

# Managing Exploding Volumes of Data in Mission-Critical Government Decision Support Scenarios

Government organizations increasingly require the ability to quickly analyze vast amounts of data with results that can be acted upon immediately. Agency decision makers are responsible for mining terabytes of data on a regular basis to support missions from national security to financial management, health and procurement operations.

Mission-critical data analysis is required across all sectors of the Federal Government, including: **semantic graph in the intelligence community; defense logistics and supply chain management; and fraud detection analytics in civilian investigative agencies.**

## The Netezza Performance Server® System is:

- Section 508 Compliant
- In Accordance with NIST/NIAP/NSA
- Member of the Green Grid Consortium
- Standards-based
- Non-proprietary

### Traditional Solutions

Traditional data mart and warehouse solutions do not adequately meet these evolving needs, as they prove to be costly and time-consuming to build, administer and support. Additional challenges arise in the scalability and performance limitations of the underlying database architectures and processing engines on which queries are run. Within traditional approaches, the necessity to move massive amounts of data into memory via relatively small network channels creates an undeniably significant I/O bottleneck. Despite substantial spending to implement data analytics technologies, traditional solutions often fall short regarding the completeness of the data that can be analyzed for decision support and the timeliness of the results.

### Netezza Performance Server® System

To address these needs, the Netezza Performance Server® (NPS®) analytical database appliance provides improved decision support and data analytic capabilities by integrating database, server and storage platforms within a purpose-built massively parallel system. Netezza's non-proprietary standards-based appliance performs complex queries and analyses on large volumes of stored data, with higher performance, typically lower total cost of ownership and greater ease of use than tradi-

tional solutions. As a solution for Government decision makers' challenges, Netezza offers the ability to access **all the data all the time**, allowing users to ask questions they have been unable to until now.

Netezza's appliance is also simple to deploy and maintain for users throughout the organization, while significantly reducing power and cooling requirements. Netezza is a member of the Green Grid Consortium, demonstrating its commitment to creating efficient technology that benefits not only customers but the environment as well. In fact, one Netezza customer has been able to reduce the power consumption of its data warehouse by 72% by moving its enterprise platform to Netezza.

### Defense Logistics and Supply Chain Management

Transformation of DoD supply chain management is swiftly moving from a legacy "just-in-case" approach to a state-of-the-art "just-in-time" operation. The complexity of the supply chain introduces risks that can result in lack of military preparedness and cost overruns. Emerging technologies such as active RFID offer more valuable information than outdated paper-based systems, but also add to the volume and complexity of the logistics data to be managed. Enhanced and streamlined decision support can achieve significant cost savings, improved efficiency and higher levels of performance in DoD's supply chain operations.

### Proven Results with Netezza

One federal government defense organization is saving millions of dollars and months of time by implementing Netezza in its data warehouse environment. Netezza is providing enhanced performance and simplicity for the organization's data mining initiatives in order to provide other national government agencies with advanced technology solutions for defense logistics and supply chain management.

### Semantic Graph in the Intelligence Community

As a result of the changing face of terrorism and continuing threats to our homeland, the intelligence community is under pressure to perform rapid and accurate analyses on continuously growing data volumes in order to find the targeted information it needs to further its mission. The Intelligence Reform and Terrorism Prevention Act of 2004 established the position of the Director of National Intelligence (DNI) and asserted the importance of its role in ensuring "the most accurate analysis of intelligence... from all sources to support national security needs." The Office of the Director of National Intelligence (ODNI) expressed the urgent need to foster collection and analytic transformation and to demonstrate technological leadership that will "create a robust advanced research capability emphasizing speed, surprise and synergy" in its 100 Day Plan for Integration and Collaboration. If these technological needs are not met, the DNI may not be able to keep pace with current global threats which are more interconnected, complex and dynamic than ever before. As Mr. Mike McConnell, DNI, stated in his 2007 acceptance speech, "Today's threats move at increasing speeds. The time needed to develop a terrorist plot, communicate it around the globe, and put it into motion has been drastically reduced. The timeline is no longer a calendar, it is a watch."

### Proven Results with Netezza

Netezza has proven its ability to provide rapid analytics on large data sets in both the federal and commercial spaces. In one situation, Lawrence Livermore National Laboratory used Netezza to search a massive semantic graph, consisting of 300 billion edges and eleven billion nodes, that is used to determine relationships between objects by storing nodes (the object) and how they link to other objects (an edge). This was the largest known graph search to date, and when computer scientists ran level-set expansion and bi-directional, breadth-first search against the data, over 90 percent of the searches were completed in less than five minutes demonstrating Netezza's ability to scale for managing and analyzing the largest data sets.

### Fraud Detection Analytics in Civilian Investigative Agencies

Government agencies are under pressure to identify and investigate fraud, waste, and abuse that jeopardize federal programs and lead to misuse of taxpayer dollars. Federal investigators are responsible for detecting patterns of crime from fraudulent healthcare claims and terrorist financing activities to procurement and contracting abuses. Decision-makers in these oversight roles are confronted with evolving and increasingly sophisticated fraud schemes. The growing amount of data to be analyzed and the complexity of the requirements for mining that data drive the need for an innovative solution to improve investigative capabilities. Increased performance and speed in decision support tools are integral to mitigating the impact of fraudulent activity.

### Proven Results with Netezza

One government organization is employing Netezza to identify and prevent fraudulent activity within critical applications that lead to several thousand arrests every year. With Netezza, the agency is realizing monthly savings of approximately \$35,000 as a result of reduced mainframe usage fees which had been overwhelming in the previous environment. Additionally, turnaround time on various analytical reports that help pinpoint criminal activity has been condensed from weeks to hours with Netezza.

### About Netezza

Government agencies continue to validate Netezza's proven ability to provide improved decision support with its analytical database appliance. Netezza's global reach currently extends across the Department of Veterans Affairs, Lawrence Livermore National Laboratory, a U.S. Department of Energy national security lab, in addition to other government agencies worldwide. Based in Framingham, Mass., Netezza has offices in Washington, DC, the United Kingdom and Asia Pacific. The Company is backed by leading venture capital firms, including Matrix Partners, Charles River Ventures, Battery Ventures, Orange, Sequoia Capital and Meritech Capital Partners. For more information about Netezza, please visit [www.netezza.com](http://www.netezza.com).



Netezza Corporation  
Federal Systems Division  
8300 Greensboro Drive  
Suite 800  
McLean, VA 22102  
+1.301.335.7232 phone  
+1.703.918.4920 fax  
<http://www.netezza.com>