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# Optimizing Data Center Performance and Building ROI

July 20, 2005



# Abstract

In this Webcast, IDC System Management Software Vice President Tim Grieser examines the strong pressures IT organizations are facing to achieve cost containment and budgetary control through operational efficiencies - while at the same time demonstrating alignment with business units.

These pressures are driving the ongoing need for IT organizations to conduct more effective performance and capacity management processes, and to support these processes by using performance management software.

We will discuss these issues and explore ways in which IT can make effective use of performance management processes and software tools to help achieve these goals.

Examples of user experiences, based on TeamQuest performance management software, are presented.

# Agenda

- **IT Concerns and Priorities**
- **Performance Needs vs. Costs**
- **Performance Management Processes**
- **Key Activities**
- **Software Capabilities**
- **Viewpoints**
- **Distributed Performance Management**
- **Shifting Focus – applications and services**
- **TeamQuest Corporation**
- **Some User Experiences**
- **Performance Management Results**
- **Summary**

# IT Concerns and Priorities

**IT organizations are facing many challenges...**

- **Cost containment – demonstrate ROI**
- **Better use of resources – higher server utilizations**
- **Need to show alignment with the Business**
- **Meet service objectives**
  - **Increasing numbers of SLAs**
  - **Web everywhere: end-users online**
- **Respond quickly to problems and incidents**

# Balancing Performance Needs vs. Costs

**Performance management is a balancing act...**

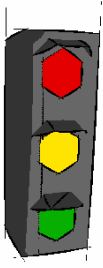
- **Providing good performance under varying conditions**
- **Tradeoffs between hardware costs and performance**
- **Making the right decisions – finding the real bottlenecks**
- **Anticipating new service requirements:**
  - **new applications and increased workloads**
- **Requires an ongoing process with supporting software**

# What about the Process?

## Key Functions in Performance Management

- **Service Level Management: Setting goals, agreements**
- **Performance monitoring: measuring actual vs. goals**
- **Tuning to optimize use of resources, meet goals**
- **Understanding current and future demand**
  - trending, forecasting
- **Managing resource demand**
  - scheduling, load balancing
- **Capacity management and provisioning**
  - Predicting future resources needed to make goals
  - Acquiring and provisioning resources as needed

# What are some Key Performance Management Activities ?



## Performance and Availability

- **Monitoring and Reporting:**  
“What’s Going On ?”
  - **Measuring performance:**
    - utilizations, throughputs, response times
- **Reporting “Health” : Element/device status**
  - **Up/Down**
  - **Fast/Slow**
  - **Idle/Busy**
- **Exceptions and Alerts -**  
Thresholds, performance vs. SLAs
- **Notification and Responses**
- **Identifying Problem Devices -**  
Where is the bottleneck ?
- **Taking Corrective Actions - Automation**

# Performance Management Software

- **Measurement: starts with monitoring (agents vs “agentless”, “sniffers”)**
  - Tradeoffs
  - Alerts – Thresholds, SLAs
- **Data collection and storage**
- **Reporting: Graphical and tabular views, Web access**
- **Tuning: Optimal settings and configuration, balancing**
- **Trending and Forecasting: Statistical methods**
- **Capacity Management:**
  - “What If” analysis
  - Use of models



# What Viewpoints can Performance Management Software Provide ?

- **Individual Elements (clients, servers, blades, routers)**
- **Basic platforms Hardware and OS “Silos” Windows, Unix/Linux, Mainframe, Networks**
- **Server Layer: App.Server, Web Server, Database, Others (email server)**
- **Transaction or “end-to-end” views: synthetic vs. “real”**
- **Application View: multi-tier and Web**
- **IT Service view**
- **Business Service View**
- **Enterprise Management Console – Single Pane of Glass. High level overview. Intelligent drill-down.**

**Other Views: Dashboards, Maps.**

# Distributed Performance Management

## Key Issues:

- **Complexity – lots more objects to manage**
- **Need to understand transaction components**
  - **Multi-tier, Web**
- **Multiple viewpoints: element, end-user, application, transaction, service**
- **Heterogeneous platforms**
  - **Unix, Linux, Windows, Mainframe**
- **New Application Environments**
  - **J2EE, .NET, Web components**

# Shifting Focus for Management Software: What's Changing ?

**Classical approach is basic element management.**

**- Monitor servers, networks, “individual component health”  
show “health” displays**

**Results in “stovepipe” approach aligned with technology  
stacks.**

**With distributed and Web applications, more focus on end-to-  
end, cross-technology views.**

**Doesn't eliminate “element” views – it supplements them  
with cross-element and transaction views.**

**Want to see element, application, and service views.**

**Achieve this with more monitoring, intelligent analysis of  
infrastructure maps (“discovery”), application-specific data  
and analysis.**

# Business Service Management - New Emphasis for IT

- **IT as a revenue-generating service provider**
  - Much higher direct business impact
  - Much higher corporate visibility
- **Align IT with Business Objectives**
- **Relate IT Applications to Business Services**
  - Performance and Availability of Transactions
  - Are Business Service Level Objectives met ?
- **Business impact analysis of IT-related problems**
  - Prioritize actions by business importance
- **Show how IT is delivering – use business metrics**
- **Start with the Business Problem – work top down**

# TeamQuest Corporation

- **Independent company: focus on Performance Management**
  - 14 years old, former division of Unisys
  - Products, services and methodology
- **Software products**
  - Agents for measurements: server, network, app. servers, Web servers databases, packaged apps.
  - Monitoring and alerting
  - Reporting and analysis
  - Performance database
  - What-if” model
- **Expertise in applying software to optimize performance**

# Some User Experiences

- **Reduction of downtime from performance-related problems to essentially zero (from as much as 8 hours per week)**
- **Major savings in hardware costs by optimizing server consolidations and deferring new hardware investments: \$5 million savings in one case.**
- **Reduction in annual call center operating costs due to performance improvements (faster response time)**
- **Improved service levels and applications availability.**

# What Can Performance Management Do?

- **Help control hardware costs**
  - Acquire and provision hardware intelligently.
  - Increase hardware utilizations without sacrificing performance
  - Help optimize server consolidations.
- **Manage achievement of Service Level Objectives**
  - Achieve required workload volumes and response times
  - Avoid degradation during peak periods
  - Reduce unplanned outages
  - Support key business process requirements
- **Assist problem identification and resolution**
  - Measure response time components
  - Identify bottleneck devices
  - Provide analysis – correlation
- **Leverage key staff resources**

# Performance Management Summary

Performance management is based on methodology

It is still *all about bottlenecks....*

- Focus on SLAs from end-user perspective: specific workloads, transaction volumes, response times,
- Monitoring gets the basic measurements
- High component utilizations are only one indicator
- Measure transactions (both “real” and “synthetic”) across “tiers” or “Composite Applications” to get the “end-to-end” view of loads, response times.
- See transaction times “hop to hop” across tiers
- Slowest “hop” is the bottleneck
- Improve performance by removing bottlenecks
- Performance database needed for trending, forecasting, capacity planning.