Getting the most out of ROI and TCO

When it comes to getting the executive nod for an important acquisition or the "green light" for special projects, return on investment (ROI) and total cost of ownership (TCO) models aren't always that helpful—at least that was the consensus at a user Town Hall meeting at last fall's Storage Networking World.

It's not that these models have little or no value. On the contrary, IT administrators say they are essential to getting executive "buy-in" and approval; in fact, users say it is hard to move forward without them. Nevertheless, users are frustrated with current modeling techniques.

In this paper, we look at ways to improve these techniques. We first define ROI and TCO, then explore the viability of vendor-produced models and the importance of accuracy, and, lastly, raise the idea of an ongoing (rather than "single-time") TCO and ROI analysis process.

Our thesis is simple: Better modeling techniques produce better results.

> "While they are not the only models available, ROI and TCO models do play an important role in providing senior managers with an encapsulated view of the enterprise IT environment and how well the environment is aligned to the business it serves and supports."

TCO and ROI - Hidden Cost vs. Hidden Gain

We start by differentiating TCO from ROI. The goal of a TCO analysis is to establish a "fully loaded" or "total" cost of a project or an acquisition. TCO is cumulative and includes the cost of purchasing, operating, and maintaining a project or acquisition.

ROI, on the other hand, measures the financial return on an investment (in this case, the investment is the total cost of an acquisition or project). The goal of an ROI analysis is to establish a measurable or tangible benefit (expressed in financial terms) of an acquisition or project. ROI seeks to establish a net monetary gain as the end result.

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TCO is often an effective tool for exposing hidden costs of an acquisition, project, or piece of IT infrastructure. For example, studies show that the TCO of a hardware purchase is actually seven times the cost of the hardware itself. A TCO analysis can also be used to help users compare the true costs of one product acquisition to another, assuming the same TCO model and the same set of assumptions are applied to both.

ROI, meanwhile, can be an effective tool for exposing hidden gains. Consider a consolidation project. A company may decide to consolidate servers in order to run operations more efficiently. This type of project often results in operational savings: IT spends money (an investment) to consolidate but sees a return on that investment in terms of money saved. This results in a net gain to the IT budget—a gain that would not have been exposed without consolidation.

Vendor-produced Models – Proceed with Caution

The vendor community is very aware of the need for TCO and ROI analyses, and they are very willing to supply their own techniques at no cost or for a modest consulting fee. But be wary. Vendor-produced TCO and ROI studies sometimes create as many problems as they solve.

First, upper management is generally more than little skeptical about these studies. In addition, the studies often do not take into account the various nuances of particular types of businesses—an important consideration that we'll later discuss in more depth. In such cases, IT managers are forced to go back and redo analyses, which wastes time and can delay project implementation.

Second, the results of one vendor's study can rarely be compared to those of competing vendors because of the different methodologies used to construct the models. Suppose, for example, that two competing array vendors submit studies to back up their proposals. Vendor A's analysis may show a "break-even" point on the initial investment in 24 months, while Vendor B may show a break-even point 12 months later. However, Vendor B's model may weigh performance more heavily than Vendor A, and Vendor A may put more weight on support costs.

The point here is that the ability to compare results— "apples to apples"—is important because it gives senior executives more than one option from which to choose.

A third issue with vendor-produced studies is that the results can be difficult to verify. This is particularly true when vendors fail to make their methodologies completely transparent to IT administrators. For example, we recently reviewed an array vendor's TCO study. The vendor was trying to show that its disk array was actually a less costly solution than a tape library on a total-cost-per-GB-of-useable-storage basis. However, in going through the analysis, we discovered that this array vendor had failed to include a key variable: the storage capacity per tape cartridge. When the density of these higher-capacity tape cartridges were factored into the array vendor's model, the results changed dramatically in favor of the tape library.

The bottom line: Vendor-supplied models can be useful if they're transparent, flexible, and, above all else, an accurate portrayal of reality.

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Accuracy Is Key

Accurate modeling techniques have the best chance of producing positive results. Why? It is simple: IT managers who can't defend their models on the basis of statistical accuracy put themselves at a great disadvantage to those who are able to withstand the scrutiny of senior executives.

When confronting ROI and TCO, model builders face two fundamental challenges:

1. Finding an IT staff member with the financial analysis skills required to produce a strong and convincing model.

   For those that don't have an in-house IT staff member versed in such financial matters, outside help is available. Outsourcers can be hired on a project-by-project basis when necessary. Some may even offer service-level agreements (SLAs) to underwrite the accuracy of their modeling and predicting techniques. As ROI and TCO modeling becomes an ongoing IT function, outside help will be needed less often.

2. Getting access to accurate and detailed supporting data that has been derived directly from the storage environment.

   Data—detailed and relevant data about the storage environment—is needed to overcome this second challenge. For this data, IT administrators should naturally look first to the vendors of their underlying storage infrastructures. Administrators should exploit the measuring capabilities of these components first and then look to additional data collection capabilities to fill any voids.

   For example, a SAN switch can monitor itself and other switches in the fabric. It also measures other traffic passing through it; however, it will probably not be able to produce statistical data from storage arrays attached to the fabric. For this type of information, administrators should turn to a broad range of monitoring and measuring functions available with various storage management and monitoring applications.

Make TCO and ROI an Ongoing Process

ROI and TCO modeling are often thought of as "one-time" events. An analysis is rendered and a model is constructed to support a specific project proposal or a specific acquisition. But how does an administrator go back a year or two later to review the accuracy of these studies' predictions?

Modeling techniques can be improved over time if IT administrators track their accuracy over time. Therefore, ROI and TCO modeling should become an ongoing process within an IT organization, not a string of one-time events.

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for example:

StorageTek offers a number of management software tools that storage administrators can use to help measure and quantify storage variables for a meaningful ROI/TCO analysis.

For example, StorageTek Virtual Power Suite, SVA Administrator software includes two management software components, SVAA and SVA NMP monitor. These products allow for centralized data collection, monitoring, administration, and resource management in mainframe and open-systems disk environments. Similarly, the SANtricity software suite allows performance data collection, administration, and reporting to assist users in managing the environment. SANtricity supports StorageTek's V-Series open-systems-disk product line.

On the tape front, StorageTek also offers a number of software components that help administrators gather data and provide statistical reporting. For the mainframe, Expert Library Manager (ExLM) and Expert Performance Reporter (ExPR) can help storage administrators get a better understanding of resource usage (virtual and real tape volumes) and performance in manual, automated, and virtual tape environments. ExPR is offered in conjunction with the Host Software Component (HSC) and Virtual Storage Manger (VSM), two basic reporting capabilities.

For the open-systems tape, Automated Cartridge Library System Control Software (ACSLS) Manager not only enables administrators to share libraries, but it also provides statistics on tape resource usage. The L-series library Admin Software monitors library operations from a Web browser; the Framework Library Monitor allows administrators to monitor and respond to library events from a system management framework (SMF).

In addition to individual product monitoring and management software products, StorageTek Global Storage Manager (GSM) software enables large enterprises to efficiently manage large, complex storage environments. From a single point of management, this Web-based system gives users a real-time enterprise-wide view of their complete storage infrastructures, usage trends and provides up-to-the-minute inventories and status. Its smart agent interfaces converts data from devices and systems into a common vendor-neutral format for analysis and reporting.

While these tools provide a variety of measurement/analysis capabilities, StorageTek recognizes the need for a broader, all-encompassing tool. StorageTek plans to roll out a storage ROI tool that will be linked to existing tools to produce a more accurate, complete, and automated storage investment assessment that is aligned with user business needs.

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Recommendations for IT Administrators

The following points should be considered by IT administrators looking to build or outsource ROI and TCO models:

1. Make sure you can explain the relationship of key variables to the outcome of the model and can gauge their relative impact on that outcome. If you've outsourced your model, make sure the supplier can explain these relationships to you. Weighting factors should be clearly explained. In short, they should "do the math" transparently.

2. Make sure both you and your supplier (if applicable) have taken into consideration all key variables and that the measurements are granular enough to match your particular situation. For example, make sure that your model takes in account the cost of outside contractors and part-time help, as well as full-time staffing costs. Also, make sure you factor in all environmental costs (e.g., air conditioning load, electricity, and floor space).

3. If you go outside for modeling help, make sure you weigh all the key variables to your business priorities. For example, the IT department of an electric utility may not put as much weight on the cost of electricity as a retailer or healthcare provider.

4. Providing senior managers with a choice can be a winning strategy in and of itself. Therefore, the ability to compare two or more options side-by-side is a key consideration when either building or selecting a model. Executives rarely make a decision that is devoid of choice, choosing rather to maintain the status quo.

5. Make sure the solution is scalable. Therefore, make sure you use a model that truly reflects the total cost of scaling a solution's capacity and capabilities upward over time.

6. ROI/TCO models give definitive answers to forward-looking questions (e.g., the gain of the solution expressed as a net present value is $25,398.16). As mentioned earlier, this approach tends to be relatively short-sighted since it assumes that real-life outcomes will exactly match model predictions. In reality, most modeling assumptions will vary from the forecast. Therefore, the ability to create a model that adapts to changes in your business is crucial; this capability makes ROI and TCO an ongoing process rather than a one-time project.

7. Ideally, the model should allow an IT administrator to present best, worst, and most likely scenarios. Software vendors like Crystal Ball, for example, make spreadsheet add-ins that help analyze relative risk by using Monte Carlo simulations. Models are always more credible when they explain the range of reasonable outcomes and highlight areas of risk rather than simply asserting a single number.

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Conclusion

While they are not the only models available, ROI and TCO models do play an important role in providing senior managers with an encapsulated view of the enterprise IT environment and how well the environment is aligned to the business it serves and supports. Therefore, we believe IT administrators should make ROI and TCO modeling an ongoing process if they haven't already. Since the quality and effectiveness of these models is directly proportional to their accuracy, being able to extract relevant and precise detail from the storage environment will prove key to administrators.

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