Tintri



## Tintri VMstore<sup>™</sup> T800 Series

Smart storage that Sees, Learns and Adapts

The Tintri VMstore™ T800 series is designed to address the needs of virtualization and cloud environments. Traditional storage is a mismatch for the specialized demands of virtualized workloads, requiring complex configuration, significant over-provisioning and ongoing optimization and management. VMstore addresses the challenges traditional storage platforms pose when virtualizing critical server workloads such as Microsoft® Exchange®, Microsoft® SQL Server®, Microsoft® SharePoint®, Oracle® and SAP® databases, end-user desktops, and cloud architected workloads.

Built using the industry's first and leading application-aware storage architecture, the Tintri VMstore T800 Series sees storage at the VM and vDisk level—learning and adapting to rapidly-changing workloads, eliminating mundane storage management tasks and delivering substantial improvements in performance and density over legacy storage. The Tintri VMstore T800 Series is ideal for virtualized and private cloud environments in midsize and large enterprises that manage hundreds or thousands of virtual machines. Applicable to multiple use cases, this product line satisfies a variety of workloads such as persistent VDI deployments with mixed end users, database and other business critical applications, data protection and disaster recovery, and cloud environments with large numbers of automatically deployed virtual machines and an overall high rate of change.

Whether you are an IT architect, administrator or manager, Tintri VMstore can help you:

### Realize the full potential of virtualization with intelligent storage.

- Set-up in minutes with support for multiple VMware vSphere or Red Hat Enterprise Virtualization datacenters. Manage storage at the level of VMs and vDisks, not LUNs and volumes—eliminating complex configuration or ongoing tuning.
- Get 99 percent of IO from flash, for all-flash performance without the all-flash price.
- Serve hundreds of different types of VM workloads from a single VMstore with dedicated IO lanes per vDisk and performance allocation—eradicating the impact from noisy neighbors on other virtual workloads.

# Eliminate bottlenecks and troubleshooting overhead with infrastructure insight.

- Get a single view of all VMs stored and identify performance and capacity trends without the complexity associated with low-level storage constructs.
- Instantly identify performance hot spots at the hypervisor, network and storage levels with comprehensive performance visualization.
- Leverage optional Tintri Global Center<sup>™</sup> software to monitor and administer multiple VMstore systems and resident VMs from a single control pane.

## Stay in control of virtualization environment while VMstore eliminates mundane storage management tasks.

- Protect individual VMs with customizable policies for VM-level instant space-efficient snapshots—eliminating the complexity of LUNs and volumes mapping.
- Deploy WAN-efficient replication at the VM-level using as much as 95 percent less bandwidth with block-level global deduplication and compression over the wire with optional ReplicateVM™ software
- Store up to 100 TB of effective capacity with inline data reduction.
- Create hundreds of high performance zero-space VM clones locally or remotely. Ideal for speeding up VDI deployments and for development/test workloads.
- Protect data with optional SecureVM<sup>™</sup> software to encrypt data inline using 256-bit AES algorithms and without impacting performance, with in-built key rotation.



#### Storage that Sees:

 Designed specifically for virtualized applications, VMstore automatically configures itself based on your environment and provides a complete end-to-end view of all virtual workloads.

#### Storage that Learns:

 VMstore maintains constant communication with your entire virtualized environment. Actively changing VMs are tracked and highlighted so you have status on a moment-by-moment basis.

#### Storage that Adapts:

 Because of unique per-VM data management and operations, VMstore can make adjustments including a dedicated IO "lane" per VM to maintain the best service for all virtualized applications.

"Compared to our previous storage, Tintri VMstore can run ten times the VMs in less than a tenth of the data center footprint, and reduce latency by 98 percent at the same time. They helped us realize a fundamental goal of virtualization: consolidating workloads and increasing resource utilization, both on hosts and on storage."

-Mike Torgersen

vice president of IT at ParAccel



### Tintri VMstore<sup>™</sup> T800 Series

#### VMstore T880

Ideal for highly virtualized enterprise and private cloud environments requiring performance and scalability for thousands of VMs

#### VMstore T850

Ideal for highly virtualized enterprise environments requiring performance and scalability for thousands of VMs

#### VMstore T820

Ideal for midsized and remote/ branch environments requiring efficiency to handle hundreds of VMs

Controller         Type         Gen 5 Dual Controller (active-standby) supporting Tintri OS 31 and up           VM Density         VMs (max)         3,500         2,000         750           Flash(o)         Raw*         10,000         6,000         2,250           Flash(o)         Raw*         8.8 TB         5.3 TB         1.7 TB           Capacity(e)         Usable*         45 TB         5.3 TB         1.7 TB           Bernald Part (Capacity)         Usable*         45 TB         3.0 TB         1.0 TB           Bernald Effective Usable**         100 TB         66 TB         2.3 TB           Metworking         Data         Included: 2x 106E (RJ-45)         Included: 2x 106E (RJ-45)         Included: 2x 106E (RJ-45)           Processions (Howboth)         Included: 2x 106E (RJ-45)         Included: 2x 106E (RJ-45)         Optional: 2x 106E (RJ-45)         Optio			scalability for thousands of VMS	thousands of VMs	OT VIVIS
Volsks (max)	Controller	Туре	Gen 5 Dual Controller (active-standby) supporting Tintri OS 3.1 and up		
Flash(0)   Row   8.8 TB   5.3 TB   1.7 TB   1.2 TB   1.	VM Density	VMs (max)	3,500	2,000	750
Raw		vDisks (max)	10,000	6,000	2,250
Usable	Flash(a)	Raw <sup>a</sup>	8.8 TB	5.3 TB	1.7 TB
Effective Usable***   100 TB	Capacity(a)	Raw <sup>a</sup>	78 TB	52 TB	20 TB
Management   Included: 2x 106E (RJ-45)   Optional: 2x 10		Usable⁵	45 TB	30 TB	10.5 TB
Data   Included: 2x 10GbE (SFP+ or 10GBASE-T)   Included: 2x 10GbE (SFP+ or 10GBASE-T)   2x 10GBE (SFP+ or 10GBASE-TD (SFP+ or 10GBASE-		Effective Usable <sup>c,d</sup>	100 TB	66 TB	23 TB
Networking	Networking	Management	Included: 2x 1GbE (RJ-45)	Included: 2x 1GbE (RJ-45)	Included: 2x 1GbE (RJ-45)
Software functionality   Ethernet failover link aggregation, VLAN tagging, IP aliasing, LACP		Data			Optional:
Physical specifications         Dimensions (HxWxD)         4 RU, 7" (178 mm) x 19" (483 mm) x 28.5" (724 mm)           Weight         108 lbs (491 kg)         108 lbs (49.1 kg)         106 lbs (49.2 kg)           100-140/180-240 VAC @ 50-60 Hz (nom/max)         780 VA / 1,000 VA         714 VA / 861 VA         630 VA / 788 VA           Waits (nom/max)         740 / 950         680 / 820         600 / 750           BTU (nom/max)         2,525 / 3,240         2,320 / 2,800         2,000 / 2,560           Power & Power supplies         Dual redundant hot swappable power supplies with a choice of NEMA or IEC plug types           Operating temperature         5° C to 40° C (40° F to 158° F)           Operating humidity         8% to 90% (non-condensing)           Non-operating humidity         8% to 90% (non-condensing)           Compliance         RoH (25 K) (40° F)           Safety         CSA/EN/IEC 60950-1, GOST           Emissions         FCC Class A, ICES-003 class A, VCCI class A           Agency         CE, CSA, VCCI, CCC           Product Support         Administration         Tintri Global Center, web interface (inttps), KVM (console), SMTP and SNMP for alerts		Replication	, ,		
Total		Software functionality	Ethernet failover link aggregation, VLAN tagging, IP aliasing, LACP		
100-140/180-240 VAC	•	Dimensions (HxWxD)	4 RU, 7" (178 mm) x 19" (483 mm) x 28.5" (724 mm)		
## So-60 Hz (nom/max)  Watts (nom/max)  Watts (nom/max)  ## Power & environmental  Power supplies  Operating temperature  Non-operating temperature  Operating humidity  Non-operating humidity  Non-operating humidity  Non-operating humidity  Non-operating humidity  Non-operating humidity  Feducts  Safety  Caylen/lec Go950-1, GOST  Emissions  FCC Class A, ICES-003 Class A, VCCI Class A  Agency  Administration  Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  Wirtualization  Wirtualization  Wirtualization  Word Support  Additional Software  ### Source Additional Software  ### Additional Software  ### Source Additional Software  ### Source Additional Software  ### Additional Software  ### Source Additional Software  ### Additional Software  ### Source Add		Weight	108 lbs (49.1 kg)	108 lbs (49.1 kg)	106 lbs (48.2 kg)
Power & environmental Power supplies Dual redundant hot swappable power supplies with a choice of NEMA or IEC plug types  Operating temperature 5° C to 40° C (41° F to 104° F)  Non-operating temperature -40° C to 70° C (40° F to 158° F)  Operating humidity 8% to 90% (non-condensing)  Non-operating humidity 5% to 95% (non-condensing)  Compliance RoHS, REACH  Safety CSA/EN/IEC 60950-1, GOST  Emissions FCC Class A, ICES-003 Class A, VCCI Class A  Agency CE, CSA, VCCI, CCC  Product Support Proactive support with automated phone home and case creation  Virtualization SW support  Additional Software Replication Tintri Global Center.  Additional Software Replication Tintri Global Center.  Replication Tintri Global Center.  Tintri Global Center.  Tintri Global Center.  VMware VSphere 4.x and 5.x (NFS)  Red Hat Enterprise Virtualization 3.3* (NFS)  Red Hat Enterprise Virtualization 3.3* (NFS)  Multi VMstore management Tintri Global Center.  Tintri ReplicateVM.			780 VA / 1,000 VA	714 VA / 861 VA	630 VA / 788 VA
Power & environmental  Power supplies Operating temperature Operating temperature Operating humidity Non-operating humidity Non-condensing) Non-operating humidity Non-condensing) Non-operating humidity Non-condensing) Non-operating humidity Non-condensing) Non-condensing Non-c		Watts (nom/max)	740 / 950	680 / 820	600 / 750
Product Support  Product Support  Support  Administration  Support  Froduct Support  Froduct Support  Support  Froduct Support  Support  Additional software  Additional software  Multi VMstore management  Operating temperature  Poperating temperature  Aperox  Operating humidity  Safety  Compliance  RoHS, REACH  CSA/EN/IEC 60950-1, GOST  FCC Class A, ICES-003 Class A, VCCI Class A  CE, CSA, VCCI, CCC  Administration  Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  Virtualization  Whware vSphere 4x and 5x (NFS)  Red Hat Enterprise Virtualization 3.3+ (NFS)  Technology Preview: Microsoft Hyper-V 2012 (SMB3)  Multi VMstore management  Replication  Replication  Replication  Fintri Global Center*  Tintri Global Center*		BTU (nom/max)	2,525 / 3,240	2,320 / 2,800	2,000 / 2,560
Operating temperature  Non-operating temperature  Operating humidity  Non-operating humidity  Non-operating humidity  Soft to 95% (non-condensing)  Compliance  RoHS, REACH  Safety  CSA/EN/IEC 60950-1, GOST  Emissions  FCC Class A, ICES-003 Class A, VCCI Class A  Agency  Administration  Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  Support  Virtualization  Wirtualization  Wirtualization  Additional software  Replication  Replication  Replication  Replication  Replication  Replication  Tintri ReplicateVM™  Ret Hat Enterprise Virtualization  Tintri Global Center  Tintri ReplicateVM™		Power supplies	Dual redundant hot swappable power supplies with a choice of NEMA or IEC plug types		
Operating humidity  Non-operating humidity  S% to 95% (non-condensing)  Compliance  RoHS, REACH  Safety  CSA/EN/IEC 60950-1, GOST  Emissions  FCC Class A, ICES-003 Class A, VCCI Class A  Agency  CE, CSA, VCCI, CCC  Administration  Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  Support  Virtualization SW support  Virtualization SW support  Additional software  Replication  Replication  Operating humidity  8% to 90% (non-condensing)  For to 95% (non-condensing)  For the 95% (non-condensing)  For the 95% (non-condensing)  For to 95% (non-condensing)  For the 95% (non-condensing)  Fo		Operating temperature	5° C to 40° C (41° F to 104° F)		
Regulatory       Non-operating humidity       5% to 95% (non-condensing)         Regulatory       Compliance       RoHS, REACH         Safety       CSA/EN/IEC 60950-1, GOST         Emissions       FCC Class A, ICES-003 Class A, VCCI Class A         Agency       CE, CSA, VCCI, CCC         Administration       Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts         Virtualization       VMware vSphere 4.x and 5.x (NFS)         Virtualization SW support       Hypervisor       Red Hat Enterprise Virtualization 3.3+ (NFS)         Posktop virtualization       Desktop virtualization       VMware Horizon(with View) and Citrix XenDesktop         Additional software       Replication       Tintri Global Center <sup>™</sup> Additional software       Replication       Tintri ReplicateVM <sup>™</sup>		Non-operating temperature	-40° C to 70° C (-40° F to 158° F)		
Regulatory       Compliance       RoHS, REACH         Safety       CSA/EN/IEC 60950-1, GOST         Emissions       FCC Class A, ICES-003 Class A, VCCI Class A         Agency       CE, CSA, VCCI, CCC         Virtualization SW support       Support       Proactive support with automated phone home and case creation         Virtualization SW support       VMware vSphere 4.x and 5.x (NFS)         Red Hat Enterprise Virtualization 3.3+ (NFS)         Technology Preview: Microsoft Hyper-V 2012 (SMB3)         Desktop virtualization       VMware Horizon(with View) and Citrix XenDesktop         Multi VMstore management       Tintri Global Center™         Additional software       Replication		Operating humidity	8% to 90% (non-condensing)		
RegulatorySafetyCSA/EN/IEC 60950-1, GOSTEmissionsFCC Class A, ICES-003 Class A, VCCI Class AAgencyCE, CSA, VCCI, CCCProduct SupportAdministrationTintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alertsSupportProactive support with automated phone home and case creationVirtualization SW supportVMware vSphere 4.x and 5.x (NFS) Red Hat Enterprise Virtualization 3.3+ (NFS) Technology Preview: Microsoft Hyper-V 2012 (SMB3)Desktop virtualizationVMware Horizon(with View) and Citrix XenDesktopAdditional softwareReplicationTintri Global Center™ReplicationTintri ReplicateVM™		Non-operating humidity	5% to 95% (non-condensing)		
Emissions FCC Class A, ICES-003 Class A, VCCI Class A  Agency CE, CSA, VCCI, CCC  Administration Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  Support Support Virtualization SW support  Virtualization SW support  Desktop virtualization  Additional software  Replication  FCC Class A, ICES-003 Class A, VCCI Class A  CE, CSA, VCCI, CCC  Administration Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  VMware vSphere 4.x and 5.x (NFS) Red Hat Enterprise Virtualization 3.3+ (NFS) Technology Preview: Microsoft Hyper-V 2012 (SMB3)  VMware Horizon(with View) and Citrix XenDesktop  Multi VMstore management Tintri Global Center™  Replication Tintri ReplicateVM™	Regulatory	Compliance	RoHS, REACH		
Emissions FCC Class A, ICES-003 Class A, VCCI Class A  Agency CE, CSA, VCCI, CCC  Administration Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  Support Support Virtualization SW support  Virtualization SW support  Desktop virtualization  Multi VMstore management  Additional software  Replication  FCC Class A, ICES-003 Class A, VCCI Class A  CE, CSA, VCCI, CCC  Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts  VMware underface (https), KVM (console), SMTP and SNMP for alerts  VMware vSphere 4.x and 5.x (NFS)  Red Hat Enterprise Virtualization 3.3+ (NFS)  Technology Preview: Microsoft Hyper-V 2012 (SMB3)  VMware Horizon(with View) and Citrix XenDesktop  Tintri Global Center  Replication  Tintri ReplicateVM  Tintri ReplicateVM		Safety	CSA/EN/IEC 60950-1, GOST		
Product Support  Support  Support  Support  Support  Proactive support with automated phone home and case creation  VMware vSphere 4.x and 5.x (NFS) Red Hat Enterprise Virtualization 3.3+ (NFS) Technology Preview: Microsoft Hyper-V 2012 (SMB3)  Desktop virtualization  Multi VMstore management  Additional software  Replication  Tintri Global Center™  Tintri ReplicateVM™		Emissions	FCC Class A, ICES-003 Class A, VCCI Class A		
Support  Support  Support  Support  Support  Support  Support  Proactive support with automated phone home and case creation  VMware vSphere 4.x and 5.x (NFS)  Red Hat Enterprise Virtualization 3.3+ (NFS)  Technology Preview: Microsoft Hyper-V 2012 (SMB3)  Desktop virtualization  VMware Horizon(with View) and Citrix XenDesktop  Multi VMstore management  Tintri Global Center  Replication  Tintri ReplicateVM  Tintri ReplicateVM		Agency	CE, CSA, VCCI, CCC		
Virtualization SW support       VMware vSphere 4.x and 5.x (NFS)         Possible Provision SW support       Red Hat Enterprise Virtualization 3.3+ (NFS)         Desktop virtualization       VMware Horizon(with View) and Citrix XenDesktop         Multi VMstore management       Tintri Global Center™         Additional software       Replication       Tintri ReplicateVM™	Support Virtualization	Administration	Tintri Global Center, web interface (https), KVM (console), SMTP and SNMP for alerts		
Virtualization SW support     Hypervisor     Red Hat Enterprise Virtualization 3.3+ (NFS) Technology Preview: Microsoft Hyper-V 2012 (SMB3)       Desktop virtualization     VMware Horizon(with View) and Citrix XenDesktop       Multi VMstore management     Tintri Global Center™       Replication     Tintri ReplicateVM™		Support	Proactive support with automated phone home and case creation		
Multi VMstore management  Additional software  Replication  Tintri Global Center™  Tintri ReplicateVM™		Hypervisor	Red Hat Enterprise Virtualization 3.3+ (NFS)		
Additional software Replication Tintri ReplicateVM™		Desktop virtualization	VMware Horizon(with View) and Citrix XenDesktop		
software Replication Tintri ReplicateVM**		Multi VMstore management	Tintri Global Center™		
		Replication	Tintri ReplicateVM™		
		Encryption	Tintri SecureVM™		

<sup>(</sup>a) All capacity values are based on Base 10 (i.e., 1 TB = 1,000,000,000,000 bytes)

(b) After double parity RAID-6, spare, and system overhead

(d) Effective usable capacity assumes a data reduction ratio of 2.2x, but does not include savings from thin provisioning which typically provides an additional 2.3x capacity benefit (based on actual customer results)



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<sup>(</sup>c) Effective usable capacity is calculated after data reduction, which typically provides 2x-2.5x capacity saving from compression and deduplication from per-VM cloning.