



Bus-Tech-EMC Fixed-Content Archiving Solution for Mainframes

The Big Picture

- Bus-Tech Mainframe Appliance for Storage (MAS) emulates IBM and Unisys tape drives to enable data archiving to EMC Centera
- Leverages low-cost disk technology by archiving mainframe data from tape or high-cost DASD storage to EMC Centera—a self-managing, low-cost, high-performance content-addressed storage (CAS) system
- Provides seamless integration to mainframe application environments
- Delivers significant performance, availability, and reliability benefits over traditional long-term mainframe tape backup and archival storage
- Reduces traditional tape data retrieval from minutes to seconds
- Provides a massively scalable replacement to tape—EMC Centera can easily grow with your business
- Enables easy migration of Object Access Method (OAM) image data from aging, high-maintenance optical storage to EMC Centera via Bus-Tech MAS
- Self-managing and self-healing content-addressed storage reduces operational and administrative costs lowering the total cost of ownership
- Supports business continuity through EMC Centera replication and disaster recovery options
- Facilitates long-term data retention—with EMC Centera, content cannot be overwritten or changed accidentally and is retained for a definable period of time, meeting regulatory requirements

Fast, Simple, and Cost-Effective Information Capture, Storage, and Access for IBM Mainframes

Once stored on tape or optical media and often relegated to a store room, fixed-content information is now being utilized for things like company research and planning, client history and claim tracking, payment processing, product development, and a number of other vital company procedures. This means you must be able to capture fixed-content data from your IBM mainframe and keep it secure and quickly accessible without the use of costly, inefficient tape or optical media. At the same time, you want to eliminate drive mapping, indices updates, and other time-consuming processes, while scaling your IT infrastructure to meet your company's changing needs.

You can do all of this and more with the joint, fixed-content archiving solution available from Bus-Tech and EMC. Bus-Tech's Mainframe Appliance for Storage (MAS) automates and intelligently manages the archiving of data from an IBM mainframe to an EMC® Centera™ content-addressed storage system. This combined solution is designed exclusively for IBM and Unisys mainframe fixed-content applications that are currently processed on tape or optical media, but need the powerful performance of direct-access environments.

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Now, instead of dealing with fixed content stored on disks and multiple automated tape libraries, you can unify disparate storage media into a central, secure EMC Centera repository—with total transparency—mainframe applications are unaware that tape volumes written to the MAS are actually stored on EMC Centera. As far as the applications are concerned, the tape volumes are stored on a real tape cartridge. No change or modification to mainframe applications is required to use the MAS and EMC Centera in place of real tape.

Bus-Tech's MAS is a plug-and-play replacement to a tape-based fixed-content application. EMC Centera simplifies management, ensures content authenticity, delivers petabyte-level scalability and allows for data to be moved off of high-cost DASD or tape to EMC Centera. The end result of combining these products is a solution that enables you to archive valuable data as fixed content (long-lasting, unchanging data) in a secure repository that captures, stores, and enables immediate access to this information.

Performance Improvements over Tape

With its multi-thread capabilities, the MAS significantly outperforms single-thread tape implementations and can access archived data with single or multiple tape drives in ESCON or FICON environments. The MAS with EMC Centera gives mainframe customers cost-effective, rapid access to data like never before.

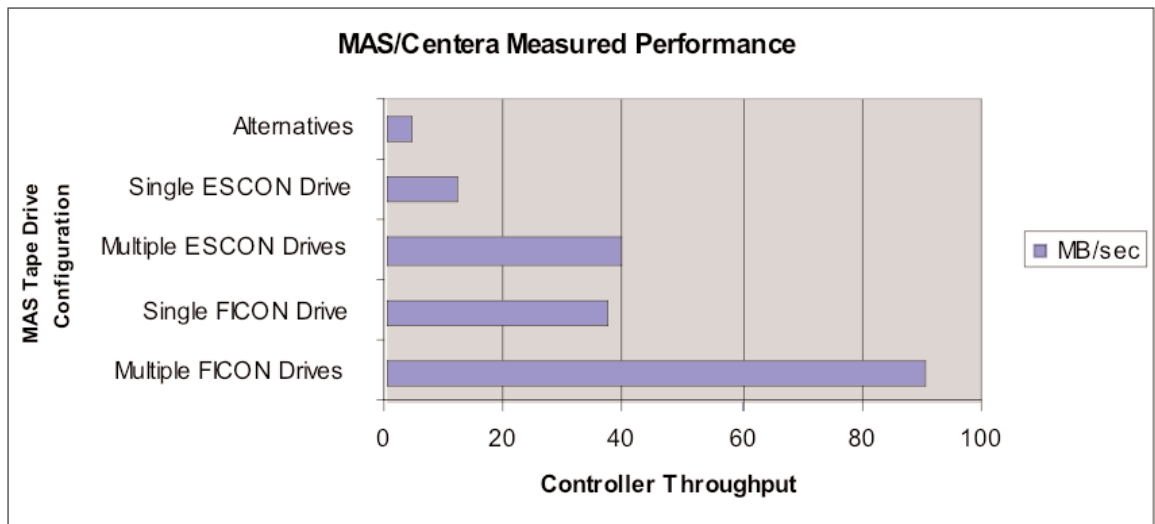


Figure 1. Performance comparison of multi-thread and single-thread MAS tape implementations

EMC Centera Content-Addressed Storage

Traditionally, archived data has been backed up to tape. EMC changes that tradition by offering a low-cost archiving alternative that displaces tape with a fail-safe, self-managing disk storage system.

EMC Centera meets the unique storage requirements of fixed content—unchanging digital assets retained for active reference and long-term value. Its content addressing ensures that each record cannot be overwritten, while retention protection ensures that a record cannot be prematurely erased before the expiration of its retention period. Unlike any other media, EMC Centera can ensure the integrity of records throughout their lifecycles through an automated system of continuous data integrity checking as well as onsite and offsite protection mechanisms.

Using single-instancing, an object is stored only once, ensuring its authenticity, reducing consumption of valuable disk space, and keeping overhead management requirements and costs at a minimum. Users have fast access to archived data across the network, which improves service levels and saves enormous amounts of time that would have been spent retrieving data from tape.

Ideal for the mainframe world, EMC Centera offers massive scalability. As fixed-content grows, there is no need to buy more primary storage or hire or assign more storage administrators. Because of EMC Centera's self-managing, self-healing, and single-instancing features, it is estimated that one full-time person can manage hundreds of terabytes of EMC Centera storage.

Two versions of EMC Centera are available to meet your business needs. The EMC Centera Governance Edition is for a business concerned about the responsible management of its organization, including its electronic records. Guidelines are self-imposed and not limited to external regulatory drivers. If your business must comply with any of the hundreds of regulations and standards, EMC Centera Compliance Edition Plus provides the advanced retention and disposition functionality that compliance applications demand.

How MAS Writes Tape Data to EMC Centera

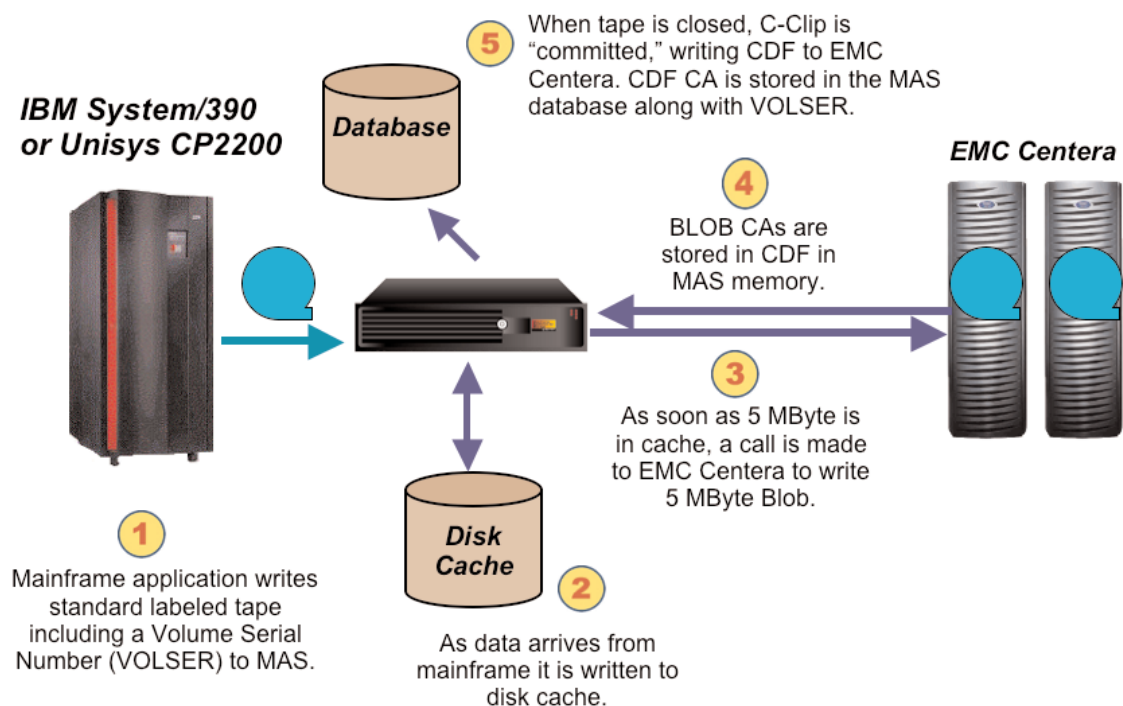


Figure 2. Typical EMC Centera-Bus-Tech architecture

Bus-Tech Mainframe Appliance for Storage

EMC Centera and the Bus-Tech MAS utilize a technique known as tape-on-disk, which provides a virtual tape-like environment that has a number of advantages over standard tape or optical libraries. The MAS presents itself to the IBM zSeries, System/390, or Unisys 2200 mainframe as a tape subsystem. The MAS connects directly to the mainframe through two FICON or ESCON attachments and emulates up to 256 IBM 3480/3490

or Unisys CTS5136 tape drives. Applications running under z/OS, OS/390, VSE, VM/ESA or Z/VM, TPF, and OS2200 can attach to one of these virtual drives and use it as they would a real tape drive. But instead of creating or reading real tape cartridges, the MAS stores tape data files on the EMC Centera system.

Because the MAS emulates standard IBM and Unisys tape drives, those applications using tape or optical as their medium can be upgraded to the EMC Centera with minimal disruption to current operating environments. In addition, the EMC Centera-MAS solution reduces floor space required for drives and cartridge storage and reduces or eliminates personnel costs associated with managing a large tape library, tape drive maintenance costs, and the overall number of tape cartridges needed in support of these applications.

As an enterprise storage offering, the MAS platform consists of dual hot-swappable power supplies and fans in addition to extensive platform management capabilities. And, the relatively low cost of the MAS solution makes business continuance and disaster recovery implementations much more affordable to midrange mainframe users, as well as making mainframe data securely available for a number of additional applications, such as data mining and Web-based content distribution.

Combined with EMC Centera, Bus-Tech's MAS offers a powerful method of making knowledge available throughout the enterprise on a cost-effective basis, enabling companies to devote more time and effort to customer service initiatives, and as a result, improved customer satisfaction.

About EMC

EMC Corporation is the world leader in products, services, and solutions for information management and storage that help organizations extract the maximum value from their information, at the lowest total cost, across every point in the information lifecycle. Major customers include the world's largest banks and financial services firms, manufacturers, telecommunications providers, airlines, transportation companies, Internet providers, retailers, educational institutes, and regional and national government agencies. More information about EMC Centera can be found at www.EMC.com/products/systems/centera.jsp.

About Bus-Tech, Inc.

Bus-Tech, Inc. is an industry-leading provider of state-of-the-art connectivity solutions for the data center to original equipment manufacturers. The company's powerful suite of adapter and platform solutions satisfies even the most rugged demands of data processing professionals for high-bandwidth, high-availability, and high-performance connectivity. Bus-Tech is able to provide customers with fully integrated hardware and software solutions that truly model the concept of "plug and play." With more than 15,000 installed sites worldwide, Bus-Tech is a recognized leader in the data center interconnect market. For more information about Bus-Tech and its products, visit the Bus-Tech website at www.bustech.com.

Take the next step

This seamless integration of Bus-Tech's MAS and EMC Centera is available now. To learn more about the Bus-Tech-EMC solution, call your EMC or Bus-Tech sales representative, or visit our websites at www.EMC.com/products/systems/centera.jsp or www.bustech.com.



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