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# Data Protection, Backup and Recovery: Utilizing Future Strategies Today

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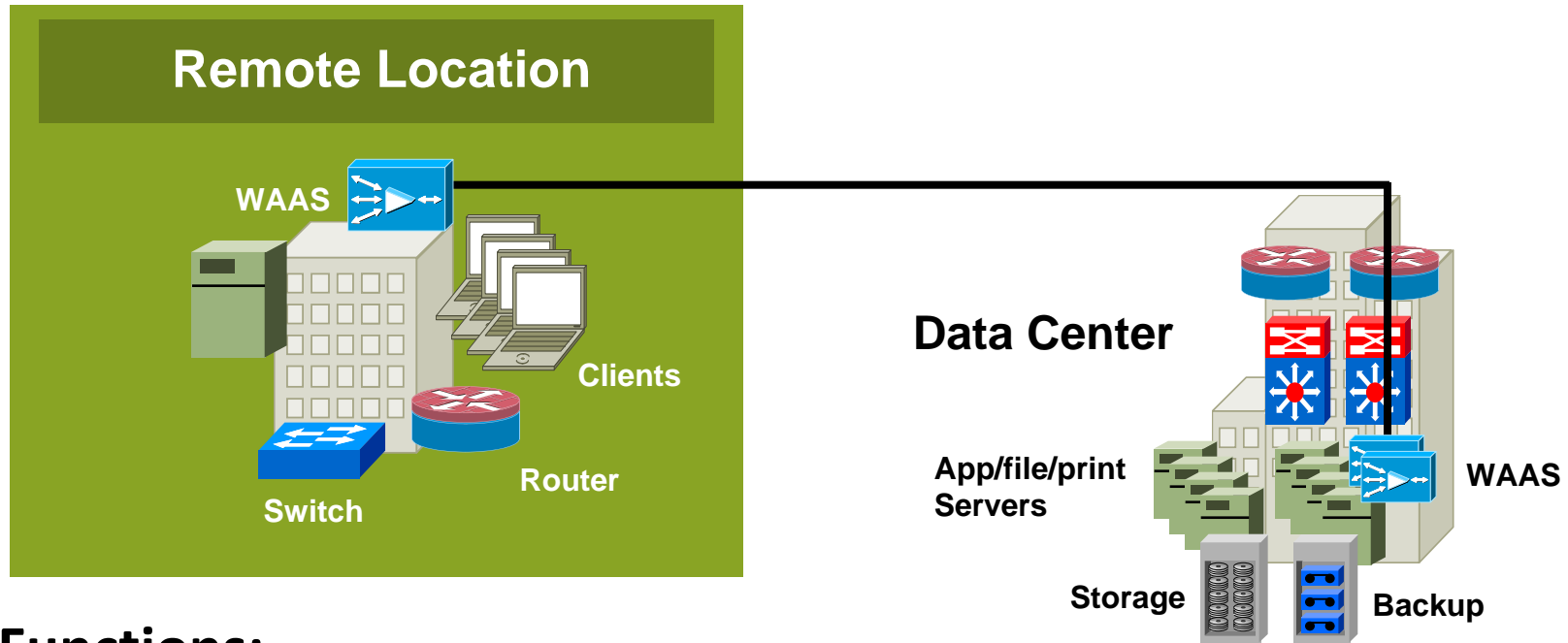
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# Agenda

Utilizing new strategies for Data Protection, Backup and Recovery.

- WAN Optimization
- Replication;
- Virtual Tape Library
- Deduplication
  - Overview
  - What were the business reason for utilizing this solution
  - What lessons did we learn while implementing the solution
  - What are the current advantages and disadvantages of the implemented solution

# WAN Optimization Overview



## Functions:

- Compresses Data
- Eliminates redundant data transfer
- Streamlining chatty protocols (e.g., [CIFS](#))
- Caches Frequently requested data
- Uncompresses Data

**WAN optimization** products seek to accelerate a broad range of applications accessed by distributed enterprise users

# Wan Optimization

## **Business Justification**

- The ability to access data more quickly and an increase in network application performance means that employees are able to get more work done.
- Complaints about the efficiency of the network-based technology tools that company provides workers will go down, so employee satisfaction will increase.

## **Lessons Learned**

- WAN optimization requires careful attention to any unique characteristics to the link being optimized.
- Traffic analysis tools and engagement with end users are both important in evaluating the effectiveness of the implementation.
- Not all optimization techniques are effective on all links (i.e. CIFS works on links with high latency but not on those that have no latency).
- Engagement with the engineering team of whatever solution has been chosen is essential for getting the best tuned deployment.

# Wan Optimization

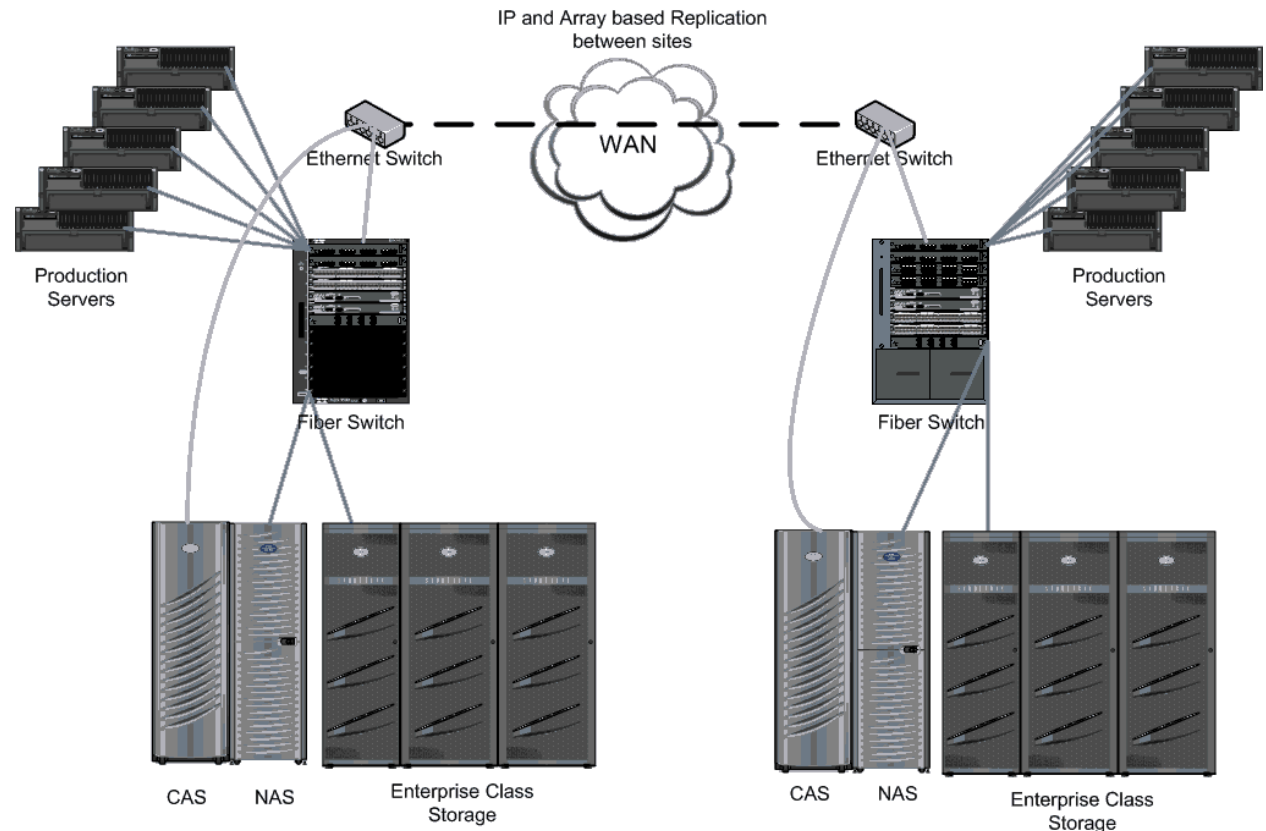
## **Advantages**

- Provides one possible way to use bandwidth more efficiently
- Worker productivity increases and processes run more quickly

## **Disadvantages**

- From some vendors, this is a relatively new technology effort – so finding bugs in the optimization code does occur.
- Expectations can arise that the technology will somehow magically solve any and all network-related issues (and even those that are not network related!)

# Replication Overview



## Functions:

- Data Redundancy
- Fault Tolerance of storage devices
- Faster DR/BR because you don't have to restore the data
- Can be used to load balance sites if they are close enough
- Can be used as a backup of the main sites data. The limitation is not a point in time so a corruption will get replicated to both sites.

# Replication

## **Business Justification**

- Disaster preparedness
- Geographically diverse datacenters need to be kept in sync
- No single point of failure in network

## **Lessons Learned**

- Don't underestimate the cost
- Distance and bandwidth calculations are key
- Be realistic about results

## **Advantages**

- Our data is redundant without a single point of failure

## **Disadvantages**

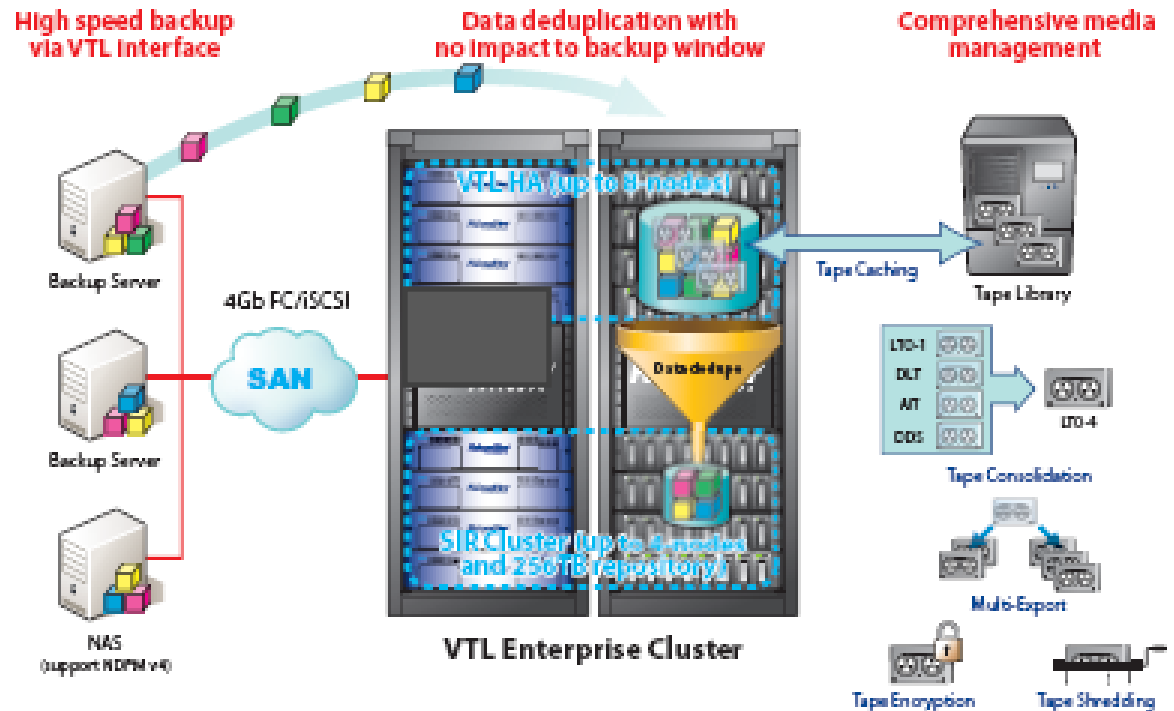
- Cost of bandwidth and software more than expected

# Virtual Tape Library Overview

A **virtual tape library (VTL)** combines tape backup emulation software with hard disk architecture to provide a superior archival backup solution.

## Functions:

- Uses existing backup software
- Consolidates Storage
- Increases performance of both backup and recovery operations
- Eliminates streaming problems



# Virtual Tape Library

## **Business Justification**

- Reliability – more reliable than tapes, less tape failure.
- interface with our NDMP backups

## **Lessons Learned**

- Basic setup of VTL – No major lessons learned

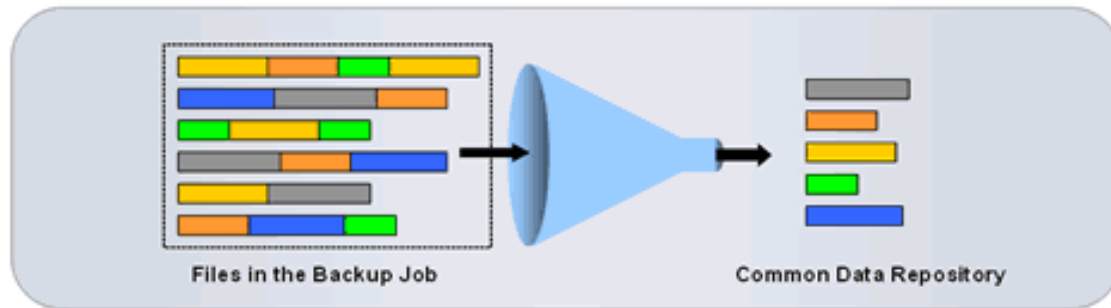
## **Advantages**

- Increase performance of both backup and recovery operations.

## **Disadvantages**

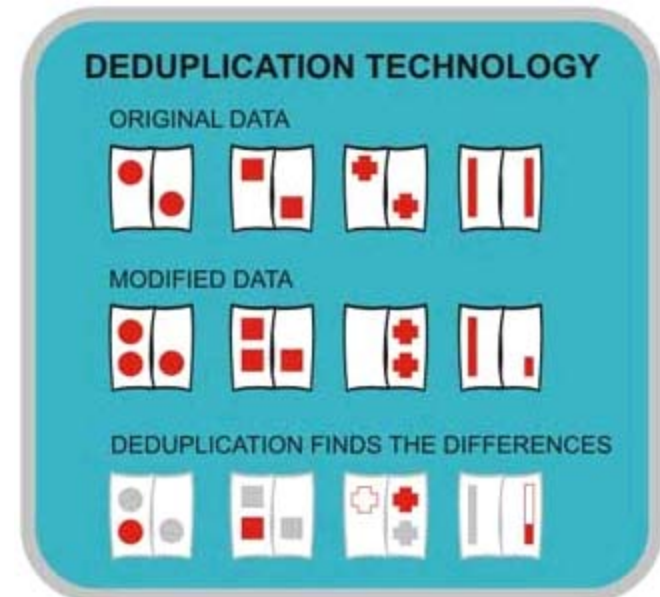
- Higher Cost
  - Backup to disk require only disk space
  - VTL require a license plus the disk space.

# Deduplication Overview



## Functions:

- Similar to data compression
- Looks for redundancy of very large sequences
- Sequences are compared to the history of other such sequences
- First uniquely stored version of a sequence is referenced rather than stored again



# Deduplication

## **Business Justification**

- Reduce the amount of data – less data, less disk space needed
- Cost. Lower Cost due to less disk space needed

## **Lessons Learned**

- Deduplication will have an affect based on origin
  - On server – server will take impact
  - On appliance – network traffic will take impact

## **Advantages**

- Eliminates redundant data which improves bandwidth efficiency when replicating over WAN link
- Lowers storage costs since fewer disks are needed
- Shortens backup/recovery times since there can be far less data to transfer

## **Disadvantages**

- None noted to date

# Thank You

## Q & A