**Move your IT infrastructure forward with advanced**

# APPLICATION CONSOLIDATION TOOLS AND BEST PRACTICES

Consolidation is the mantra for cost-conscious IT shops in these lean times. For some companies the primary goal is hardware consolidation — which can provide quick ROI benefits via a centralized server and storage infrastructure. But for companies that suffer from an excessive proliferation of operating systems and application installations, the biggest payoff is found in the realm of application consolidation.

This approach greatly reduces the number of databases, mail servers, and application programs that must be maintained and managed throughout the enterprise. Application consolidation yields significant cost savings plus the added payoff of a more stream-lined IT architecture that accelerates progress toward enterprise integration and Web services.

According to Gartner analyst Ray Paquet, "Strategic enterprise integration efforts are by nature complex. Integration without consolidation compounds complexity, reducing the likelihood of success."

Several different types of consolidation are in use today. Hardware centralization is the simplest and most straightforward: Applications are simply moved without modification to a larger data center for increased performance, security, and lower costs.

But for enterprises that are struggling with hundreds or thousands of small, poorly managed Windows NT and Microsoft Exchange servers, hardware centralization isn't enough. Application proliferation must be addressed because it is very costly in terms of downtime, security vulnerabilities, and poorly utilized server resources.

The answer is to consolidate highly distributed "first-generation" NT mail and file servers onto powerful Windows 2000 and Active Directory platforms, which provide cost-effective centralized management and high levels of performance, security, and reliability. This type of consolidation is more complex than hardware centralization, and without the right application management tools, it can have an adverse impact on end users when massive amounts of data, directory structures, and administrative settings are migrated.

The ultimate form of application consolidation involves the consolidation of databases (e.g., Oracle, DB2, SQL Server, Sybase) and enterprise applications (Siebel, Oracle, PeopleSoft, SAP, etc.). This level of consolidation is even more complex than NT mail and file server consolidation, but it also has the biggest potential payoff, in terms of lower costs and increased business performance. In many cases, the cost reductions of application consolidation can exceed the savings of server consolidations that keep applications and data intact. When everything goes correctly, application

> **Application consolidation can lower your IT costs and even give you a more streamlined IT architecture that facilitates strategic enterprise integration and e-business projects.**

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consolidation can deliver TCO reduction of up to 20 percent or more — in addition to the savings associated with hardware consolidation.

As a leading provider of advanced application management tools, **Quest Software** can speak from experience on the challenges and benefits of enterprise software consolidation. Below, Quest Software's customers and engineers provide step-by-step recommendations to ensure that your consolidation efforts deliver as expected.

## STEP 1 — Pre-Consolidation Planning and Preparations

The success of a software consolidation project is largely dependent on the quality of the system inventories, benchmarking, and capacity planning that take place before the actual migration. Consolidation is viable only if a highly accurate picture of the existing applications, operating systems, server resources, and administrative settings is obtained. When pre-auditing your environment, look for dead files, dead accounts, duplication of databases, unneeded voice/video files,

**Best Practices** etc. Much can be gained by cleaning out what you already have. Although it is painful, with the right tools it is not hard to do. The process may also provide a good opportunity to archive some of the data, move old "business-intelligence" data to operational data stores or directly to the data warehouse, and purge it from the main database. Evaluate the application's IO work load. Configuring the new disk sub-system may also have cross-application impact, and it is important to understand the IO needs of specific applications before consolidation takes place.

### The right tool for a massive data reorganization job.

Snap-on Incorporated is a leading manufacturer and marketer of professional tools and shop equipment. According to Jim Schwarz, Snap-on's Database Team Lead, "To support the needs of our Snap-on dealers, our distribution centers process thousands of transactions daily. We cannot afford downtime. The Quest Software LiveReorg product allows us to recapture disk space with minimal downtime, allowing our distribution centers to continue to do business while we are reclaiming."

**Quest Software's Foglight®** provides full technology-stack monitoring and reporting that is ideally suited for both the pre-migration inventory taking and the capacity planning that precede major database and application consolidation. Foglight monitors and reports on operational and administrative aspects of

**Best Tools** Oracle, Microsoft SQL Server, and Sybase databases, including memory use, network use, database space, security settings, performance, and more. Foglight is also ideal for monitoring Siebel, SAP, PeopleSoft, and other mission critical applications, to assess consolidation and migration issues before they become major problems. **Quest Software's Benchmark Factory®** works hand in hand with Foglight to test the limits of existing and target systems. Foglight and Benchmark Factory let administrators create accurate performance models for capacity planning purposes, so that the target consolidated system can be architected accurately.

In the case of a migration from Windows NT to Windows 2000 servers, a full inventory of NT file systems, users, groups, domain structures, and other distributed settings must be obtained. The reporting tools in **Quest Software's FastLane® Suite** for Windows migration give a comprehensive picture of existing NT-based server and application resources.

### More than 18,000 global businesses, including 75% of the Fortune 500, have chosen Quest Software for application management.

For real-time restructuring, **LiveReorg®** is a unique product from Quest Software that reorganizes production databases without disruption or downtime. The use of LiveReorg before a database consolidation ensures that an optimized database structure will be migrated to the consolidated system. LiveReorg is designed in particular for high-end enterprise and LOB applications that run on Oracle, including Oracle E-Business Suite, PeopleSoft, SAP, and numerous high-end e-commerce applications.

## STEP 2 — Execute a Seamless Migration and Consolidation

Once the auditing and planning are done, it's time to start the consolidation. It's generally not possible to schedule enough downtime for a complete "off-line" consolidation, so migration and cut-over must take place gradually while systems are in constant use. The

**Best Practices** safest way to achieve a seamless migration is to replicate existing databases and applications to a single consolidated copy on the target system. This "live copy" can be tested until it is ready for production. Then, after cut-over, replicate the new consolidated system back onto the original servers, so you have a safety net on which to fall back. During migration and consolidation, if response times degrade too much, it may be better to slow down the process a bit. With Quest Software application management tools, you can closely monitor and control all aspects of the process, ensuring business continuity and data integrity.

For database consolidation, **Quest Software's SharePlex®** provides Oracle data replication services for controlled migrations that are transparent to end users and applications. SharePlex works in heterogeneous environments that include Sun, HP, Compaq, IBM, and Windows NT/2000 platforms. SharePlex database migration can take place over LAN

## Application Consolidation in the Balance

**The Potential Payoffs**

- Reduced TCO
- Better application performance
- Better data visibility and customer analytics
- Better security… centralized controls
- Higher application availability and reliability
- Centralized backup, archive, and disaster recovery

**The Potential Pitfalls**

- High short-term labor costs due to migration complexities
- Loss of data or loss of access to data during migration
- Loss of configurations and settings
- Loss of security controls after migration
- Possible performance decline or disruption due to cross-application interaction

or WAN connections, with automatic control of network traffic levels.

In the Microsoft server environment, consolidation can be labor-intensive, time-consuming, and risky — unless you have advanced tools standing by. **Quest Software's FastLane Suite** delivers non-disruptive migration from NT to Windows 2000 and Active Directory, even in the most complex and high performance environments. FastLane conducts incremental migration of NT users, groups, files, and security settings to Windows 2000 Server while systems are running. The FastLane Suite greatly reduces the manual effort involved in a consolidation/migration, so the process takes place rapidly and inexpensively.

FastLane Consolidator was initially developed in cooperation with Microsoft's own internal Information Technology Group (ITG) as it prepared to roll out Windows 2000. As Frank Holland, general manager, Microsoft ITG, tells it: "In order to consolidate servers and take full advantage of Windows 2000 TCO savings, we needed to move terabytes of data. FastLane Consolidator automated this time-consuming task, allowing us to migrate data more quickly."

### STEP 3 — Management of the Consolidated System

After consolidation takes place, the same tools that were used in planning and migration are now available to ensure that the consolidated system is up to the

**Best Practices** mission-critical demands that are placed on it. Once again you have to watch for IO chokepoints through the application infrastructure components. Ideally, this is the time to implement central administration policies regarding application, database, and storage uses. Whenever possible, become more proactive by monitoring for application response degradation and anomalies before they incur downtime.

Once databases are consolidated and migrated, **Quest Software's SharePlex** ensures that availability and performance do not decrease in the consolidated system. To ensure the highest levels of system visibility, SharePlex can replicate a production database in real time and offload reporting to the replicated database, avoiding any degradation of transaction processing and LOB applications. If one replica is not sufficient,

**Best Tools** multiple real-time replicas can be maintained for a range of reporting, testing, and migration purposes. SharePlex replication services are also used in high-end disaster recovery configurations, so that backup databases can be continuously refreshed and be online for immediate fail-over.

### It's Payday for Ceridian's SharePlex-replicated Databases.

When Ceridian Corporation's Human Resource Solutions group migrated its payroll tax database from HP3000 to an HP9000 running HPUX and Oracle, SharePlex played a key role. After the migration, SharePlex is now employed to replicate the 300 gigabyte production database in real time to a hot backup server in a remote data center. Carl Hughes, Ceridian's Data Architect, describes SharePlex:

"It's practically invisible and it uses very few resources... the performance is excellent but the user interface is simple and easy to use." When asked what level of confidence he has in the SharePlex hot backup, Mr. Hughes replies, "I'm absolutely confident. I have no doubt that our hot backup site is viable."

It's important to compare service levels before and after consolidation. **Quest Software's Foglight** is used for monitoring, real-time diagnostics, and tuning of the consolidated system on an ongoing basis. Foglight gives administrators a firm grip on everything from application response times and transaction throughputs down to CPU utilization levels. In the enterprise data center environment, Foglight's pre-configured best-practice notification and custom monitoring/alert rules let administrators quickly correlate information coming from all levels of the runtime stack.

Please visit **www.quest.com/consolidation** for in-depth knowledge on application management tools and best practices. ◆