

Outstanding virtualization capabilities support information availability and retention



## IBM Virtualization Engine TS7700 Family



### The challenge:

In order to maintain continuous business operations, address regulatory requirements and archive business records, you need an infrastructure that enables you to manage your data from online application storage to offline, permanent archive media. Tape is a key part of both the backup and archive life cycle. Tape provides the lowest total cost of ownership alternative for securely storing long-term archives for recordkeeping and disaster recovery. As data centers and data stores grow, manual tape operations can become more complex. This growth can lead to increased backup and restore times and higher management overhead and costs.

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### Highlights

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- *Can help reduce costs such as power, maintenance, operations and support staff*
- *Can help automate and simplify IT operations using advanced policy management*
- *Supports business continuity through GRID connectivity and automated replication*
- *TS7740 can help accelerate backups and recalls by using a tiered hierarchy of disk and tape to make more efficient use of tape drives*
- *TS7720 provides a cache-centric solution for frequently accessed data*

### The solution: the IBM Virtualization Engine TS7700

The IBM Virtualization Engine™ TS7700 (TS7700 Virtualization Engine) is a family of mainframe virtual-tape solutions that are designed to optimize tape processing. With one solution, the implementation of a fully integrated tiered storage hierarchy of disk and tape leverages the benefits of both

technologies to help enhance performance and provide the capacity needed for today's tape processing requirements. Deploying this innovative subsystem can help reduce batch processing time, total cost of ownership and management overhead.

IBM offers two models of the TS7700 Virtualization Engine. The TS7740 Virtualization Engine supports attachment to and exploits the performance and capacity of the IBM System Storage™ TS1130 and TS1120 Tape Drives or the IBM TotalStorage® 3592 Model J1A Tape Drive installed in an IBM System Storage TS3500 Tape Library or IBM TotalStorage 3494 Tape Library. Support for these tape drives may help to reduce the number of cartridges and the size of the library by allowing the storage of up to 3 TB on a single 3592 JB cartridge, assuming 3:1 compression.

The TS7720 Virtualization Engine provides high capacity for workloads that are cache friendly due to their rapid recall requirements. The TS7720 Virtualization Engine features 1 TB SATA disk drives with RAID 6 to allow customers to scale their solution to meet the needs of growing workloads without affecting application availability.

The TS7700 Virtualization Engine family has been designed to reduce or eliminate a number of bottlenecks that might be present in any given tape environment. Results can vary depending on the characteristics of installed equipment and workload, but reducing bottlenecks can help reduce batch processing time.

For example, if the batch process is constrained, TS7700 Virtualization Engine processing power, cache capacity and support for 4 Gbps IBM FICON® attachment could help alleviate bottlenecks and reduce the batch window.

#### **Support for mainframe environments**

The TS7700 Virtualization Engine may be attached to supported IBM System z® servers using 4 Gbps FICON at distances of up to 100 km using channel directors or switches, up to 250 km using DWDM, or extended distances using supported channel extension products.

#### **Protect your business with TS7700 GRID Business Continuity solutions**

A GRID communication feature allows interconnection of up to three TS7740 or three TS7720 Virtualization Engines to form a GRID configuration. The TS7700 supports this environment by providing comparable function to the

IBM System Storage Metro/Global Mirror. Since each of the like TS7700 models can reside in different locations, these configurations are designed to help keep data available even if one of the sites experiences an outage. This helps maintain availability during planned maintenance, service or system upgrades, and it avoids the transportation of cartridges in the event of a disaster.

The TS7700 includes multiple modes of synchronous and asynchronous replication. This can be assigned to volumes via DFSMS policy, providing flexibility in implementing business continuity solutions.

#### **Simplify management with Web-based management interface**

A Web-based GUI is provided to configure and monitor the TS7700 Virtualization Engine. The GUI is used to access information such as the current system status and resource usage statistics.

A separate tool, the IBM TS3000 System Console (TSSC), is required to allow IBM service personnel to perform maintenance. If authorized/enabled by the customer, the tool can remotely monitor the installation and automatically dispatch a service representative if needed.

### Support for Data Encryption

To help keep information confidential if backup tapes are lost or stolen, the TS7740 Virtualization Engine supports IBM System Storage TS1130 and TS1120 Tape Drive-based encryption. The TS1130 and TS1120 tape drives include data encryption capabilities within the drives, helping to avoid the need for host-based encryption of data—and the concurrent drain on host performance and resources—or the additional expense of specialized encryption appliances.

The IBM Encryption Key Manager component for the Java™ platform can help generate and manage encryption keys for TS1130 and TS1120 tape drives across the enterprise. This feature uses standard key repositories and supports three different encryption key management methods: application managed, system managed or library managed. Only system managed encryption is supported on the TS7740 Virtualization Engine.

### Implementation services

In addition to the Installation Guides and Redbooks® that are available for customers to use when installing this

solution, IBM also provides a set of service offerings designed to expedite implementation.

For further details, please visit [ibm.com/systems/storage](http://ibm.com/systems/storage).

### Competitive financing options

IBM Global Financing offers some of the industry's most competitive rates for a wide range of IBM products and services for the duration of the financing term.

For more information, visit [ibm.com/financing](http://ibm.com/financing).

## TS7740 Virtualization Engine at a glance

Specifications	Single Node	2 Cluster GRID	3 Cluster GRID
Native tape volume cache (TB)	Up to 14	Up to 28	Up to 42
Virtual drives	256	512	768
TS1100 or 3592 tape drives	4 to 16	8 to 32	12 to 48
Virtual volumes	1,000,000	1,000,000	1,000,000
FICON channels	4	8	12
Warranty	1 year on site repair		

### Physical specifications

Width:	644 mm (25.4 in)
Depth:	1102 mm (43.4 in)
Height:	1804 mm (71.0 in)
Weight:	565.6 kg (1247 lb)

### Supported environments<sup>1</sup>

IBM z/OS® v1.8 or higher  
IBM z/VM® v5.2 or higher  
IBM z/VSE™ V3.1.2 or higher  
IBM z/TPF™ 1.1 or higher  
IBM TPF 4.1 or higher



## TS7720 Virtualization Engine at a glance

Specifications	Single Node	2 Cluster GRID	3 Cluster GRID
Native tape volume cache (TB)	Up to 70	Up to 140	Up to 210
Virtual drives	256	512	768
Virtual volumes	1,000,000	1,000,000	1,000,000
FICON channels	4	8	12
Warranty	1 year on site repair	–	–

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	IBM z/VSE V3.1.2 or higher
	IBM z/TPF 1.1 or higher
	IBM TPF 4.1 or higher

### For more information

Contact your IBM representative or IBM Business Partner, or visit:

- [ibm.com/systems/storage/virtualization](http://ibm.com/systems/storage/virtualization)
- [ibm.com/systems/storage/tape](http://ibm.com/systems/storage/tape)

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MB, GB and TB equal 1,000,000, 1,000,000,000 and 1,000,000,000,000 bytes, respectively, where referring to storage capacity. Actual storage capacity will vary based upon many factors and may be less than stated. Some numbers given for storage capacities give capacity in native mode followed by capacity using data compression technology.

<sup>1</sup> Lists the minimum software level requirements for basic support. Please refer to the technical documentation for specific function or feature support.

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