



## PERFORMANCE MANAGEMENT

### Introduction

Performance management is one of five categories under network management, as defined by ISO for management of OSI (Open Systems Interconnection) networks. Performance management involves analyzing and controlling the performance of networks, servers and application. It involves the measurement and tracking of such diverse infrastructure variables as throughput, user response time, error rates, availability and utilization, among others. While one of the main goals of performance management is to eliminate bottlenecks in the infrastructure, it also includes taking measures to optimize the networks, servers and applications for maximum system performance through periodic assessment and checks on resources usage.

Performance management may be defined as the process of monitoring, managing and optimizing the IT infrastructure to deliver maximum performance and availability, without adding to the underlying hardware. The fundamental benefit of performance management is improved operational performance and systems efficiency without augmenting hardware or deployment costs. Other major benefits include:

- Maximizing the usefulness of deployed hardware and software
- Optimizing production systems at no additional IT spending
- Preventing slowdowns and downtime episodes
- Minimizing the total cost of ownership (TCO)

In fact performance management can help cut down IT costs by identifying excess or redundant hardware capacity for possible redeployment, and carry out other capacity planning activities, hence delaying or preventing the need for upgrades.

A reliable infrastructure performance management is essential in achieving productivity and overall business success. In the delivery of vital time-dependent services and applications, even a brief performance glitch or deterioration can inadvertently decrease revenues and/or increase costs.

By recognizing and securing the availability and performance of your IT resources, you achieve smooth optimization of IT infrastructure and investment, and a favorable ROI through better customer service, enhanced productivity and transparency of network performance.

## Managing Infrastructure, Applications and End-User Views

Conventionally, performance management was more inclined to focus on individual infrastructure elements, e.g., network components, applications servers and databases. While this can result in well-regulated infrastructure components, it is important to also fine-tune all applications supported by the infrastructure so overall service objectives are met. Here it is necessary to take into account performance requirements as seen from the end-user perspective, such as response times, transaction volumes, and peak user loads, especially for Web-enabled applications. Therefore, a comprehensive approach must take into account infrastructure and applications, and must also address performance from the end-user perspective.

### Identifying and Resolving Performance Blockages

Performance management also means locating and alleviating blockages that can have adverse effect on performance and availability. A blockage (or more aptly, *bottleneck*) may be described as any infrastructure component that considerably slows down or obstructs the progress of a transaction, which often occurs during peak periods as a result of heavy usage of hardware devices (e.g., high network or server utilizations) or logical ceilings and limitations (e.g., maximum number of licensed users, maximum number of server connections), among others. Symptoms of bottlenecks include slow response times for end users, application pauses or freezes, or even inability to log on or get access to applications.

### Fine-Tuning Applications and the Extended Infrastructure

When an application is deployed in the operational environment, even if it has already been tested beforehand, several other factors may be inadvertently introduced—including scaled-up workload demands and new sources of potential bottlenecks. Events such as mergers and acquisitions, server consolidations, and major application or database changes, can generate new performance blockages. A good performance management tool continuously takes into account important changes in the application or environment, and extends to the IT infrastructure that supports user access and application usage, including such components as Web clients, networks, firewalls, Web servers, load balancers, and server farms. Undoubtedly, one of the foremost obstacles to administering Web-based systems is monitoring and managing from the end-user perspective, so that transactions originating from a browser-based client and traverse many different infrastructure components can be optimized to meet required service-level objectives.

### MAX Performance Management

MAX provides a topology-mapping tool that auto-defines the components and IT architecture of a production system, and graphically displays its corresponding configuration. Once the component architecture has been specified, you can assign associated monitors, performance thresholds, alerts, and responses to individual components. Real-time alerts can be tied to the topology map; alerts are used as signals to determine where bottlenecks may be occurring and remedial actions might be required. Alerts can be visualized graphically using the topology map. Techniques such as correlation are used to help determine relationships between performance variables and indicate the most likely causes of bottlenecks.

Using a well-integrated fault, performance and availability management mechanism that can flawlessly span across a heterogeneous, often complex IT infrastructure, MAX gives you a proactive foresight in tackling problems well before their occurrence, an insight into current problems, and an active hand in MTTR reduction and fault prevention.

Enterprises need to make certain that their quality of service meets the requirements of their users, partners and customers. Companies make significant investments in their enterprise systems and the staff to run them. Poor performance on the part of the infrastructure, the application or the business service can affect productivity, revenues and business success.

Performance management is an activity that can reap substantial improvements in performance without increasing basic infrastructure costs—even helping to reduce costs in cases where hardware upgrades can be avoided or existing capacity can be redeployed. Clearly, it addresses most of the major business concerns in times of constrained IT budgets, such as reducing TCO and improving ROI.