

# Total Resource Management Optimizes Business Technology for the Largest State-Owned Power Organization in America

**Business Case:** New York Power Authority deploys enterprise-wide asset management system.

**The Challenge:** System performance issues due to a difficult network environment, limited bandwidth and complex end-to-end technology.

**The Solution:** Delivery of an Application Delivery and Application Management solution involving multiple performance benchmarking baselines.

✦ **The Result:** Data that isolated actual performance issues

“ Total Resource Management ... provided critical data and best practice recommendations for performance benchmarking, application tuning, business practice modifications, capacity planning and infrastructure upgrades. ”

Tom McDermott,  
NYPA Director of  
Performance Engineering

## Successful enterprise application deployment helps New York Power Authority further its commitment to performance excellence



When then-Governor Franklin D. Roosevelt signed the Power Authority Act into law on April 27, 1931, the New York Power Authority (NYPA) was well on its way to becoming the largest state-owned power organization in America. NYPA now operates 17 generating facilities (both hydropower and fossil-fueled), and has more than 1,400 circuit-miles of transmission lines.

In 2003, NYPA made the strategic decision to deploy Maximo®, the leading asset management system, enterprise-wide. However, tying all of NYPA's facilities together through an enterprise-wide asset management system is no simple task. Deploying mission-critical enterprise applications across several locations is a large and complex project and involves several challenges, including:

- A network environment with a combination of legacy and new infrastructure that serves multiple purposes including voice, video and data – with limited bandwidth
- Complex end-to-end technology involved that requires expertise in multiple disciplines
- Evolving business processes and ongoing introduction of new and complex requirements
- Satisfying the expectations of multiple stakeholders with limited funding and resources

When NYPA began to roll out Maximo to additional locations, it experienced performance issues that threatened the whole project. It was not clear whether these issues were system related, network related or a combination of both. NYPA turned to Total Resource Management to employ its proven enterprise application deployment methodologies and business technology optimization strategies. Within three months, Total Resource Management tailored and delivered an Application Delivery (AD) and Application Management (AM) solution. This involved multiple performance benchmarking baselines (on the system and over the network infrastructure) using application specific (Maximo) business process transaction load. The result is data that isolated actual performance issues.

### Here's How They Did It

First, to assess the current capabilities of the application and supporting infrastructure, baselines were set for application performance, scalability and end-user response times. Then end-to-end monitoring was set up to account for all elements of the enterprise infrastructure so that NYPA was able to understand and measure the end-user experience.

Mercury Load Runner® software was leveraged with proven testing methodologies to produce performance benchmark metrics including:

- Minimum, average and maximum transactional response times
- Application throughput, transactions per second and bytes per transaction from within the corporate hosting location and from all remote locations back to the hosting environment (factoring in the network)
- An emulation of the anticipated wide area network load

The monitoring of end-user application response times, system and network level metrics during the course of the 15 individual load tests allowed Total Resource Management to help NYPA:

- Determine the scalability of its infrastructure
- Separate the application from the infrastructure
- Characterize scalability of the application on top of the infrastructure

Business process scripts were applied to the monitors at remote locations 24 hours a day for a week. These scripts used application functionality to test different elements of the corporate infrastructure.

In addition, Total Resource Management helped NYPA test overall performance levels for individual physical segments within a site and then compared performance to other locations. Data was gathered on performance trends during and after business hours. Now when performance deviates from the established Maximo baselines, these occurrences can be tied to specific events within the infrastructure to help identify the root cause of a problem.

NYPA now knows what happens during download time between DNS resolution, connection, SSL handshaking, FTP authentication, network time to first buffer, reception and client time. In addition, its engineers know when and why the network or the application server is experiencing difficulty meeting client requests.

### Load Testing

To determine scalability of the overall application and infrastructure, Total Resource Management's team worked with NYPA to determine the impact of increased workload against performance indicators during load testing. This process helped NYPA address such questions as:

- Does the addition of more virtual users or more transactional load cause a direct increase in response times? If so, at what point?
- Does an increase in virtual users cause certain application or system level metrics to rise beyond expectations during load testing? If so, at what point?
- Does the addition of certain business processes cause an increase in response times or baseline metrics? If so, which business processes are affected?

### About Total Resource Management

Total Resource Management (TRM) is focused on improving the asset and operational performance of organizations through the effective use of information technologies. TRM is an IBM Premier Business Partner with over fifteen years experience delivering asset and service management solutions based upon IBM Maximo. TRM supports clients across a wide range of industries, including government, defense, cities, facilities, energy, utilities, transportation and life sciences. TRM is based in Alexandria, Virginia and has business centers across the U.S. For more information, visit [www.trmnet.com](http://www.trmnet.com) or call 703-548-4285.