Dell Advanced Infrastructure Manager
Implementing disaster recovery

Introduction
More than 90 percent of Fortune 1000 companies are not confident that they can completely failover to their remote data center within one hour. Given that the costs of downtime can be measured in millions of dollars per minute, companies with unreliable disaster recovery processes are taking a potentially fatal risk. In fact, 90 percent of companies that experience a week or more of data center downtime go on to fail within 12 months, according to the research firm Brilliant Ideas, LLC.

Unfortunately, the complexity inherent in disaster recovery makes fast failover difficult and complex. Recovering a data center means switching to a new location not just machines, but also storage access and its associated network connectivity at a moment’s notice.

Out-of-synch data centers are unreliable, and the need to synchronize multiple data centers exacerbates the complexity of the disaster recovery process. Every time a change is made in the production datacenter — a script is changed, a server is added, network permissions are reconfigured — these changes need to be replicated to the remote data centers. Manual replication is both error-prone and tedious and can cause mistakes and delays.

Dell’s Advanced Infrastructure Manager (AIM) can help automate these processes, leveraging your current investment in IT infrastructure, and provide a cost-effective means to implement disaster recovery.

Dell Advanced Infrastructure Manager
Dynamic infrastructure management enables data center managers to quickly resolve the difficulties inherent in disaster recovery. AIM utilizes existing storage replication technology to boot and run your remote servers from remote copies of the same images that are running on your production servers. When the production data center fails, AIM automatically finds the most appropriate remote machine for each replicated server image and boots the replacement servers immediately. Additionally, AIM adjusts network connectivity and storage access in your remote data center so that the topology remains identical to that of the production data center. This saves you from having to manually replicate network topology changes across data centers.

By automating the disaster recovery process, AIM relieves you from the tedious and time-consuming task of keeping your data centers in synch. This reduces the potential for human error and turns your disaster recovery process from an unreliable problem into an efficient, dependable system. The result is full, reliable disaster recovery and ensuring that recovery time objectives (RTO) are met.

What’s more, AIM leverages existing automated storage replication capabilities to make your disaster recovery management as painless as possible. If servers in the production data center are already booting from central storage (FC SAN, iSCSI or NAS), then replication technology can seamlessly mirror those server images to your remote data centers. AIM software assigns hardware, storage and network requirements to your replicated server images, and then monitors the availability of your production data center. When AIM detects that your production data center has become unavailable, it automatically boots your replicated server images onto the appropriate hardware. The remote servers, complete with the correct network configurations, take on the role of your primary servers in no more time than it takes to boot.1

The goal of disaster recovery is to ensure that your critical applications are available whenever you need them, under all circumstances. AIM works with your existing infrastructure to ensure that your critical applications quickly failover as designed.

Benefits
Dell AIM offers reliability, speed and ease of maintenance for your disaster recovery process. Additionally, it automatically detects site failure at your production data center, and then automates the process of bringing your remote data center online.

AIM’s automation leads to:
• Fewer errors by shielding your disaster recovery process from manual intervention
• Rapid failover
By booting from automatically replicated central storage, AIM removes the need for you to constantly mirror scripts and configuration changes to your remote data center. This frees you from tedious tasks and allows you to work on more pressing business-critical issues in your data center.

• AIM does not impact the production data center; in fact, the production data center does not even know that the AIM software exists.
• The remote data center has an AIM controller and enough server capacity to support the server images being run in the production data center.

1 If there is a need for external IP address remapping and name service changes, that needs to be done before AIM can start the replicated server images.
**To learn more about how Dell AIM can help you, please visit** [Dell.com/Dell-AIM](https://www.dell.com/Dell-AIM)

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### Requirements
- Dell AIM software
- Production data center with servers booting off of SAN or NAS
- Remote data centers with servers booting off of SAN or NAS
- Network storage replication solution
- Layer 2 Ethernet fabric

### Implementation Steps
1. Ensure that all replicated servers in the production data center boot from central storage.
2. Install the AIM Agent (in a dormant state) on the OS of every server image in the production data center.
3. Implement a storage replication solution to continuously mirror the data from the SAN or NAS at the production data center to the remote data center.
4. Connect all remote servers to a layer 2 switch fabric.
5. Configure all remote servers to boot off of SAN or NAS at the remote data center.
6. Designate a remote server at the remote data center as the AIM controller.
7. Manage the remote data center layer 2 switching fabric via the AIM controller.
8. Configure the required meta-data residing on the AIM controller.

### Summary
Deploying AIM software enables data centers to use fewer machines, rapidly repurpose servers where and when needed and decrease operational costs. AIM enables data centers to react in real-time to changing business needs by dynamically changing what servers are running and how those servers are connected to network and storage. The result is an adaptive infrastructure where data centers can transition between different configurations without physical intervention. By deploying AIM software, companies have been able to implement cost-effective solutions while reducing server counts, simplifying manageability and increasing reliability.

### Reliability
Dell AIM ensures that when a disaster occurs, your remote data center is prepared to come online – without human intervention.

### Speed
Dell enables your disaster recovery data center to go from dead, bare metal to live, networked servers in five minutes or less.

### Ease
Dell AIM saves you from having to manually replicate changes across your data centers, and from the errors that manual replication can introduce.

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**Production Data Center**

- External Network
- Switch
- Servers
- Network Storage

**Remote Data Center**

- External Network
- AIM Controller
- Switch
- Servers
- Network Storage

- **Automatic Site Failover Policies**
- **Automatic Network Configuration**
- **Automatic Storage Replication**