IT Convergence Solutions from Dell
More choice, better outcomes

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What is really “converge” all about…?

Converge

From Latin *convergere*, from *con-*, "together", + *vergere*, "to bend".

Verb (*third-person singular simple present* converges, *present participle* converging, *simple past and past participle* converged)

- Of two or more entities, to approach each other; to get closer and closer.
- Of a process that involves repeating steps, to reach a stable end point.
- Of a sequence, to have a controlled result and limit.

The integral $\int_1^\infty \frac{1}{x^n} \, dx$ does **converge** if, and only if $n > 1$. 
Three ways to convergence
Converged infrastructure

Converged infrastructure systems combine compute, storage, networking, and infrastructure management into an integrated system to provide general purpose, virtualized resource pools for applications, VDI, and private clouds.

**Infrastructure Centric**
- Multiple components / vendors
- People intensive
- Time consuming (Months)
- Expensive

**Application Centric**
- Single source of procurement
- Turnkey: up in less than 2 weeks
- Lower total cost of ownership
- Single point of support

76%¹ of CIO request this:

¹ Enterprise Computing Group
² Gartner
Pre-Integrated Infrastructure: vStart
Optimize application & service delivery

Holistic pre-engineered, pre-assembled, and pre-tested systems that are virtualized platforms for private cloud, VDI, and applications.

Enterprise-class hardware
- **Compute:** PowerEdge Blades/ Rack Servers
- **Storage:** Compellent/ EqualLogic
- **Networking:** Force10/ PowerConnect

Includes leading hypervisors
- **VMware**
- **Windows Server 2008 Hyper-V**

Everything included
- Infrastructure management & integrations
- Deployment & unified support services
- Flexible configuration choices

Private Cloud reference architectures
Application reference architectures
VDI reference architectures

vStart 50  vStart 100/200  vStart 1000
Simplified Infrastructure Management by Dell
Unify Operations

Simplified infrastructure management via the virtual machine console you use today

- **VMware**
  - **Dell Management Integrations for VMware vCenter**
    - Server and storage lifecycle management for the most common tasks

- **Microsoft**
  - **Dell OpenManage Integration Suite for Microsoft System Center**
    - Server and storage lifecycle management for the most common tasks

- **Dell M1000e Chassis Management Controller (CMC)**
  - Chassis infrastructure configuration / N:1 firmware updates to blades / Chassis cloning

- **Dell Repository Manager**
  - Securely download firmware updates and manage a collection of updates for different workloads
Introducing: Dell Active System Manager
Converge infrastructure

- Automated discovery and inventory of bladed infrastructure
- Streamline deployments through templates of captured infrastructure requirements
- Automate hardware configuration to significantly reduce manual tasks
- Single point of control for key infrastructure configuration and management functions
- Rapidly move infrastructure configurations as needs change or if a hardware failure occurs
- Consistent results and better decision making thru guided user workflows and topology views

H/W Discovery & Inventory
Template-Based Provisioning
Automated Configuration
Centralized Management
Infrastructure Lifecycle Mgmt
Guided User Workflows & Views
Active System Manager

- Discover and inventory of infrastructure
- Automated template-based provisioning
- Lifecycle management of infrastructure
- Guided user workflows & multi-level views of topology
- Centralized infrastructure management
Multi-level I/O topology views
Better Decision Making Through Graphical Views

Extensive data displayed in the same easy to use and understand paradigm

- Logical network topology
- Expanded view of NIC partitions
- Bandwidth allocated
- Health status information
## Introducing Dell **Active System**

Results-driven innovations

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<th><strong>Support</strong></th>
<th><strong>Deployment</strong></th>
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<th><strong>Intuitive</strong></th>
<th><strong>Comprehensive</strong></th>
<th><strong>Flexible</strong></th>
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<td>Intelligent orchestration that is intuitive</td>
<td>Systems-level efficiency that is comprehensive</td>
<td>Modular, scalable systems that are flexible</td>
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<td>- Active System Manager automates and streamlines steps</td>
<td>- Purpose built, end-to-end design</td>
<td>- Industry’s only ¼ height blade server</td>
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<td>- Rapidly respond</td>
<td>- Unified support</td>
<td>- Blade I/O Aggregator optimized for virtualization</td>
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<td>75% fewer steps from “power on to production”</td>
<td>45% better system performance per watt</td>
<td>2.3X more compute nodes per rack</td>
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**Deployment Management**
- Hypervisor
- Network
- Storage
- Compute

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### Rapidly respond
- Rapidly respond

### Improve efficiency & quality
- Improve efficiency & quality

### Seamlessly scale
- Seamlessly scale
The new Dell **Active Infrastructure** family
An integrated virtualized foundation for VDI, private cloud, and apps

**Active Solutions**

- **Virtual Desktop Infrastructure**
- **Private Cloud**
- **Enterprise Applications**

**Pre-integrated Systems**
- vStart 50
- vStart 100
- vStart 200
- **Active System 800**
- vStart 1000

**Active System Manager**

**Active Reference Architectures**

- VMware ESX and Microsoft Hyper-V virtualization

**NEW**
Active Infrastructure portfolio
The ideal platform for applications and private clouds

Pre-integrated systems
- Active System 800
- vStart 1000
- vStart 50/100/200

Solution reference architectures
- Virtual Desktop Infrastructure
  - VMware View
  - Citrix XenDesktop
- Private Cloud
  - Dell Private Cloud
  - MSFT System Center Fast Track
- Applications
  - Microsoft SharePoint 2010, Lync 2010*, Exchange 2010*

Active System Solution Matrix
- M100e chassis + blades
- IO Aggregator
- Dell Storage

Platform reference architectures
- VMware Virtualization
- Microsoft Virtualization
- Converged Blade Data Center

Note: Active System is compatible with 3rd party NAS, iSCSI and FCoE storage offerings
Deploy using the Active System Solution Matrix

**Dell ToR Networking**
- Dell Force10
- Dell PowerConnect

**3rd Party ToR Networking**

**Active System**
- Dell M1000e Blade Chassis
- PowerEdge M420
- PowerEdge M620
- PowerEdge M820
- PowerEdge M I/O Aggregator
- PowerEdge Chassis I/O Module
- Active System Manager

**3rd Party Storage**
- Dell EqualLogic
- Dell Compellent
- Dell PowerVault

**Dell Storage**
What Might a Converged System Look Like?

- Up to 32 servers in a 10U space
  - PowerEdge M420

- Converged 10GbE/40GbE Fabric
  - Blade I/O Aggregator

- Converged iSCSI storage
  - PS-M4110

- Converged managements
  - Dell Plug in for VMware vSphere and MS Systems Manager

- Easily:
  - Validated
  - Deployed
  - Managed
  - Affordable
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Dell delivers on all types of convergence

- **Self-service and governance:** Dell VISS Creator
- **Management tools:** BMC Atrium
- **Cloud:** vCloud Director for Dell public cloud

- **Modular infrastructure (form factor) convergence:** M1000e blades
- **Reference architectures:** Dell Active System Matrix
- **Pre-integrated:** vStart & Active System 800
- **Performance monitoring & capacity planning:** Quest Foglight

- **Solutions reference architectures:** (VDI, SharePoint, Exchange, Lync): vStart
- **Data management solutions:** SAP Hana & Dell Data Warehouse Appliance

- **Dell management integration:** VMWare & Microsoft
- **Orchestration:** Microsoft System Center Orchestrator & BMC Atrium
- **Performance monitoring, capacity planning & config:** Quest Foglight
- **Backup, replication, & recovery:** AppAssure & Quest NetVault / vRanger

Microsoft System Center integration
How do you converge?