

Practical Tips for CIOs: The Converged Infrastructure in Your Future

Experienced Logicalis technologists provide a down-to-earth series of articles that look at the challenges, pitfalls, surprises and rewards you will find along your way to implementing a fully converged infrastructure.



Elite Partner



Converged Infrastructure

Why Can't We All Just Get Along?

By Brandon Harris



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You've read the stories about a dynamic data center environment consisting of pools of high-performing computing resources that can be centrally managed, readily automated and efficiently maintained. It's the future of computing, some say.

In their different ways, the major systems vendors are each positioning themselves to participate fully in this IT environment of the future. Each one has its own overarching architecture. Call it "converged infrastructure," "dynamic infrastructure," or "unified computing." (We'll use the term "converged infrastructure" in this series.)

"If you don't have an unlimited budget, what you need is a realistic process that will enable you to incrementally transform your current heterogeneous, somewhat jerry-rigged IT environment into the well-mannered converged infrastructure, as time and your actual budget allow. It can be done."

Says Who?

But you're the one standing in a data center that occupies the same space that once housed the company's mainframes before they were replaced by minis, only to be replaced in turn by Wintel servers, which are now being replaced by blades.

Between you and the lovely image of a converged infrastructure are legacy applications that refuse to get along with anyone, high-security systems that you don't particularly want getting along with just anyone, and the usual assortment of runaway applications, end-of-life technology and, of course, short staff and tight budgets.

Wouldn't It Be Nice

A converged infrastructure is a process, not a panacea. It's not going to make your all your problems go away instantly. The sophisticated IT environments required for today's successful organizations, as you know, are not that simple.

The good news is that truly converged infrastructure for your data center is now technologically feasible. All the technologies—servers, storage, networks and management—have evolved to the point where they can be converged into a single entity. In fact, if you had an unlimited budget, you could build the future of the computing today right in your own data center. And it would work great, too.

It would be possible to provide end users with a range of choices—within parameters set by the operating environment—to provision their own computing capacity for specific projects. Your department could also accurately allocate costs to departments for the capacity they use, turning the IT department into a service provider instead of a cost provider.



A Realistic Process

If you don't have an unlimited budget, however, what you need is a realistic process that will enable you to incrementally transform your current heterogeneous, somewhat jerry-rigged IT environment into the well-mannered converged infrastructure that you've read about on your vendor's website, as time and your actual budget allow. It can be done.

This series of articles will help you think through and design such a process that fits your unique situation:

Should You Give Change a Chance?

Don't be sold on moving to some new infrastructure architecture in your enterprise unless you understand the risks...and rewards.

Breaking Down the Walls

Before you can link your infrastructure, you're going to have to break through some silos.

Don't Let Your Legacy Become Your Legacy

There are often a few white elephants lurking in the corners of the corporate data center; they need to be addressed.

Time to Take Out the Trash

Migration Day is a great excuse for getting rid of those things that just seem to be hanging on and taking up space. Not your co-workers, but the old hardware, apps and data that no longer serve a purpose.

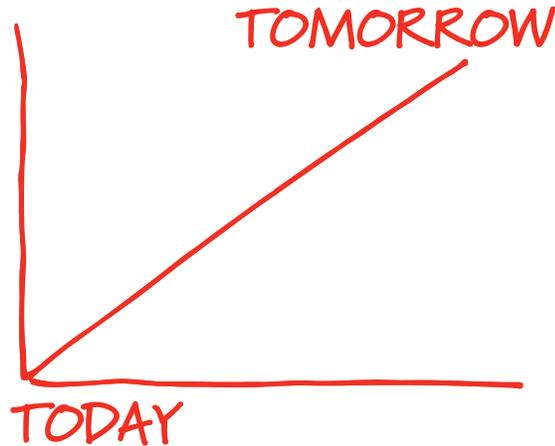
Change Like You Mean It

Moving to a converged infrastructure environment for your organization and actually making it work are two different things.

The converged infrastructure is not a destination. It's a journey with all the twists and turns associated with any adventure. It actually does lead to the future of computing, but you get to decide how you get there.

Should You Give Change A Chance?

By Ken Bylsma



In this article we look at why a converged infrastructure may make sense for your organization and provide some guidance on how to sell your decision in-house to the business folks.

Most IT departments spend 70 percent of their time putting out fires and only about 30 percent responding to the needs of their business users. You might think, “There must be a better way.”

“There is more to a functioning converged infrastructure than innovative technology. To truly align IT with business everyone—including IT—has to understand the business requirements.”

Pitching your CEO or CFO on a common modular infrastructure of virtualized compute, memory, storage and network resources, however, ain’t gonna cut it. Few CEOs and CFOs will respond enthusiastically today when you sing the praises of “a common, wired-once, virtual I/O network.”

The so-called “converged infrastructure” has these attributes, but outside of the IT department, converged infrastructure tends to sound like another request for money for some trendy new technology.

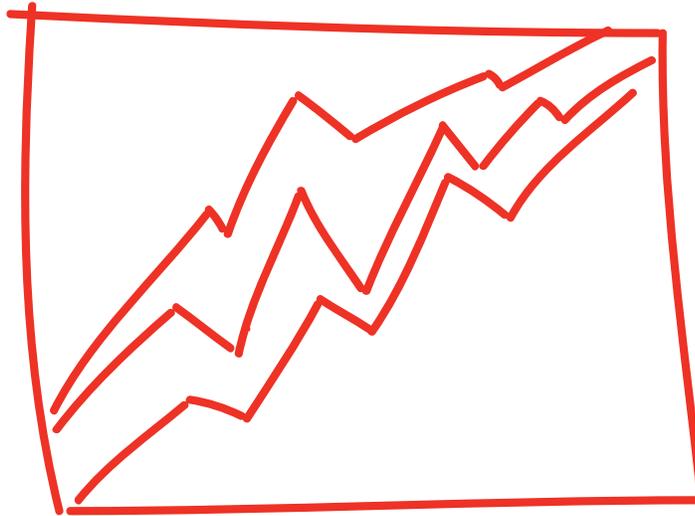
What's In It For Me

CEOs and CFOs have their own parameters that every request for funds for technology has to meet, which, if you translate it out of their arcane financial jargon, comes down to: “What’s the bottom line?” This article looks at how you can articulate the business case for a phased approach to implementing a converged infrastructure in terms that CEOs and CFOs can understand and appreciate. The bottom line for the business side: It’s a whole lot easier for you to give them what they want.

Crossing the Business/IT Divide

CEOs and CFOs have been talking about their vision of aligning IT with the overarching business goals of their organizations for as long as IT professionals have been talking about their vision of “utility computing,” aka a converged infrastructure. Translating their respective visions into a common language, in fact, everyone on both sides of the business/IT divide has been talking about the same thing. One is the technological expression of the other.

CEOs and CFOs who have been reading about the financial merits of cloud computing in their trade magazines are already half sold on a converged infrastructure. Finance types are naturally attracted to idea of cloud computing because they recognize economies of scale in the cloud computing model. They look at cloud computing and see shared resources, on demand provisioning, and the ability to re-deploy capacity somewhere else as needs change. It sounds like pay-as-you-go, and it is music to their ears.



You can use the same list of benefits to support implementing a converged infrastructure that your CEO has read about for cloud computing.

For example:

- Faster time to revenue—the advantage of on demand provisioning of compute capacity, in your data center
- Lower costs of acquisition and implementation—the result of a simplified and standardized infrastructure
- Increased responsiveness to business changes—an easier to manage infrastructure frees up your time and makes it easier to give them what they want
- Predictable performance and lower risk—systems that are designed to work together run better and break less.

Position of Strength

You can add that a converged infrastructure can be implemented incrementally as your budget and resources allow. And, with virtualization—which saved your CFO lots of money, you’ve already done most of the work. Experience with a converged infrastructure also puts you in a position of strength if you subsequently decide to move select systems into a public cloud and need to negotiate terms with a cloud provider. Having a cloud in your own data center, you’ll already know what you need, and how it works.

The primary risk associated with implementing converged infrastructure is doing things in the same old piecemeal way. Sprawl can happen much faster with virtual servers than with physical servers.

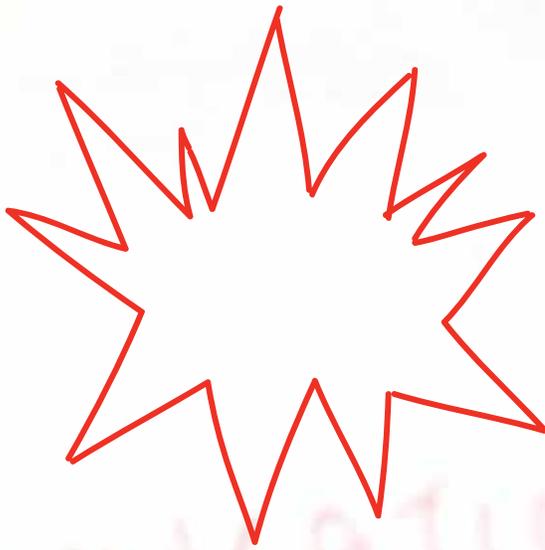
Instead of thinking about adding a new server for a new application, think adding capacity, even better think shared capacity; instead of thinking three-year lifecycle, think on demand; instead of thinking that business guy who was just in my office is out of his freakin’ mind, think self-provisioning within guidelines that you establish. You have to think differently or you won’t realize all the benefits of converged infrastructure.

There is more to a functioning converged infrastructure than innovative technology. To truly align IT with business everyone—including IT—has to understand the business requirements. Communication between IT and the business side, as a result has to be much better than it has been in the past.

In fact, communication within the IT department has to be better than it is in most IT departments. Implementing a converged infrastructure requires breaking through the feudal dynasties that have grown up around the server, storage, and networking specialties that exist in most IT departments. A key step in converging the technologies is converging the competing cultures into a single well-coordinated team.

Breaking Down the Walls

By Brett Anderson



One of the biggest roadblocks to a unified infrastructure is not technology but politics. Before you can link your infrastructure together, you're going to have to break through some silos. This article suggests some diplomatic ways to break down the walls.

The technology exists today to implement a fully converged infrastructure that integrates servers, storage, networks and management into a single, flexible, and adaptable IT environment. Technology, however, may be the easy part.

"It is important that the technical specialists in your department to understand that a converged infrastructure doesn't make their knowledge irrelevant, or diminish their value to the organization in any way. Virtualization abstracts the physical hardware and software in separate layers, but you still have to have the people who know how each layer interacts with the one above it."

The advantages of a unified infrastructure are very compelling on a broad technology and financial level. When you get down to the people involved, however, it can get more complicated. Questions of job security and anxiety about future downsizing can cause technologists to feel threatened by their own technology.

The key to aligning the IT culture with a converged infrastructure is being able to drive the change from the top down. This is not a situation where democracy plays very well.

That doesn't mean tyranny is the answer. The best way to get your storage people collaborating with your networking people, for example, is to get them participating directly in the process of defining what it will take to make the culture reflect the new image of the technology.

The existing culture reflects the mindset that every application requires its own dedicated environment: server, network interface, storage device, etc. As a result, when some business user comes in asking for a new application, each department head in IT has to spend hours figuring out the current optimal hardware (which may be different than what was specified six months ago), order it, get it in, stand it up, test it, and move it into production.

With a converged infrastructure, there is a shared-use model where resources are available by going to a portal and simply requesting them. Intelligence built into the IT fabric takes care of the provisioning and deployment of the appropriate resources according to the rules and best practices established by the IT department. It changes what had been the focal point of a technologist's responsibilities to a relatively simple task. Now instead of spending all his or her time assembling the technology piece by piece, the technologist can focus on the more creative task of enhancing what the business user actually wants to accomplish.

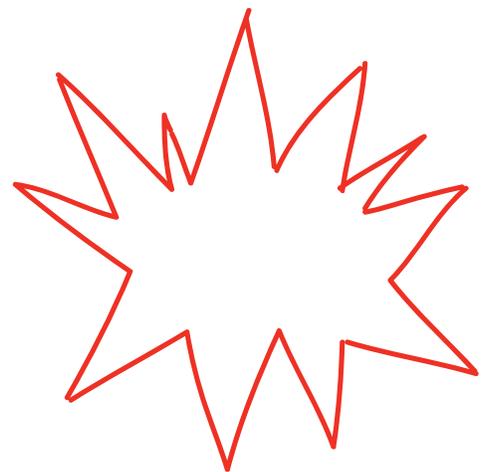
Shared-Use Mindset

A good way to get your technologists to embrace the shared-use mindset is to engage them in designing the underlying technology that needs to be in place to accomplish it.

If possible, I recommend an offsite kick-off meeting where you bring together all the department heads to help develop the new reality they will be living in. The kick-off should be followed by a series of strategy sessions that includes the technical department heads—who may not be so technical anymore—and their key architects who can talk to the techies in the department who really know what's going on.

"The implications of a converged infrastructure extend throughout an organization, not just the IT department. What's possible with the technology needs to be possible with the politics."

For example, the network administrator is still fundamentally responsible for the performance, availability, and security of the network. Instead of diminishing the value of their knowledge, what becomes important, and in their self-interest, is to expand their expertise and their value beyond their current domain (the network). Now that the network guy isn't spending his time pulling or tracing cables, he will have the time to get beyond the boundary of his own device, and talk to the server guy about next generation plans. Both of them can then talk with the business user about how to launch that new application for the external customer base. In the end, technologists can increase their value to the organization because they will no longer need to be holed up in the data center.





Not Your Box Anymore

As IT begins to relax its sense of ownership of specific technologies, it can come as a shock to learn that business department heads may still think they own the technology. That's when you hear: "That box was paid for out of our budget and you can't share it with those guys in...finance...HR...accounting."

One way to break through resistance to change at this level is to go above it to the CFO and CEO who tend to be more receptive to the idea that all technology today is a corporate asset not a department asset. Let them be the ones to tell the recalcitrant department head, "It's not your box anymore."

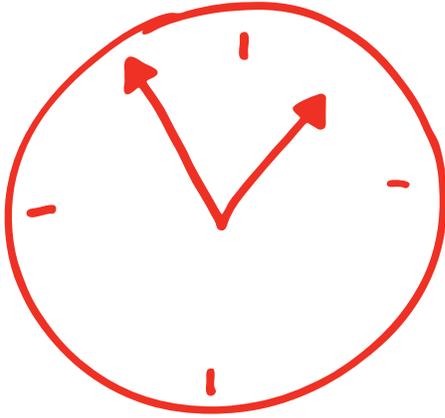
Perhaps a more diplomatic way to proceed is to build allies among department heads. I recommend looking for those early wins that will give you the biggest impact. If customer service is your company's top value, then you need to make the customer service business owner your biggest ally. If it's manufacturing, start by showing the head of manufacturing how a shared-resource model can work for him or her. Solve a problem for one business unit and let them talk about it how great it is with their peers.

The implications of a converged infrastructure extend throughout an organization, not just the IT department. What's possible with the technology needs to be possible with the politics. To succeed in today's extremely competitive markets, everyone in every department has to have the overall well being of the organization as his or her focus. Technologists may not know anything about double-entry accounting, but they should know that if they can help get a product to market faster or ensure that manufacturing has less downtime that it is going to have a positive impact on business.

The plus side for IT politically is that the changes required to implement a converged infrastructure will, in fact, tend to elevate the value and visibility of IT within an organization. Technologists may have to give up their sanctuary in the data center, but the opportunity is there to spend more time in the executive suite.

Don't Let Your Legacy Become Your Legacy

By Jeff Nessen



There are often a few white elephants lurking in the corners of the corporate data center; they need to be addressed. This article looks at how to keep legacy systems from standing in your way to a converged infrastructure.

The logical place to start a converged RISC/x86 infrastructure initiative is with the easy stuff: those applications and utilities that are of relatively recent origin and can be migrated without much drama to a virtualized environment.

And that's about as far as many IT departments ever get. Unfortunately, although doing the easy stuff produces decent returns, doing only the easy stuff leaves a lot of both rewards and risk on the table.

"Hoping your legacy apps keep running just a little longer is not an effective IT strategy. The time to address your legacy systems and establish realistic milestones to replace them is before they cause another problem."

All the other stuff falls into the general category of "legacy" and includes applications that typically perform an important, if limited function, have been around for years, and were written in some vanishing programming language by an employee or consultant no one remembers. Did I say, no one knows where the source code is, and there never was any real documentation?

Hard Stuff

This is all the hard stuff that typically causes the most complaints, hides a lot of soft costs for support, intermittently stops working and generally produces a ton of suffering for the IT department. It would seem logical to address these legacy issues aggressively and resolve them once and for all, but the tendency is to shy away from addressing the things that cause the most upset and anxiety and put them aside for later—which is, of course, how they got to be legacy items in the first place.

I know a customer running a legacy app on a DEC Alpha that is approaching two decades of service. The only support for this living dinosaur is a little cabinet full of spare parts that were picked up cheap on some auction site for DEC relics. It would be a funny story, except that when that dinosaur finally fails, not only does the legacy app it runs stop working, but the customer's business stops working, too.

Before Later Gets Here

Doing the easy stuff first is both acceptable procedure and entirely doable in a converged infrastructure environment. Most legacy systems were created when every application ran on in its own discrete standalone server, and, in most cases, it is possible to leave it where it is and use some middleware to allow it to contribute its data stream to the appropriate pool of compute resources in a virtualized environment.

But later always comes. Every plan to implement a converged infrastructure needs not only to identify all the legacy systems, but also to put in place a strategy to provide whatever functionality they currently perform in some updated application that can be welcomed into your expanding virtualized environment as a productive member. The right way to look at legacy apps is: we know this is an area where we are exposed, let's put a plan in place to re-write it, or duplicate the functionality in some new system.

Hooks Built In

Ironically, most of the old Cobol, Fortran and custom code legacy applications and utilities that IT departments are afraid to confront can be built much more rapidly today than when they were first created. Java application toolsets like SpringSource produce applications that are made to live natively in a hypervisor, have hooks built in to provide self-provisioning—the ability to automatically allocate resources at the virtual infrastructure level to spin up additional resources as needed—are cloud ready, and are able to take advantage of other features of the converged infrastructure environment.

I'm not advocating taking everything that works and makes you money and make it new just because you can. But you do need to address those things that you can see have a roadmap that doesn't lead anywhere. You should be asking, "Is there a better way to do this?"

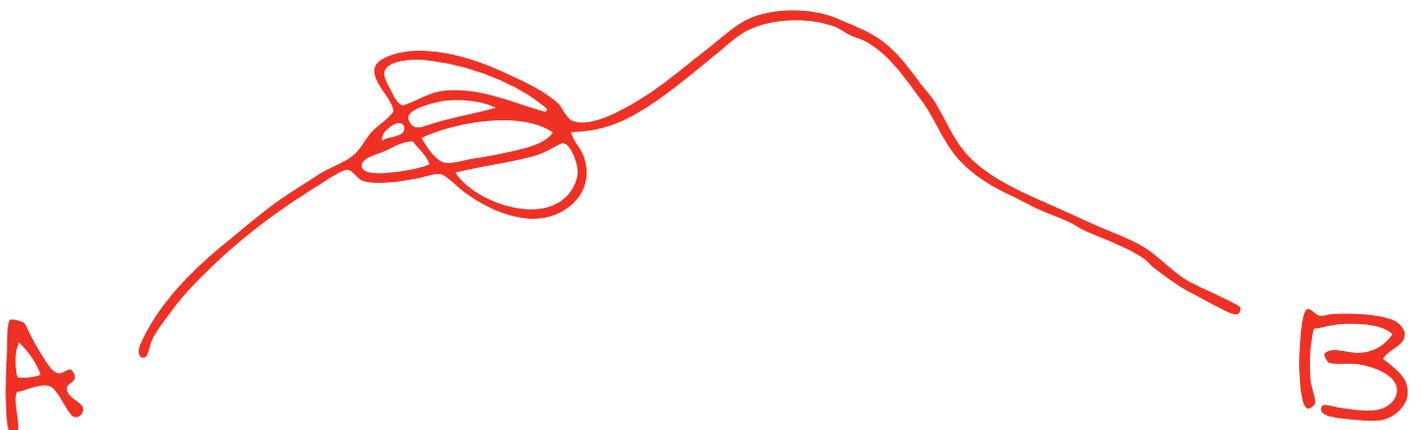
Core Competence

One easy way to replace basic legacy utility apps that are not part of your core competence is to offer the source code up to the community of open source developers and let someone else build and enhance it. If other people find it useful, they'll make use of it, but even if it's a competitor, who cares? There is no competitive advantage in maintaining a piece of utility code. Sometimes all you need to do is let one of your application development managers run the community project and it takes off like wild fire.

There are also a variety of ways to stair-step an application into a converged infrastructure. For example, you can take some of those old Unix apps and migrate them to Linux under VMware on an X86 platform.

The ideal goal, of course, is to get everything into the converged infrastructure where you have lowest costs per port, the lowest cost for SAN storage, for compute resource...for everything, compared to a discrete physical environment, and you can take advantage of the dynamic movement, self provisioning, scaling and all the benefits of shared resources model.

Hoping your legacy apps keep running just a little longer is not an effective IT strategy. The time to address your legacy systems and establish realistic milestones to replace them is before they cause another problem. Don't let your legacy apps hold you back from reaching the converged infrastructure that should be in your future. You can take legacy systems with you, at least part way, but, when you really think about it: why would you want to?



Time To Take Out The Trash

By Brett Anderson



Migration Day is a great excuse for getting rid of those things that just seem to be hanging on and taking up space. Not your co-workers, but the old hardware, apps and data that no longer serve a purpose. In this article we look at a system for sorting the chaff from the wheat when it comes to losing the tech trash in your data center.

“What if we have to go back to it?”

That haunting question, typically asked at the beginning of each new wave of change that has swept through IT over the years, has been used to justify keeping all kinds of data center detritus: old servers and workstations, printers, modems, fax machines; the last few versions of the database upgraded six months ago, and backup copies of the test, dev, pre-production, production and maybe even post-production instances of the application that the guy who once worked here developed.

Having spent entirely too many late nights and stress-filled, long weekends scrambling to recover from one crisis or another, most IT professionals have a hard time letting go of technology that once worked.

A cautious nature is an admirable characteristic in a technologist, but it needs to be balanced by a willingness to let go of the past and the confidence to commit to the future. As more IT departments plan their move to a converged infrastructure, they need to take a very critical look around them and decide what they actually need to take and what they are never going back to.

Whether you are moving to a new data center or upgrading in place, it helps to prepare for a migration to converged infrastructure the way you would prepare for a move to a new home.

“Just because something is old doesn't mean you don't need it. But, if it does have value, it needs to be on a platform that you can monitor and manage into the future. It also goes without saying that, if you don't know where (or what) something is, you can't protect it.”

I recommend parting with the stuff that causes the least separation anxiety: the old time-tracking system that is still running but hasn't been used in years. You went to Internet-based faxes a year ago. Do you still need the old fax modem server? What about all the old POTS lines that no one cancelled? Making decisions about leftovers like these is relatively easy and builds confidence for dealing with the other stuff you find around that requires more thought.

The Dark Side

Virtualization has made it possible to consolidate the physical server sprawl that threatened to overtake many data centers. The dark side of virtualization, however, is that you can spin out applications and virtual servers without even having to buy more hardware. The result in many data centers is rapidly escalating virtual server sprawl. Virtual server sprawl may not occupy as much floor space as physical server sprawl, but running all those virtual servers does consume processing power, memory, and storage, and generally clutters up the very infrastructure that you are trying to simplify and optimize.

Before you migrate anything to your new environment, we recommend conducting a thorough application assessment to determine which applications you need and which you don't. This is not something the IT department can do on its own. For the assessment to be effective you need to involve the business side of your organization and find out what is – and is not – actually working for them. The good news here is that if you are serious about implementing a converged infrastructure and providing IT as a service, you are going to need to communicate much more openly with the business leaders in your organization anyway. Use the application assessment as an opportunity to enhance the lines of communications and to build trust.

Frighteningly Valuable

Sometimes what looks like junk turns out to be frighteningly valuable. During an audit for a client awhile back we uncovered an old Sun server that was still running. Only two of its disk drives were functioning, and no one was sure what they contained. It turned out that the faltering drives provided critical data to an extremely important but small and static application and, had one more disk failed, the IT department would have become painfully aware of the amount of risk it had been unknowingly taking. We were able to remediate the immediate need, but more importantly, we got the application on the planning board for review and replacement - in a controlled, manageable fashion.



Just because something is old doesn't mean you don't need it. But, if it does have value, it needs to be on a platform that you can monitor and manage into the future. It also goes without saying that, if you don't know where (or what) something is, you can't protect it.

The aging process is particularly unrelenting in tape libraries. It becomes so automatic to spin data off to tape and file it in the tape library that few stop to realize that tapes have a limited shelf life. During backup audits we have found whole sections of tape libraries filled with tapes that physics and time have effectively erased. Instead of thinking about keeping a stash of outdated tape drives around to run tapes in an outdated format "in case you have to go back," think about migrating valuable data to virtual tape libraries or other technologies that can take you forward.

Liberating

Of all the rooms in your house, probably the most stressful one to confront in preparation for moving day is your attic. Everything in it has some unfinished story attached to it. Typically, it's where all the postponed decisions hide. You may not have a designated attic in your data center, but, every data center has metaphorical attic full of stuff stored under the "we'll-deal-with-that-later" label. You don't want to drag all of those unfinished decisions and irrelevant what-ifs into your new environment. Ironically, despite all the effort that goes into putting off confronting them, taking the time to actually make all those unfinished decisions can be very liberating.

A New Beginning

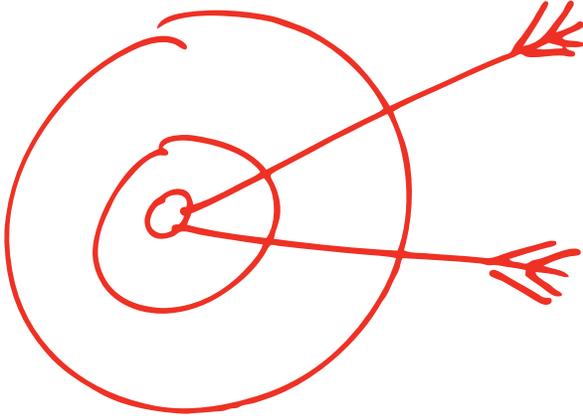
The converged infrastructure in your future is as much a new mindset as it is a data center full of new technology. It's not enough to just clear out the miscellany lying around your existing data center. Before you migrate to your new converged infrastructure, you need to establish a shift in attitude appropriate to your new surroundings.

Instead of the reactionary tendency to keep everything "just in case" that was reinforced by the rigid, silo environment you are leaving behind, begin thinking proactively about leveraging pools of resources on demand in a dynamic, flexible, integrated environment. As you begin to spend less time on provisioning and physical resource management, you will have more time to devote to bringing true value to your organization: better alignment with your core business objectives, proactive management of the environment, and improved IT processes that give you the time and freedom to take projects to full completion – including decommissioning and removal of the trash.

A converged infrastructure is all about giving you the ability to dynamically respond to change. To take the most of it, when you move into your new data center, you need to leave your fear of change behind.

Converged Infrastructure: Change Like You Mean It.

By **Brandon Harris**



In this final article we provide some guidelines for evaluating, modifying and developing new processes and procedures for working in a converged infrastructure environment.

“It may not happen overnight. But, if you have been modifying and developing new procedures to coincide with your new technology, your relations with the people around you should start to reflect the collaborative, flexible, forward-looking IT environment you have just fought tooth and nail to implement.”

The CEO should begin to see you as the provider of IT as service and a source of efficiency, productivity, and innovation for the entire organization.

The CFO will stop thinking of you as a pitchman for capital expenses and will have begun posting your expenses in predictable amounts in the operational expense budget. The tone of your conversations should shift from adversarial to cooperative.

The VP of sales will stop thinking of you as the guy who never has time to talk and will begin to see you as an ally, someone he needs on his side to achieve his goals.

And your storage team should finally stop suspecting that you really like the server team better than them and won't ask you to choose sides all the time. You'll spend more time talking with your team leaders together, instead of one at a time.

Forward-Looking IT

It may not happen overnight. But, if you have been modifying and developing new procedures to coincide with your new technology, your relations with the people around you should start to reflect the collaborative, flexible, forward-looking IT environment you have just fought tooth and nail to implement.

There are some changes in there for you, too. Once you've made the transition to the new way of doing things, for example, you can't revert back to old methodology.

When the next new project comes up that requires additional capacity, instead of automatically thinking about buying and building it, you can think about exploiting the capacity you have in different ways. Do you have excess capacity that isn't being used? Can you re-allocate the capacity that marketing needed for a special project to provide resources for this new project for accounting?



As your resource capacity becomes increasingly dynamic, you'll need maintenance and change management procedures that are as just as agile. You allocated extra capacity to the sales department during the peak season, did that capacity every get decommissioned or re-allocated? To adapt a phrase: the price of converged infrastructure liberty is eternal vigilance.

Self-Serving Corporate Assets

Once you have implemented self-service resource provisioning, automation, monitoring and governance can help you prevent department heads from thinking self-service means instant gratification. Establishing chargeback or showback capabilities will help you demonstrate that they are spending money by self-serving corporate assets.

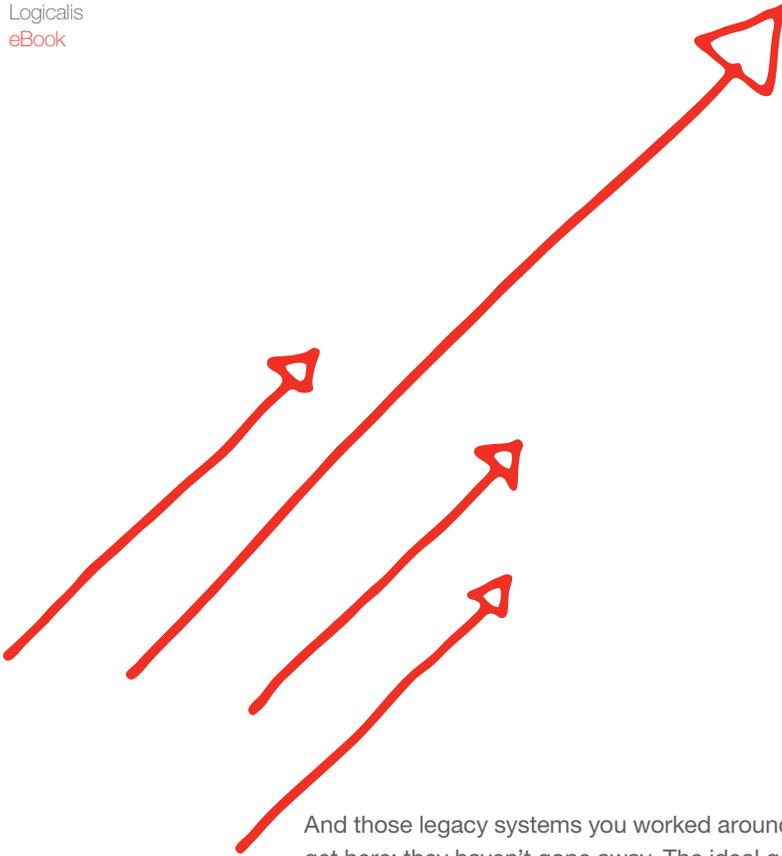
Some department heads who haven't been keeping up with the times might be shocked to learn that the IT resources their department uses are corporate assets and not their own private technology stash. This could be a good point for the CEO or CFO to make on your department's behalf.

Within your own staff you will have at least a recalcitrant few who want to maintain proprietary control over the technology in what used to be their silo. Those tendencies aren't going to just go away. Policies, procedures and incentives need to be in place to encourage a more enlightened sense that IT really is a team effort. As we pointed out in our third article in this series, the best way to get your storage and networking teams collaborating is to get them participating directly in the process of defining what it will take to make their culture reflect the new image of the technology.

Users In The Room

Now that your people inside the IT department are spending less time doing mundane tasks just to keep everything running, they will need to spend more time interacting with people outside the IT department. You'll need policies to ensure that relations between your technicians and end users get off on the right foot. Formalizing this processes with regularly scheduled joint meetings between IT and business users will help you keep all discussions of new services within department guidelines.

A converged infrastructure is a new model for IT and it means you can use technology in new ways to improve the bottom line. Showcasing initial successes that demonstrate how a converged infrastructure can get a product to market earlier, for example, can help promote advocates on the business side.



And those legacy systems you worked around to get here; they haven't gone away. The ideal goal, of course, is to get everything into the converged infrastructure where you have lowest costs per port, the lowest cost for SAN storage, for compute resource...for everything, compared to a discrete physical environment; and you can take advantage of the dynamic movement, self provisioning, scaling and all the benefits of shared resources model.

A successfully implemented converged infrastructure in your data center is not a destination. It is a process. More accurately, it is a set of processes, procedures, guidelines and configurations that allow your IT environment to respond more effectively to change.

Change is not going to stop. Your technology will change. You'll probably want to buy bigger servers, for example, to take advantage of economies of scale; and faster networks to boost bandwidth. The modular nature of a converged infrastructure will make changing technology easier.

Cloud computing is on your horizon, if not already in your tent. That's going to bring change. A converged infrastructure does not provide all the features of cloud computing. But it does enable cloud computing and will make leveraging a range of cloud options an easier transition.

Business Agility

The hot buzzword in the business press today is business agility: the ability of a business to respond rapidly and cost efficiently to changes in the business environment. A characteristic of business agility is that it makes change a routine part of organizational life. In many ways, business agility is the business counterpart to a converged infrastructure. Both have a little of the feel of controlled chaos about them.

IT policies and procedures used to be geared to maintain the status quo. The policies and procedures you need to put in place for your converged infrastructure should be designed to ensure that purposeful, constant controlled change—and not chaos—is the status quo.

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Brett Anderson is the Director of HP Server & Network Solutions at Logicalis, an international provider of integrated information and communications and is responsible for the support and growth of the HP Networking and Server business within Logicalis. Brett has been with Logicalis fourteen years, with consulting and management responsibilities in Logicalis' Professional Services and Sales organizations.

Jeff Nessen is Director Platform Virtualization at Logicalis and has been with Logicalis for five years. Before joining Logicalis Jeff spent 15 years in a variety of IT and IS roles for a range of organizations from small businesses to Fortune 500 companies.

About Logicalis

Logicalis is an international provider of integrated information and communications technology (ICT) solutions and services founded on a superior breadth of knowledge and expertise in communications & collaboration; data center; and professional and managed services.

Logicalis Group employs over 1,900 people worldwide, including highly trained service specialists who design, specify, deploy and manage complex ICT infrastructures to meet the needs of over 5,000 corporate and public sector customers. To achieve this, Logicalis maintains strong partnerships with technology leaders such as Cisco, HP, IBM and Microsoft.

The Logicalis Group has annualized revenues of \$1 billion, from operations in the UK, US, Germany, South America and Asia Pacific, and is fast establishing itself as one of the leading IT and Communications solution integrators, specializing in the areas of advanced technologies and services.

The Logicalis Group is a division of Datatec Limited, listed on the Johannesburg and London AIM Stock Exchanges, with revenues in excess of \$4 billion.

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