

# Backup Solutions with Open-E Data Storage Software (DSS)



# Different Backups opportunities using Open-E DSS *open-e*

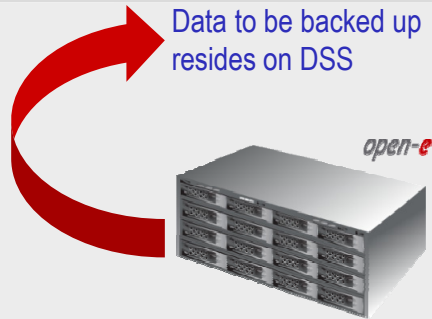
The storage market is still growing rapidly with the fast growth in the SMB market segment. There are three main areas of concern for the system administrator:

- Backing up and recovering the corporate data
- Enabling storage virtualization to reduce equipment and operating costs
- And providing disaster recovery solutions in case of a man made or natural disaster

Open-E provides a very different solution. We sell software only, no expensive, custom hardware.

This enables you to build the hardware solution at a price you can afford. The software is GUI driven and very easy to use and it is the most cost effective solution on the market.

Today stored data is doubling every 18 months. Nearly all organizations today are facing record data growth, making storage a front-and-center issue for corporations IT budgets, especially in this market, can not keep up with the demand. Customers are looking for a lower cost solution than what has traditionally been available. With new hard drives the technology cost per TB is coming down. Disk is replacing tape as the preferred backup media because of shrinking back up windows and Government regulations are also driving demand for the SMB.



## DIRECTLY ATTACHED:

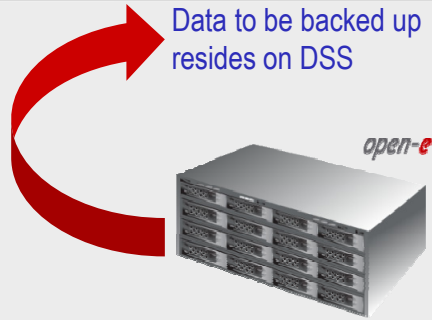
- Backup to a Tape Library
- Backup to a Tape Drive
- Backup to an another RAID controller
- Backup to an another RAID array (as note in 3rd presentation)
- Backup to a Dynamic Volume with:
  - ✓ USB drive
  - ✓ SATA drive
  - ✓ ATA drive

## OVER A LAN:

- Backup to iSCSI Target Volume
- Backup to FC Target Volume
- Backup to third-party Backup Pool
- Backup to NDMP Enabled Server

## OVER A WAN:

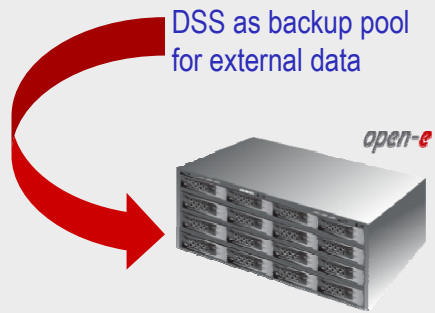
- Backup to iSCSI Target Volume
- Backup to NDMP Enabled Server



## BACKUP OF OPEN (PERMAMENTLY IN USE) DATA

- Backup of virtual machines or database placed on an iSCSI target
- Backup of virtual machines or database placed on NAS share

# DSS as backup media for data residing on other systems *open-e*



## OVER A LAN:

- Backup to NDMP
- Backup any system an iSCSI Target
- Backup any system an FC Target

## OVER A WAN:

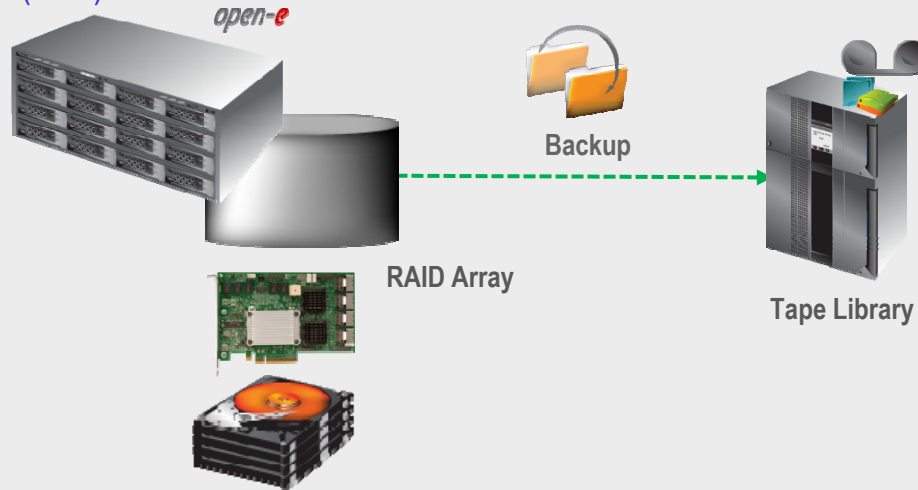
- Backup to NDMP
- Backup any system an iSCSI Target
- Backup any system an FC Target

# Backup of data residing on Data Storage Software



## Backup to the Tape Library

Data Server (DSS)



Data residing on DSS is backed up from RAID Array to Tape Library.

### ■ Recommended Resources

- Tape Library, Backup functions are built in the Open-E DSS

### ■ Benefits

- Local data availability

### ■ Disadvantages

- Natural disasters can destroy device

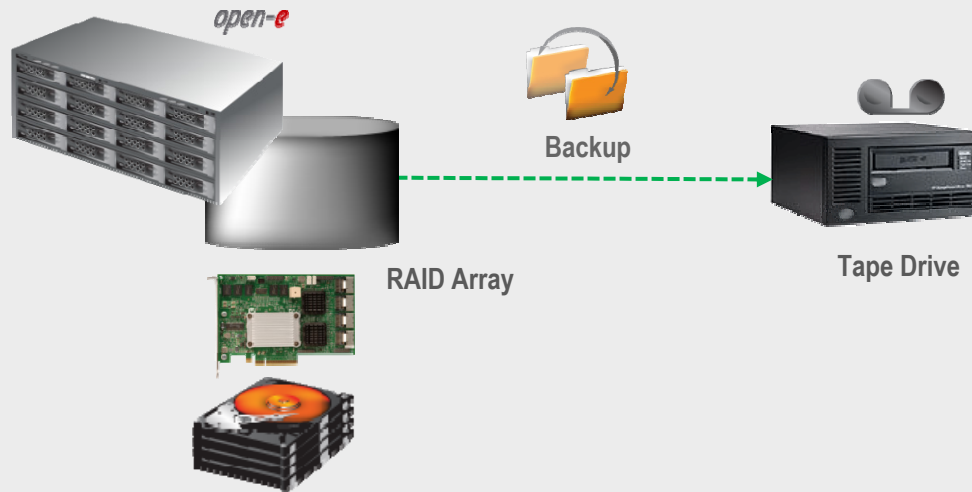


# Backup of data residing on Data Storage Software



## Backup to attached Tape Drive

Data Server (DSS)



Data residing on DSS is backed up from RAID Array to Tape Drive.

- **Recommended Resources**

- External or Internal Tape Drive, Backup functions are built in the Open-E DSS

- **Benefits**

- Local data availability

- **Disadvantages**

- Natural disasters can destroy device

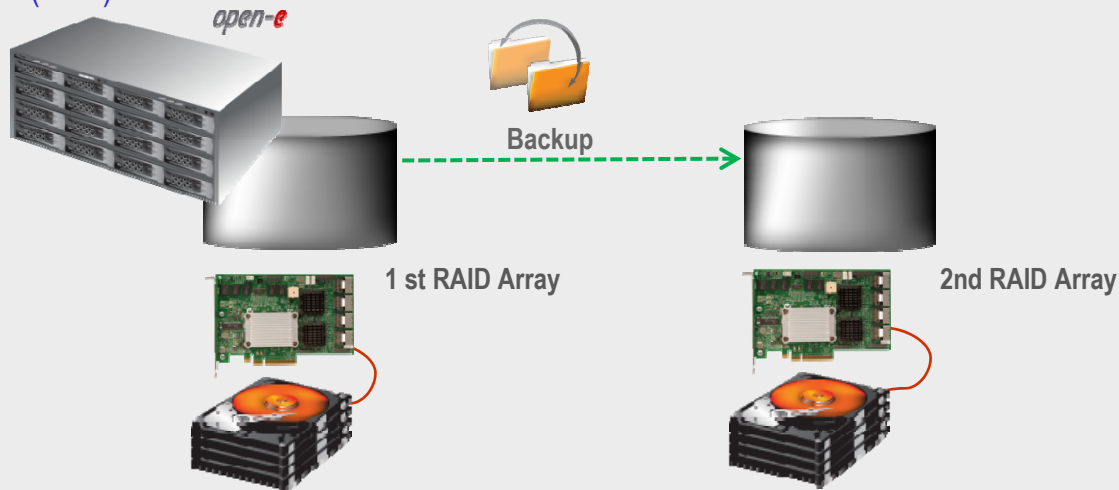


# Backup of data residing on Data Storage Software



## Backup to an another RAID controller

Data Server (DSS)



Data residing on the DSS is backed up from 1st RAID Array to 2nd RAID Array using built-in Local Backup functions for NAS shares.

### Recommended Resources

- Two RAID Controllers within in one system, Backup functions are built in the Open-E DSS (without additional requirements for hardware)

### Benefits

- Low cost solution
- Local data availability

### Disadvantages

- In case of total disaster data and the backup can be lost

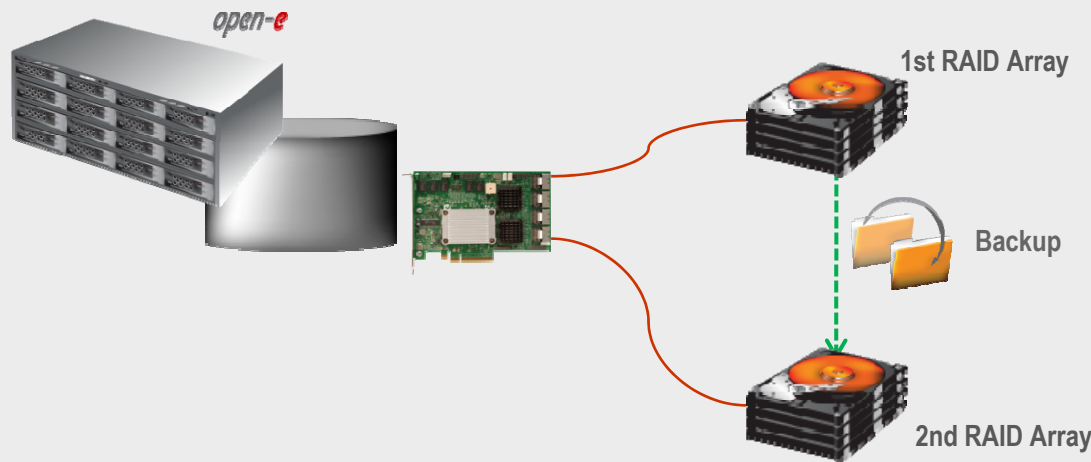


# Backup of data residing on Data Storage Software



Data Server (DSS)

## Backup to an another RAID ARRAY



Data residing on DSS is backed up from 1st RAID Array to 2nd RAID Array using the built-in Local Backup functions for NAS shares.

### ■ Recommended Resources

- Two RAID Arrays within in one system, Backup functions are built in the Open-E DSS (without additional requirements for hardware)

### ■ Benefits

- Low cost solution
- Local data availability

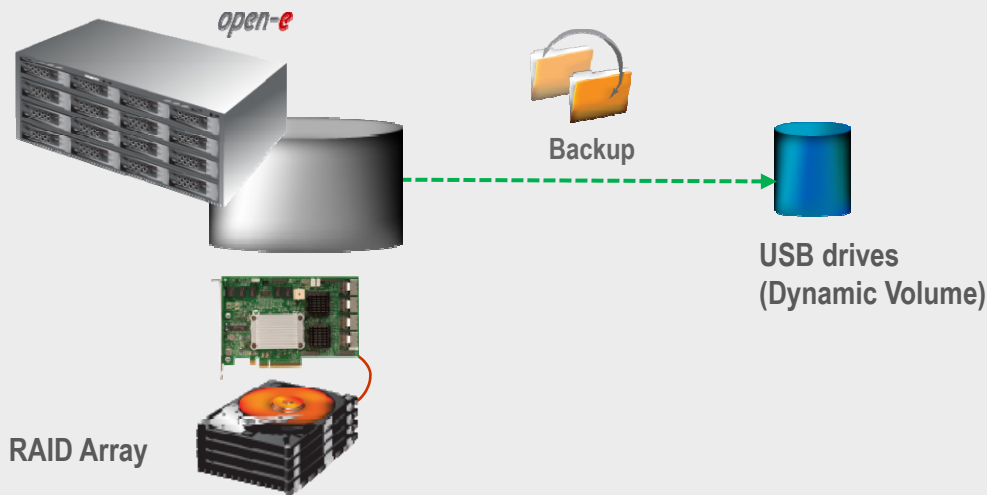
### ■ Disadvantages

- In case of total disaster data and the backup can be lost.



## Backup to a Dynamic Volume with a USB Drive

Data Server (DSS)



Data residing on DSS is backed up from the RAID Array to USB Drive as a (Dynamic Volume) for NAS shares.

- **Recommended Resources**
  - One or more USB drives, Backup functions are built in the Open-E DSS
- **Benefits**
  - Local data availability
- **Disadvantages**
  - Natural disasters can destroy both machines

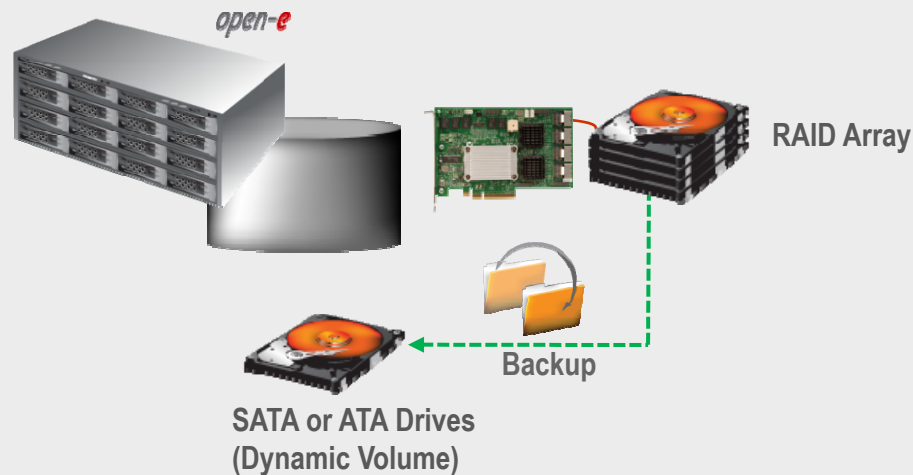


# Backup of data residing on Data Storage Software



## Backup to a Dynamic Volume with ATA or SATA Drives

Data Server (DSS)



Data residing on DSS is backed up from the RAID Array to ATA or SATA Drives as a Dynamic Volume for NAS shares.

### ■ Recommended Resources

- One or more SATA or ATA Drives, Backup functions are built in the Open-E DSS

### ■ Benefits

- Local data availability

### ■ Disadvantages

- Natural disasters can destroy both machines

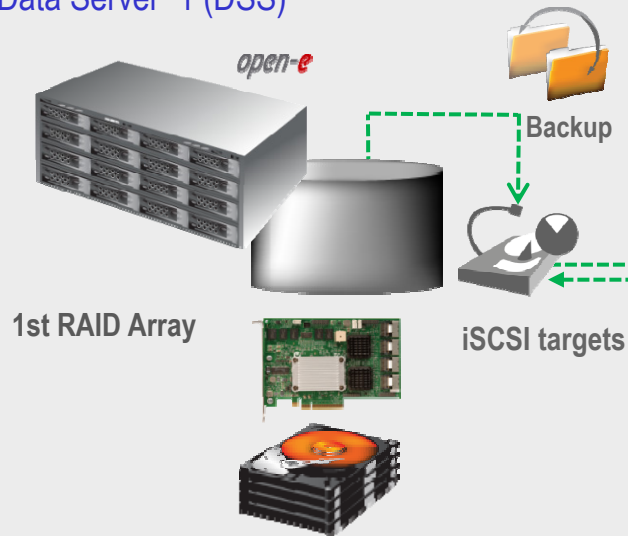


# Backup of data residing on Data Storage Software

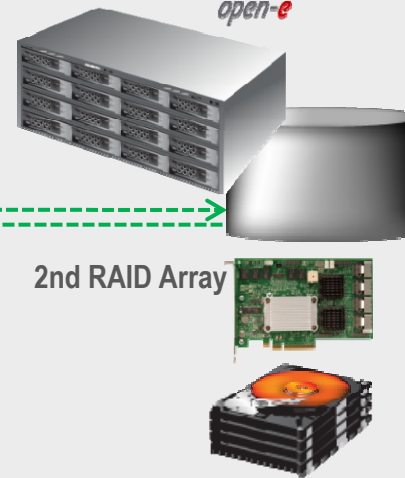


## Backup to iSCSI Target Volume over a LAN

Data Server 1 (DSS)



Data Server 2 (DSS)



Data residing on DSS 1 is backed up from 1st RAID Array to the iSCSI target, available via the LAN on the DSS 2 using built-in Local Backup functions for the NAS share.

### Recommended Resources

- Backup functions are built in the Open-E DSS (without additional requirements of hardware)

### Benefits

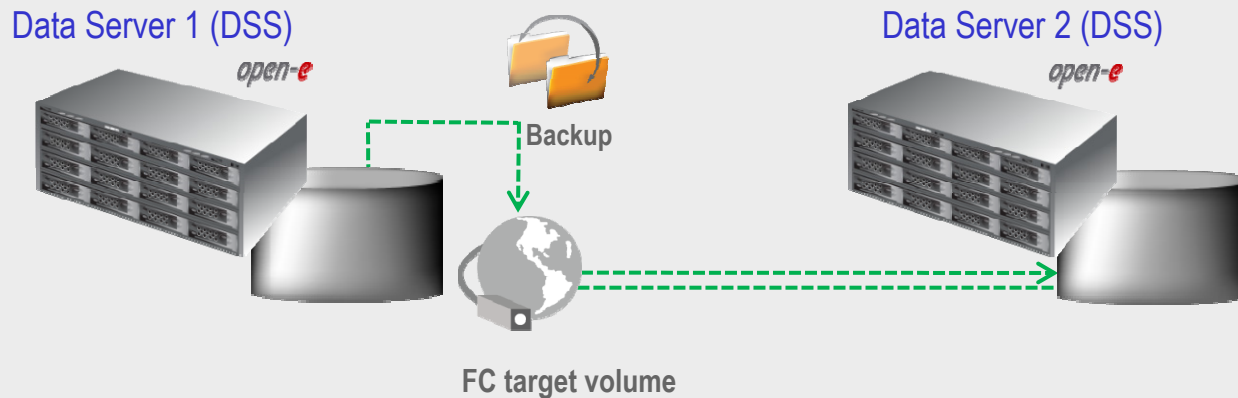
- Data Redundancy over a LAN
- Local data availability

### Disadvantages

- Natural disasters can destroy both machines



## Backup to FC Target Volume over a LAN



Data residing on DSS 1 is backed up from 1st RAID Array to FC target volume, available via the LAN on the DSS 2 using built-in Local Backup functions for the NAS share.

- **Recommended Resources**

- Fibre Channel, Backup functions are built in the Open-E DSS (without additional requirements of hardware)

- **Benefits**

- Data Redundancy over a LAN
- Local data availability

- **Disadvantages**

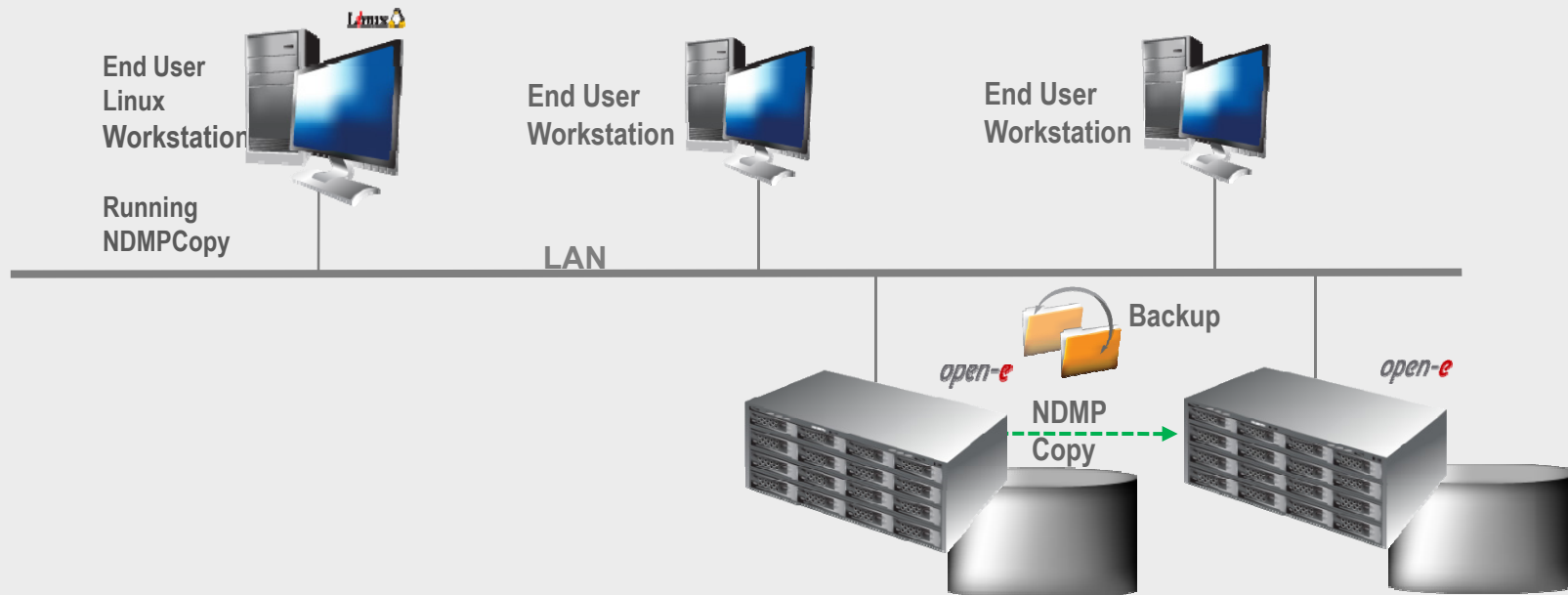
- Natural disasters can destroy both machines



# Backup of data residing on Data Storage Software



## Backup to NDMP Enabled Server over a LAN - using NDMP Copy



### Server to server copy with NDMPCopy

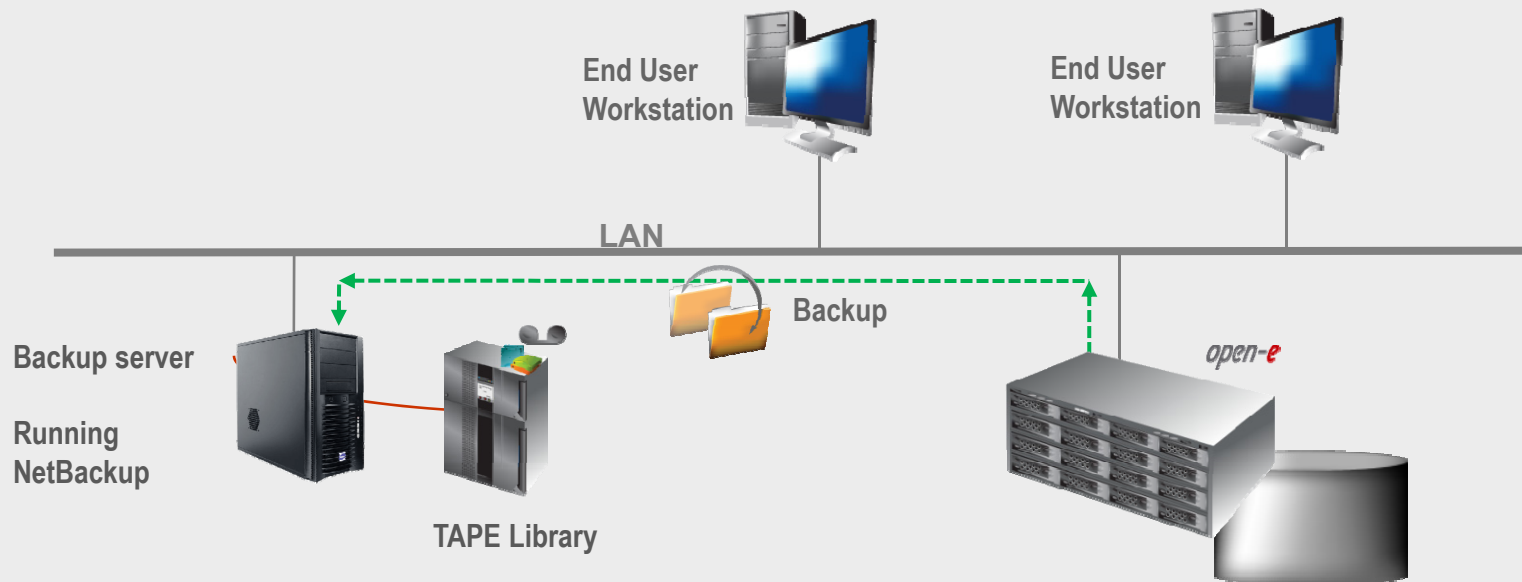
The data can be moved between two DSS Servers using the NDMPCopy utility. With NDMPcopy, data is transferred directly from the source machine to the destination machine, and the NDMP host and network are not burdened with the extra load.



# Backup of data residing on Data Storage Software



## Backup to NDMP Enabled Server over a LAN - using NetBackup



### Backup & Restore with NetBackup® software

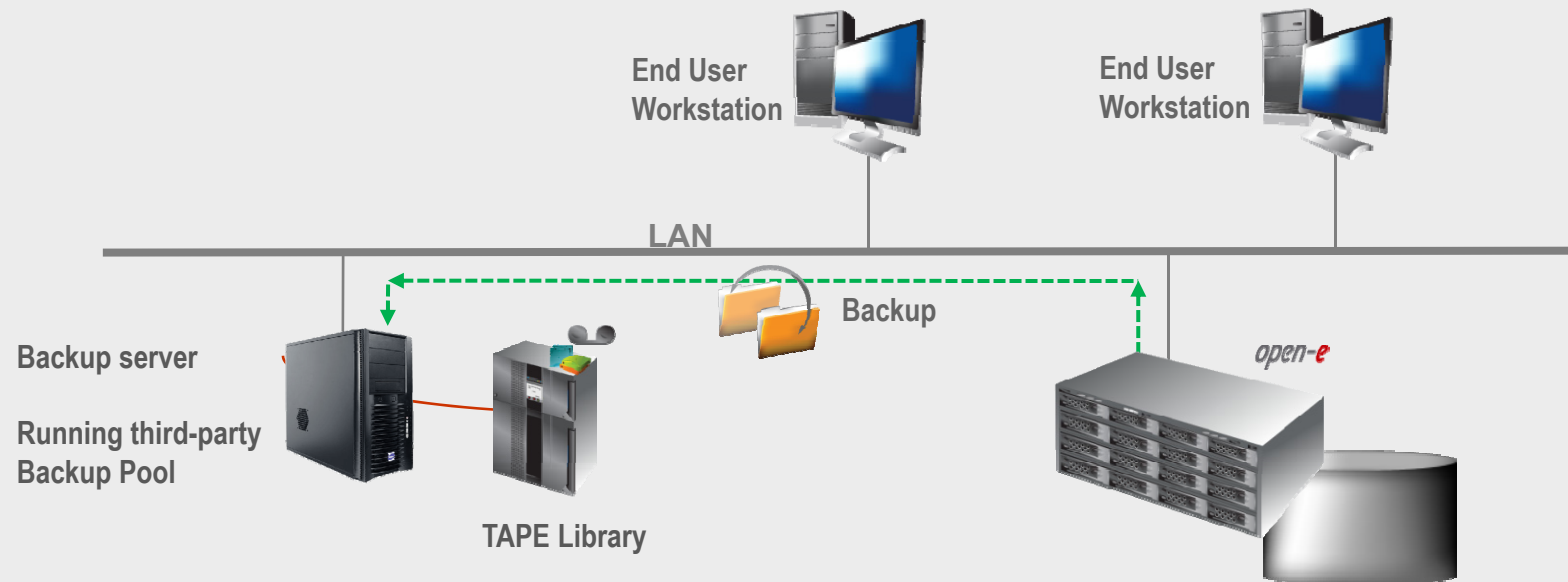
You can use the NetBackup® application to back up the data through the NDMP DATA interface. It is necessary to install the NetBackup® server and client software as explained in the original NetBackup® Installation Guide.



# Backup of data residing on Data Storage Software



## Backup to third-party Backup Pool over a LAN

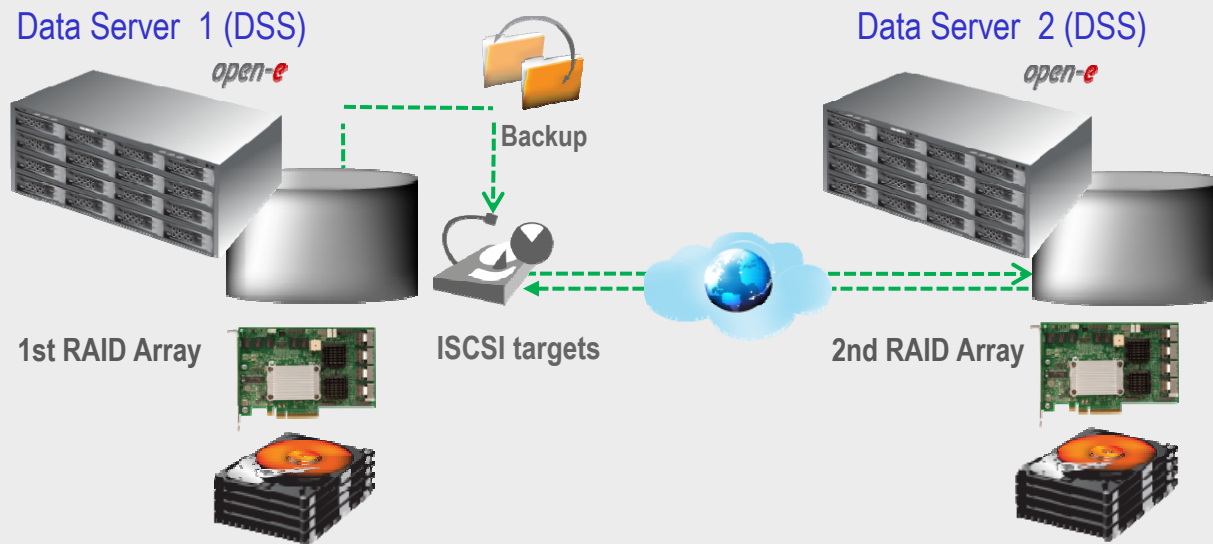


### Backup & Restore with regular backup software

You can use third-party server with Backup Pool and perform backup/restore jobs and mount shares using SMB, NFS and AFP protocols. The iSCSI target can be used as well.



## Backup to iSCSI Target Volume over a WAN



Data residing on DSS1 is backed up from 1st RAID Array to iSCSI target volume available via the WAN on the DSS 2 using built-in Local Backup functions for the NAS share.

### Recommended Resources

- Backup functions are built in the Open-E DSS (without additional requirements of hardware)

### Benefits

- Data Redundancy over a WAN
- Maximum data safety

### Disadvantages

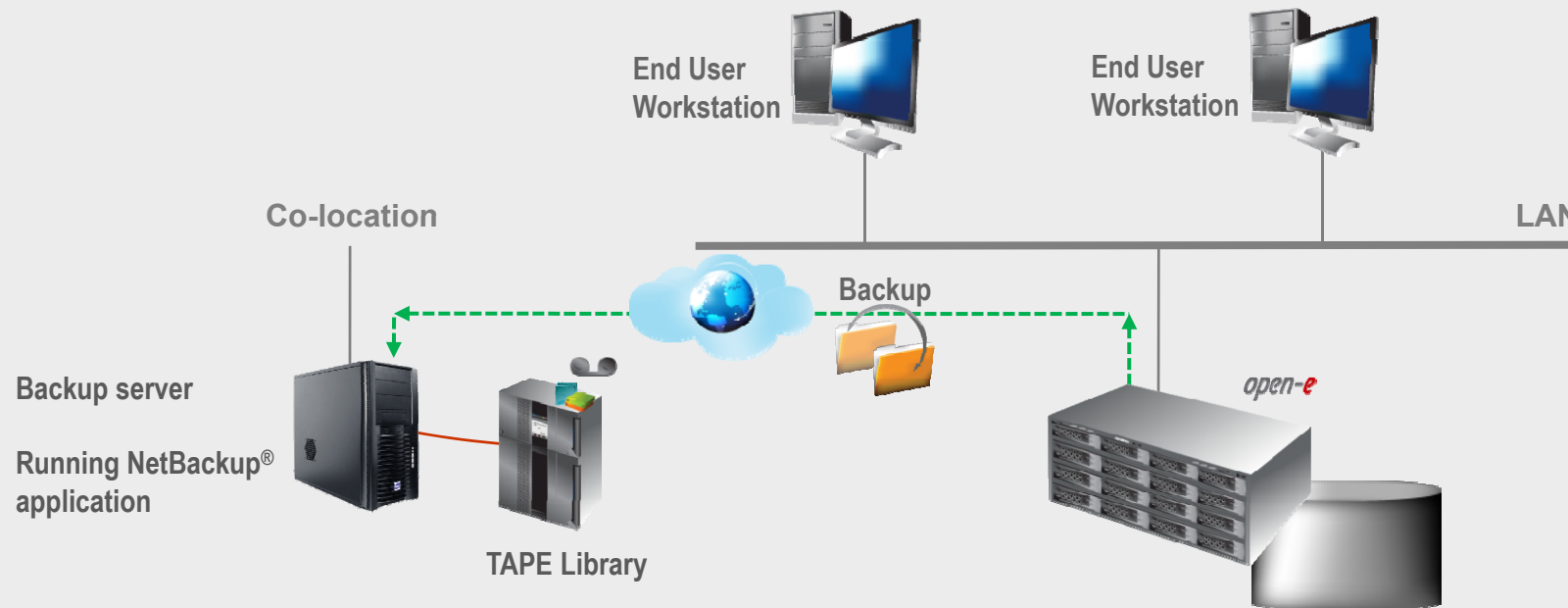
- High cost of WAN solution



# Backup of data residing on Data Storage Software



## Backup to NDMP Enabled Server over a WAN



### Backup & Restore with NetBackup® software

You can use the **NetBackup®** application to back up the data through the NDMP DATA interface over a WAN. It is necessary to open the TCP port 10000 in both directions for the incoming and outgoing ports.



## Backup of virtual machines or databases placed on an iSCSI target

You should use a snapshot of an iSCSI LUN to guarantee consistency with running virtual machines or databases.

- **In case of a database please run the following step-by-step:**
  - Plan a few minutes for a maintenance window and shutdown the database.
  - Start snapshot on the volume on which the database resides.
  - Start the database again.
  - The consistent snapshot of the database is available in the snapshot volume.
  - Please run the backup software or just copy the database from the snapshot volume to an archive destination, while running the database this is in service on a live volume.
  
- **In case of a Virtual machine please run the following step-by-step:**
  - Start the built-in virtual system snapshot of the virtual machine.
  - Start the snapshot on the volume on which the virtual machine resides in.
  - The virtual machine will include a consistent snapshot (made by virtual system) is available in the snapshot volume.
  - Please run the backup software or just copy the virtual machine to an archive destination.
  - In case of restore, please roll-back the virtual machine snapshot, as the only consistent state of the virtual machine is saved there.



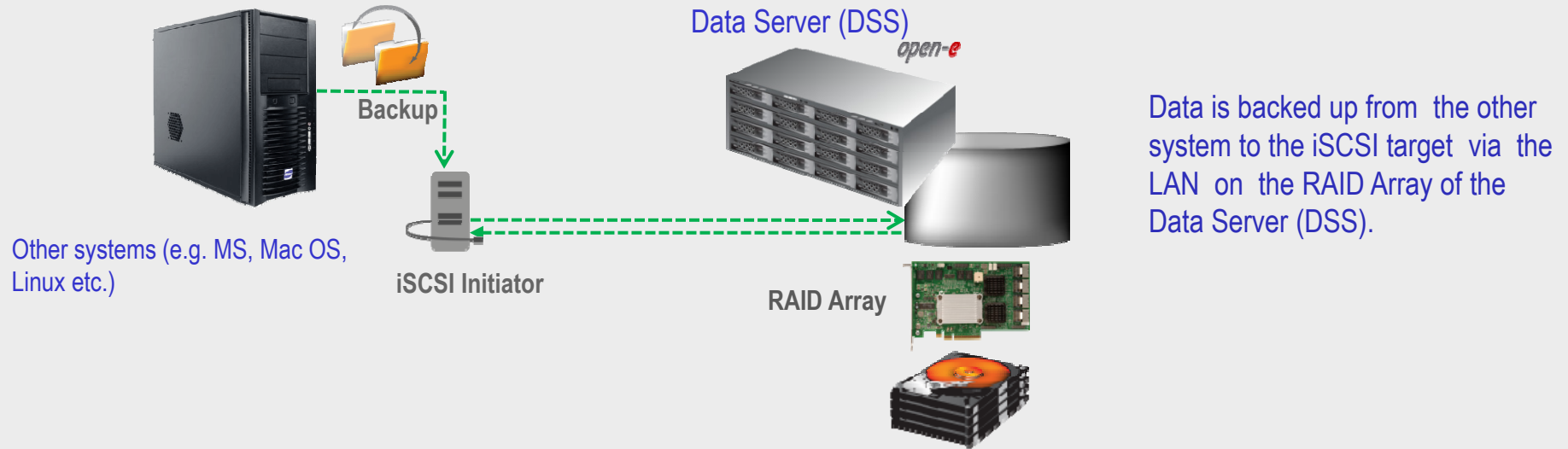
## Backup of virtual machines or databases placed on a NAS share

- **In case of a database please run following step-by-step:**
  - Plan few minutes for a maintenance window and shutdown the database.
  - Start snapshot on the volume on which the database resides.
  - Start the database again.
  - The consistent snapshot of the database is available in the snapshot volume.
  - Please run the DSS built-in or third party backup software or just copy the database from the snapshot volume to an archive destination, while running the database is in service for the live volume.
  
- **In case of a Virtual machine please run following step-by-step:**
  - Start the built-in virtual system snapshot of the virtual machine.
  - Start the snapshot on the volume which the virtual machine resides in.
  - The virtual machine includes consistent snapshot (made by virtual system) is available in the snapshot volume.
  - Please run the DSS built-in or third party backup software or just copy the virtual machine to an archive destination.
  - In case of a restore, please roll-back the virtual machine snapshot, as the only consistent state of the virtual machine is saved there.



# DSS as backup media for data residing on other systems *open-e*

## Backup any system on iSCSI Target over a LAN



### ■ Recommended Resources

- Backup functions are built in the Open-E DSS (without additional requirements of hardware)

### ■ Benefits

- Data Redundancy over a LAN
- Local data availability

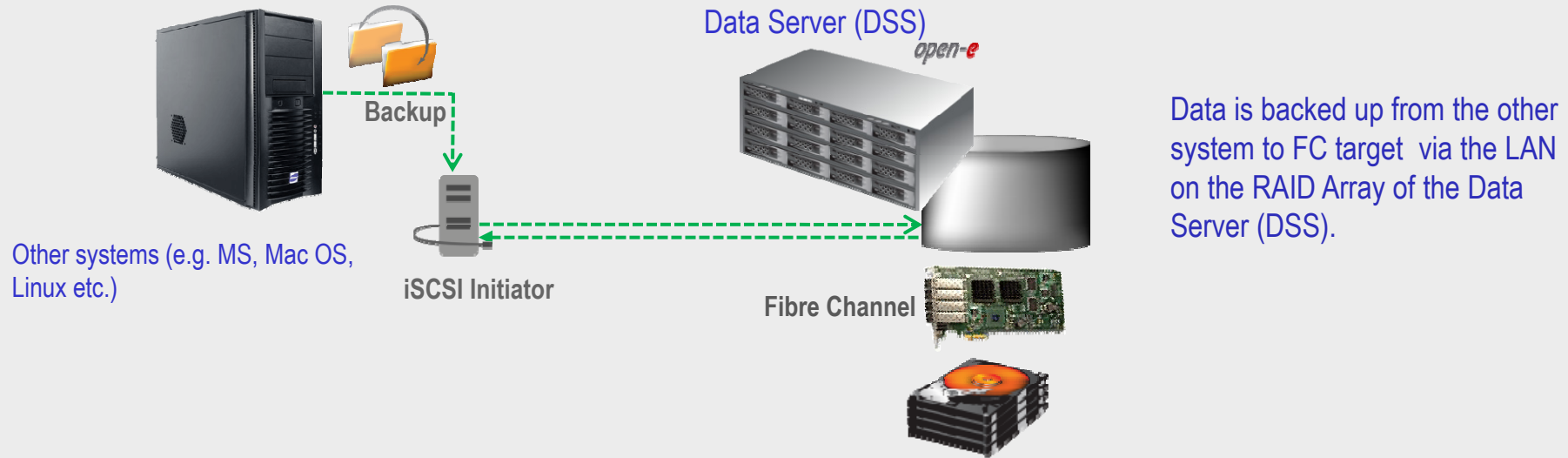
### ■ Disadvantages

- Natural disasters can destroy machine



# DSS as backup media for data residing on other systems *open-e*

## Backup any system on FC Target over a LAN



### ■ Recommended Resources

- Backup functions are built in the Open-E DSS (without additional requirements of hardware)

### ■ Benefits

- Data Redundancy over a LAN
- Local data availability

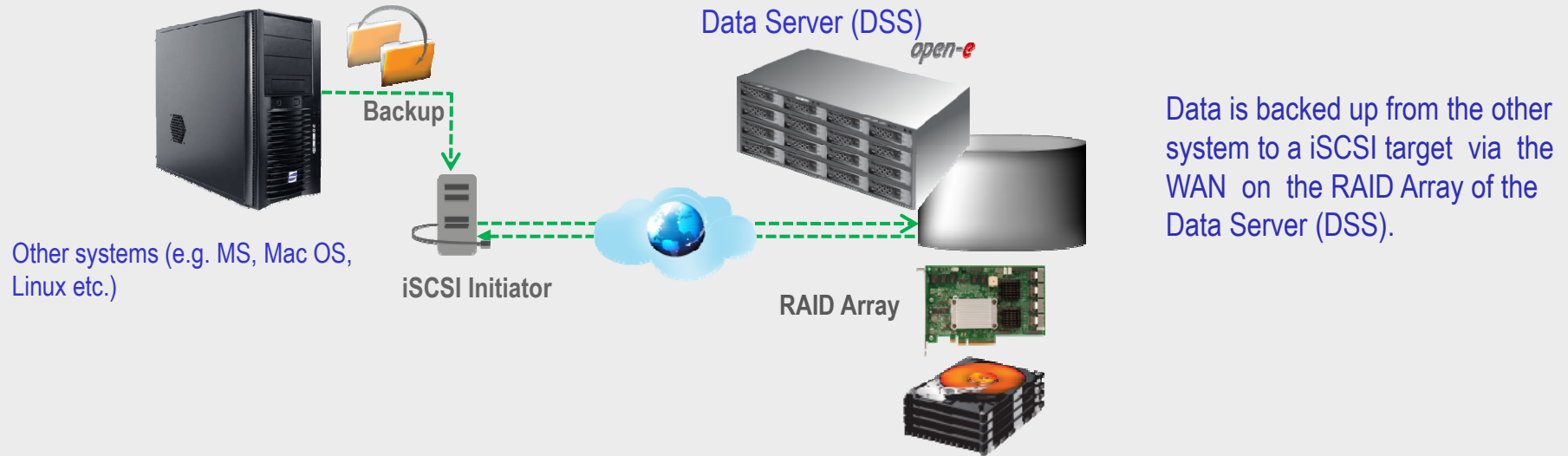
### ■ Disadvantages

- Natural disasters can destroy machine.



# DSS as backup media for data residing on other systems *open-e*

## Backup any system an iSCSI Target over a WAN



### ■ Recommended Resources

- Backup functions are built in the Open-E DSS (without additional requirements of hardware)

### ■ Benefits

- Data Redundancy over a WAN
- Maximum data safety

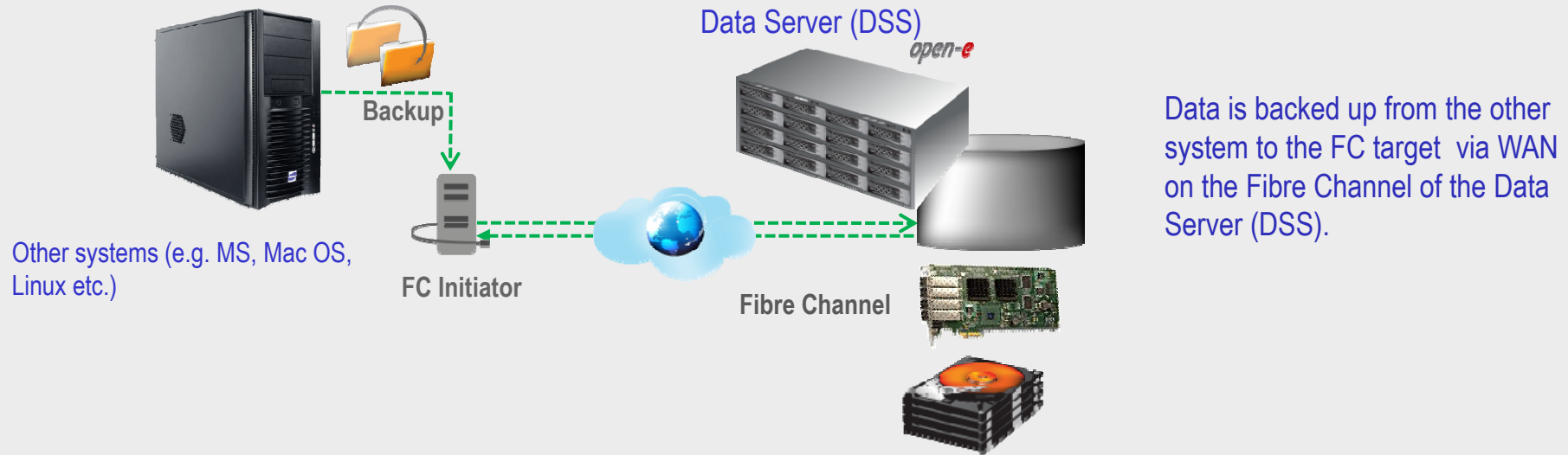
### ■ Disadvantages

- High cost of WAN solution



# DSS as backup media for data residing on other systems *open-e*

## Backup any system to a FC Target over a WAN



### ■ Recommended Resources

- Backup functions are built in the Open-E DSS (without additional requirements of hardware)

### ■ Benefits

- Data Redundancy over a WAN
- Maximum data safety

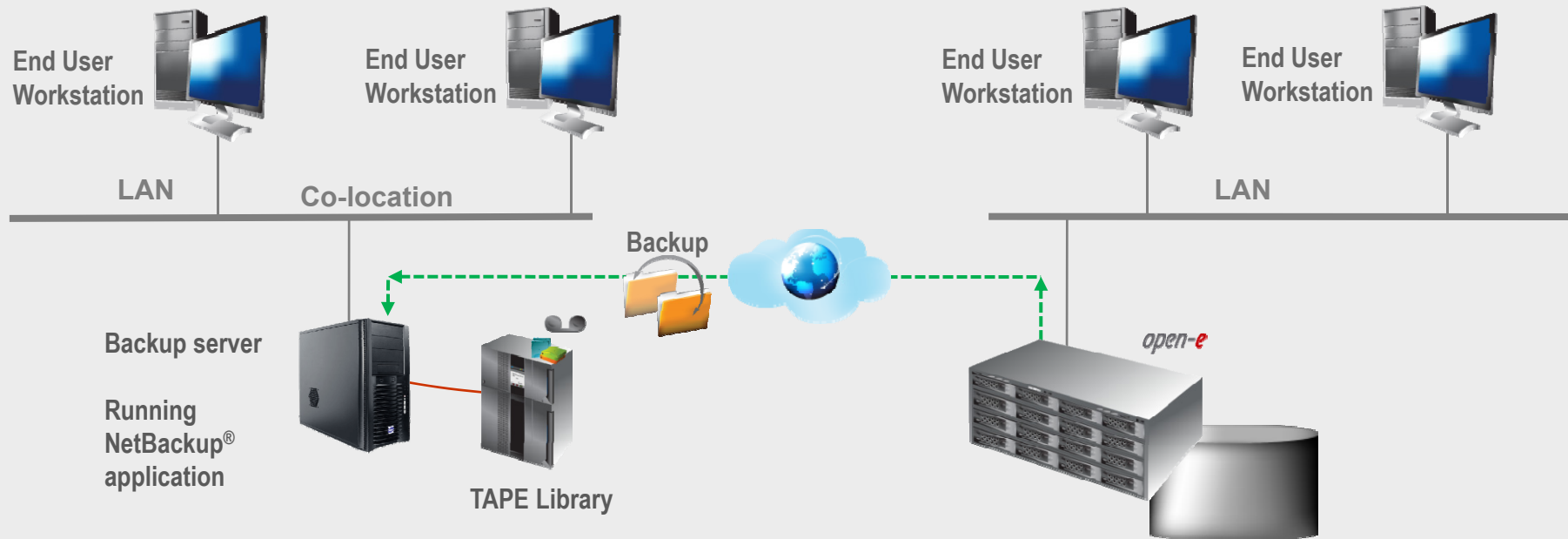
### ■ Disadvantages

- High cost of WAN solution



# DSS as backup media for data residing on other systems *open-e*

## Backup to NDMP Enabled Server over a WAN



### Backup & Restore with NetBackup® software

You can use the **NetBackup®** application to back up the data through the NDMP DATA interface over a WAN. It is necessary to open the TCP port 10000 in both directions for the incoming and outgoing ports.



Thank You!