The Cost of Delaying Server Refresh Cycles

TechTarget Custom Media

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Are you looking for a way to trim your IT budget? Join the club. IT managers around the world are trying to figure out how to manage tight resources. It's tempting to delay server refresh from every 4 years to every 5 or 6 as a way to save money. Delaying server refresh reduces the number of purchases and eliminates some deployments.

On the other hand, while resources are tight, IT managers have not been asked to sacrifice the performance and reliability needed to run competitive businesses. Keeping servers on pace with or even a bit ahead of end-user requirements is essential. And, delaying refreshes has its own associated costs including out of warranty fixes and higher maintenance overhead.

Regular server refresh remains an important IT tactic for companies that want to be efficient and competitive. And, by keeping technology up-to-date, IT investments yield the greatest benefit.

Why is server refresh important for SMBs?

There's an old business adage – grow or die. That might be extreme for an SMB that has no ambition or plan to become a large enterprise but, certainly, no business plan calls for continuous down-sizing. The idea is to keep business moving forward and competitively meeting market demand.

Any amount and rate of business expansion requires SMBs to add staff, to add customers, and to add or constantly refine products and services. All of those points of growth expand data. IDC reports that small businesses need to expand data storage by 60% each year to accommodate data growth. That makes sense considering the financial, human resource, product development, legal, and other information that has to be saved to run operations and comply with a host of regulations.

Business growth is achieved by making the very best use of human resources that are available. That often means that employees work long hours and try to make every minute count. Mobile computing helps greatly by keeping them in touch with applications and data no matter where they are: home, an airport gate, a hotel room, or an off-site conference.

Mobile computing also helps reduce travel expenses. For example, sales people can meet with customers in other time zones from home using a laptop and web conferencing software. Work teams can collaborate with one another even if one member works from a remote location.

Of course, processing and retrieving larger and larger amount of data and taking advantage of mobile computing technology requires processing power. So do sophisticated applications that allow in-house staff to create presentations, design marketing materials, develop software, or manage complex financial

accounts. In order to the level of employee productivity high, server response time has to be fast and highly reliable. Slow, intermittent service just doesn't get the job done.

IT analysts typically recommend 4 year server refresh cycles. That timeframe allows SMBs to get the most out of their server investment before moving on to improved technologies that accommodate expansions in both data and staff. Server refresh provides the performance required by software that has been upgraded over the four years the server has been in place. And, in response to market demand for 24x7 uptime, new servers offer much greater reliability.

Growth and progress are rarely business options. Both rely on IT services that support required advances. It would be nice if the technology SMBs purchased four years prior would continue to provide the performance and reliability required by mobile computing, collaboration, and sophisticated productivity tools, but they don't. Staying ahead in business requires staying in step with technology and that requires server refresh.

New Technology, More Benefits

To a business manager it may seem counter-intuitive to purchase and deploy a new server before the old one can no longer be held together with duct tape. IT managers know that's not even close to true. While high-quality servers continue to function beyond the four year mark, they don't function in a way that supports a business growth strategy.

Server refresh adds competitive advantage. Alternately put, failing to refresh servers puts SMBs at a competitive disadvantage. That theory is supported by looking at three benefits of server refresh; increased processing power/performance, increased reliability, and reduced costs.

To ground the discussion in reality, we'll consider the advantages of refreshing servers with the latest technology from Dell.

Increased Processing Power/Performance

With access to video, VoIP, photograph manipulations, great desktop publishing functionality, website design, spreadsheet and modeling capabilities, and much more right at their laptop, end-users are requiring more and more processing power. Expectations for speed are just as high with sophisticated, data hungry applications as they are for small utilities.

In fact, when data isn't delivered quickly and when application time is slow, end-users can't make use of the applications they rely on to accomplish work. For example, a sales person on the road might need to access prospect accounts in the city he's visiting. First he wants to query the CRM database and

make a list of local prospects. Then he wants to sort through the list for customers that are due for a call. He only has 30 minutes between conference sessions to make his list, make several calls, and schedule a few visits. If it takes a measureable amount of time to open the application, enter the query, and wait for results, his opportunity is lost.

The latest Dell PowerEdge Servers are powered by Intel ® Xeon® multi-core processors that provide 6.36 times better performance per watt than other processors. They boost performance 15 times over single core processors. Intel Turbo Boost Technology further increases performance by increasing core frequencies. That enables faster speeds for specific threads and very large, intense workloads.

You might think that all that speed consumes a lot of energy but, in fact, Intel Xeon processors scale power consumption to workload for overall energy efficiency. Other energy saving technology including low voltage memory modules, power capping capabilities, and intelligent power management systems is built into the latest generation of Dell Servers to further increase energy efficiency.

Increased Reliability

One of the biggest downsides of older servers is that they present many points of failure. If a fan or a power supply or a disk fails, a new part has to be sourced and delivered, the server has to be taken down, the new part has to be installed, and the server has to be powered up.

There are two big problems with that common scenario. First, during the time it takes to get a new part for the server, the server is idle; unavailable. With any luck, there is another server around that can take up the slack but IT will have to spend time installing software and data from a backup. Any amount of time that comes between employees and the data and applications they need to get their work done diminishes productivity and costs money.

Second, when a server fails, data can become corrupted. Not only does the broken component have to be fixed but a resident database might have to be restored. Of course, databases are backed up but, if the data isn't continually backed up, the organization could lose up to a day's worth of data. And, when data is restored it has to be synced with the data that remains. That all adds up to another big availability hit.

Newer servers are built for reliability. For instance, Dell PowerEdge servers feature redundant components. Power supplies, fans, disks, etc. come in primary and backup pairs. If a primary power supply fails, the backup takes over. There is no service interruption. Everyone keeps working. (There's an added benefit; no one calls the IT help desk.)

Components are also hot pluggable meaning that functional components can be swapped for working

components while the server is up and running. In our power supply failure scenario, the backup power supply takes over when the primary supply fails. To maintain reliability, the IT manager will want to replace the broken power supply. He'll simply open the server and, while it is running, unplug and remove the broken component and plug-in a replacement. Without powering down the server and interrupting work, IT has restored the server's reliability safety net.

Reduced Costs

Older servers are typically single purpose. There is the customer service server, the accounting server, and other servers that are dedicated to particular applications or databases. That strategy has real drawbacks. First, space is consumed as more and more servers are needed. Second, it's expensive to continually buy and deploy hardware every time capacity is needed.

New server technology is optimized for virtualization. Virtual servers run multiple operating systems and applications. Some companies reach consolidation rates of 10:1 through virtualization – one virtual server replaces ten dedicated servers. Gartner estimates that 60 to 80% of SMBs around the world are moving to virtualization largely to save money.

If you picture consolidating 10 physical into one, you picture the ways and SMB saves money through virtualization.

- Fewer purchases – Obviously, virtualization requires fewer servers. That translates into fewer software licenses, fewer memory upgrades, fewer replacement components, etc. There are also fewer hardware service contracts.
- Less space for the data center – Square footage costs money. Virtualization can dramatically reduce the number of square feet required by the data center. Not only do servers take up space, cooling area around the each server is required.
- Reduced power and cooling requirements – A single server costs $200/month to power and cool. That's $2,400 per year - which certainly covers the cost of a new server. The fewer machines running in the data center, the lower the utility bill.
- Less management overhead – Fewer servers mean fewer machines to upgrade; either with software or memory or disk drives. There are fewer things to fix and fewer things to track.

Of course, given the amount of work and data processing virtual servers accomplish, it's important to deploy configurations that meet demanding requirements. Dell PowerEdge servers and EqualLogic storage devices are designed to optimize virtual environments. As mentioned above, Intel Xeon multi-core processors give Dell PowerEdge servers a 6.36 times performance advantage. EqualLogic storage scale as the virtual environment demands. SMBs can purchase just the storage required at the time to avoid over-purchasing and control costs.

The shortest time to positive return on investment will come from server refresh that includes virtualization and hardware that offers the performance and reliability required. Not only will those returns be positive, they'll actually be easier to calculate than the returns from other IT investments.

Calculating the Return on Your Refresh Investment

IT is always asked to calculate return on investment for any purchase it makes. It's often difficult to calculate return on investment because, in many cases, it's difficult to find hard cost savings. For instance, finding higher return on investment for one brand of accounting software over another can be difficult if the feature sets and pricing are fairly similar. The purchase decision will probably be based on ease of use or other product characteristics which don't easily translate to a return on investment calculation.

In contrast, server refresh is fairly straightforward, especially when virtual servers are part of the plan. The return on investment certainly varies from company to company but the areas that add up to savings are fairly consistent.

Return on investment from server refresh comes from both hard savings that are fairly easy to calculate and soft savings that have to be estimated. Hard savings from server refresh occur in these three categories:

Maintenance – Because servers host line of business applications, they have to be well-supported by maintenance contracts and warranties. If and when something goes wrong, IT needs to fix it quickly and buying into maintenance plans and leaning on warranties is the most cost-effective way to keep protect that server investment.

Servers that age out of their warranty simply cost more. Instead of certain components or service engagements being free, they generate an unanticipated invoice. And because the company needs the server, there is no choice but to pay.

To calculate hard savings for maintenance, figure the cost of 1 or 2 realistic out of warranty fixes for each server that has aged out of coverage. To that figure, you'll add the savings from upgrading to virtual servers outlined below.

Dedicated v. Virtual Servers

There are two ways to think about the savings associated with virtual servers. The first is to assume you'll refresh current servers to similar, but newer, dedicated servers. To calculate those savings, you'll add reduced budget items for:

- Physical space in the data center – For this calculation you need to know your server consolidation ratio. For a simple example, let's assume that you'll consolidate 10 dedicated servers into one virtual server. Subtract the space costs associated with one virtual server from the space costs associated with ten dedicated servers. (Don't forget to calculate the amount of cooling and air circulation space that's required for each server.)
- Utility bills – According to Dell estimates, each server costs about $200/month to power and cool. That's $2,400 per year. Using that estimate, an SMB with 10 servers spends $24,000/year to power and cool it's servers. The savings from virtualization and consolidation would be $21,600 (the cost of power and cooling for 10 physical servers minus the cost for one physical server.)
- IT overhead – With fewer servers to manage, IT overhead costs are reduced. A look back at the cost of staff time spent on fixing, updating, tracking, and maintaining 10 servers can be used as a basis of a simple cost savings calculation. Divide the cost of IT overhead associated with server management by 10. That is the cost of managing one virtual server. (Note: This does not suggest that IT staff is reduced via server refresh. Most companies see the IT overhead savings as a way to divert staff resources to other strategic projects that further improve productivity and efficiency.)

Calculating soft cost savings is a bit more thought provoking. Soft cost savings represent real dollar amounts but the assumptions and estimates they are based on are more debatable that those behind hard cost savings. A soft savings estimate includes costs associated with:

- Server power downs for repairs – Chances are good that older servers need to be powered down in order to perform repairs and maintenance. That's in contrast to newer servers that can be maintained while they are up and running. Every time a server is taken down, productivity is lost and business is delayed. For example, if revenue is realized when products ship and a down server delays shipments, revenue realization is delayed until the server is back on line. Down servers also delay sales cycles, product development, marketing programs, and other activities that directly impact revenue generation.
- Calculating the soft costs of offline servers is difficult though it is easy for everyone to agree that those costs are there. Server refresh, especially to servers that have redundant, hot-pluggable components and can be maintained without service interruption, eliminates those costs.
- Compromised mobility –Employees who are working after hours from home, who work from a

remote location, or who are travelling for business need to quickly access the applications and data they need to get their job done. Older servers may lack the performance capabilities to reliably server mobile computing users.

- To calculate the cost of lost work time due to underperforming mobile access estimate the cost of project completion delays, of IT support to frustrated mobile workers, of lower numbers of sales calls, etc. Again, this is a tricky calculation but everyone agrees that when employees can't make use of the mobile devices they've been given, the company loses money.
- Over-subscribed IT staff – When IT staff is tinkering with old servers, there is little time to plan IT strategies that will help grow the business. Think about the go ahead technologies the company could implement for financial gain or cost savings. The deferment of those gains and savings is a cost of failing to refresh servers. For example, using collaboration software increases product development efficiency and shortens product release cycles. The money lost through delayed product release is the cost of concentrating on server maintenance rather than collaboration deployment.

Realizing returns on server refresh investments requires refreshing with equipment that is designed to save money. Dell, for example, offers a broad array of servers that can be right-sized for any company and then expanded as needed. Dell PowerEdge servers are built for performance, reliability, and virtualization. Components and redundant and hot pluggable to reduce the complexity of maintenance and preserve 24 x 7 uptime. They are available in tower, rack, and blade configurations to accommodate space constraints and maintain data center size even as capacity grows. Equipped with Intel® Xeon® multi-core processors, Dell servers offer 20x higher performance than older servers with 4 socket single core processors and up to 90% lower operating costs.

Dell service experts that focus on SMB environments are available to specify and configure servers for virtualization. Servers are configured and tested before shipping so that they are ready to work right out of the box. That actually reduces the cost of server refresh by eliminating IT overhead.

For assistance in calculating your SMB's server refresh return on investment, use Intel's quick Server Refresh Savings Estimator (link to:
https://roianalyst.alinean.com/roi_calculators/AutoLogin.do?d=238900127442387057)

The financial benefits of server refresh are compelling for any SMB. Even when times are tight, it's hard to argue that increased IT capacity won't yield benefits. Companies that are holding steady on staffing levels need to rely on increased productivity to take up the slack left by unfilled positions. Companies that are expanding need to be sure that all employees are highly efficient. Servers over four years old add to budgets. New servers that support virtualization and consolidation save real dollars while offering the increase in capacity that SMBs require.