

Pivot3 CloudBank

Stackable Single-VM Appliances

Pivot3 CloudBank appliances deliver both compute and storage resources that scale as appliances are “stacked” together in a CloudBank Storage And Compute Stack (STAC). Each CloudBank contributes one Xen® virtual server environment with dedicated local computer resources as well as IP SAN resources that are shared across the entire STAC. A CloudBank STAC contains from three to twelve CloudBanks and can be expanded on the fly.

Key features:

- **Reduce Power and Cost by 40%**
CloudBank appliances integrate a virtual server and scale-out storage resources in a common appliance that saves up to 40% in power, cost and rack space over physical servers and physical SAN storage.
- **Improve Uptime for Applications and Storage**
Storage and servers have traditionally been managed and protected as separate entities. The CloudBank STAC provides self-healing VM Failover™ for both virtual server and storage resources in the case of an appliance failure.
- **Scale IP SAN Storage Seamlessly**
Storage can be logically and physically expanded while applications are running to meet the needs of the most demanding environments. Appliances contribute new capacity, bandwidth and RAID resources to the expanded array.
- **Data-on in Thirty Minutes**
Pivot3 uses virtualization technology to rejoin servers and storage in a single appliance that can be managed by server and network administrators. There is no need to master complex SAN concepts since the STAC is based on familiar Ethernet and server standards.

- Single-VM server platform
- IP SAN storage scales across appliances
- Integrates self-healing server failover
- Eliminates power and cost of physical servers

CloudBank Storage and Compute STAC (5 Appliance Example)



Unique RAIGE® technology powers the STAC. Pivot3 RAIGE software simultaneously runs virtual server environments, protects and load balances IP SAN capacity and performance across all the drives, network and RAID controllers contained within the appliances in the STAC.



STORAGE MANAGEMENT

1U CloudBank Appliance Specifications

Virtual Server Environment

- 4 vCPUs - quad-core Westmere®
- 6 GB RAM
- 2 Gigabit Ethernet NICs
- Integrated Xen® hypervisor

Scale-out Storage

- 4 Enterprise SATA 2.0 hard drives
- 2 CPU hardware RAID controller
- 2 Gigabit Ethernet iSCSI ports
- 128 physical or virtual iSCSI initiators
- 128 dynamically expandable volumes



2U CloudBank Appliance Specifications

Virtual Server Environment

- 8 vCPUs - quad-core Westmere®
- 8 GB RAM
- 4 Gigabit Ethernet NICs
- Integrated Xen® hypervisor

Scale-out Storage

- 12 Enterprise SATA 2.0 hard drives
- 2 CPU hardware RAID controller
- 2 Gigabit Ethernet iSCSI ports
- 128 physical or virtual iSCSI initiators
- 128 dynamically expandable volumes



CloudBank STAC Specifications

Scalability Specifications

- Stack 3 to 12 appliances in a STAC
- Scale to 12 virtual servers
- Scale to 288TB iSCSI SAN
- Scale to 720MB/sec ingest rate
- Scale to 12 parallel RAID controllers

Storage Protection

- No single point of failure
- Distributed virtual sparing
- Multi-path protection for iSCSI connections
- RAID 6x (2U only) - 5 simultaneous disk events or - 2 drives and an entire CloudBank
- RAID 6e (2U only) - 3 simultaneous disk events or - 1 drive and an entire CloudBank
- RAID 5e - 1 disk event or - an entire CloudBank

Virtual Server Protection

- Pivot3 VM Failover™ for high availability
- No separate licenses to purchase
- No dedicated hardware to deploy
- One-click UI selection

Management Software

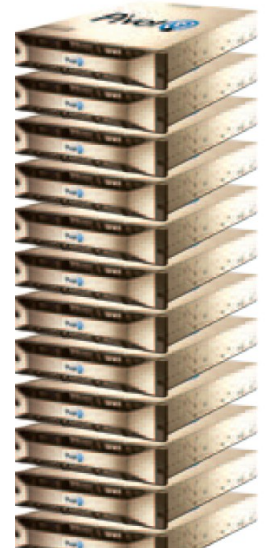
- RAIGE Director configures STACs and runs on any PC
- RAIGE Connection Manager automates iSCSI connections

Storage Management

- Dynamic logical and physical capacity expansion
- Dynamic disk and RAID controller load-balancing
- Dynamic iSCSI multi-path and load-balancing

Alarms and Alerts

- State-sensitive LEDs indicate drive events
- RAIGE Director indicates state changes
- SNMP MIB support for email notification



Save resources with Pivot3

Pivot3 reduces hardware, costs and power

- 20% reduced purchase costs
- 44% reduced power
- 52% reduced space in data centre
- Considerably enhanced system availability

Usable capacity in TB

STAC Size	1U CloudBanks				2U CloudBanks			
	RAID 5e		RAID 5e		RAID 6e		RAID 6x	
	1TB	2TB	1TB	2TB	1TB	2TB	1TB	2TB
Standalone	3.0	6.0	9.0	19.8	8.9	18.0	-	-
3	6.6	13.5	22.5	45.3	20.2	40.6	18.3	36.8
4	10.3	20.8	34.2	68.8	30.6	61.7	27.8	55.9
5	14.1	28.4	46.0	92.5	41.2	82.8	37.3	78.0
6	17.9	36.2	57.8	116.3	51.7	104.1	46.8	94.1
7			69.6	140.2	62.3	125.3	56.3	113.3
8			81.5	164.0	72.8	146.6	65.9	132.6
9			93.4	187.9	83.4	167.9	75.4	151.8
10			105.2	221.8	94.0	189.2	85.0	171.0
11			117.1	235.7	104.6	210.5	94.5	190.3
12			129.0	259.6	115.2	231.9	104.1	209.5

Supported Virtual Servers

- Microsoft
 - Windows Server 2003 R2 Standard 32 bit, 64 bit
 - Windows Storage Server 2003 R2
 - Windows Server 2008 Standard 32 bit
- RedHat Enterprise Linux 5.x
- CentOS 5.x
- Suse Linux 11.x