

Justifying SQL Server Management Tools in a Down Economy

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White Paper

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INTRODUCTION

The down economy means IT shops are feeling the squeeze. Many IT organizations are being told to cut their budgets, but of course they are *not* being told that it's okay to cut their services too.

In this paper, I discuss the historical trends associated with down economic cycles and analyze a variety of approaches to IT budget constraints, focusing on saving money without crippling IT's ability to provide the level of service the company has come to expect.

RESPONSES TO DIFFERENT DEGREES OF ECONOMIC DOWNTURN

Most of us have been in a down economy before. The up-and-down cycles are not always predictable in their timing, but they are quite predictable in their occurrence.

Sadly, what is also quite predictable is the typical IT organization's response to the down cycles. Different companies and industries are affected to various degrees at each point in the cycle, but the responses I see are very good barometers for measuring the "economic climate" an individual organization is experiencing.

Consider this view of how IT shops "weather the storm":

WEATHER	RESPONSE
Calm to windy	This is the norm. Some spending may get delayed or curtailed if the weather is unusually "windy," but in general budgets continue to increase to support the ever-increasing demands of data growth, application growth, new projects and new business demands.
High winds	This is the first-level response and its predictability has made it somewhat of a joke in the IT industry for years: cut the travel, training, and conference budget. Many arguments have been made that this is not such a bad idea. However, everyone agrees that cutting all training is usually a strategically bad decision. On the other hand, in some companies, training is more of a perk than a need—in fact, an expensive perk that is easy to get rid of temporarily.
Strong gale	At this level, most organizations embark on multiple, simultaneous approaches as the first signs of panic set in. They scramble to stave off the inevitable if the storm worsens. Some of the tactics IT shops frequently pursue at this level include: <ul style="list-style-type: none">• Looking for the low-hanging fruit: low-risk, immediate-savings items. There usually aren't many of these, because if there are, then someone hasn't been doing their job. Examples include dropping maintenance on unused software, retiring unused servers, and cleaning up disk space by purging obsolete data.• Taking intermediate risks, like extending the service life of hardware. This saves some money in the short term, but might end up costing more in the long term. However, that might be okay if the economic gale is not a long-term situation. Other tactics might be server consolidation and license reductions.• Stupid stuff: restricting cell phone minutes, office supplies, team lunches, etc. These have no significant effect on the bottom line, but they make somebody feel better about doing something, or at least being able to report that they did something to reduce costs.

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WEATHER	RESPONSE
Storm	<p>The economic storm has hit when labor is affected. In most organizations the first to go are the contractors and consultants, the “expendable resources.” At the same time, hiring freezes are usually put in place.</p> <p>At this point, the ship that is the IT shop is listing. Service levels will suffer for a time, and how long depends on what happens next. Does the storm subside so that the ship can right itself, or does it continue to get worse?</p>
Violent storm	<p>At this level you see salary freezes (or reductions), labor reductions and layoffs. The ship is sinking. The more talented people will start to leave or look elsewhere. Productivity will nose dive. Fear will rule. Creativity will evaporate.</p>
Typhoon	<p>The ship has sunk; it couldn't weather the storm. The old IT organization no longer exists as it was. The level of service provided and/or area of responsibility has been severely curtailed.</p>

Every organization has its own threshold where a strong gale becomes a full-blown economic storm—that being the line between minor inconvenience and major disruption. Ultimately, IT staffers cannot really control how bad the storm will get in their company, but they can have a major impact on where the line between strong gale and storm falls. Poor choices and leadership pull that line in closer; smart strategies and innovative thinking push it out.

MOVING THE LINE

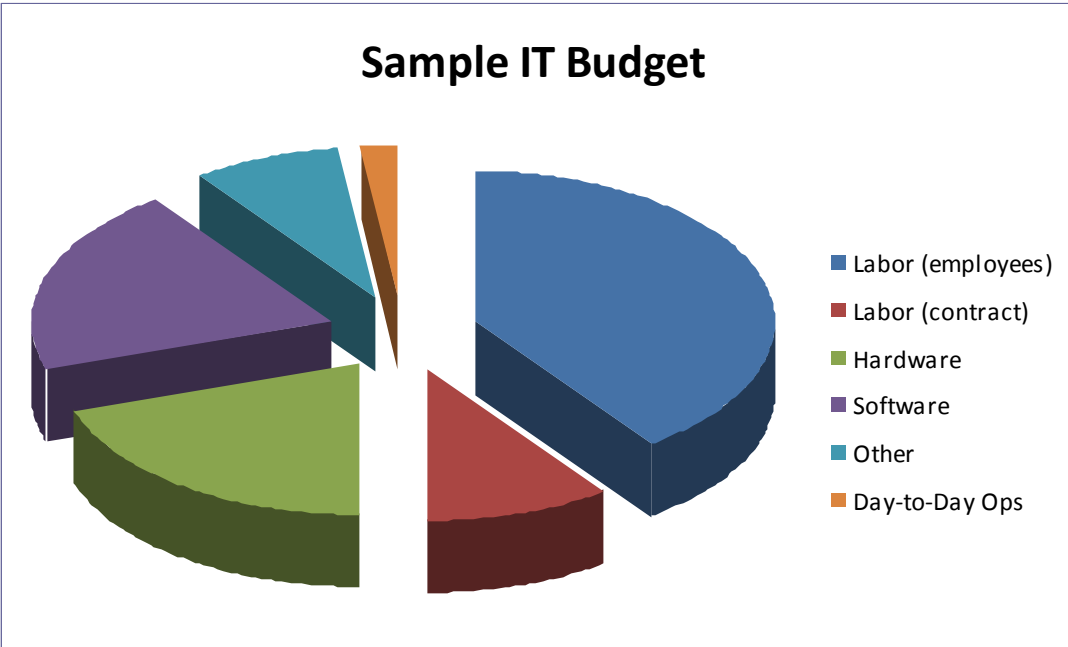
Since an IT organization cannot control how bad economic conditions will get, its focus should be on the area that it *can* control: the threshold where budgetary issues begin to affect the organization’s ability to provide the agreed-upon service level.

Consider How Your Budget is Distributed

First, let’s consider where the money goes. In a typical IT shop for a medium to large company, the expenditures consist of the following:

- Labor (employees, contract and consulting services)
- Hardware (purchases and replacements, support, leases)
- Software (software support and licenses)
- Other contracts (network leasing, etc.)
- Day-to-day operational expenses (cell phones, pagers, office supplies, travel, training, etc.)

A rough estimate of how those expenditures are distributed is illustrated in the chart below:



This chart shows labor as the biggest component, which is true of most IT organizations. The industry range is 40 to 60 percent; in this example, total labor costs are one half of the IT budget. Most of that is for salary and benefits for full-time employees, while a small percentage is for contract labor and consulting services. The next biggest slices of the pie are for hardware and software, followed by an “Other” category where things like leased lines and ISPs would fall.

Old Approach #1: Cutting Operating Expenses

The very thin slice is the day-to-day stuff that keeps the IT staff working efficiently. Sadly, this is also the area often looked at first when cutting budget dollars. The expenditure is not large enough to have an appreciable impact on the overall budget, yet it arguably has the most immediate effect on employee productivity and morale.

The problem is obvious: the larger chunks of budget are those that are most difficult to cut and conversely, the easiest part of the budget to cut has the least effect on savings.

Old Approach #2: Cut Staff

Consider another, even simpler, view of a typical IT organization's expenditures:

- Contracts
- Labor
- Equipment

A pessimist would argue this: contracts are difficult to eliminate, equipment cannot just be blithely eliminated, and so labor is the easiest thing to reduce for the quickest cost savings. This reasoning leads some companies to go through a round of layoffs to meet a budget goal.

It is easy to be pessimistic in the current economic environment. But the reality is that nobody wants to lay off workers. Of course, no company wants to be on the evening news featured in a story about how poorly they are doing, but more importantly, companies usually know that conditions will improve and their most valuable resources (people) will be needed.

New Approach: Investing in the Future

So where should IT shops look for savings? I suggest that most cost-cutting endeavors suffer from too narrow a mindset, where only outright cuts are sought; a smarter, more strategic approach is to look for opportunities for investment that facilitate streamlining, simplification, consolidation, efficiency and all the associated ROI. The goal of cutting back should not be to contract for the sake of contraction, but rather to intelligently position the organization for the inevitable recovery. An investment that saves money (a positive ROI) is still a net reduction that helps the bottom line.

Justifying SQL Server Management Tools in a Down Economy

IT loves a challenge, and this new economic climate is a just the thing on which to focus IT's considerable problem-solving skills on. This is the time to let IT leaders loose for a fresh round of thinking "outside the box"—they might just come up with innovative ways to provide an outstanding level of service to support the business.

From my perspective, the current economic conditions manifest themselves into "things we can no longer afford." In recent years, companies could afford to not address some issues directly. But today, that approach is no longer affordable for many organizations. All of a sudden, we in the IT community find that we can't afford the things we could last year.

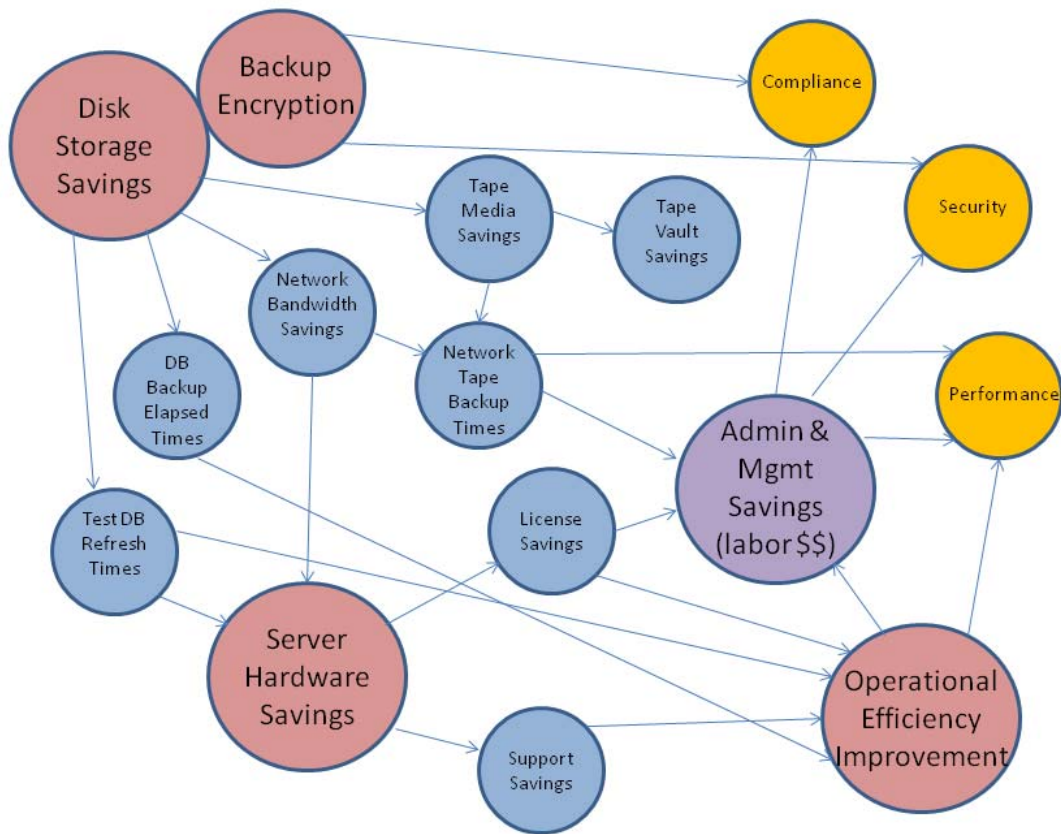
In other words, key IT needs are still there, but the money to address them in the customary manner is not. Rather than give up and simply not meet the needs, I propose that a better approach is to address the needs at a deeper level:

ISSUE	OLD APPROACH	NEW APPROACH
Data growth	Buy more storage.	<p>Data growth is not in recession, and neither are compliance and security issues. To handle data growth with a limited budget, address the data growth itself rather than buying more storage to satisfy it.</p> <ul style="list-style-type: none"> • Invest in tools that provide database backup compression and encryption, which can keep data growth in check while satisfying compliance and security demands. • Take a hard look at data retention, purging procedures and the like.
Increased workload	Hire more staff.	<p>The workload is not in recession either; it follows a curve similar to data growth. There continues to be more "stuff" to deal with. But instead of hiring more people, you can address the productivity, efficiency and capabilities of the current staff:</p> <ul style="list-style-type: none"> • Invest in tools that increase productivity and automation. Clever implementation of the right set of tools can provide existing IT staff the means to keep up without inducing burnout. • Re-evaluate processes and procedures. Cutting out some of the bureaucracy associated with IT can go a long way towards freeing up staff time.
Increasing resource needs	The ever-increasing complexity of IT applications means an increasing appetite for resources. Until now, the answer has been to "throw hardware at it."	<p>Address the resource issue directly. Rather than throwing hardware at the resource issue, squeeze out every bit of productivity possible from existing infrastructure.</p> <ul style="list-style-type: none"> • Invest in tools that provide performance analysis, monitoring and capacity planning. Remember, hardware is not the major expense; it is the associated labor, management and licensing that chew up the budget dollars.

Side Benefits

Remember that when cost-saving initiatives are done right (i.e., through strategic investments rather than tactical cost-cutting), the benefits almost always extend into other aspects of the organization. We all know this instinctively, but it is sometimes helpful to point this fact out to others—especially those holding the purse strings.

Just to visualize some obvious examples, consider the diagram below:



This diagram illustrates, for example, that compressing database backups not only saves local disk space on the database server, but also enables the following savings:

- Reduced network bandwidth utilization between the database server and the tape library
- Less tape media needed
- Savings on tape vault storage costs
- Overall management savings since fewer bytes of data, numbers of disks and numbers of tapes are being handled

That is a simple and obvious example, but a quick glance at the diagram demonstrates how one area of savings begets another. The lesson is clear: everything is related. We should not think of any strategy as an isolated effort to save money on a single aspect of the IT environment. Any successful effort will likely extend across the enterprise, and not just in dollar savings but also in improved levels of service.

Also, keep in mind the flip side of this concept: any cut in service will also work its way through the enterprise. Thus, what might appear to be simple cost-cutting tactics at first glance will likely have consequences far down the line that were completely unintended (and unwanted)!

PRACTICAL APPROACHES

Assuming that an organization is committed to a strategic approach of pursuing cost savings rather than crude expense-cutting tactics, there are two practical approaches:

1. No-risk or low-risk efforts that provide direct savings in hard dollars. This is, of course, what everyone wants and there may well be a few opportunities for this type of effort.
2. Improved productivity or functionality efforts that translate into savings by counterbalancing loss of resources, mitigating decline in service, saving on labor dollars, etc. This type of savings is generally considered “soft dollar” savings, and is more difficult to quantify. On the other hand, there are usually more of these opportunities available than with the first approach.

In order to pursue either approach, some investment in time, effort, and/or tools is necessary. Investing in time and effort alone is not usually practical. Given enough time and effort, an organization may be able to build processes and tools that would provide significant savings, but most organizations cannot afford to spend their time and labor dollars on such activities.

This is where tools present themselves as the best option for enabling an IT organization to meet its continually increasing service-level demands *and* meet cost-cutting demands at the same time. These conflicting demands can be an opportunity to re-evaluate old approaches, think outside the box, and re-invent aspects of the organization.

Specific Strategies

There are probably no surprises here. From a high level, the way to save money in an IT organization is to look for opportunities to:

- Consolidate hardware
- Reduce storage requirements
- Streamline, simplify, standardize, and consolidate processes

As pointed out earlier, the savings are likely to go beyond face value. Consider server consolidation. Software licenses are often based on processors (or cores). Thus, consolidating servers will not only yield a net reduction in overall number of servers in the enterprise, but also the number of processors as well. This will reduce the number of licenses needed for various products (operating systems, RDBMSs, etc.) that are widely deployed. Similarly, storage savings propagate themselves throughout the enterprise as explained above.

Often overlooked (because the savings are not so obvious) are process improvement strategies. However, these can ultimately lead to the biggest savings by eliminating variance. Variance is departure from the norm. The more “things” in your IT shop that depart from the norm the more time you will spend dealing with them on an exception basis. Variation is the cause of a vast amount of the cost associated with managing an IT infrastructure. Tools can help bring disparate processes and procedures into alignment with each other.

CHOOSING TOOLS

There are myriad tools on the market catering to all aspects of the IT enterprise, and the choices can be overwhelming. Adopting a few guidelines for tools research can be helpful in this respect. One suggestion is to limit the number of vendors. Doing so can provide several benefits: minimization of contract administration, minimization of support and interoperability issues, and, most importantly, volume discounts.

Each IT organization is unique in its needs, so no single toolset is a guaranteed cost saver for all shops. But given the breadth of products available, it is likely that a key set of tools are just the ticket for introducing enterprise-wide cost savings.

Types of Tools

The following is a list of some of the more prevalent product types on the market that are designed to help reduce IT costs:

- **Database backup and recovery tools** often offer compression and encryption that provide disk savings and security.
- **Administration tools** minimize labor hours by automating manual tasks.
- **Performance management tools** minimize labor hours and get more performance from existing infrastructure, thereby enabling more hardware consolidation.
- **Space management tools** reclaim space, monitor growth and recognize trends.
- **Change management tools** automate code and database changes.
- **Development tools** help you create applications with optimal performance.
- **High-availability tools** provide fault tolerance and an always-up infrastructure.
- **Query and reporting tools** simplify data access and reporting, especially across multiple platforms.
- **Capacity management tools** aid in server consolidation by closely managing the capacity of the various components (disk, processor, memory and network).

At first glance, some of these products might appear to be just nice to have, but evaluation of the IT organization's current environment may reveal that using one or more of these products can yield significant cost savings. Investing in the right tools is the smart strategy that can satisfy the budgetary pressures during a down economy without sacrificing service levels.

Where to Look

What You Already Own

The first place to look is at the products you already have! More often than not, organizations find they have software tools already in place that are not being utilized to their fullest potential or, worse yet, that have become “shelf-ware” and are still waiting to be implemented.

Beyond toolsets, it is also worthwhile to look at all related software products. Some examples:

- Re-evaluate the “luxury editions” of your products. Do you really need the Enterprise Edition of your operating systems, databases and other software products (including your toolsets)? Given your specific needs, perhaps the “standard” edition is appropriate for your default configuration.
- Investigate the “free” features of the products you already have in place. For example, Microsoft SQL Server comes with a free ETL tool that works with many different data sources, not just SQL Server.

Free Software

The next place to look is at the free stuff. A typical IT organization is not going to allow freeware downloaded from unknown locations (for good reason!), but there are plenty of free software offerings and tools from reputable sources available. Some examples:

- Many software vendors make some subset of their products available to the public free of charge. Quest Software’s Toad is a classic example.
- SDK’s and Microsoft’s Resource Development Kits are generally free of charge to those already holding valid licenses.

Homegrown Tools

Another place to look is internally. In some cases it is prudent to build a tool yourself. Some processes and procedures are so esoteric that no off-the-shelf software package available will suffice. This doesn’t necessarily mean that a major development effort is needed, but it may mean that a combination of some enabling tools and custom-developed processes are called for.

Commercial Software

Last, but certainly not least, don’t forget your friendly software vendor! Those vendors that specialize in enterprise-level management tools are in the business of making your life easier, improving your service levels and enabling you to go after those savings.

CONCLUSION

The IT organization cannot control how far the economy swings downward, but it can have a major impact on how current economic conditions affect its ability to provide the expected level of service. Avoiding simplistic “slash-and-burn” cost cutting tactics in favor of a more thoughtful, strategic approach is the only responsible path to savings in a down economy. This means some investment despite shrinking budgets. Done correctly, budgets can still shrink in the short-term without crippling the organization. This in turn will position the IT shop for the inevitable recovery.

ABOUT THE AUTHOR

Tom Sager is a DBA team leader at E.ON U.S, a diversified energy services company. He has been with the company for 17 years, in application development, database administration, and leadership roles. Tom has technical expertise in performance tuning, high availability and disaster recovery, and his team also specializes in managing diverse database environments with mixed SQL Server, Oracle and DB2 environments.

Tom is a prolific author who has published more than 50 articles on SQL Server, Oracle, DB2, mainframe, Windows and Unix. Tom is a member of PASS and has served on its board. He is also a member of IOUG and Quest’s Association of SQL Server Experts.

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