IBM TS7700

Outstanding virtualisation capabilities for continuous data protection of IBM Z data

Highlights

- Gain innovative data protection and business continuance for IBM® Z servers
- Keep data secure, continuously available and easy to manage
- Simplify IBM Z tape operations and improve batch window performance
- Support disk and physical tape.

To effectively protect data, deliver uninterrupted data access, address regulatory requirements and archive business data, organisations need a solution that can manage both primary and backup data that is active, inactive or even archived. As data centres (DC) and the data they store continue to grow, data protection often becomes more complex. This may include moving more primary data to tape, continuous backup, multiple metro and global sites, simplifying offsite recovery, disaster-recovery (DR) verification and many other objectives and processes to ensure an enterprise level of business continuance. This growth in complexity can in turn lead to higher data management overhead and costs.

IBM TS7700 is a family of mainframe virtual tape solutions that optimise data protection and business continuance for IBM Z data. Through the use of virtualisation and disk cache, the TS7700 family operates at disk speeds while maintaining compatibility with existing tape operations. Its fully integrated tiered storage hierarchy takes advantage of both disk and tape technologies to deliver performance for active data and best economics for inactive and archive data.

There are three offerings in the TS7700 family of IBM Z tape virtualisation:

- IBM TS7720 features encryption-capable high-capacity cache using 3 terabytes (TB) serial attached SCSI (SAS) disk drives with redundant array of independent disks (RAID) 6, providing the ability to scale to very large capacities with the highest level of data protection
- IBM TS7740 features encryption-capable 600 gigabyte (GB) SAS drives with RAID 6 protection
- IBM TS7760 features encryption-capable 8 TB SAS drives with Distributed RAID protection.

Each offering writes data by policy to physical tape through attachment to high-capacity, high-performance IBM TS1150 and earlier IBM 3592 model tape drives installed in IBM TS4500 Tape Library or IBM TS3500 Tape Library. Physical tape support is optional on TS7720 and TS7760.

The TS7700 family has been designed to help enhance performance and provide the capacity needed for today's tape processing requirements. Deploying these innovative solutions can help reduce batch processing time, total cost of ownership (TCO) and management overhead.

Data protection and retention for mainframe environments

The TS7700 family supports IBM Z servers using 16 gigabits per second (Gbps) IBM FICON at distances of up to 250 km (155 miles) using dense wavelength division multiplexing in combination with switches, or more extended distances using supported channel extension products.

Protect your business with TS7700 grids

The grid communication feature allows interconnection of up to eight[1] TS7700 systems in any combination of TS7720, TS7740 and TS7760 systems to form a grid configuration. This TS7700 function is comparable to IBM Metro Mirror and IBM Global Mirror. Since TS7700 systems typically reside in separate locations to provide better availability and DR, grid communication is designed to help keep data available, even if one of the remote sites experiences an outage. This helps maintain availability during planned maintenance, service or system upgrades, or unexpected outages and helps avoid the physical transportation of tape cartridges in the event of a disaster. The grid configuration also allows administrators to use TS7700 as an archival installation with full back-end physical tape functionality.

The TS7700 grid feature includes multiple modes of synchronous and asynchronous replication. This can be assigned to volumes through an IBM Data Facility Storage Management Subsystem (DFSMS) policy, providing flexibility in implementing business-continuity solutions.

Simplify management using a graphical user interface

A web-based graphical user interface (GUI), based on the interface used in several other IBM storage solutions, is provided to configure and monitor TS7700. The GUI can be used to access information such as the current system status and resource usage statistics. This interface has been designed to

make more efficient use of a storage administrators' time in configuring and managing the TS7700 systems while also helping reduce the time needed to train new administrators.

Ensure data security and regulatory compliance

Designed to keep data more secure and to help meet regulatory guidelines, TS7700 provides end-to-end (E2E) data encryption. All TS7700 family members support disk-based encryption for data at rest within the disk cache repositories.

To help keep information confidential if physical tapes are lost or compromised, all models support TS1150 Tape Drive encryption capabilities. TS1150, IBM TS1140 and some earlier 3592 model tape drives[2] include data encryption capabilities to

help prevent the need for host-based data encryption – and the concurrent drain on host performance and resources – or the additional expense of specialised encryption appliances.

IBM Security Key Lifecycle Manager can generate and manage encryption keys across the enterprise and can deliver encryption keys to TS7700 for encryption of data on disk or tape. This offering provides advanced, federated, cross-domain key management designed to help lock down organisational data more comprehensively and easily than ever before.

To help support the long-term retention of reference data and meet the requirements of regulatory bodies worldwide, microcode capabilities enable the TS7700 family to support a virtual equivalent of write-once-read-many (WORM) tape functionality.

IBM TS7760 at a glance

Specifications	Single node	8-cluster grid Max configuration
Usable disk cache* (PB)	Up to 2.45	Up to 19.6
Virtual drives	496	3,968
TS1100 or 3592 tape drives[†]	4 to 16	32 to 128
Virtual volumes	4,000,000	4,000,000
16 Gbps FICON channels	8	64
Maximum logical paths	4,096	32,768
Warranty	One-year on-site repair	

Physical specifications

Width	616 mm (24.25 in.)
Depth	1,425 mm (56.1 in.)
Height	1,930.4 mm (76.0 in.)
Weight (TS7760)	746 kg (1,645 lb)
Supported environments[‡]	IBM z/OS IBM z/VM IBM z/VSE IBM z/TPF

Why IBM?

The performance and availability of your storage environment can either enhance or hamper your business processes. That's where IBM comes in. As one of the market leaders in the storage industry, we can help you handle the challenges that your organisation encounters.

For more information

To learn more about the IBM TS7700 family, please contact your IBM representative or IBM Business Partner (BP), or visit: **ibm.com**/us-en/marketplace/ts7760

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* Not all array cache capacity is useable. Cache capacities vary with grid configurations, including a combination of TS7720, TS7740 and TS7760 models.

† Tape support is optional on TS7720 and TS7760.

‡ Please refer to the technical documentation for minimum software-level requirements and specific function or feature support.

[1] Grids of more than 4 systems require RPQ.

[2] IBM TS1130 and IBM TS1120 tape drives also support encryption.

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