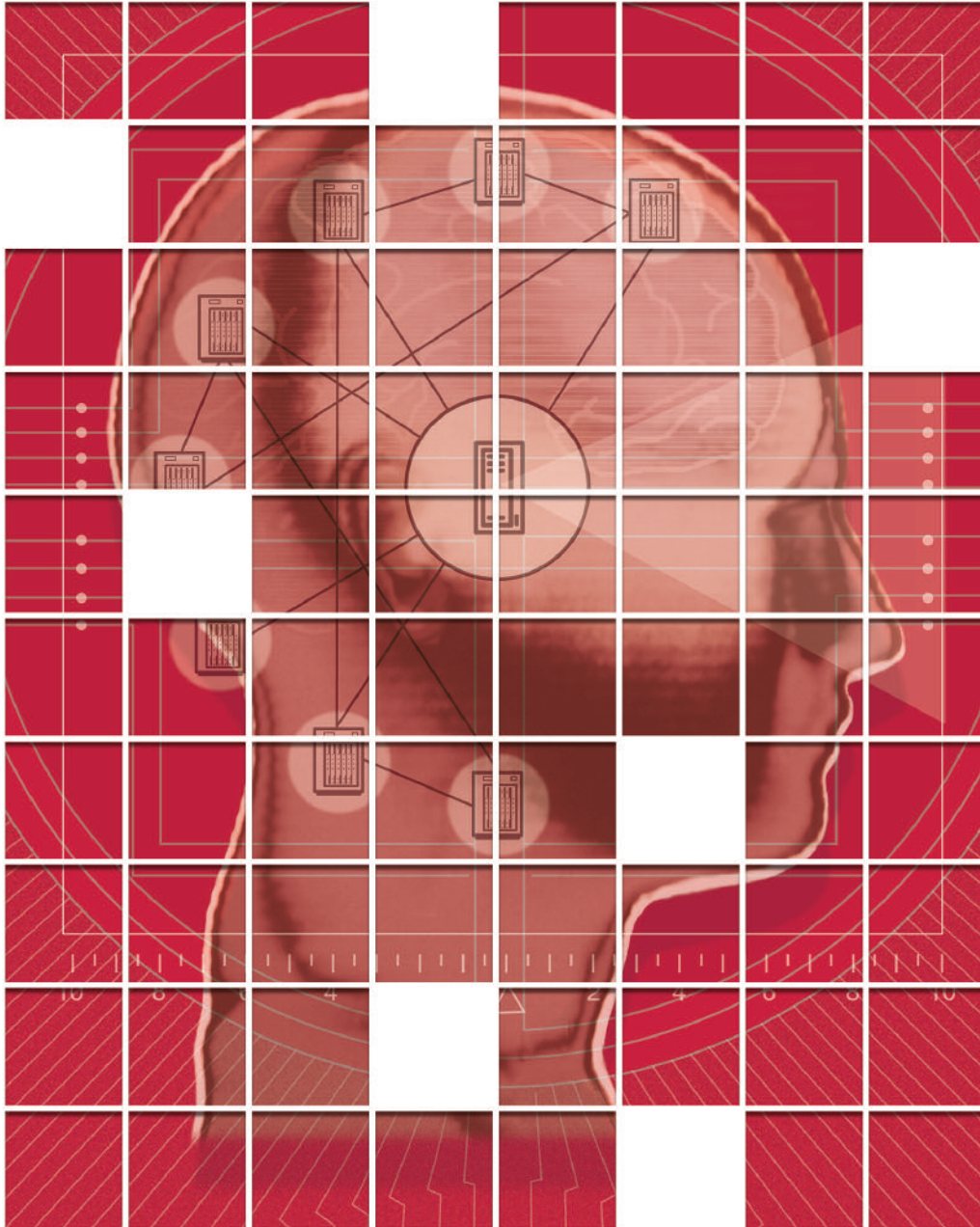




# AppCapacityXpert

Systems Capacity Management for Enterprises

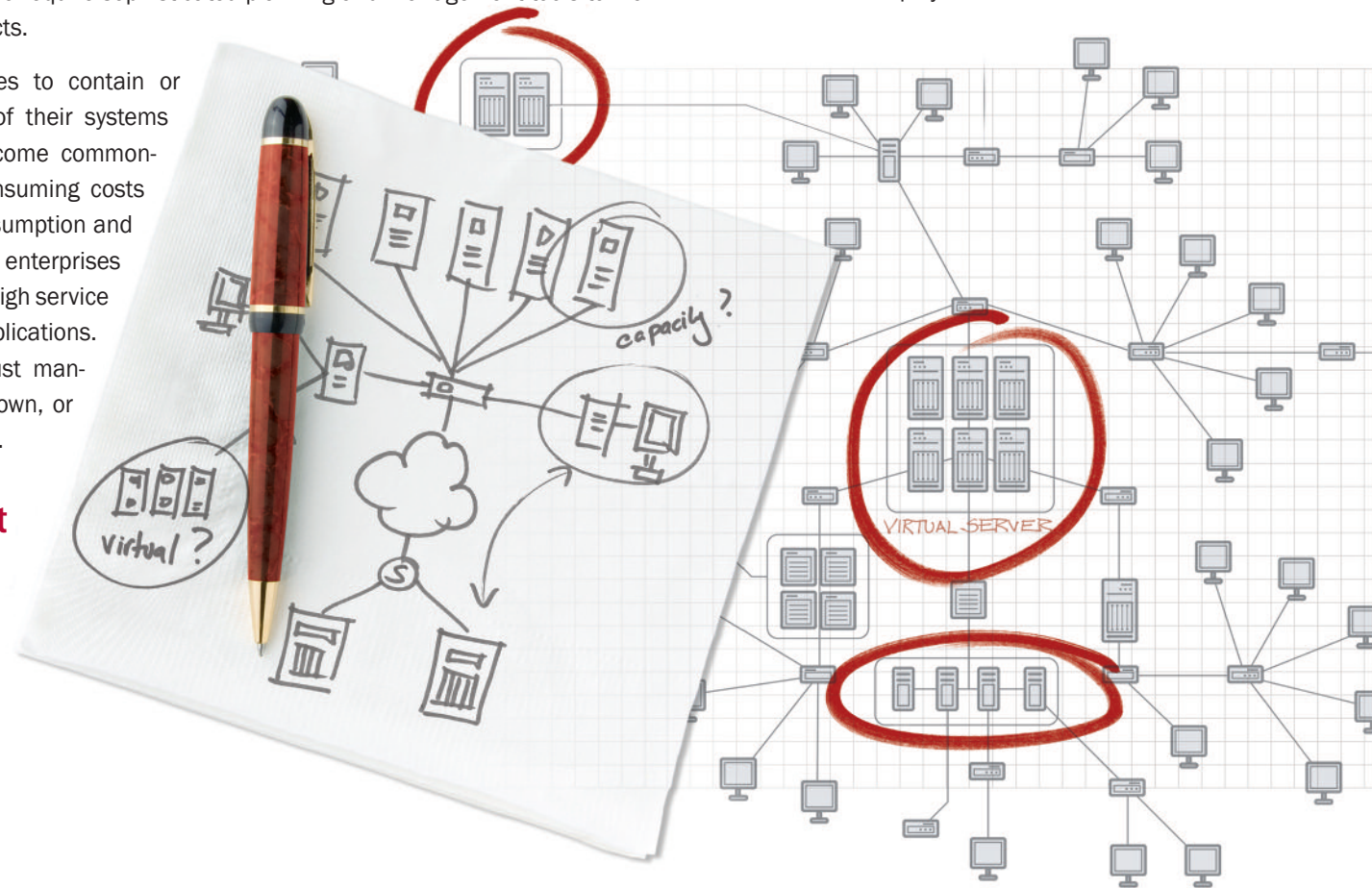


# AppCapacity xpert™

As the pace of business accelerates in the global economy, enterprises face increasing demands on their systems infrastructure. Virtualization, server consolidation, and service-oriented architecture (SOA) offer great potential, but they also require sophisticated planning and management tools to maximize the business value of such projects.

Enterprises are undertaking initiatives to contain or reduce capital and operating costs of their systems infrastructure. Server sprawl has become commonplace, with underutilized systems consuming costs for administrative support, power consumption and floor space. But while containing costs, enterprises are under greater pressure to provide high service availability for new and existing applications. Systems become a risk that you must manage—over-deploy and the budget is blown, or under-deploy and performance suffers.

**Effective systems management is the key to mitigate risk, increase service availability, and reduce expenses of your systems.**



AppCapacity Xpert enables performance and capacity planning for servers and mainframes. It analyzes systems configurations and workloads, and predicts the impact of new application deployment, changes in workload profiles, changes in the number of users, and changes in systems hardware configurations. AppCapacity Xpert automates performance planning to predict how utilization, transaction rates, and hardware configurations will affect response time. It presents server virtualization scenarios, assesses capacity of host systems for guest machines, and predicts the capacity required to achieve SLAs. Leveraging its integration with leading third-party system performance monitoring tools, organizations can accurately plan system capacity to support growth, system consolidation, and application deployment.

## AppCapacity Xpert provides answers to the key questions facing IT managers:

- Can we consolidate applications from multiple systems to a single platform?
- How should the server be configured to support virtual systems?
- When we consolidate systems, how much capacity should we provide, and how long will it last?
- When deploying new applications, what is the right capacity to add to my systems?
- How will workload growth affect application service levels?
- Do we have sufficient capacity on each application tier?



## Return on Investment

The AppCapacity Xpert offers a cost-effective means to address a wide range of performance and capacity issues. It optimizes use of existing capacity to improve ROI of IT assets. It maximizes performance of your applications and reduces the risk of not having necessary system resources to support application workloads.

## Reduce Cost of Systems

AppCapacity Xpert is the tool you need to control capital and operational costs of systems. It maximizes any investments you are making in virtualization by optimizing system utilization and planning for consolidation of systems and data centers. If you manage a mainframe environment, it enables you to get more return from your mainframe hardware and software investments by shifting processing to zAAP specialty engines and rebalancing LPAR workloads. The result: IT budgets that spend less and achieve more.

## Maximize Application Performance

Just as knowledge workers and e-business consumers are dependent on enterprise applications to effectively perform their tasks, their productivity is dependent on application response time. AppCapacity Xpert helps ensure maximum performance of your systems and applications to boost business productivity and customer satisfaction. It removes the guesswork from your systems management and planning processes, guiding you through to the optimal system configuration. AppCapacity Xpert identifies architecture bottlenecks before deployment, analyzes operational performance post-deployment, and assists in setting achievable SLAs and other performance objectives.

## Mitigate Risk Associated with Change

System infrastructure has become a potential risk that must be managed by IT. Deploying excess capacity creates the financial risk of overspending of precious budgets that could have been spent elsewhere. But not deploying enough systems capacity becomes a business risk as critical applications cannot perform at the level necessary to achieve business goals. AppCapacity Xpert is an effective tool for mitigating risk during times of change, such as deployment of new applications or server consolidation. Its powerful tools for simulation, analytics, and capacity planning mean that you can achieve the optimal balance of cost and performance.

## Key Capabilities

- Pre-defined server models: Embedded vendor-specific systems with performance ratings from SPEC (Standard Performance Evaluation Corporation), plus customized server configurations
- Integration with server performance statistics from leading third-party monitoring solutions: CA Unicenter® Network and Systems Management, HP OpenView® Performance Agent and HP OpenView Performance Manager, BMC Performance Assurance® Perform Collector, and Microsoft Windows® 2000/2003/XP Perfmon
- Application workload characterization: Automatic characterization using advanced filtering algorithms
- Application architecture performance evaluation: Integrated Whiteboard to predict the performance impact of application architecture changes during the development life cycle
- End-to-end capacity management: Integrated with the Mainframe Model, AppTransaction Xpert, and IT Guru® Network Planner for end-to-end capacity planning and performance management

## Optimize Capacity and Performance of z/OS Mainframes

The AppCapacity Xpert Mainframe Model is an optional capability that enables you to quickly and accurately model the performance and capacity of IBM zSeries™ systems running z/OS™ with Goal Mode Workload Manager (WLM). The model predicts the performance of mainframe applications under varying workload conditions and hardware constraints. Measured workload data from a variety of sources is transformed into units of work and the workloads are aligned with service policy specifications. It includes:

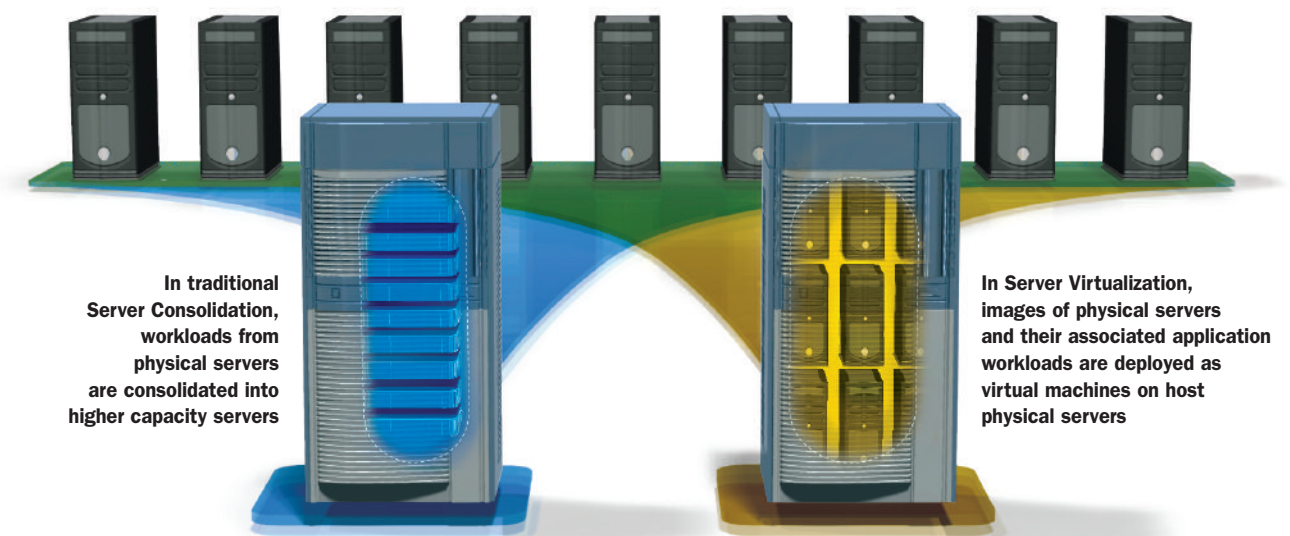
- Pre-defined mainframe models: Wide range of IBM mainframe configurations provided with IBM Large Systems Performance Reference (LSPR) ratings
- Mainframe z/OS® performance metrics: Configuration data, goal specifications, and workload statistics from CA MICS® Resource Management, MXG®, and IBM Resource Management Facility® (RMF)
- z/OS Workload Manager (WLM) goals: Automatic alignment of RMF Service Class workload measurements with your installation's WLM goals
- Capacity planning: Simple parameters to reflect forecasted changes in workload activity and determine the hardware configurations that will meet the performance requirements of the applications
- Application performance: Performance impact of applications and service classes due to workload changes, resource contention, goals, LPAR weights, and logical processor allocations
- Application integration: Performance impact of integrating applications from test LPARs with production LPARs
- MIPS reduction: Assignment of workloads to zAAP processors to reduce utilization of general purpose processors and the associated software costs

## Optimize Capacity and Performance of Virtualized Servers

Performance of business applications depends on complex interactions of the applications with servers, networks, and other applications. Ensuring that end-user response time will not be adversely impacted as a result of server virtualization or consolidation is a difficult challenge for any IT organization. Detailed, quantitative understanding of the application characteristics is required to efficiently and cost-effectively diagnose potential performance problems and to predict application response time.

### AppCapacity Xpert helps you determine:

- The number of servers that can be consolidated into a single server instance
- The distribution of peak workloads for multiple applications over time
- Capacity required to ensure good response time during peak times
- The projected time frame when additional capacity will be required



Virtualization has been an important process to optimize use of systems resources. However, the true business value of virtualization can be elusive without a thorough view of systems resources.

AppCapacity Xpert's VM QuickPredict capability enables you to realize the full value of virtualization.

AppCapacity Xpert's VM QuickPredict enables you to:

- Baseline server performance and profile the workloads to plan for virtualization
- Evaluate the capacity of a physical host necessary to support virtual machines
- Assess whether a current server is a good candidate for virtualization
- Determine capacity required for the virtual machines and the host to meet SLAs
- Perform what-if analysis of changing workloads of the virtual machines and the configuration of the physical host

With VM QuickPredict you can take the guesswork out of server virtualization.

Capacity planning is a solution to maintaining business service quality and avoiding the consequences of downtime and brownouts and no longer a way to maintain a minimum level of service at the lowest possible cost. As data centers struggle with server consolidation and server virtualization, capacity planning becomes the key to maintaining or improving service quality while containing costs.

The Capacity Planning Software Market, Forrester Research, June 2007



## Prepare for New Application Deployment

Application performance is dependent on the performance of the underlying infrastructure components and the architecture of the application itself. You need a clear understanding of how these components interrelate to affect end-user response time. When performed in early stages of development, systems modeling helps avoid serious performance problems and costly application rework after deployment.

With AppCapacity Xpert you can ensure application performance early in the application life cycle. It provides workload profiles for new applications that are most easily developed during application test. AppCapacity Xpert streamlines and accelerates server load testing through virtual testing. By simulating the load tests and predicting the results, virtual testing can significantly reduce the number of live load tests that are actually required. It enables you to:

- Simulate load tests and predict the results
- Size servers to host both new and existing applications
- Size physical servers to host virtual machines (VMs)
- Predict the response time for transactions
- Determine the capacity required to support projected transaction volumes
- Plan capacity for production servers and mainframes

The workload models for new applications can be integrated with the models of current production systems to properly size resources to host both the new applications as well as existing ones.

### Systems capacity planning capabilities include:

- Load-balancing applications across additional servers for redundancy and performance
- Adding blades, faster CPUs, and faster storage I/O to support additional applications and users
- Reducing transaction response time by reconfiguring selected servers in a multi-tier architecture
- Estimating server capacity required to support the fail-over strategy
- Predicting the changes in application response time of mainframe applications when workloads are increased, or are shifted from other LPARs
- Estimating the impact of changes in the number of logical processors, central processors (CPs), and zAPPs, along with changes to LPAR weights and goals



## Analyze Operational Performance

With AppCapacity Xpert you can investigate and analyze the profiles and characteristics of operational workloads. The Server Characterization Editor feature provides visualizations of workloads that can help you quickly identify the server resources consumed by individual applications—resources such as CPU, I/O, and memory. You can compare the resource usage of applications as well as analyze usage over time to visualize normal usage patterns, peaks and valleys, and anomalies in behavior.

## Complementary OPNET Solutions



IT Guru Network Planner automates analysis and planning of multi-layer, multi-vendor networks. This enables accurate planning for growth, survivability, consolidation, technology migration, and new application deployment, including Voice-Over-IP (VoIP), Virtual Private Networks (VPNs), and IPv6. AppCapacity Xpert, IT Guru Network Planner, and AppResponse Xpert integrate together to provide planning across networks, applications and systems.



AppResponse Xpert provides effective performance management throughout the application life cycle. AppResponse Xpert embeds expert knowledge about how applications, servers, and networks interact, providing a comprehensive understanding of the end-to-end performance of networked applications. Its powerful, intuitive analysis environment enables application pre-deployment certification, validates planned changes, and accelerates troubleshooting performance problems in production applications.

## OPNET Customers

(partial list)

21st Century Insurance  
Abbott Laboratories  
ACCOR  
Accenture  
Ann Taylor  
Ashland Inc.  
Avery Dennison  
Bank of Montreal  
Baptist Healthcare  
BB&T  
Blue Cross Blue Shield  
BNP Paribas Factor  
BNSF Railway Company  
Capital One Financial  
Cardinal Health  
Cargill  
Cargolux Airlines  
Continental Airlines  
CSX Technology  
Cummins  
CVS  
Dow Jones  
Ernst & Young  
Exec. Office of the U. S. President  
Family Dollar Stores Inc  
Fed. Aviation Administration  
Fed. Communications Commission  
Federated Mutual Insurance  
First American Title Ins. Co.  
Food and Drug Administration  
Freightliner Corporation  
GEICO Insurance  
GlaxoSmithKline  
GMAC Mortgage  
GoDaddy.Com  
Government Accountability Office  
Hershey  
IBM Global Services  
Independence Blue Cross  
Intercontinental Hotels Group  
Internal Revenue Service  
Jacobs Engineering

## About OPNET Technologies

OPNET Technologies, Inc. is a leading provider of solutions for managing networks and applications. OPNET's best-in-class solutions address application performance troubleshooting, application deployment planning, systems capacity planning, network configuration auditing, network capacity and resiliency planning, and network technology R&D. OPNET solutions have been operationally proven in thousands of customer environments worldwide, including corporate enterprises, government and defense agencies, network service providers, and network manufacturers. For more information about OPNET and its products, visit [www.opnet.com](http://www.opnet.com)

Kraft Foods  
Las Vegas Valley Water District  
Logitech  
Lowe's  
Medtronic  
Merck  
Moët Hennessy – Louis Vuitton  
NBC Universal  
New York Life Insurance Co  
Northern Trust Company  
Norwich Union Healthcare  
Office Depot  
Oracle  
Paychex Inc  
PetroCanada  
Quicken Loans  
RadioShack  
Roche  
Rolex  
Saudi Aramco  
Scientific Games Corporation  
Smithsonian Institution  
Southern California Edison  
State Compensation Insurance Fund  
State Street Corp.  
Sunrise Senior Living  
SunTrust Banks  
Swiss Re  
Toronto Police Service  
Total  
TransCanada PipeLine  
T. Rowe Price Associates, Inc.  
Twentieth Century Fox  
UnitedHealth Group  
U.S. Dept. of Commerce  
U.S. Dept. of State  
U.S. Dept. of Veterans Affairs  
VF Services  
Vision Service Plan  
Waste Management  
Wachovia  
Xerox  
Yellow Book  
Zions Bank

**OPNET**<sup>®</sup>  
Application and Network Performance™

### OPNET Technologies, Inc.

7255 Woodmont Avenue  
Bethesda, Maryland 20814  
phone: (240) 497-3000  
email: [info@opnet.com](mailto:info@opnet.com)

NASDAQ: OPNT

[www.opnet.com](http://www.opnet.com)