

# WHITE PAPER

Easing the Way to the Cloud:

The Value of Using a Reference Architecture in Private Cloud Deployments for Microsoft Applications and Server Platforms

**FUSIONSTORM™**

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## EXECUTIVE SUMMARY

Organizations are demanding that it deliver the agility to respond to ever-changing business requirements while maintaining the performance and availability of existing services. Often, it is not equal to the task: the traditional data center environment — filled with point solutions, siloed architectures and underutilized systems — is ill-suited to meet today's business requirements for fluid scalability and rapid provisioning of new services.

A private cloud environment can provide the flexibility, scalability and efficiency organizations need, enabling IT to allocate and manage resources in an IT-as-a-Service model. However, the move to cloud computing is often a long and difficult journey through uncharted territory. A recent Computerworld survey found that the time, cost and learning curve associated with building a private cloud was the most significant drawback to private cloud deployment, cited by half of respondents.

Furthermore, business executives are often apprehensive about moving mission-critical applications to a private cloud. Performance is a major concern — in a recent survey, nearly three-fourths of CEOs and CFOs perceived performance as a significant or extreme challenge for hybrid or private cloud implementations. Questions about reliability and security were also cited as significant stumbling blocks on the road to private cloud computing. As a result, organizations generally have been slow to move email, collaboration, ERP and CRM applications to a private cloud. This includes organizations that rely upon Microsoft applications and server platforms to provide these key business services.

A reference architecture can help organizations overcome both sets of challenges. A reference architecture provides tested and validated configurations and deployment guidance, enabling IT to implement a private cloud quickly, efficiently and with confidence. Preconfigured and validated solutions in turn reduce risk, ensuring high levels of performance, scalability and availability. Ultimately, a reference architecture helps deliver on the promise of cloud computing by enabling rapid provisioning of line-of-business applications in a highly manageable, cost-optimized environment.

This paper discusses the application of a private-cloud reference architecture for Microsoft applications and server platforms. It focuses on EMC's VSPEX Proven Infrastructure, a simple, efficient and flexible reference architecture comprising EMC's award-winning storage systems and next-generation backup products, along with best-of-breed virtualization, server and networking technologies from EMC alliance partners.

## MICROSOFT IN THE PRIVATE CLOUD

Organizations of all sizes are utilizing Microsoft applications and server platforms — including Exchange, SharePoint, SQL Server and Windows Server 2012 — to deliver mission-critical services across the enterprise. Microsoft's enterprise-focused solutions help organizations reduce costs, improve productivity and make better decisions with familiar, easy-to-use Microsoft software.

However, sprawling and inefficient server infrastructures, explosive data growth and a lack of overarching management have brought increased cost and complexity to these Microsoft environments. As a result, many organizations are looking to virtualize their Microsoft applications and, ultimately, move them to a private cloud.

Whether public, private or hybrid, cloud computing has these characteristics:

- **Resource pooling.** Computing resources are pooled and dynamically assigned and reassigned based upon demand. Consumers generally don't know the exact location of the resources used to deliver a particular service.
- **On-demand self-service.** Consumers can provision computing capabilities as needed. Services can be standardized or customized, with the former available in minutes and the latter available in days or weeks.
- **Rapid elasticity.** Capabilities can be rapidly and elastically provisioned to scale out, and rapidly released to scale in. IT no longer needs to overprovision infrastructure to accommodate spikes in demand.
- **Measured Service.** Cloud systems automatically control and optimize resource use through metering. Resource usage can be monitored, reported and charged back, providing transparency for both the provider and consumer of the service.

A private cloud adds to these characteristics the benefits of a dedicated environment, which allows organizations to maintain control over their data and processes and to customize resources.

In sum, a private cloud gives organizations the agility to deliver critical Microsoft applications faster and more reliably. It also provides a foundation for the future, enabling IT to drive innovation with the confidence that the IT infrastructure can respond to changing business needs.

## THREE AVENUES TO A PRIVATE CLOUD

There are three ways to go about building a private cloud infrastructure. One option is to buy best-of-breed components and construct it from the ground up. This strategy is extremely flexible, enabling the organization to architect an environment that can be finely tuned to existing infrastructure and specific business requirements.

The downside of the custom approach is the level of complexity and effort involved. Upfront planning is critical, but decision-making is complicated by the constantly evolving hardware choices available to architect a private cloud environment. Organizations may opt to migrate from traditional rack-mount servers to tightly integrated, highly redundant blade servers or unified computing systems. Storage arrays, storage networking and storage protocols are also critical to the performance of the environment and have a dramatic impact on the cost of the solution. These components, along with networking, virtualization, automation and management, must be tightly integrated and highly optimized in order to reap the benefits of a private cloud.

A private cloud infrastructure does not have to be built from scratch, however. Another option is to purchase a pre-integrated converged infrastructure such as the VCE Vblock system. VCE — Cisco and EMC's joint venture with VMware — pioneered an integrated data center offering that enables rapid time-to-value and low TCO for cloud infrastructure. VCE's converged infrastructure standardizes processes and lifecycle management to significantly improve application availability and enable a seamless support experience. VCE is a popular choice among service providers and large enterprises but is not right for every environment.

A third avenue is to use a reference architecture such as EMC VSPEX — a tested and validated design based upon best-of-breed technologies. A reference architecture does not dictate particular components but rather provides the architectural vision, guidance and best practices needed to rapidly deploy a private cloud. VSPEX employs a modular approach that addresses many common use cases and provides a blueprint for implementing a proven solution, significantly reducing the planning, sizing and configuration burdens associated with private cloud deployments.

## OVERCOMING OPERATIONAL HURDLES

One of the most difficult aspects of implementing a private cloud is realigning IT provisioning processes. The configuration discussions and budgeting requirements associated with the traditional data center are incompatible with the streamlined, automated provisioning of the cloud paradigm. IT organizations are facing increasing pressure to remove these operational hurdles or else lose business users to a public cloud alternative. A reference architecture can aid in this process realignment by minimizing configuration and sizing challenges.

## REDUCING COMPLEXITY AND RISK

Reference architectures are increasingly relevant given the complexity, size and volatility of the data center environment. While each component within the data center has its own characteristics and requirements, a reference architecture ties them all together with a common architecture and powerful enabling technologies. A reference architecture also addresses the need for greater system interoperability, adaptability and rapid provisioning, making it ideally suited to the design and integration of a private cloud environment.

EMC VSPEX Proven Infrastructure removes the complexity and risk associated with designing, integrating and deploying a private cloud infrastructure. Designed to accelerate the journey to the private cloud, VSPEX enables organizations to consolidate hardware, optimize resource usage and simplify management using best-of-breed solutions in a proven infrastructure tested and validated by EMC.

VSPEX leverages the benefits of leading hypervisor technologies and their many integration points with highly flexible EMC storage and backup solutions. Pre-validated architectures enable customers to build upon this framework with their choice of industry-leading server, networking and virtualization technologies. Complete configuration and sizing guidelines for the most common workloads reduce integration and validation costs and speed implementation.

VSPEX gives customers the confidence to transition to the cloud by addressing the performance, quality of service and scalability requirements of mission-critical Microsoft applications. In some cases, organizations gain dramatic increases in performance and scalability, enabling them to run even the most resource-intensive applications in a private cloud environment. VSPEX also enables organizations to adopt a self-service model for provisioning infrastructure services across the enterprise.

At the same time, VSPEX enables customers to reduce costs up to 80 percent by consolidating silos of application infrastructure. Microsoft administrators also benefit from application-aware management and tools for simplifying the monitoring and provisioning of Microsoft application infrastructure.

## FUSIONSTORM DELIVERS END-TO-END EXPERTISE

EMC VSPEX Proven Infrastructure is available exclusively through the EMC Velocity partner program. As an EMC Velocity Partner and Microsoft Gold Partner, FusionStorm is uniquely positioned to help customers leverage EMC VSPEX Proven Infrastructure to accelerate and optimize their Microsoft cloud deployments. In addition to advanced proficiency in EMC solutions, FusionStorm provides expertise in the design, implementation and management of Microsoft applications and server platforms. Combined, these capabilities deliver unmatched value to customers seeking to gain the benefits of the cloud for their Microsoft server environments.

## CONCLUSION

IT organizations are facing the twin challenges of growing complexity and an increasingly dynamic IT environment. Business requirements demand agility and rapid time-to-value, yet the typical data center largely consists of siloed, underutilized systems. Each new IT service must be separately configured with dedicated infrastructure, requiring weeks or months to provision.

A private cloud can transform the way organizations deliver and consume these services, enabling true IT-as-a-Service and optimized management. However, private clouds are notoriously difficult to implement, requiring significant investments, complex deployments and changes in organizational processes. A reference architecture can streamline this process through validated and tested architectures that reduce configuration time and risk.

EMC VSPEX Proven Infrastructure is a powerful solution that delivers the benefits of a reference architecture built upon EMC storage and backup solutions. VSPEX enables organizations to deploy customized private clouds quickly and efficiently by mixing and matching virtualization, server and network components based upon their specific infrastructure and application requirements.

VSPEX is ideally suited to mission-critical Microsoft environments. With VSPEX, organizations can architect a private cloud infrastructure that delivers the performance, quality of service, scalability and simplified management mission-critical Microsoft applications and server platforms demand.

## About FusionStorm

FusionStorm delivers best-of-breed technology solutions that give our customers a competitive edge. Our deep technical expertise and business acumen enable us to design and implement solutions aligned with each customer's unique business requirements. We maintain the highest certifications from industry leaders and offer an array of services designed to maximize the efficiency of our customers' operations.

Headquartered in San Francisco, FusionStorm has offices and data centers across the globe, and a culture that emphasizes long-term relationships. By partnering with FusionStorm, customers gain a team of seasoned professionals with a track record of success and an unwavering commitment to customer satisfaction.



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