Now there's a cost-effective solution for protecting your data and applications against media failures and site disasters...



From banking to manufacturing, from chemical processing to telemarketing, one thing holds true—when your disk drives go down, your business is gone.

That's why Advanced Systems Concepts developed the Shadow™ Disk Mirroring System.

hat is Shadow?

Shadow is a software product designed to do one thing and STONAL do it better than any other software in the world: protect the integrity of your data against media and site failure.

Shadow offers two critical options:

File Shadow[™] Option — a product which allows you to shadow specific files instead of whole volumes.

Remote Shadow[™] Option — this product allows you to shadow to a remote site while maintaining the current performance levels of your production systems.

Shadow ensures data integrity.

When media failures occur, important data and access to key applications may be lost. Shadow provides volume shadowing to ensure continuing access and availability of your data when primary drives fail so you can continue to process with current data.

Shadow helps solve this problem for you. Shadow creates duplicate sets of data residing in one or more backup drives (shadow sets). When your primary drive fails, Shadow switches instantly — and automatically — to a shadow set member

> containing a complete and up-to-date set of duplicate files. With no loss of data. And no interruption in servicing your applications.

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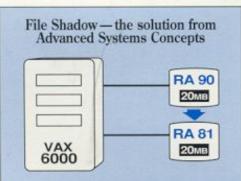
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RA 90 Protect your hardware investment.

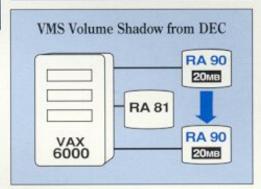
Shadow works with all Digital disk drives including SCSI, DSA, DSSI, UNIBUS, MASSBUS, and also supports numerous third-party disk drives. This means you can use Shadow with your existing hardware reducing the need to buy costly new drives to do shadowing.

Improve cluster reliability.

Shadow lets you shadow your Quorum disk to other disk drives on the VAXcluster. If the Quorum disk fails, Shadow enables your VAXcluster to continue operations by switching to the backup disk containing the duplicate Quorum disk files.



Hardware Comparison



File Shadow lets you shadow files to other drives, regardless of make and model, reducing the need to purchase additional drives. In this example, you could shadow a 20MB file from an RA 90 to any drive in your current configuration—so your savings on hardware alone would be about \$27,000.

File Shadow

Shadow files instead of volumes.

Shadow contains a virtual disk facility that allows you to create disks the size of your files. This eliminates the expense barrier to mirroring — and makes Shadow the most cost-effective shadowing software available today.

When shadowing files (depending on file size and available storage), File Shadow allows you to shadow to an existing drive in your current configuration. So you can use existing equipment and don't have to keep adding costly new disk drives to hold your shadowed files. Other mirroring software forces you to shadow the entire volume. This inefficient use of disk space forces you to buy more drives another expense that Shadow could help you avoid.

Shadow between dissimilar disk devices.

Using File Shadow, you can do "heterogeneous shadowing" (shadowing between dissimilar disk devices). File Shadow lets you shadow existing disk drives to other drives, regardless of make and model. In our hardware comparison (far left), you can mirror data from an RA 90 to an RA 81. With some other mirroring software, that would be impossible.

Shadow's ability to do heterogeneous shadowing further reduces the need

to acquire expensive new disk drives. Shadow lets you mirror your data using whatever drives you have (as long as they have sufficient storage space to hold the duplicate files). Other mirroring

RECOVERY

Ensure uninterrupted processing with Remote Shadow

♦ Network restart

Remote Shadow Option (RSO) contains software routines that allow you to recover from a temporary line failure within a user-established preset time, without the need to execute a volume catch-up.

Data compression

RSO incorporates data compression algorithms that eliminate repetitive characters from data in transit. This feature has been proven in actual customer applications to reduce traffic flow by as much as 77 percent, allowing you to defer or avoid the cost of increasing network bandwidth for remote shadowing operations.

Synchronization tolerance

This feature is designed to keep data at a remote site synchronized with your primary site. Should your peak transaction loads exceed available network bandwidth, RSO will allow the primary system to operate efficiently by queuing network I/Os to complete as bandwidth becomes available.

♦ Logical catch-up

If less than 90 percent of a disk is used, Shadow copies just that portion of the disk, not the entire disk. This results in faster catch-ups—making your data available sooner with less impact on system performance.

◆ Data encryption

An encryption algorithm in RSO prevents unauthorized users from viewing sensitive data as it is being transmitted to the contingency site and/or when it is stored on the remote disk.

software forces you to run out and buy an exact duplicate model of every drive you want to shadow. That's a waste of time. And money.

Optimize system performance with Shadow.

Shadow performs both "balanced" and "preferred reading". Balanced reading means it reads files off the disk drive whose heads are closest to the desired block. With preferred reading, you can specify the disk with the fastest access times from within your shadow set. This often shortens user access time, improving resource utilization and enhancing overall system performance.

Protect your business with Remote Shadow

Remote Shadow is an option which enables mirroring of data to remote sites. With RSO, you can shadow files or volumes over your network to your contingency site — maintaining the current performance levels of your production systems.

Continue operations.

When you use RSO, your data is instantly available to you at your disaster recovery site — with no loss of data. So your backup systems can be up and running quickly. If you're not using RSO, it can mean a delay of many hours while you apply journal files or transport backup disks/tapes to the contingency site.

RSO will always attempt to complete write operations

on the primary and remote systems in real time so the databases are always in synchronization. This ensures virtually no loss of data should the primary site fail.



FMT-VAXA\$VDAIO: Down-Reconnecting Options: Network File, Net-Compress, Out-Sync Network Rates							RMT_VAXA\$VDA10: Connected (VAXB)						
							Options: Netwo	Options: Network File, Net-Compress, Out-Sync Network Rates					
:em	Curr	Avg	Min	Max		Maximum	Item	Curr	Avg	Min	Max		Maximum
mit Waitq	0.00	0.00	0.00	0.00	4225/	4225	Xmit Waitq	46.33	4.21	3.67	49.00	4275/	
sp Waitq	0.00	0.00	0.00	0.00	1/	20	Resp Waitq	0.00	0.00	0.33	1.33	34/	10
sk Reads	0.00	0.00	0.00	0.00	914	100	Disk Reads	8.33	0.76	1.00	8.67	927	
aits	0.00	0.00	0.00	0.00	1007		Xmits	8.33	0.76	1.00	8.67	1012	
stBytesB/KB	0.00	0.00	0.00	0.00	14607348/	58.0%	XntBytesB/XB	122.03	11.09	11.09	132.61	15001172/	58.2%
tBytesA/KB	0.00	0.00	0.00	0.00	6130214		XatBytesA/KB	37.29	3.39	2.87	46.43	6140296	
vBytes8/K8	0.00	0.00	0.00	0.00	224/	85.4%	RcvBytesB/KB	0.00	0.00	0.00	0.00	224/	85.44
vBytesA/KB	0.00	0.00	0.00	0.00	1536		RevBytesA/NB	0.00	0.00	0.00	0.00	1536	
W Collision	0.00	0.00	0.00	0.00	0/	943	LBN Collision	0.00	0.00	0.33	1.00	0/	94
- Out-of-Sync	Info -		No	ode Reco	nnection I	1fo	Out-of-Sys	e Info					
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Easy to use. Load and go.

In less time than it takes to read this brochure, you can be protecting your critical data and applications against media and site failure with Shadow.

Shadow is easy to install and totally transparent to your users and applications.

There are no new command procedures to learn. You install Shadow in minutes using VMSINSTAL. It works with your existing files "as is" — no need to rewrite any application code.

You can use Shadow in your VAX Center and prove its performance before you own it.

Automatic Network Restart

When transient network failures occur, RSO will continue to process transparently on the local system while queuing write I/Os for later transmission to the remote node.



Key Business Benefits with Shadow:

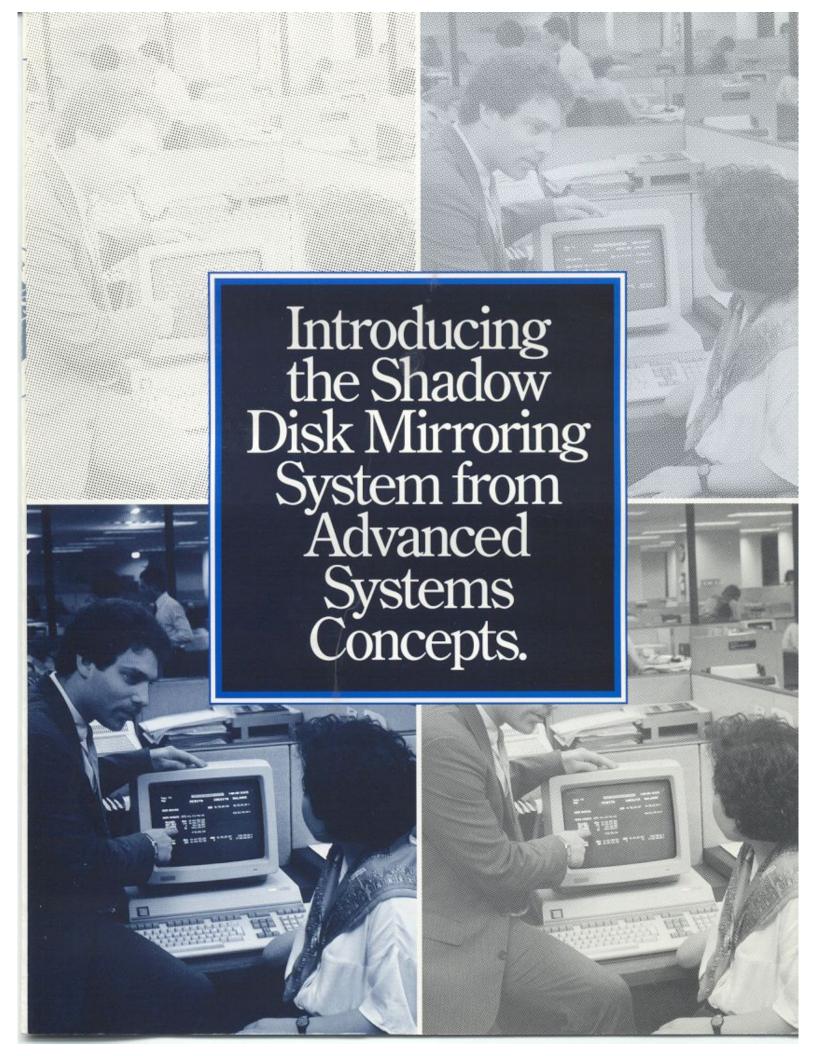
- Intra-day recovery at contingency site
- Same-day access to business data
- Maximize potential and minimize loss
- Complete application transparency
- High level of data integrity
- Rapid switch-over time
- Maintain current system performance levels

Evaluating Shadow is quick and easy.

Just install Shadow and run any of your applications.

Now shut down your primary drive. And watch Shadow automatically switch over to shadow set members — with no interruption in service.

For a Software Product Description and current price schedule... or for more information on how Shadow can keep your VAX Center and your business running...call Advanced Systems Concepts toll-free: 1-800-229-2724.



dvanced Systems Concepts, Inc. was founded in 1981 as a software engineering and consulting company specializing in the development of system software to enhance the benefits of Digital's VAX/VMS family of computers. The company has developed a suite of products for performance measurement, capacity planning, data disaster recovery, performance enhancement, disk management, system security and CICS application porting to VMS.

Headquartered in Hoboken, New Jersey, Advanced Systems Concepts has over 3,250 licenses for systems installed in data centers in ten countries around the world.

Partial Product List

- ◆ Performance Simulation System™ provides capacity planning, performance measurement, application reliability testing. and security for terminal sessions.
- ◆ External Performance Simulation System[™] provides for rigorous benchmarking by detaching terminal emulation from the system under test when used with PSS.
- ◆ Virtuoso™ solves the read and write bottlenecks for all VAX systems. Integrates Caching, RAM Disk and Disk Striping for maximum I/O throughput.
- Tapeshare[™] reduces the number of tape devices needed to support multiple VAX systems and significantly improves backup strategies for networked systems.
- ◆ Recorder[™] provides an inexpensive audit trail of terminal users' input and output. An ideal solution for dial-in terminal session security.
- ◆ Watch™ monitors, records and interacts with other users' terminal sessions as they occur. WATCH is a useful tool for HELP desks, remote demonstrations, remote program debugging and security.
- ◆ Liberator[™] easily migrates IBM/CICS COBOL applications and VSAM file structures to VAX/VMS COBOL and RMS.

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