

CLOUD SERVICES

Savvis Symphony Virtual Private Data Center (VPDC)



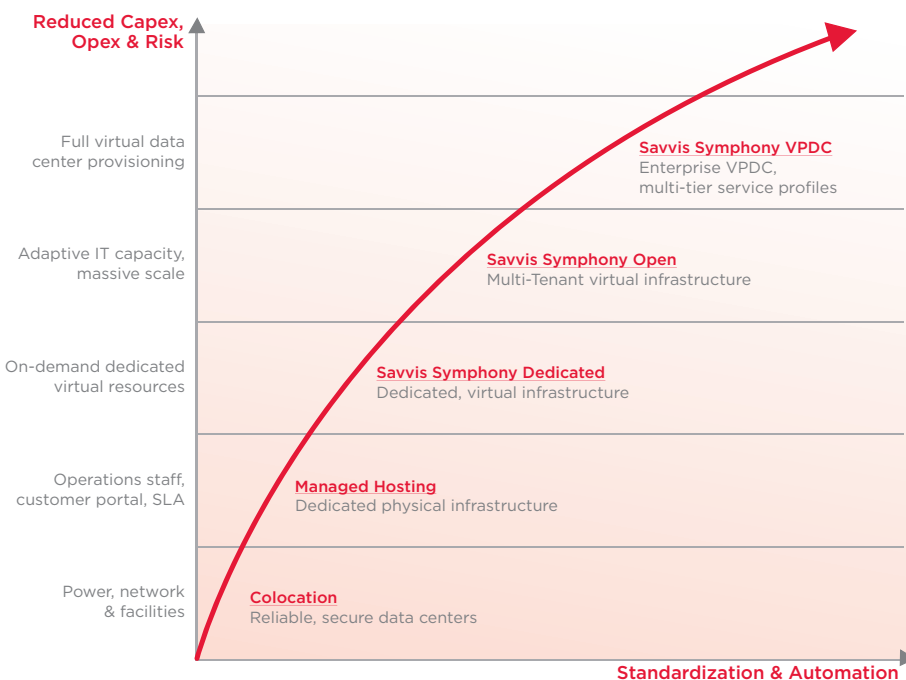
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Cloud adoption is mainstream and transforming the way corporate IT departments deliver services. Transforming your IT department requires more than just virtualized servers available over the Internet. There are many choices in the market place ranging from startups to retail companies providing cloud computing solutions. You need a leading IT infrastructure outsourcer with a strong reputation for providing a broad range of networking, colocation, managed hosting, consulting services and a family of cloud computing solutions. Savvis is an industry-leading provider of cloud solutions that address a spectrum of customer requirements to transform IT into an agile, responsive service that is tightly aligned with the business goals.

Savvis Symphony Virtual Private Data Center (VPDC) launches a new era of cloud services. Complementing the existing Savvis Symphony Open and Savvis Symphony Dedicated cloud compute services, VPDC is a cloud-based virtual data center environment built on best of breed infrastructure with multi-tiered security model, Quality of Service (QoS), and robust service levels.

Savvis Symphony VPDC provides powerful new capabilities for enterprise IT:

- Full data center provisioning through the VPDC concept
- Fast, self-service data center provisioning through Web-based drag-and-drop topology designer or application programming interface (API)
- Multi-tiered service profiles with policy enforcement
- Enterprise-grade security, platform redundancy and high-performance information lifecycle management (ILM) storage
- Massive scalability for all data center services



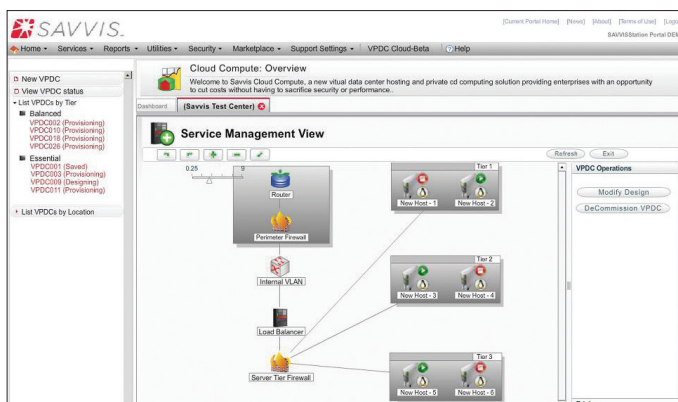
As a self-service, on demand, with a metered service, Savvis Symphony VPDC provides a number of dramatic enhancements to deliver on the true promise of cloud computing: VPDC was built to deliver managed hosting capabilities with a robust set of self-service features such as easy drag-and-drop provisioning, user-controlled firewall and load balancer configuration, client-provided server images, server parking, and image cloning. Symphony VPDC replaces the weeks and months of lead time needed to procure, install, configure, or manage any hardware, and delivers a powerful on-demand capability for defining, configuring, and deploying a full virtual data center within hours. A VPDC can contain a complete set of enterprise data center services, including compute instances of varying sizes, multiple tiers of storage, a wide variety of security features, high-performance, redundant bandwidth, and load balancing delivered in a pay-as-you-use cost model.

Savvis Symphony VPDC also introduces multi-tiered Service Profiles, which are a set of flexible, predefined, selectable ITIL-standard capabilities, that optimize the cloud for specific organizations, applications, projects, developers, or any other type of segmentation your organization uses. This provides a key enabler anywhere within your application lifecycle: including test, development, staging, quality assurance (QA), web hosting, and enterprise mission-critical applications. Each VPDC can be created with a specified service level that is optimized for its intended use case. Built on cutting edge VMware® virtualization technology, Cisco virtual fabric technologies, and a best-of-breed hardware platform, Savvis Symphony VPDC is designed to deliver the performance, security, scale, support and service capabilities of true enterprise computing without sacrificing the economies of the cloud.

The VPDC

A VPDC provides a virtual data center inside a shared cloud. The VPDC portal is a simple, Web-based drag-and-drop interface designer, integrated into the SavvisStation Portal. The VPDC portal provides users with self-service access to data center creation, configuration, and ongoing management. The system provides access to a rich suite of data center services, including virtual hosts with a selection of pre-loaded operating systems such as Microsoft Windows® and Red Hat® Enterprise Linux® or client provided operating systems, virtual security appliances such as firewalls, utilities such as load balancers, and virtual storage devices. The user simply drags and drops the desired objects onto his or her designer palette, configures custom parameters such as host names and storage pool sizes, and activates and deploys the data center when complete.

Figure 1: VPDC Topology Designer



Savvis Symphony VPDC provides a flexible multi-tiered service profile capability that enables selectable, pre-defined service levels to optimize the infrastructure for a variety of applications. Each service profile configures the infrastructure optimally in many dimensions, including virtual compute services, bandwidth, storage, and security services. When creating a new VPDC, the user may specify which service profile is desired by selecting:

- **Essential:** Recommended for Test/Dev and Standard Production Applications
- **Balanced:** Recommended for Standard Production and High Performance applications
- **Premier:** Recommended for Standard Production, High Performance and Mission Critical applications

Savvis has created the VPDC designer with implicit support for the industry-standard enterprise three-tiered application architecture model (web tier, application server tier, and database tier). Each service profile implicitly understands this model, and implements appropriate security services (such as configuring separate private VLANs for each tier in the Premier Service profile).

In addition to the VPDC portal Web interface, Savvis Symphony VPDC provides a RESTful API to enable access to cloud services from popular scripting and programming environments. This enables independent software vendors (ISVs) and corporations to easily embed Savvis Symphony VPDC services in their cloud-enabled applications.

Security

The system is designed on the established Savvis Security Architecture, which is a set of processes and architecture designed to provide end-to-end security on the Symphony virtual platform. The system provides well-defined security policies and procedures, and ensures compatibility between newer security protections designed specifically for virtualized environments and more traditional, physical security controls. This enables the system to address the unique security challenges of a virtualized environment, such as those introduced for VM mobility, VM patching, and inter-VM network traffic.

Comprehensive security features and processes are integrated with Savvis Symphony VPDC at all Service profiles to optimize the cost/security tradeoff for each VPDC and its use case. At the Essential level, cost is optimized for the test/development use case, so the system configures the VPDC with a single public VLAN, plus authenticated access through security access control lists (ACLs). At the Balanced level, the system additionally configures the back-end servers (application servers and database servers) onto a dedicated private VLAN, and configures a VMsafe™ virtual firewall in front of the servers. For the Premier level, the system configures three separate private VLANs, for each server tier and additionally configures dedicated physical (stateful) firewalls for each tier. In this manner, Savvis Symphony VPDC provides a comprehensive end-to-end security infrastructure but optimized for each VPDC use case.

Technology

Savvis Symphony VPDC is built on an enterprise-grade infrastructure that provides enterprise levels of availability, reliability, and security. The platform starts with best-of-breed hardware including Cisco networking and virtual fabrics, and uses industry-leading virtualization technology from VMware. The cloud provides total platform-level redundancy at all levels of the infrastructure. The infrastructure provides compute node and network path redundancy as well as storage mirroring to ensure high availability. At higher service levels, the system configures redundancy at the virtual machine (VM) level, with VMware HA providing high-availability monitoring and automated failover.

The system has been designed from the ground up for massive scale through a modular design. With the underlying virtualization technology, new virtual machines can be provisioned instantly along with additional bandwidth and storage capacity. Users can dynamically scale their compute resources up or down, as it suits their changing requirements. Resources are pre-provisioned on demand, so applications can execute at peak efficiency. Billing for resources can be performed on an hourly or monthly basis, to best fit users' business requirements.

Savvis also provides one of the industry's first cloud computing architectures with the availability of high-performance, enterprise-class storage area network (SAN) storage. The system provides three tiers of storage with Information Lifecycle Management (ILM) capabilities. This provides low-latency, high I/O operations per second (IOPS) storage for the most-demanding transactional applications, mid-tier storage for Web hosting, and low-cost, low-rpm storage for backup and archival purposes. In this manner, Savvis Symphony VPDC can be employed for a very wide range of enterprise applications.

Summary

Cloud Computing promises major advantages in delivering business agility, process automation, and lower capital expenditure. Savvis continues to deliver on this value proposition with Savvis Symphony VPDC, your data center in the cloud. VPDC is designed and built on a massively scalable, best-of-breed infrastructure, with virtualization technology from industry leader, VMware. The service is also the first of its kind with enterprise-grade SLA's, built-in resiliency, granular security options, and high-performance storage. VPDC allows you to select the service levels, virtual machines, storage, security, and network parameters that best fit your application requirements, and have them automatically provisioned on an enterprise-grade, managed infrastructure, leaving you with the peace of mind to focus on your core applications, products, and services.

**For more information
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