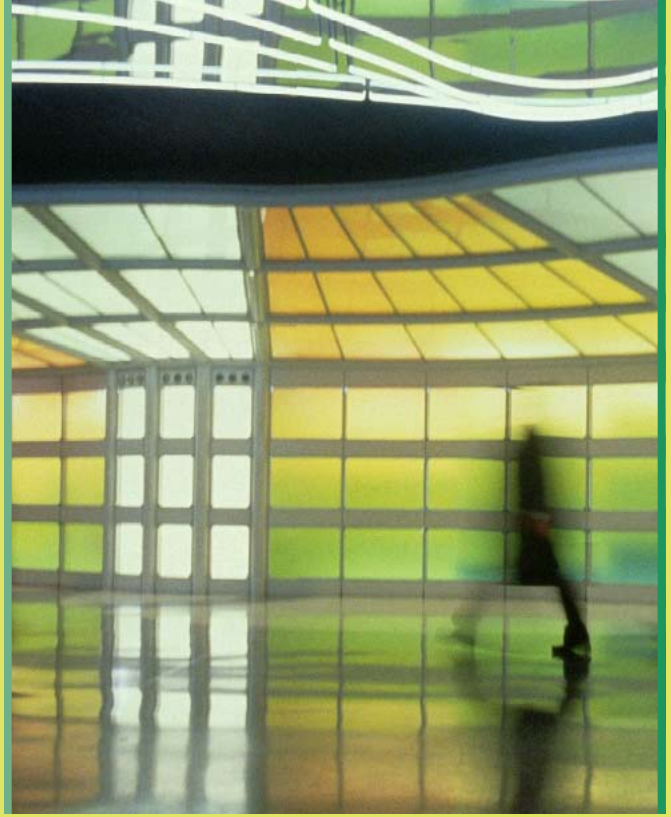
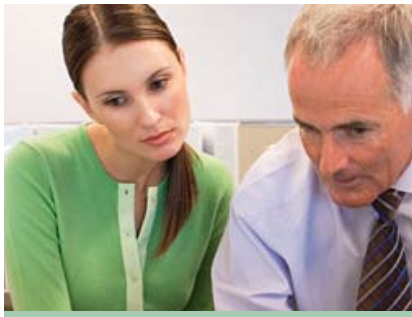


3 ways to optimize your infrastructure without cutting corners

Contents



Intro 1

Keeping costs low and productivity high is a top business priority, no matter what the state of the economy. But cutting costs doesn't necessarily have to mean cutting projects or jobs. It just means that you have to take a smarter approach to doing what you do every day.

Since data is the backbone of just about every business, optimizing your infrastructure can go a long way toward keeping your IT budget in check. Most companies are charged with these three imperatives:

- Control data growth
- Increase application performance
- Improve workload management

By effectively addressing these imperatives and optimizing your infrastructure, you can boost productivity and reduce a variety of costs, including administration, maintenance, storage and training costs. This e-book explores several ways you can address each imperative—and how to use data management techniques to help cut costs without cutting corners.

Control data growth 2

Streamline storage to help keep costs in line

Now that virtually every business system and customer interaction produces a digital record and compliance regulations are increasing, businesses are up to their eyeballs in information. When it comes to data, though, more isn't always better. In fact, overgrown data stores can hinder the performance of mission-critical ERP, CRM and custom applications.

Just storing the ever-expanding volume of data can be a major headache. Additional servers and storage mean higher costs for space, not to mention power and cooling (and possible fines for data centers that use too much power). Meanwhile, data de-duplication can be cumbersome and expensive.

"With DB2 9, we're seeing compression rates up to 83 percent on the data warehouse tables. The projected cost savings are more than US$2 million initially with ongoing savings of US$500,000 a year."

– **Michael Henson**, Team Lead, Database Delivery Services, SunTrust Bank

Control data *growth* 2

"We observed a 70 percent compression ratio. We really believe that this feature will provide a huge saving and benefit, and will make us more productive and more cost-effective."

– **Ellen Reys-Klebaner**, Chief Database Architect, Visa

The good news? Having lots of data doesn't inevitably mean higher costs. These data management strategies can help you get a handle on information sprawl and keep costs in check:

- **Compress data** to decrease storage infrastructure requirements. Disk storage systems are often the most expensive components of a database solution, so even a small reduction in the storage subsystem can result in substantial cost savings for the entire database solution. IBM® DB2® and IBM Informix® Dynamic Server (IDS) both incorporate Deep Compression technology to help reduce storage requirements, which can result in significant infrastructure and administration cost savings.
- **Implement tiered storage** to manage application data based on its evolving business value and access requirements. In a tiered storage solution, current transactions remain in the high-performance online transaction processing (OLTP) environment. Reporting data in history tables can be maintained in mid-tier storage, helping you to control costs while still meeting service requirements. To further reduce costs, you can move historical or reference data offline to tape or other long-term storage devices.

Control data *growth* 2

- **Perform database archiving** to segregate inactive application data from current activity and safely move it to a secure archive. Streamlined databases enable you to reclaim disk storage capacity, which can enhance application performance and availability. IBM Optim™ Data Growth Solutions and Optim archiving tools help manage your enterprise application data, enabling you to archive transaction records and store them securely and cost-effectively.
- **Use archiving processes driven by business policies** so you can specify the business rules and criteria that govern data retention and disposal. Policy-driven archiving also lets you automate data retention to support compliance initiatives, which can help you respond quickly and accurately to audit and discovery requests.

Increase *application performance* 3

"Choosing DB2 has delivered significant benefits for our organization: database size has been reduced by 40 percent and performance is 15 percent above our targets."

– **Brian Visser**,
IT Operations Director,
Central Services, KONE

Optimize performance levels and workloads

The pressure of expanding data volumes makes it harder to keep application performance in line with service-level agreements (SLAs). To compound the problem, troubleshooting performance bottlenecks can be extremely difficult without the right monitoring tools. The challenge: improve application performance and work with existing SLAs without adding too many new resources.

A variety of data management strategies can help boost application performance while making better use of your IT dollars:

- **Make the most of database performance management features** to monitor and analyze multiple database instances running a variety of workloads. Use historical data to automate analysis and reporting, analyze trends and plan for growth. Identify resource shortages and exceptional conditions to prevent performance bottlenecks—and implement processes that alert administrators automatically when events occur that may impact performance.

Increase *application performance* 3

- **Supercharge application performance.** Because they keep data in main memory at all times rather than on disk, persistent, relational in-memory databases can help meet the performance and reliability demands of real-time applications. In-memory databases can further boost performance by providing a hot-standby configuration where read operations can be load-balanced across primary and hot-standby database instances transparently. If you're ready for extreme speed, consider IBM solidDB® Universal Cache. Its relational, in-memory caching software helps accelerate virtually all industry-leading relational databases up to 10 times. Plus, it has broad support for back-end databases, so application teams can use existing skills to accelerate performance across a variety of platforms and projects.

"Having the ability to process 1 million busy-hour call attempts per CPU, and to also have Carrier Grade availability, was a major challenge for our NGN/IMS fully featured Call Server. The extreme performance and data resilience of solidDB has proven to be a solid foundation for our extreme requirements."

– **Franc Dolenc**, Director of Products and Solutions, Iskratel

Improve 4 *workload management*

Optimize workloads for available resources

As the demand to address customer needs and meet SLAs increases while budgets shrink, database software must help IT managers make the most of their infrastructure investment. Applications no longer run exclusively on the data server system, which means that the network between data server and application can hinder performance. In addition, some applications have introduced techniques, such as connection pooling and connection concentration, that can significantly impact experienced response time—even when the delay is not caused by the data server itself. IT managers also have to address problems caused by the applications' business logic, or by overloaded client systems.

Having an easy way to pinpoint bottlenecks and optimize workloads into different classes can not only improve overall performance but decrease the need for additional hardware and software to meet SLAs. The workload management features built into DB2 and IDS are well suited to the challenge: they can help optimize the use of resources, reduce downtime and increase application availability.

Improve 4 *workload management*

DB2, for example, incorporates self-configuring, self-healing, self-optimizing and self-protecting features. DB2 Workload Manager is a resource management and monitoring tool that is built right into the database engine. Its primary benefits include CPU control, rogue query detection and control and database work monitoring, so you need fewer skills and resources to administer the system.

In addition, DB2 typically does a better job of automatically self-managing these resources than a database administrator (DBA) using manual methods. That frees up the DBA to work on important business tasks instead of mundane housekeeping chores.

IDS delivers an active-active clustering solution that helps provide low-cost scalability with high reliability. Workloads can be spread across servers around the world, based on predefined business logic, to make optimal use of all systems. Businesses can “set it and forget it,” allowing them to manage thousands of databases with minimal DBA staff.

The workload management features enable DBAs to create controls ahead of time, override them on the fly and even adjust them to changing priorities on a daily basis if needed. IBM Workload Management features also provide enhanced support for ad-hoc monitoring, workload profiling and workload capture.

With integrated, modular platforms designed to help you manage enterprise application data and optimize data-driven applications, IBM solutions can help you turn the three imperatives outlined in this e-book into best practices for your business.

Data growth

DB2 and Informix database software, along with Optim data management solutions, provide solid footing for controlling data growth. DB2 helps you handle demanding workloads by scaling effortlessly to handle high-volume transaction processing. Informix database solutions are designed for industrial-strength embedded computing, providing high reliability and nearly hands-free administration to businesses of all sizes.

Optim data management and archiving software helps distinguish old data from new information and store it appropriately—reducing the amount of information applications must sift through and helping to manage application data growth over time. Informix and DB2 can also help to reduce storage needs by up to 80 percent[1] using automatic Deep Compression capabilities, and help maximize data availability by reducing planned and unplanned downtime.

Application performance

With built-in reliability and availability features—as well as a host of automated reporting capabilities—DB2 and IDS help maximize data availability by reducing planned and unplanned downtime.

For additional performance gains, solidDB Universal Cache provides relational, in-memory database caching technology that helps accelerate relational databases and increase their performance. It uses SQL to enable fast application processing speeds and response times. Combining the relational, in-memory data management capabilities of solidDB Universal Cache with the versatility of disk-based databases gives applications the best of both worlds.

Workload management

The workload management features in DB2 and IDS are well suited to the challenge presented by today's busy organizations. DB2, for example, incorporates built-in self-configuring and self-optimizing features that support CPU control, rogue query detection and control and database work monitoring—leaving DBAs free to work on strategic projects and saving both time and effort.

IDS enables workloads to be spread across multiple servers, making the best use of all available resources to handle everyday workloads. It also supports quick-response capabilities to distribute workloads when high-priority SLAs or other deadlines must be met. Predefined policies help handle workload management, enabling the same number of DBAs to manage larger numbers of databases.

Resources

For more information about the following topics, please visit:

IBM DB2

- **ibm.com**/breakfree
- Proven strategies for uncovering cost savings with IBM DB2
- DB2 Data Compression
- DB2 performance in industry benchmarks
- DB2 Workload Manager: IBM Redbook

IBM Informix Dynamic Server

- **ibm.com**/informix
- IDS Compression
- IDS High Availability solutions demo

IBM solidDB

- **ibm.com**/software/data/soliddb
- IBM solidDB Universal Cache demo
- Intel and IBM collaborate to double in-memory database performance

IBM Optim Data Growth Solutions

- Manage data growth with IBM Optim Data Growth Solutions

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[1] DB2 for Linux, UNIX and Windows. **ibm.com**/software/data/db2/9/editions_features_storage.html

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