



Low-cost, Hands-free Remote Offices / Branch Offices: *Uninterrupted Data Services from Smart, Responsive Software*

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EXECUTIVE SUMMARY

Distributed enterprises with numerous remote offices and branch offices (ROBO) face unique needs for reliability, simplicity and cost-effectiveness. Industries such as retail, hospitality, manufacturing, healthcare and financial services often speak of those challenges.

ROBO sites often suffer from little available floor space in which to deploy IT systems. The limited staff charged with managing and maintaining these environments can't possibly specialize in line of business applications, operating systems, databases, networks and storage technology. Nor do budgets allow for traditional three tier architectures where compute, networking and storage elements and responsibility for each are cleanly split. Needless to say, these satellite locations operate under very tight IT budgets.

With the emergence of hyper-converged solutions, such as that offered by DataCore, it is now possible to address these requirements and to "right size" ROBO IT and create independent and highly autonomous "IT cells". Application access can be delivered where it is needed while critical data assets can be maintained wherever it is most convenient, most cost-effective and using the best technology, regardless of whether it is onsite, back at headquarters or out in the cloud.

REMOTE SITE PROBLEMS

It is clear that IT capabilities have become the foundation of nearly every type of business, regardless of the industry or customers being served. Nearly every function needs support of applications and data that used to only be available at headquarters. Now it must be available everywhere.

These IT capabilities are now being delivered by multi-site, multi-tier distributed applications that might be hosted on many different vendors' systems. This also means that different operating systems, approaches to development and different types of networking and storage architectures are needed throughout the organization. Creating this type of computing environment that has the attributes of being a highly reliable, highly available and yet, easy to administer is challenging at best.



Accomplishing the enterprise mission typically means that many components must be replicated at each location to assure appropriate levels of performance, reliability and availability without also imposing the need to have numerous types of IT expertise to offer ongoing operational and administrative support.

Typically this also means that the IT infrastructure must be architected as multiple, redundant computing environments that each includes the following:

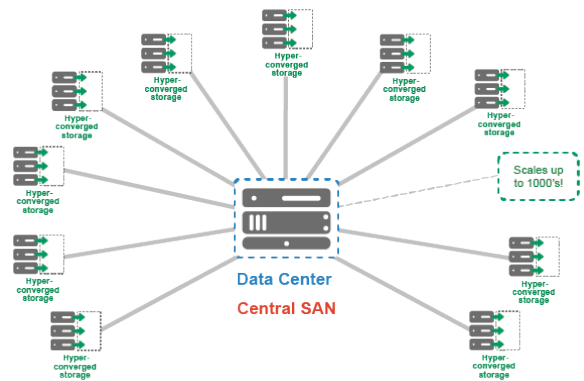
- Replicated servers – if one server fails, workloads supporting that ROBO must be able to continue to be available.
- Replicated networking and storage – Customer access to applications and data must be supported even if a single network or storage component fails.



Without careful planning, the resulting IT environment can be overly complex, costly and take up more space than is readily available in ROBO sites.

If we focus on data and application availability for a moment, ROBO sites need many of the capabilities of a full enterprise-class SAN on a smaller scale. But it is unreasonable to deploy a full-blown SAN at every remote site.

Finding ways to provide these features in a cost-effective fashion can be challenging. Furthermore offering the right level of storage scalability might require the use of remote or cloud-based storage.



It is clear that the enterprise needs tools to make the best use of available storage options without also breaking the budget. It is also clear that the overall solution must perform well and be small and cost-effective or it's not a viable option.

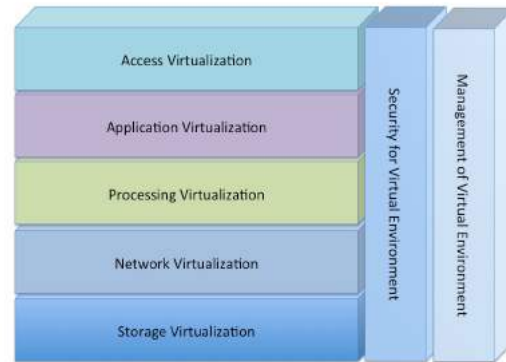
Whatever solution is adopted, central monitoring and management must be available so it isn't necessary to have systems, storage and networking expertise on site at each ROBO location.

REQUIRES VARIOUS TYPES OF VIRTUALIZATION TECHNOLOGY TO PERFORM

In the past, enterprises faced the requirement to install replicated systems, often two per application, the required memory, networking and storage. This approach was costly and consumed too much floor space. Various forms of virtualization technology emerged in the industry standard X86 computing environment making it possible to simplify the hardware for a totally redundant computing environment.

Different types of virtualization technology are now common across major enterprises. Here are a few examples:

- Access virtualization technology makes it possible for staff and customers to use many different types of end point devices, such as PCs, laptops, smartphones and tablets, to interact with their enterprise applications.



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- Application virtualization technology enables many different types of previously incompatible applications to be hosted on a single operating system.
- Processor virtualization technology allows many independent workloads to be hosted on a single physical host system or spread across servers that reside locally in headquarters or in the cloud.
- Monitoring and migration technology that makes it possible to automatically move workloads from physical system to physical system or from data center to data center to provide necessary levels of availability without requiring special staff expertise in the ROBO environment.
- Storage virtualization technology ensures data is stored in the most convenient place at the lowest possible price.

With hyper-convergence, these virtualization technologies come together in a cost-effective and compact form ideally suited for ROBO sites. In addition, the entire redundant system can be centrally managed from remote consoles.

WHAT DOES "PERFORM WELL" REALLY MEAN?

One of the larger challenges of a distributed computing environment, such as those found in enterprises having many ROBO sites, is how much performance is enough? It is clear that the environment must perform at an acceptable level, but not at the expense of undue complexity; unnecessary requirements for floor space, power or cooling; and extra staff expertise at each site.

What this means in practical terms is:

- Selected hardware configuration must have sufficient resources to support the imposed workload and provide support for some level of future growth.
- The configuration should include sufficient extra resources so that system, network and storage failures can be addressed by moving workloads around as necessary. This should be accomplished without also requiring a large amount of extra equipment sitting around.

Many enterprises, unfortunately, forget to consider storage performance, availability and cost when implementing solutions for ROBO sites. When they do, they need technology that will make the best of available storage resources and not require expensive, complex SAN configurations at every site.

TECHNOLOGY EXISTS

Fortunately, hyper-converged technology exists to address all of these concerns and still fit within corporate guidelines for equipment budget and staffing levels.

Today's hyper-converged systems make it possible to support redundant computing environments in a very small form factor. These systems also are expandable enough to offer enough scalability to support a growing business.

They make extensive use of today's virtualization technology, integrating virtual access, virtual processing, virtual networking and virtual storage. System components and workloads are monitored for slowdowns or failures so redundant system resources can be automatically pressed into service without disruption. In other words, these computing environments are designed so that there are no single points of failure, nor do they rely on human intervention to "fail over."

In essence, ROBOs can operate inexpensively with virtual SANs, quickly rolled out when and where they are needed; optimized for low-cost internal server storage or crafted for high-end system throughput and low latency through intelligent caching.

All of this sophisticated technology is designed so that it can be monitored and managed centrally or with local staff depending upon the preferences of the organization.

HYPER-CONVERGED SOLUTIONS FOR ROBO

DataCore, a key innovator in storage virtualization and software-defined storage, recognized these issues a long ago. DataCore™ Hyper-converged Virtual SAN software excels in ROBO scenarios. The company's integrated package offers:

- Pooling of direct-attached disks across server clusters, mirroring data across nodes, caching reads and writes, auto-tiering between flash, SSDs and spinning disks. This makes it possible for ROBO sites to have enterprise SAN features without the expense or complexity.
- Zero-downtime, zero-touch failover / failback to prevent storage-related outages
- Remote monitoring and management with the level of performance, reliability and availability needed for today's IT-intense business operations.
- Close integration with today's most popular server hypervisors
- Best price-performance
- Fastest response time
- Most I/O throughput in smallest rack space

SUMMARY

ROBO sites' IT needs are at once similar, yet very different to that of larger data centers. DataCore directly addresses both of those needs with a unified data infrastructure software solution. Their hyper-converged product, with proven roots in the most demanding enterprises over the past decade, is tailored for space and funding-constrained environments without compromise.

It employs advanced automation in place of specialized on-site expertise when things fail so that the enterprise no longer need to "muscle up" IT organizations at each ROBO site.

With the high levels of price-performance and fast throughput in the tiniest of closets, distributed enterprises will be able to deploy smaller, less costly systems

with unrivaled responsiveness and continuous availability to set them apart from competitors.

Kusnetzky Group recommends visiting DataCore's website [file://localhost/\(http://datacore.com\)](file://localhost/(http://datacore.com)) to learn more about their unique approach to sites small and large. Ask for a demonstration of their technology. It is likely to be impressive and very persuasive.