

VIRTUAL TAPE LIBRARY FAMILY

Bus-Tech's Virtual Tape Library (VTL) family of products offers innovative "tape-on-disk" solutions for mainframe environments.

Business and IT Challenges

Customers have long chosen the mainframe as the platform on which business critical applications and data reside. As information grows at double digit rates, business and IT managers are challenged to find affordable solutions for achieving business continuity from an alternate site. IT managers often use expensive channel-based disk replication or mirroring to alternate sites for critical operational data. This offers low Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO), but at a high expense. IT managers use tape backup and recovery to alternate sites as a more affordable approach for data that is less critical to operations. However, tape-based recovery increases RTO delays and limits RPO alternatives.

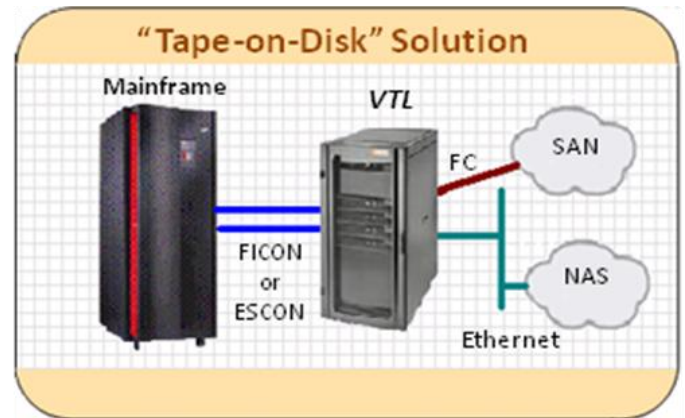
Improving Mainframe Business Continuance

Virtual tape products for the mainframe have improved the performance of the tape libraries by using disk caches to front-end tape libraries. This has proven effective in shrinking backup windows. Off-site recovery often relies on transporting tape cartridges to an alternate site. The resulting RTO and RPO remain high and include the risks of lost, stolen and unreadable tape media. Tape-based solutions remain challenged to satisfy the demanding business continuity objectives for customer critical operational data.

Bus-Tech's "tape-on-disk" technology provides affordable alternatives to datacenter managers which improve RTO and RPO over tape based alternatives, while eliminating risks associated with tape media.

Open Systems Storage Options

Unlike mainframe virtual tape products that merely insert a disk cache to speed access to a tape library, *Bus-Tech's VTL solutions* eliminate tape media by replacing tape with Open Systems disks. When contrasted with channel attached disk systems, Open Systems based solutions are less expensive with more options. With *Bus-Tech VTL*, customers can select the disk vendor, product, drive type (FC or ATA) and storage connection (Fibre Channel or Ethernet/IP) that are most appropriate for their needs. *Bus-Tech VTL solutions* support the attachment of Network Attached Storage (NAS) products using Network File System (NFS) protocol, SAN based disk storage using SCSI protocol, and compliant storage using vendor unique protocols.



For replicating tape data to alternate sites, Open Systems products offer replication and mirroring options such as synchronous and asynchronous replication which allows sharing the WAN/IP network with other devices, resulting in lower operating costs.

Archiving and Regulatory Compliance

Bus-Tech VTL can also provide the mainframe with access to storage that addresses archiving and regulatory requirements. *Bus-Tech VTL* supports access to compliant storage from *EMC, Network Appliance* and *Hitachi Data Systems*, all of which are accessible via the IP network.

IT Integration

Deploying *Bus-Tech VTL solutions* into the datacenter is quick and painless with minimum disruption. *Bus-Tech's VTL family* appears to the mainframe as FICON or ESCON attached IBM 3480/3490/3590 or Unisys CTS5136 tape drives. *Bus-Tech emulated tape drives* are transparent to the mainframe and its tape applications. All tape drive commands are supported and respond as real tape drives. Applications can allocate and use emulated drives exactly as real tape drives. The use of customer selected disk storage allows for the sharing or reuse of an existing operating procedures, processes and IT skills. *Bus-Tech VTL* is based on proven IBM channel technology. *Bus-Tech VTL solutions* are *IBM Server Proven*.

Moving into Production

Once installed, customer's merely point their backup software to the emulated tape drives. Time required for backup and restore operations is significantly reduced over non-cached tape drives. Performance improvements are also often realized over alternative VTS (cached) implementations as well.

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Object Access Method (OAM) based applications and *Mobius ViewDirect* are examples of applications whose data can be migrated from aging tape and optical storage onto the *Bus-Tech VTL* platforms. Because *Bus-Tech VTL* provides near disk access times, these applications generally benefit from quicker data retrieval and an overall lower cost of storage.

Customers often have a need for a “real” tape drive such as loading new or updated software. *Bus-Tech’s Mainframe Data Library (MDL)* platform allows for the attachment of a mainframe class tape drive to accommodate these needs.

Customers can test disaster recovery processes during prime shift without disrupting offsite replication. This can be accomplished by creating Snapshot read-only copies consuming minimal incremental capacity, or by creating read-write Clones. Data replication can continue from the primary site uninterrupted while testing. Customers often conclude that the tape-on-disk solution can meet the RTO and RPO objectives for additional mainframe applications not previously appropriate for using tape-based solutions.

High Availability, Scalability

Bus-Tech’s VTL family is designed to deliver enterprise class availability and scalability to satisfy the most demanding customer requirements. This is achieved through a modular design based high performance, highly available Emulation Nodes (ENs) with any-to-any access. ENs provide hot-swappable redundant power supplies, fans and RAID protected internal disks.

Mainframe Data Library (MDL) is a clustered solution of 2-4 ENs in a 19” rack. Emulated drives on each EN can mount any cartridge and can be accessed from any LPAR, delivering enterprise class availability. ENs can be added to scale performance and drives to grow with the mainframe requirements.

Mainframe Appliance for Storage (MAS) and *Mainframe Appliance for Storage-Entry (MAS-E)* are rack-mountable products designed to meet the demands of medium size mainframe environments.

Mainframe Support

Emulation Nodes can be configured with single-mode or multi-mode FICON connections or ESCON connections based on *IBM’s Enabler* technology. Drives can be shared across LPARs in a Parallel Sysplex if defined for auto-switching. This capability is enabled by ENs dynamically learning path information on up to 64 LPARs. Supported operating environments include IBM z/OS, VSE, VM, TPF and Unisys OS2200.

Compression and Encryption

Emulated tape drives support IDRC initiated compression. AES--256 FIPS 140-2 compliant data encryption can be configured on any subset of emulated drives.

Storage Connections

Customers may select the connection type to access external disk storage. Dual autosensing 10/100/1000 Ethernet ports are provided for IP attached storage. Dual port auto-configuring 1/2/4 Gbps HBAs are available for SAN access. Both support automatic failover.

Management

Bus-Tech’s VTL family includes an SNMP agent and MIB files for monitoring and analysis. The *Bus-Tech VTL* platforms can send alerts to a designated SNMP manager. This allows Operations Window Messages to be sent to an SNMP Management Console.

Warranty and Services

Bus-Tech products come with a one year warranty that provides telephone support during normal business hours with next day parts replacement or repair. *Bus-Tech* also offers 24x7 phone support and on-site repair. Support services are extendable in one year increments. On-site installation services are also available.