

A business is born—for many

ITX Enterprises, Inc. uses HP Converged Infrastructure to host a private cloud that speeds behavioral healthcare practices toward becoming Instant-On Enterprises

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Todd Christensen, IT Manager, ITX Enterprises, Inc.



Objective

Build an infrastructure with the reliability, flexibility, and scalability to host private cloud of virtual desktops for national roll-out

Approach

Evaluate competitive server blade and storage offerings on the basis of simplicity, reliability, and cost-efficiency

IT improvements

- Single-vendor support for servers and storage, saving staff time
- Streamlined single-pane-of-glass management for servers and storage, boosting productivity
- 75% reduction in storage administration time compared to prior environment
- HP Virtual Connect Flex-10 10Gb Ethernet modules enable:
 - Flexible allocation of network bandwidth, enhancing performance
 - 80% reduction in network cabling/switches
 - 85% less time to add, remove, or change servers

Business benefits

- Purchase of 15 extra terabytes *Direct Attached Storage and/or NAS* avoided due to thin provisioning and storage clustering
- 99% reduction in system time-to-value due to HP Factory Express (hours vs. weeks)
- 89% reduction in physical servers
- Estimated \$18,000 USD annual reduction in power consumption
- Twice as much staff time for innovation compared to prior environment
- Significant revenue opportunity enabled by infrastructure capable of national roll-out of virtual desktop service



How to be productive fast

Imagine you're a behavioral health professional. You spend some of your time with patients and some with paperwork. Naturally, you want to minimize the paperwork so that you can have more time with patients.

That's where ITX Enterprises, Inc. can help. It's a services provider based in Kaysville, Utah, that offers a virtual desktop service for behavioral health professionals. Sign on and you can access services such as a behavioral health records management system called Pro-Filer™, offered in partnership with developer UNI/CARE Systems, Inc. Pro-Filer™ lets you securely keep all client records online, as well as generate invoicing and payables as needed. Also, on your desktop is Microsoft® Exchange for email. You get everything you need to run your business.

HP customer case study:

HP BladeSystem, P4800 SAN storage, and HP networking used for private cloud that speeds time to value for health practitioners

Industry: technology



About ITX Enterprises, Inc.

ITX Enterprises, Inc. is a technology support and services company based in Kaysville, Utah. Its services include hosting an electronic records management application from UNI/CARE Systems, Inc. for behavioral health as well as high-performance data warehouse and database cubes for reporting and data analysis for healthcare records. ITX Enterprises, Inc. also offers services and products surrounding normal office technical support and hardware installation and setup such as routers, firewalls, content filtering, desktop and server support, and wireless (Wi-Fi) systems.

ITX Enterprises, Inc. already offers this service to a consortium of 500 behavioral health professionals across the state of Utah. “Many of them are in remote locations,” says Todd Christensen, IT manager, ITX Enterprises, Inc. “None of those offices could afford this type of infrastructure alone, but together they can.”

“HP Factory Express put in the power modules, server blades, storage blades, and cabling. We just had to roll the enclosure off the truck and plug it in. We got done in an hour what otherwise might take weeks.”

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ITX Enterprises, Inc.**

Many healthcare practices don't have IT staff or expertise to stage IT services, and they'd rather concentrate on patients, Christensen adds. “We give them a desktop with the horsepower of applications such as Microsoft SQL Server and Microsoft Exchange Server to do their work, and Microsoft Internet Information Services (IIS) for hosting their sites.”

It's a promising business model and ITX Enterprises, Inc. and UNI/CARE Systems, Inc. are discussing how to roll it out nationally.

Start with the right stuff

But when Christensen joined ITX Enterprises, Inc. in mid-2010, the organization's infrastructure had outdated technology. It wasn't ready to support the kind of service levels this business model requires. “Our servers were outdated and out of maintenance,” Christensen recalls. “We had standalone storage devices. I knew there was a better set of features out there, so we began evaluating vendors.”

The team explored offerings from HP, Dell, Cisco, Compellent, and NetApp. “I started narrowing down their feature sets compared to what our requirements are, and that led to HP,” says Christensen.

The difference was HP's Converged Infrastructure strategy. “What won for HP is their simplified, unified model of combining the BladeSystem c7000 Enclosure, which is a strong market leader, and the P4800 SAN Solutions,” Christensen explains. (The HP P4800 SAN Solution utilizes the HP BladeSystem c7000 Enclosure, where the SAN heads operate side by side with server blades.) “We wanted one shop that could take care of all our needs for tech support and troubleshooting compared to having different vendors for storage and server blades.”

Streamlined maintenance was important, Christensen adds. “We're a small shop without separate storage, server, or networking groups,” he says. “So the ability to manage cutting edge servers and storage through a single pane of glass is important.”

Cisco is following a similar strategy with its Unified Computing System (UCS), Christensen notes. “HP's solution converges compute, network, and storage with industry standard architectures all managed by a common management platform,” he says. “This goes beyond Cisco UCS, which converges network and compute capabilities but not storage. And then the deciding factor was the price point and management simplicity gained by using a single vendor—including the storage.”

Putting it all together

ITX Enterprises, Inc. needed room to grow and chose a configuration with that in mind. It has an HP BladeSystem c7000 Enclosure holding four HP ProLiant BL460c G7 Server Blades and a four-node HP P4800 SAN Solution. The enclosure is connected to the network with an HP Virtual Connect Flex-10 10Gb Ethernet Module.

“We have four BL460c G7 Server Blades hosting virtual machines (VMs) running VMware vSphere 4 and virtual servers,” Christensen explains. “The other four slots we're using are for the P4800 SAN. “And the other eight slots are empty right now, giving us headroom.”

ITX Enterprises, Inc. is also using HP A5800 switches at its network core. “I chose HP switches instead of Cisco because I wanted everything from one vendor,” Christensen notes. “They're also less expensive, and they performed as promised. They've given us no problems. With the A5800 switches—I have redundant 10Gb network connectivity between the two core switches as well as 10Gb redundancy into my HP Virtual Connect module on the c7000 chassis using the very affordable 10Gb pre-molded SFP+ copper connections.”

The company purchased the solution through Sirius Computer Solutions, an experienced HP partner. “Sirius Computer Solutions gave us tailored on-site training to get us up to speed as quickly as we could, and it was very helpful,” Christensen notes. He also visited an HP facility in Houston to tour the factory where HP server and storage blades are manufactured. “It really helped us see where we were headed, and helped us feel at ease upon seeing the high quality, rigorous testing, and workmanship that HP puts into their equipment before it ever ships out to the customer,” he says.

Sirius Computer Solutions also helped ITX Enterprises, Inc. work with HP Financial Services. “We were able to get a very attractive financing solution, purchasing this equipment under very favorable terms,” notes Christensen.

Turning weeks into an hour with HP Factory Express

Christensen used HP Factory Express, so the solution arrived pre-assembled, pre-tested, and pre-configured to ITX Enterprises, Inc. specifications. “HP Factory Express put in the power modules, server blades, storage blades, and cabling,” he explains. “Everything was done ahead of time, so we just had to roll the enclosure off the truck into the data center and plug it in. We got done in an hour what otherwise might take weeks. We had instant results and no worries about if everything was put together correctly or if anything was missing.”

“We have 23 terabytes of storage space available of very fast network RAID 10, and we have already provisioned 38 terabytes,” he notes. “That’s 15 terabytes that we would have had to purchase without using and the benefit of thin provisioning.”

**Todd Christensen, IT Manager,
ITX Enterprises, Inc.**

Christensen remembers what happened at another company earlier in his career: “We bought a Dell blade solution and SAN, and it was all delivered in about 130 boxes. I had to piece it all together and rack it all. It took the better part of two weeks before we could even hit the power button. Even weeks later I always had to wonder if I had assembled it correctly.”

Cutting storage admin time by 75 percent

Instead of having islands of direct-attached storage for regular servers as well as database servers, ITX Enterprises, Inc. now has a centralized SAN. “We had three or four main production database systems previously, and they frequently ran out of drive space running maintenance or updates on the databases,” Christensen recalls. “We were always doing lots of juggling. It was very difficult to expand the RAID. What took me hours then now takes me minutes.”

Overall storage administration time has dropped 75 percent, Christensen says, from eight hours a week to two. “Just yesterday, a database server ran out of space because I hadn’t yet set a proactive alarm,” he notes. “I was able to go in and double the size of that LUN, expand the VMFS store, and double the capacity for that server in under an hour. It was a matter of three or four clicks: re-provision, re-allocate, reboot. In our old environment, it would have taken hours or days, and lots of headaches.”

More administration can be done remotely. “We have many fewer visits to our co-location data center facility as now I have such a broader picture of the performance of the hardware and can re-provision and more accurately allocate resources much easier through a VPN connection from virtually anywhere,” Christensen points out.

Thin provisioning saves 15 terabytes of storage

ITX Enterprises, Inc. uses the Network RAID feature of the P4800 SAN to stripe and protect multiple copies of data across a cluster of storage nodes, eliminating any single point of failure. Christensen also uses thin provisioning in the P4800 SAN to avoid the need to pre-allocate storage. “We have 23 terabytes of storage space, and we have already provisioned 38 terabytes,” he notes. “That’s 15 terabytes that we would have had to purchase without thin provisioning and storage clustering.”

Virtual Connect for fast, flexible pipes

ITX Enterprises, Inc. purchased additional HP implementation services, and an HP engineer worked with Christensen and team to complete the configuration of the storage and HP Virtual Connect. “I was really impressed with HP implementation services,” Christensen says. “Of all the individuals that I’ve ever worked with in my career, that HP engineer was one of the top five.”

Virtual Connect is providing flexibility, says Christensen. “Each of the server blades has two Virtual Connect Flex-10 10Gb connections,” he notes. “We provisioned two 6Gb Ethernet links for the iSCSI VLANs and iSCSI network. We provisioned two 2Gb Ethernet links for our networking and two 2Gb Ethernet links for VMware vMotion. And the fact that you can just carve that bandwidth up and slice it and at any time go back and adjust the profile as needed—that’s powerful.”

HP Virtual Connect reduces cabling and switches by about 80 percent, Christensen adds. And because LAN and SAN addresses are pre-assigned to the server bay instead of the server blade, server moves, adds, and switches can be done as much as 85 percent faster. “I really can’t imagine a smoother and more consistent approach by using this HP equipment along with VMware,” Christensen comments. “It really is what a system administrator dreams about and hopes to have in their own data center someday.”

Customer solution at a glance

Hardware

- HP ProLiant BL460c G7 Server Blades
- HP BladeSystem c7000 Enclosures
- HP Virtual Connect Flex-10 10Gb Ethernet Modules
- HP P4800 SAN Solutions
- HP A5800 switches

Software

- HP Onboard Administrator
- Pro-Filer™ from UNI/CARE Systems, Inc.
- Microsoft Exchange Server
- Microsoft SQL Server
- Microsoft Internet Information Services (IIS)

Operating systems

- VMware vSphere 4 (migrating soon to vSphere 5 w/VMFS 5)
- Windows® Server 2008 R2
- Windows Server 2003

Network protocols

- 10 Gigabit Ethernet
- 1 Gigabit Ethernet
- iSCSI using 10GB

Services from HP

- HP Factory Express
- HP Implementation Services
- HP Premium Support 24x7x365

There is also a benefit to having server and storage blades in the same enclosure. "We get the speed and benefit of the back plane in and out of the storage and in and out of the Virtual Connect," Christensen observes. "It has a pipe big enough that bandwidth is not a concern."

Saving \$18,000 annually in power

With its new environment, ITX Enterprises, Inc. shrunk eight racks of equipment into one rack containing a 10U HP BladeSystem c7000 Enclosure. What once ran on 65 physical servers now runs on 58 virtual machines (VMs) and only 7 standalone physical servers. "We can now tell our co-lo to disable eight 110-volt power connections because of equipment we no longer need," Christensen says. "Our annual power bill could go down by as much as \$18,000."

Instant-On productivity

For the ITX Enterprises, Inc. team, the new environment has changed the game: "In our old environment, we were spending 70 percent of our time on maintenance and putting out fires and only 30 percent on new projects," Christensen notes. "With the HP BladeSystem and HP P4800 SAN, we have reversed that ratio: now we spend 30 percent on maintenance and 70 percent on new projects."

One new project is developing a national roll-out of the ITX Enterprises, Inc. desktop hosting service for behavioral care professionals. The flexibility of the infrastructure is a key enabler. "We can provide varying levels of service level agreements (SLAs)," Christensen notes. "It can be as simple as providing an operating system environment, or we can manage the desktops, doing patching, setups, and administration based on a cost per user."

"We have the flexibility to quickly scale: I can deploy a server in an hour that would have taken a day in the old environment. I can quickly give a customer the right number of CPUs and terabytes of storage, tuned to their requirements, and maximize our total cost of ownership."

It's now easy for ITX Enterprises, Inc. to launch new services, and for healthcare practitioners to launch their businesses. In the field, caregivers can log in to virtual desktops, say hello to patients, and say goodbye to most paperwork. As they say in the healthcare trade, it's a positive outcome for all.

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