



The Top

5

IT Budget Killers
(and how you can fight back)

Contents



Storage Expansion

Smart moves to make as data volumes grow and access demands increase

1



2

System Complexity

How to cut through the tangle of data center management and focus on what really matters



3

Hardware Sprawl

When it comes to server boxes, more is not necessarily better



4

Reliability and Scalability

Building lean, smart IT systems that keep your business always on and always growing



5

Compliance

Make sure the price of vigilance isn't more than you can bear

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES

You've heard it a million times: Do more with less. It may be good business, but as budgets shrink and IT demands grow, you may start to wonder if the people who are saying "do more with less" think that it's a magical incantation. Run the servers without electricity! Wave a wand so your data center takes care of itself! While we're at it, let's conjure up some rabbits and train them to install security patches.

You've already taken basic cost-cutting steps and saved the easy money. You know that you need to dig deeper. But where should you start? What's killing your IT budget?

The good news is that you're probably already staring right at the problem—it's just a matter of knowing what you're seeing and understanding what to do about it. Many of the largest IT budget problems can be traced back to five big money drains:

1. Storage expansion
2. System complexity
3. Hardware sprawl
4. Reliability and scalability
5. Compliance

Intro

If you think that you already have these bases covered, you might want to think again and ask yourself five questions. How efficient is the storage that you're using to support your exponentially expanding databases? How much overtime is your database administrator (DBA) staff putting into managing servers and storage? How much are you spending on all that hardware in your data centers? What's the cost of the measures you put in place to make sure that your systems are available 24x7 and can grow with the business? And finally, how much are you spending on regulatory compliance?

If any of this sounds familiar, you're not alone. This e-book, provided by IBM, will introduce you to the five big IT budget killers—and some of the best ways to knock them out.



SUMMARY

- Consolidate databases
- Free up high-value storage space
- Embrace data compression
- Automate data archiving

IT Budget Enemy #1: Storage Expansion

We can't say that Gordon Moore didn't warn us. The idea that transistor density would double every two years was an alarm bell. After all, more transistors mean more information, which means more data. Still, even he couldn't have anticipated the traffic that has clogged data centers since the Internet became the central conduit of business. Analysts now estimate that the volume of business e-mail is growing by 25–30 percent each year, and by 2010, the world's information base will double in size every 11 hours.¹

IT departments are already stretching their budgets for storage, and the demand is only going to grow. The volume of data an average business collects and stores actually doubles every 18-24 months. That 70TB database you're juggling now could easily top a petabyte (that's a thousand terabytes) within six years.

To complicate the situation further, a lot of data can't be thrown away. It must be carefully managed from creation through disposal, to meet increasingly strict compliance regulations. At the same time, IT departments are under pressure to deliver rapid data access—regardless of where the information resides.



Fighting this IT budget killer calls for shrewd tactics. You can't just build bigger buckets—you need to find smarter ways to store that data. Four key strategies can help you win the battle against runaway data storage costs:

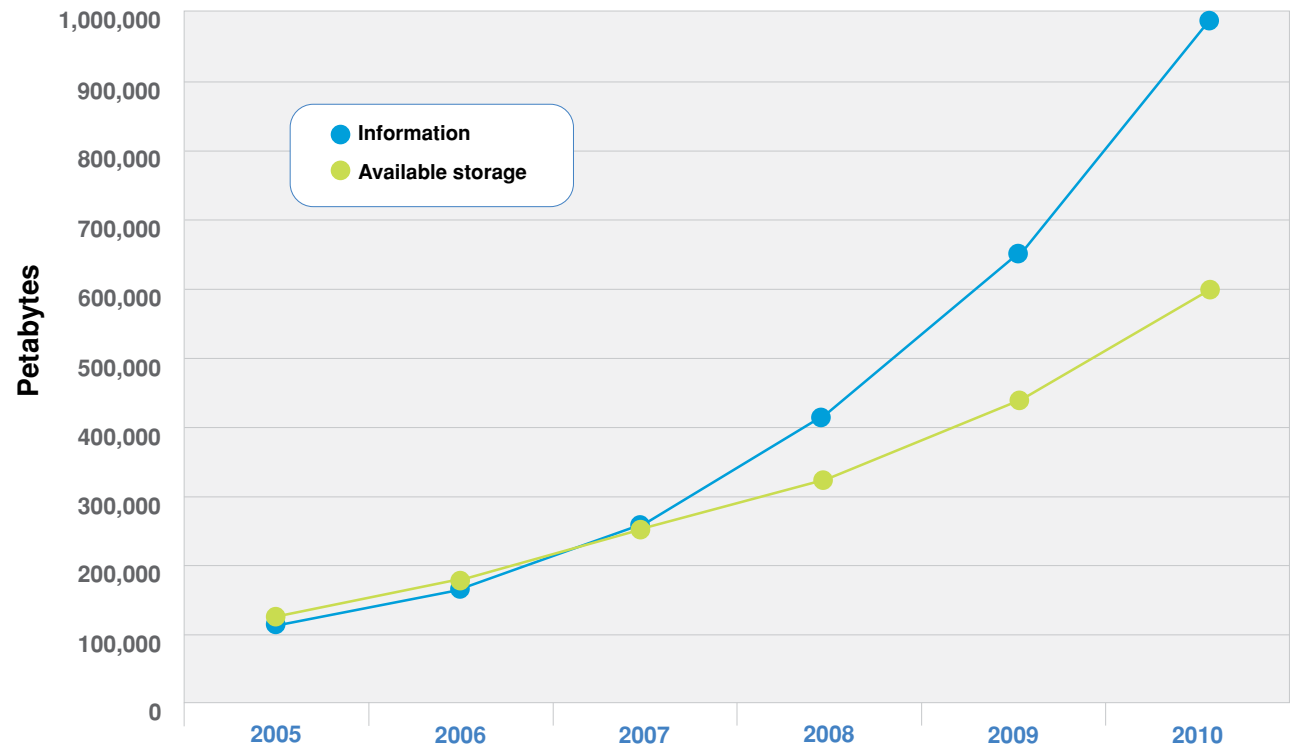
- 1. Consolidate databases to make administration simpler.** Eliminate redundant data from multiple sources to reduce the amount of storage needed and the effort required to manage the data.
- 2. Compress your data.** Compression allows you to use fewer bits to encode information. Depending on the approach you take, you can probably squeeze 40–80 percent more data onto existing storage media.²
- 3. Archive data to free up high-value storage space and keep databases running smoothly.** Once your databases are running lean and trim, keep them that way by archiving noncritical data off high-value assets and onto less-expensive media. Archiving not only helps keep databases running efficiently, it can also trim the number of physical devices in your data center—and saves your best equipment for critical production databases.

Storage *expansion* 1



Archiving can also help you improve storage asset utilization; identify opportunities to reclaim and consolidate storage; and reduce operational and management costs by using fewer disparate devices and software tools.

Forrester estimates that, on average, structured data repositories for large applications grow by 50 percent annually.



Source: Forrester Research



IT Budget Enemy #2: System Complexity

The data center has never required so much time and attention as it does today—but who has the budget to support new staff? Instead, more and more work gets assigned to the DBAs who are around, which leads to those much-loved, 3 A.M. “get-in-here-and-fix-this-server-or-else” alerts on your BlackBerry. Since when did “do more with less” come to mean “do more with less sleep”?

A big part of the problem is that data centers have become so complex that administrators can’t be as productive as they have been in the past. Forrester Research estimates that 75 percent of companies have three or more enterprise database management system (DBMS) products in their environment.³ This patchwork of solutions only serves to make the environment more time-consuming to manage.

According to a January 2008 survey of Canadian IT workers conducted by The Strategic Counsel, many DBAs already devote up to 80 percent of their time to routine systems maintenance.⁴ Add to that the work that needs to get done on strategic projects, and you may be looking at major overtime charges. And if anything falls through the cracks, hourly downtime costs can top US\$1 million or more for technology-dependent companies, according to analyst estimates.

SUMMARY

- Simplify management
- Automate basic administration
- Outsource mundane admin tasks



The key to combating complexity is to consolidate your systems as much as possible and automate as many basic processes as you can. By doing that, you'll reduce the amount of basic maintenance work and give your DBAs more time to focus on strategic (and more interesting) projects. Here are three starting points:

Since when did “do more with less” come to mean “do more with less sleep”?

- 1. Simplify management.** According to Forrester Research, enterprises should operate two enterprise DBMS products at most.⁵ This approach helps to cut costs by reducing administration efforts and by consolidating new database license purchases by obtaining higher discounts. Companies can typically save a minimum of 30 percent through DBMS standardization and 10 percent or more by reducing administration efforts.
- 2. Automate basic database administration functions.** Automate everything you can. You'll help minimize errors and cut costs, and your staff will spend less time on repetitive drudgery.
- 3. Outsource routine activities to give in-house DBAs more time for new projects.** If you have more than 10 DBAs, consider outsourcing routine administration activities like monitoring and backup management—after conducting a careful return on investment (ROI) study, of course. Forrester Research estimates that enterprises can save 15 percent or more by outsourcing database administration, depending on the number of databases, DBAs, servers and applications.⁶



SUMMARY

- Virtualize to reduce the amount of hardware in your space
- Consolidate to stuff more data into your space
- Replace systems with energy-efficient hardware to cut energy costs in your space

IT Budget Enemy #3: Hardware Sprawl

The next IT budget killer isn't hard to find—just open the door to your data center and look around. Do you see a room full of servers, each supporting one or two applications? Small, cheap servers may help curb IT spending in the short term, but it isn't always the most cost-effective long-term choice. Don't feel bad. Server sprawl happens to the best of us.

Server sprawl is especially deadly to IT budgets. More systems usually mean more complexity and maintenance (see [Budget Enemy #2](#) for how that story turns out), and more servers definitely mean more power and cooling costs. For most companies, data center hardware accounts for the bulk of the power and cooling bill. In some cases, power costs can even exceed the cost of IT equipment!

CONTENTS

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES



Tackling server sprawl can be a big job, but let's start with the basics. Start by thinking about how to pair applications with the hardware that can best support their particular needs. As a general rule, leverage the most efficient platforms first. Here's a quick guide to follow when dealing with budget-killing hardware:

- 1. *Virtualize.*** Virtualization is a good strategy for reducing the number of physical servers in the data center while dramatically increasing computing capacity. Virtualized servers provide more efficient space utilization and more effective energy consumption than stand-alone servers. Need more reasons? Then think about this: Virtualization is a good way to add redundancy and prepare for disaster recovery.

Don't feel bad. Server sprawl happens to the best of us.

CONTENTS

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES



- 2. *If you can't virtualize, consolidate.*** Consider hosting the application on a blade server. Consolidating on denser equipment may offer the highest ROI of any IT infrastructure initiative: You get reduced maintenance, floor space and power consumption while reducing data center complexity (which has the nice side effect of lower management costs), improving responsiveness, enhancing resiliency and shortening the time to deploy new servers.
- 3. *If you can't virtualize or consolidate, replace.*** If neither of these platforms work, choose the most space- and energy-efficient individual servers available. Replacing legacy servers with higher-performance, higher-capacity systems designed with efficient thermal characteristics and power delivery can be an effective way to cut power consumption and costs.

Reliability *and* scalability

4



SUMMARY

- Compress and archive little-used data
- Consolidate and virtualize to boost resiliency
- Cluster systems to preserve high availability
- Centralize administration
- Integrate and manage your data

IT Budget Enemy #4: Reliability and Scalability

Businesses today can't operate without information—even for a second. And because most enterprise information is contained within IT systems, it is absolutely critical that those systems be available whenever your employees or your customers need them. Now you're talking about 24x7 availability, meaning that your systems have to scale along with your workloads. But scaling out by adding servers raises hardware and maintenance costs, and the wrong storage configuration can cause major delays in delivering key information.

Luckily, several of the same strategies that help combat storage, complexity and hardware costs can also help you fight this IT budget killer:

1. **Compress and archive infrequently accessed data.** Moving little-used data to slower, less costly media boosts network performance for the data that employees and customers need to access frequently—and fast. Compression helps minimize the storage space required, which plays a part in maintaining scalability.

CONTENTS

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES

Reliability *and* scalability

4



- 2. Consolidate and virtualize.** In some cases, simplifying the infrastructure makes business resiliency options more affordable by reducing the number of licenses required. Server and storage virtualization management tools can practically eliminate planned and unplanned downtime. Work also can be shifted to other physical devices so that maintenance can be performed without disrupting operations.
- 3. Use clustered configurations to safeguard high availability.** If it doesn't make sense to consolidate your applications onto a smaller number of large servers, using clusters of rack-dense blade servers can offer system redundancy and failover in the case of failures or performance degradation. Clustered servers can be configured to automatically restart a troubled application on designated backup hardware to protect high availability. Low-cost blade servers can also be used to easily scale out as transaction volumes grow, fully utilizing investments in disaster recovery hardware.
- 4. Centralize administration functions.** Streamlining routine administrative tasks through centralized automation and control allows your IT staff to focus on supporting the business instead of babysitting equipment.

CONTENTS

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES

Reliability *and* scalability **4**



5. Establish strong information management policies. Because practically every business system depends on real-time information, it is critical that your platforms allow you to search for, organize and transform structured, unstructured and semistructured data throughout the organization. Getting the right information to the right people or processes at the right time can be processing-intensive—which is why you need to explore a solid information integration platform.

Level of difficulty and cost savings

	Easy	Difficult	Savings
Database consolidation	▼		> 20%
Database standardization		▼	> 30%
Low-cost servers		▼	> 25%
Automation	▼		> 10%
Open-source databases		▼	> 25%
Database archiving	▼		> 20%
Database virtualization		▼	> 25%
Database compression	▼		> 10%
Outsourcing	▼		> 15%
Database-as-a-service		▼	> 10%

For existing applications and databases

Source: Forrester Research

By balancing the level of difficulty and cost savings, you can combine several relatively easy tasks to garner big benefits.

Compliance 5



SUMMARY

- Uphold strong data governance policies
- Clean those databases
- Streamline records management
- Centralize security management

IT Budget Enemy #5: Compliance

Companies spend big bucks to maintain compliance platforms that are designed to help them stay on the right side of the law—and for good reason. Organizations face large fines if they are found to be out of compliance, and bad press and security breaches can dissolve shareholder confidence, destroy customer trust and send stock prices plummeting almost overnight.

It's these potentially apocalyptic consequences of a breach that make compliance such a budget killer. Companies are erring on the side of caution, saving every e-mail and every version of every document, creating a mountain of information to manage, track and search. The key to winning the battle: setting up automated, policy-based systems to make sure you're storing and indexing important information like e-mails about executive stock purchases—but also that you're getting rid of anything that's irrelevant to the business, like the vacation pictures you e-mailed to your sister.

It's these potentially apocalyptic consequences of a breach that make compliance such a budget killer.

CONTENTS

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES

Compliance 5



To combat the cost of compliance, you have a variety of options:

- 1. Put strong data governance policies in place.** Governance, risk and compliance functions can help you achieve compliance with operational policies; cost-effectively sustain compliance with automated processes, active controls and risk management; and prove compliance by producing evidence and records of adherence upon request.
- 2. Use electronic discovery technology to cleanse your databases.** These tools can help you scrub the redundant and unnecessary data out of your digital archives; build content inventories; enable content collection, preservation and legal holds; improve the discovery review process; and automate or audit legal discovery processes.
- 3. Streamline records management.** With a well-crafted records management policy (including as much automation as possible, of course), you can control electronic records across the enterprise, manage electronic and advanced physical records together and eliminate the costs and risks of managing paper records. Another benefit: fewer paper cuts.
- 4. Centralize security policy management.** Storing security data from throughout your infrastructure in one location can help improve both security operations and information risk management.

CONTENTS

STORAGE
EXPANSION

SYSTEM
COMPLEXITY

HARDWARE
SPRAWL

RELIABILITY AND
SCALABILITY

COMPLIANCE

RESOURCES

Stay focused as your projects get underway. Concentrate on one or two initiatives at a time to make sure you get maximum value out of your efforts.

Take control of your IT budget

So now you know exactly what's killing your IT budget and it's time to apply the cures. With limited resources, where do you start?

Your first step should be to take an inventory of your data assets, hardware, software and administration staff. This baseline will help you identify the lowest-cost, highest-impact areas where you can make a dent in the bottom line.

Stay focused as your projects get underway. Concentrate on one or two initiatives at a time to make sure you get maximum value out of your efforts.

Use a broad, balanced approach that takes both data centers and applications into account and aims to save money in several ways at once. Your IT budget enemies have many faces—your defense against them should too.

Finally, revisit the initiatives periodically to measure results and make adjustments. Combating IT budget killers is an ongoing job.

Good luck!

Learn more about how you can fight IT budget killers. Get additional information about saving costs in the data center by visiting ibm.com/software/data/ITBudgetKillers or exploring these resources:

- **White paper: The Business Benefits of DB2 9 (Bloor Research)**
- **White paper: IBM's secret weapon: Informix Dynamic Server (IDC)**
- **ROI tool: IBM® DB2® Compression**
- **ROI tool: IBM Informix™ Dynamic Server**



© Copyright IBM Corporation 2008

IBM Software Group
Route 100
Somers, NY 10589

Produced in the United States of America
July 2008
All Rights Reserved

¹ "The toxic terabyte: How data-dumping threatens business efficiency." IBM Global Technology Services. July 2006. ibm.com/systems/storage/solutions/pdf/toxic_tb.pdf

² "Row compression in DB2 9." October 5, 2006. ibm.com/developerworks/db2/library/long/dm-0610chang/

³ "Top Ten Ways To Reduce Your Enterprise Database Cost." Forrester Research teleconference and presentation. May 27, 2008. www.forrester.com/rb/teleconference/top_ten_ways_to_reduce_enterprise_database/q/id/2336/t/1

⁴ "Survey sheds light on IT skills shortage." Ottawa Business Journal. February 27, 2008. www.ottawabusinessjournal.com/298363398256407.php

⁵ "Top Ten Ways To Reduce Your Enterprise Database Cost." Forrester Research teleconference and presentation. May 27, 2008.

⁶ "Top Ten Ways To Reduce Your Enterprise Database Cost." Forrester Research teleconference and presentation. May 27, 2008.

IBM, the IBM logo, **ibm.com**, DB2 and Informix are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at ibm.com/legal/copytrade.shtml

Other company, product or service names may be trademarks or service marks of others.

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates. Offerings are subject to change, extension or withdrawal without notice.

All statements regarding IBM future direction or intent are subject to change or withdrawal without notice and represent goals and objectives only.