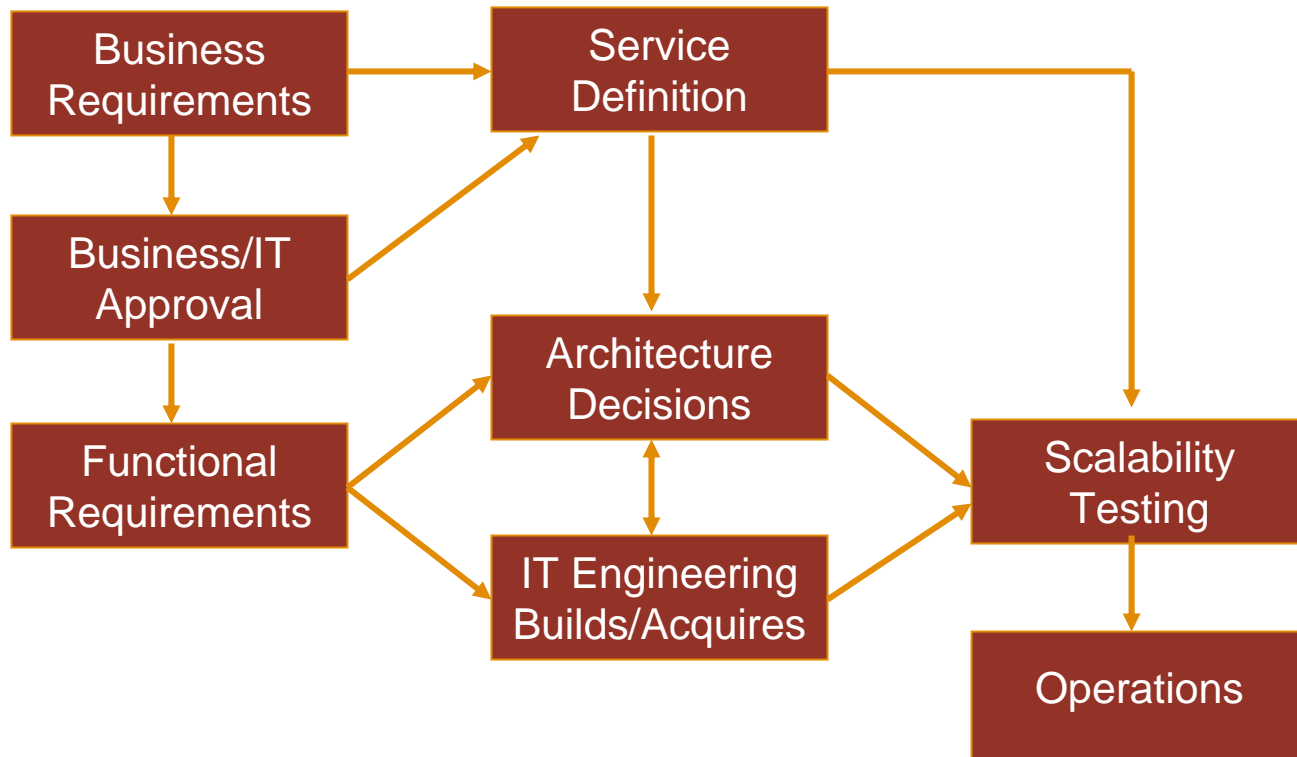
Understanding Business Requirements

- Should be part of business units measurable deliverables
- Make IT service business requirements part of overall governance process
- Hold business units accountable for accuracy of business requirements
- Evaluate validity of business requirements at least annually and more often if conditions warrant

Business Requirements Process



Business Requirements Process



Service definitions and the service catalog

- Service definitions
 - Where you record the business requirements
 - Do not have to be in the form of SLAs
 - Are absolutely key to the success of service delivery

- Service catalog
 - One of two primary databases for IT
 - Service catalog: description of what business work is to be done
 - CMDB: description of the assets available to do that work
 - Repository for all service definitions, drives many other Service Optimization processes

Service definitions and the service catalog

- Service definition
 - Key points from business requirements
 - Joint ownership between IT and the business unit
 - Be sure to assign clear ownership to each metric (joint, business, IT)
 - Reviewed usually twice a year
 - Drives all remaining service optimization processes

Scalability Testing/Production Engineering

- Key aspect of a service's life-cycle management
- Ensures service levels can be met with provisioned hardware
- Is essential when provisioning into a consolidated environment
- Does not require duplicate test lab to production floor using this process

Scalability Testing/Production Engineering

- Key aspects of production engineering
 - Realistic view of typical workloads
 - Understanding of IT operation capabilities, infrastructure capacities, and standards
 - Use load generation tools for initial baseline
 - Use predictive analysis tools to:
 - Collect data during testing
 - Predict production performance

Consolidated as an ongoing process

- Consolidation is a process, not a one time project
 - You must have complementary, on-going processes to stay consolidated
 - The workload in a data center is dynamic and an optimal balance of servers to workloads will not last

- Two areas to address to stay consolidated
 - New service provisioning and deployment
 - Rebalancing the distribution of workloads to servers as demand changes

Consolidated as an ongoing process

- New service provisioning and deployment
 - Strategy one –
 - Consolidate existing apps and servers
 - Deploy to newly freed up servers – initially single app
 - Consolidates apps and servers with more data
 - Strategy two –
 - Deploy directly to existing server
 - Must do better testing/modeling of new app and existing server
 - Possible with very good load testing and demand prediction
 - Resource management can help here

Consolidated as an ongoing process

- Rebalancing the distribution of apps and servers
 - Requires the measurement and analysis previously mentioned
 - Especially looking at top and bottom utilization lists as candidates for changes
 - Always take SLA growth plans for next six months into account when redistributing
 - Must be done if you are using the “deploy to free server” strategy

Consolidated as an ongoing process

- Rebalancing the distribution of apps and servers
 - Generate weekly top and bottom utilization lists for key resources
 - Analyze the top systems for capacity issues
 - Analyze the bottom systems as further consolidation candidates
 - Analyze resource utilization patterns for additional consolidation opportunities

The Role of Business Data in Service Optimization

- Types of business data
 - Internal
 - External
- Key roles for business data
 - Defines service requirements
 - Most accurate for predicting demand
 - Defines risks levels

The Role of Business Data in Service Optimization

- Internal business data
 - Record baseline in Service Catalog
 - Track and monitor as ongoing process
 - Business unit of work metrics
 - Correlated business metrics
 - Business priority or value
 - Planned marketing campaigns

- External business data
 - Market conditions that effect demand
 - Conditions that effect criticality

“ Business can be competitive only if the risks of IT service delivery are managed ”

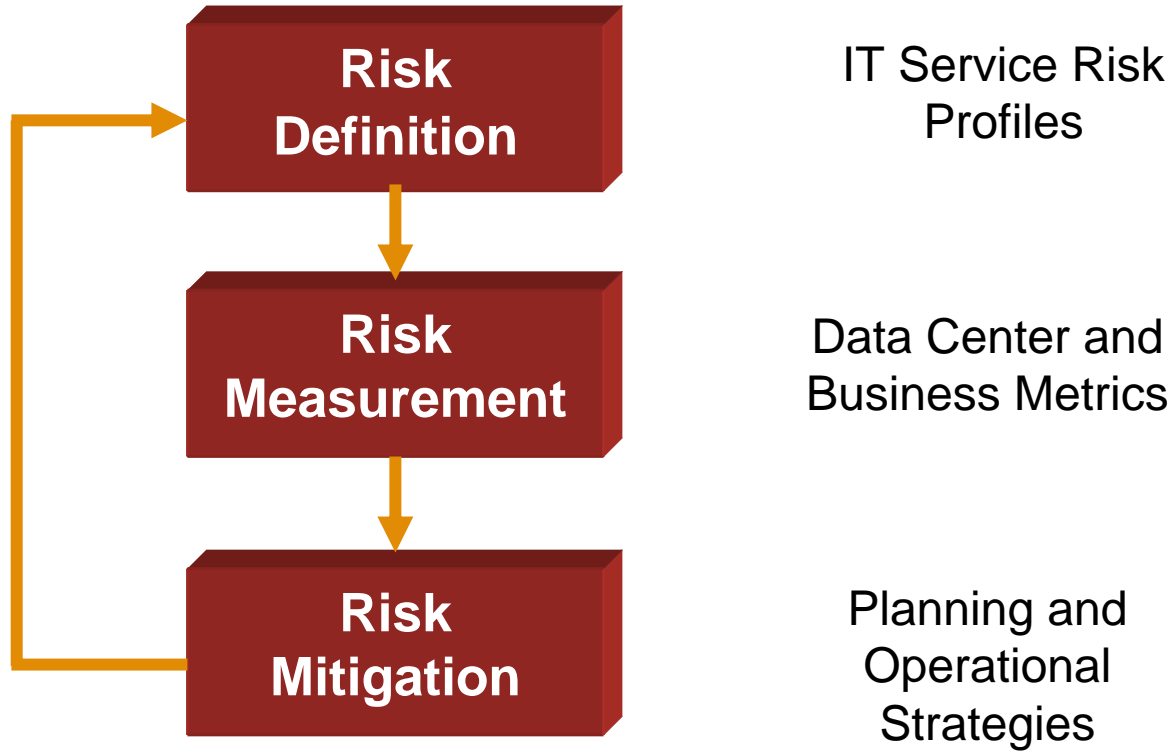
Jean-Pierre Garbani, Thomas Mendel • Forrester Research, GigaWorld Europe, 2004

Service delivery risk management

- General service delivery risk
 - What is the overall and ongoing risk to the company of a service delivery failure?
 - Largely dependent on architectural decisions, IT process maturity, and infrastructure robustness

- Current service delivery risk
 - What is the current risk to the company of a service delivery failure?
 - Dependent on above plus current operating and business environment

Service delivery risk management



Case Study – Modeling in the Test Lab

■ Challenges:

- What are the resource requirements in the base model
- How to verify our predictions

■ Solution

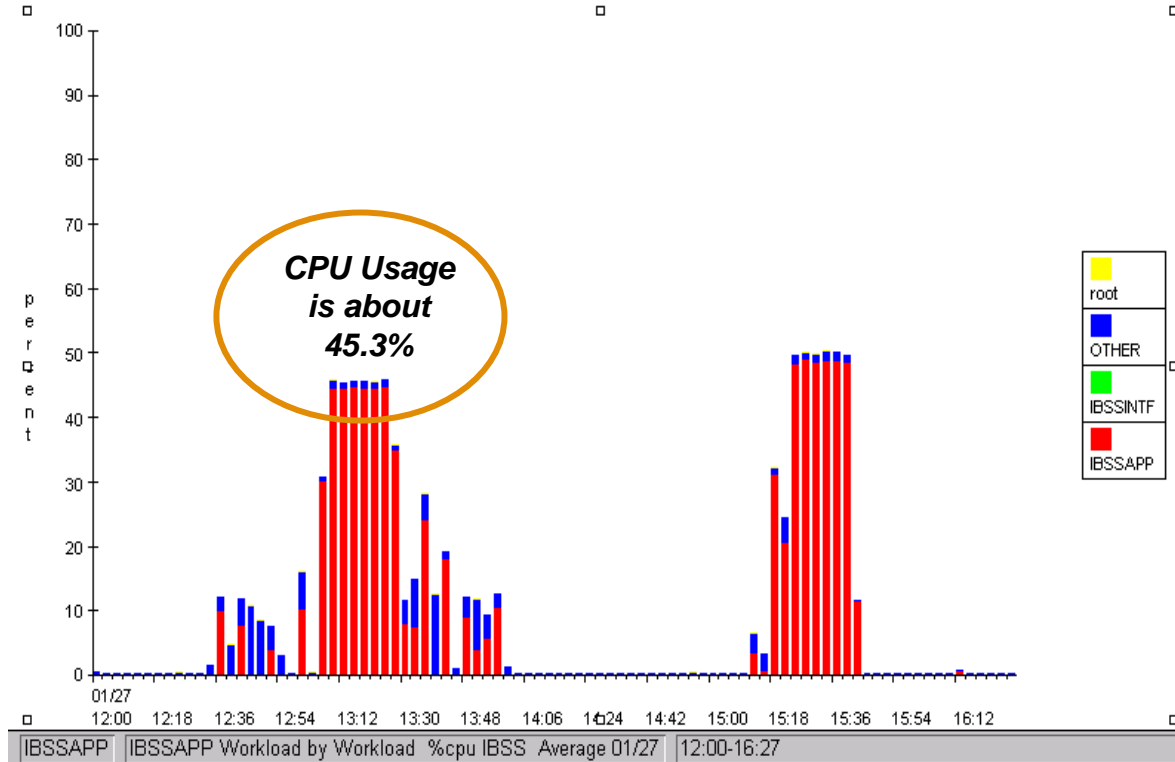
- Use a load generator to simulate a production environment.
- Capture the data and use it for the base model
- Use the load generator to simulate growth
- Use modeling to predict the same growth
- Compare the result and verify model accuracy
- Continue future prediction using only the model

Case Study – Modeling in the Test Lab

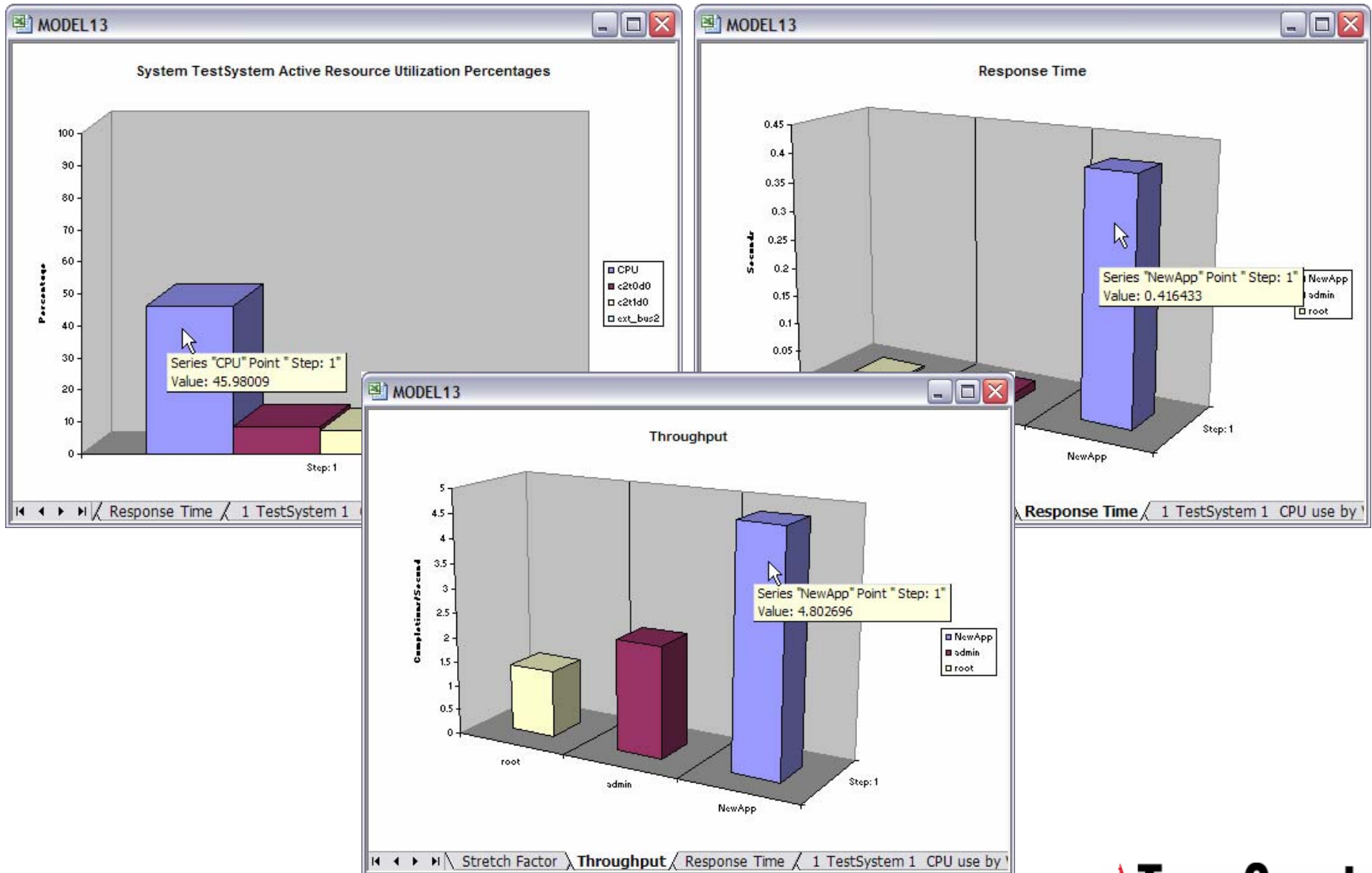
Created a script for 1 application, 1 database, and n concurrent inquiry. It resulted in:

Average Throughput – 4.787

Average Response Time – 0.418



Case Study – Modeling in the Test Lab

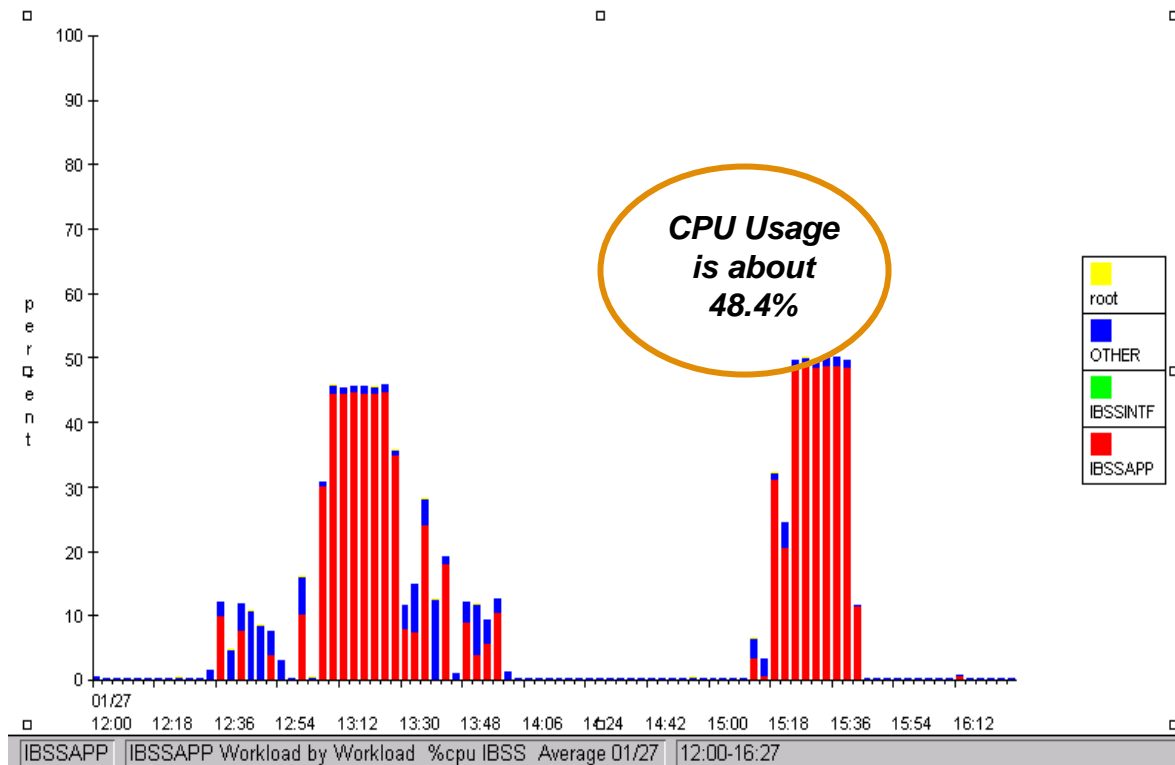


Case Study – Modeling in the Test Lab

Created a script for 1 application, 1 database, and m concurrent inquiry. It resulted in:

Average Throughput – 5.219

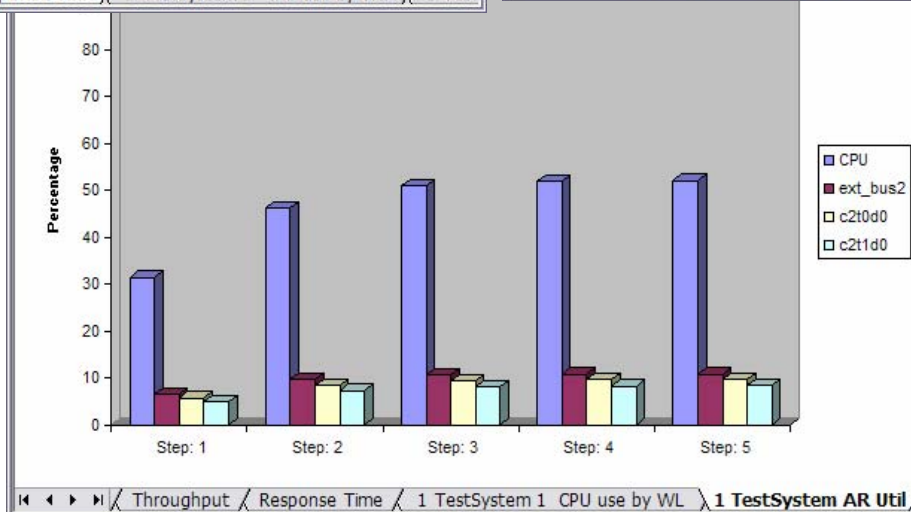
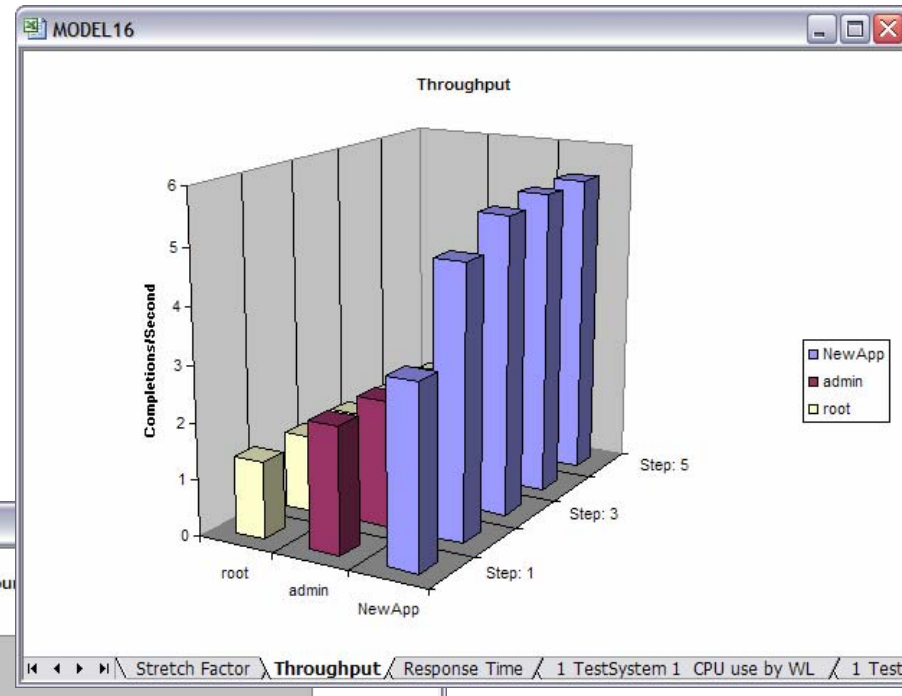
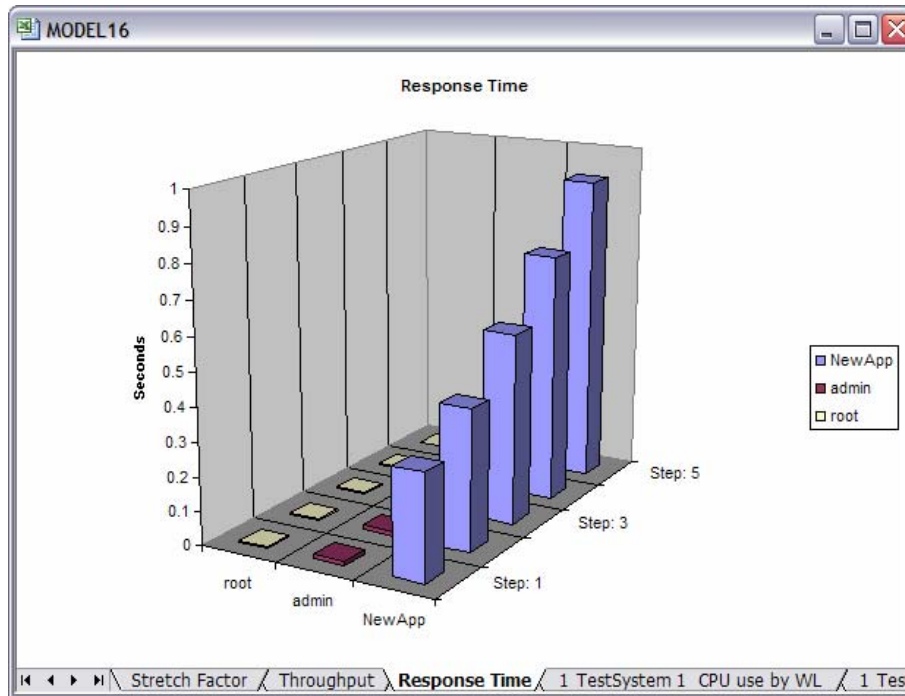
Average Response Time – 0.575



Case Study – Modeling in the Test Lab

		<i>Measured</i>	<i>Modeled</i>	<i>Difference</i>	<i>Deviation</i>
<u>n Users</u>	<i>Throughput</i>	4.787	4.803	0.016	-0.33%
	<i>Response</i>	0.418	0.416	-0.002	0.38%
	<i>CPU Utilization</i>	45.30%	45.98%	0.68%	-1.48%
<u>m Users</u>	<i>Throughput</i>	5.219	5.333	0.114	-2.14%
	<i>Response</i>	0.575	0.563	-0.012	2.22%
	<i>CPU Utilization</i>	48.40%	48.54%	0.14%	-0.28%

Case Study – Modeling in the Test Lab



- People and tools alone cannot optimize IT services, processes are required as well
- ITIL came into existence to provide these tools or best practices
- IT Service Optimization is a thread through ITIL processes that improves quality of service and/or reduces cost of delivery
- ITSO really consists of a collection of best practices and tools
- Get business requirements documented in the service catalog and you have a great start.
- Capacity modeling is a key discipline for true optimization.



Thank you for attending!

Questions?