Remote Office Storage: Go Hardware-Less

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While remote & branch offices are the forefront of many business' operations, they are often left to fend for themselves when it comes to local access to company data. Bandwidth concerns, network latency, and hardware and support costs of remote solutions have resulted in organizations simply settling for "good enough", leaving remote workers fending for themselves with insecure and inefficient storage methods and lowered productivity.

If remote & branch offices are so important, ***why are they getting the short end of the storage stick?***

Remote offices are still offices! They need access to the same services and data that the corporate headquarters rely on. And corporate needs to ensure all data created and modified within those remote offices is centrally accessible in the event of ат office closure, disaster, staff firing or audit.

Organizations with tens, hundreds or even thousands of remote offices have placed servers locally at each remote office, with little or no redundancy. That means neither the remote workers nor corporate ones, have any recourse should systems fail. So the concept of fault tolerance enters the conversation, adding a layer of complexity to the implementation at each remote office – storage (and the VMs that run on it) needs to be highly available.

With IT given the requirement of maintaining persistent business continuity for remote offices, but done with the constraint that they have limited budgets and management staffing, it's a seemingly complex problem. Add to this the constant demand for faster access to data and services, all without the presence of a full-time administrator.

So how do you create an environment that provides redundancy and fault tolerance to your storage and VMs, therefore improving employee access to data?

Many organizations turn to hardware-based SANs, storage appliances, even VM replication or backup & recovery strategies. But given the limited ability to support countless remote offices, the solution used has to be easy to implement, simple to manage, require little support, run efficiently, and be highly available – all at an affordable cost.

That's a tall order to fill.

So what's the best approach to provide storage to VMs and remote workers alike while maintaining business operations?

You're in one of two camps: either you have a solution in place that isn't standing up to the long list of requirements, or you are planning how to address the problem and have a traditional solution in mind. Either way, that long list of requirements probably comes with an equally long list of hardware and management needs. Any way you look at it, ***it's time for a new approach***.

In this whitepaper, we'll put those traditional approaches to the test as we look at three reasons why your current approach to remote office storage may not be the best choice.

Reason #1: You're using too much hardware

Most likely, your remote offices already have their own dedicated hardware and software to provide the basics: network connectivity, DHCP, DNS, directory services, printing and file services all wrapped up within a few virtual servers. That's enough to ensure the business is operational, but it doesn't solve corporate's need for a highly available scenario that protects its investment and keeps remote offices running.

If you were charged with implementing a highly available storage solution for your remote offices, it's probable you'd look at your existing remote office hardware and begin to plan the purchase of additional servers, dedicated storage, and additional networking hardware.

But is that the right approach?

Doing so means costly hardware purchases, setup time, and some kind of dedicated management of that new environment, even training (and perhaps certifying) the support staff on the new hardware – all adding up to a very hefty price tag that will only be multiplied as this same solution you've come up with gets rolled out hundreds more times to other locations.

That's an answer you can't afford.

The Right Approach

You want a solution that provides redundant replicated storage using the smallest possible hardware footprint possible. It's imperative when you consider that most companies do not just set up remote offices once; they do it tens, hundreds or even thousands of times.

This means the right approach would be deploying a hyper-converged **Virtual SAN** setup running on existing hardware and storage you already have in place. With third-party solutions, it's entirely possible.

Wait! No RAID hardware? No Switches? No 3rd node for voting?

Nope. That's part of what it means to ***"go hardware-less";*** the right **Virtual SAN** solution provides you with the storage availability and redundancy needed without acquiring a single piece of additional hardware. Add to that efficient deduplication and compression technologies to your storage and you're actually using ***less hardware*** than before!

It's possible to create a **Virtual SAN** solution with existing hardware. This potentially creates a different problem; non-dedicated hardware usually means you're going to take a hit on performance, and given the *importance* of a remote office, that's something you can't afford to lose.

Reason #2: You should have agility and performance

In an ideal world, you want a highly available, fault tolerant storage cluster that gives you the highest level of flexibility when it comes to allocating your storage, without negatively impacting the performance of your environment. After all, remote workers not only need access to services and data, but need it as quickly as possible.

While it's already clear choosing a hardware-less solution is not only possible but also desired, you've previously considered hardware-based SAN solutions or storage appliances to address the availability and redundancy needs of your remote offices.

Will that approach give you the performance and flexibility you need?

While every SAN solution on the planet makes the claim of fast performance, at some point you'll need to separate the proverbial "men from the boys" and look for the key differentiators that make the solution you implement truly better. Both hardware and appliance-based SANs, by definition, slow down the communication path, making them less and less a contender.

You already recognize that adding hardware is less than optimal. ***So if your not adding hardware, how do you achieve improved performance?***

The Right Approach

You need to be utilizing a **Virtual SAN** solution – one that specifically runs inside the Hypervisor's core. You can see this type of solution trending as an absolute must by looking at the direction taken by leading vendors in the virtualization industry. By running inside the core, there is seamless integration between your storage and any virtual servers, allowing for the most agile use of your storage across your VMs.

It also means increased performance. External SANs and virtual appliances have inherent I/O latency and network traffic issues to deal with and can't match the minimal I/O Path found in a **Virtual SAN** running within the Hypervisor. Add that to accelerated I/O reads/writes using RAM and flash, and you will see how a **Virtual SAN** provides unmatched performance.

Going virtual lastly helps to achieve the goal of the smallest hardware footprint possible – in this case, zero – keeping your capex hardware and support costs from increasing, and allowing you to continue down the path of going "hardware-less."

But is that really enough? If you can reduce hardware costs while increasing performance, do you have the right storage solution in place? There's one aspect of the right solution we haven't talked about yet. You see, the trifecta of storage solutions also reduces management costs. Otherwise, you're simply shifting costs from hardware and throughput over to management. The right solution also needs to lower the cost of management.

Reason #3: You need less people & more automation

Any solution you implement requires some management to get it running and keep it running, right? And when you're talking about a SAN that will be not just allocating and providing storage to remote office VMs but also will be the crux of a fault tolerant storage cluster, it's normal to assume you're going to make a significant time investment around provision and ongoing management.
By their very nature, those external SANs and storage appliances you were looking at will require time spent configuring them to work in your environment, provisioning space, managing the fault tolerance of the environment and don't forget supporting the hardware.

This sounds like a lot of work for a remote office. One of hundreds. You don't have time for all that, do you?

The solution you choose needs to fall more in the "set it and forget it" category and less in the "I need constant attention" category. You simply can't afford to revisit each remote office as you will be implementing this same scenario countless times. There's no dedicated staff at each remote office either; on this one, you need to think ahead and choose a solution that requires little management.

With a seemingly more complex solution, how then do you reduce the people "footprint" as well?

The Right Approach

Your solution needs to be simple and efficient – requiring too much management results in poorly managed storage. Management needs to be as automated as is possible. And scalability should be no more work than just adding disks.

A **Virtual SAN** puts all the pieces in place to create a solution with simplified management. With a **Virtual SAN**, you've eliminated extra hardware - that means significant reductions in management costs. Then, when you put the **Virtual SAN** right inside the Hypervisor, there are no additional skills required to manage your storage. It's already native to your virtualization admins.

But even beyond that, it still needs to be inherently simple. With so many remote offices and so little admins, the right solution must require very little management, thus lowering costs, while maintaining high availability and fault tolerance.

Conclusion

Your remote offices need a solution in place that meets a long list of requirements. Simple backup and recovery or replication of data won't sustain the needed business continuity. Hardware-based SANs and storage appliances lack the management simplicity and performance needed to keep up with business demand. When you add fault tolerance and high availability into the mix, every solution that met your previous list of needs suddenly needs to be revisited.

Your current approach to remote office storage needs to be rethought out with a hardware-less approach in mind. **Virtual SAN** solutions that utilize existing hardware, run within the Hypervisor, and require simplified management provide the lowest operational and hardware costs while maximizing performance and availability.

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