
Disaster Recover Strategies and Discussion

Disaster Recovery Solutions for the Enterprise

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Agenda

- Business Requirements
- Classifications
- Off site data approaches
- Off site data comparisons
- How many copies is enough
- Archiving impact on backups and off site data
- Applying the concepts to applications
- Applying current technologies to the concepts

DR & BC approaches

SAN vs. NAS

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D
P

Tapeless

Replication

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RPO & RTO

Data Deduplication

Restartable vs. Recoverable



Customer Requirements

- Business
 - ▶ Applications
 - ▶ SLAs (RPO, RTO)
 - ▶ What is a successful DR to you?
- Operational
 - ▶ Technical Specifications
- Financial
 - ▶ ↓↓↓\$s

Business Requirements

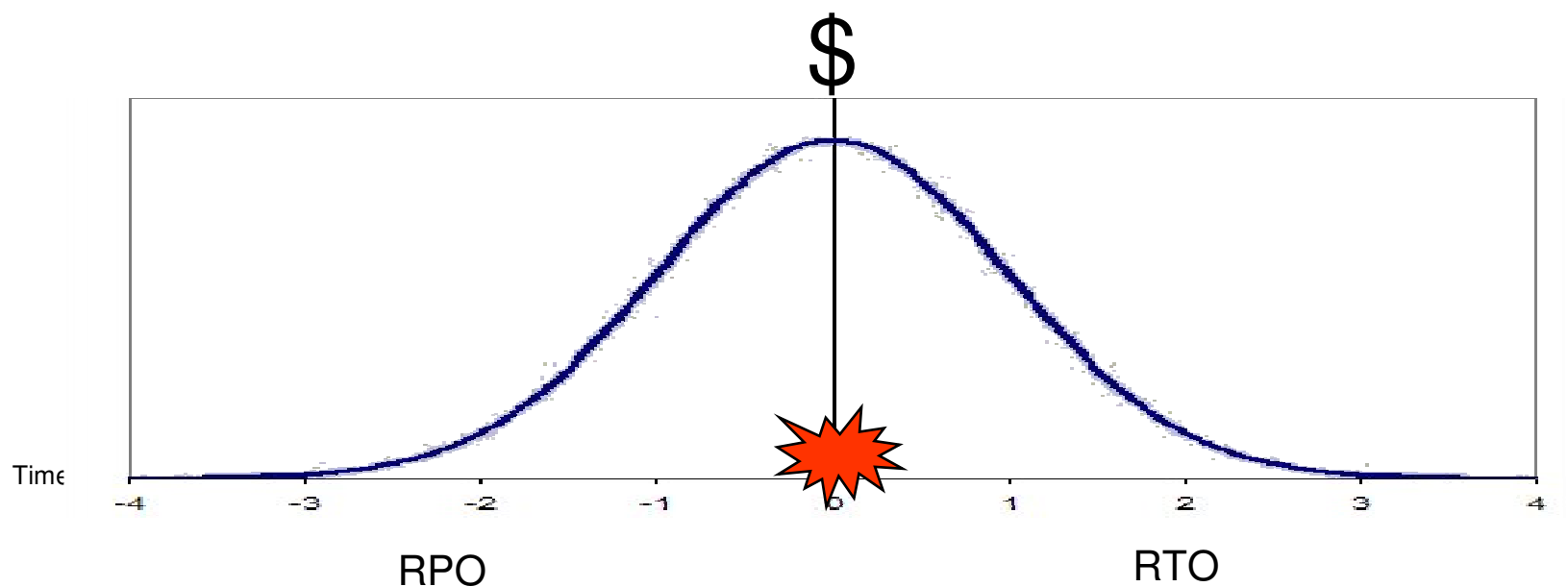
- **Classify by Business Unit**
 - Revenue Generating
 - ▶ ERP, HMIS, Email?
 - Business Operations
 - ▶ HR, GL, Email?
 - IT Support
 - ▶ BU, SQL, Email?

- **Classify by SLA**
 - Performance
 - ▶ Normal
 - ▶ DR RPP
 - Availability
 - ▶ Normal
 - ▶ DR RPO
 - ▶ DR RTO

Operational Requirements

- Classify by Technical Specs
 - ▶ Platform
 - ▶ Data Type
 - ▶ structured
 - ▶ unstructured
 - ▶ quasi-structured

RPO & RTO



RPO (recovery point objective):
A measure of how far back in time a valid copy of data is from a failure

RTO (recovery time objective):
The amount of time it takes to recover an application

Restartable vs. Recoverable

- **Restartable**
 - Data is in a “Ready to Use State”
 - Data replicated synchronously or asynchronously
 - RPO = Seconds to minutes
 - RTO = Minutes to hours
 - Difficult to maintain multiple copies
 - Server | network | array based replication

- **Recoverable**
 - Data must be restored to be useful
 - as from a backup copy
 - Data copied periodically via schedule
 - RPO = hours to days (without assistance)
 - RPO = Seconds to minutes (with assistance)
 - RTO = hours
 - Easy to maintain multiple copies
 - B2D with replication | B2T

Replication

- Array Based
 - Consistency across entire application or enterprise
 - Not application aware
 - Now native IP based for extended distances!
 - EMC MirrorView, Celerra Replicator, Centera Replicator
- Network Based
 - Array, Server, OS Agnostic
 - Not application aware
 - Can provide multiple recovery points
 - EMC RecoverPoint
- Server Based
 - Point solution by application, server, OS
 - Application aware
 - EMC RepliStor

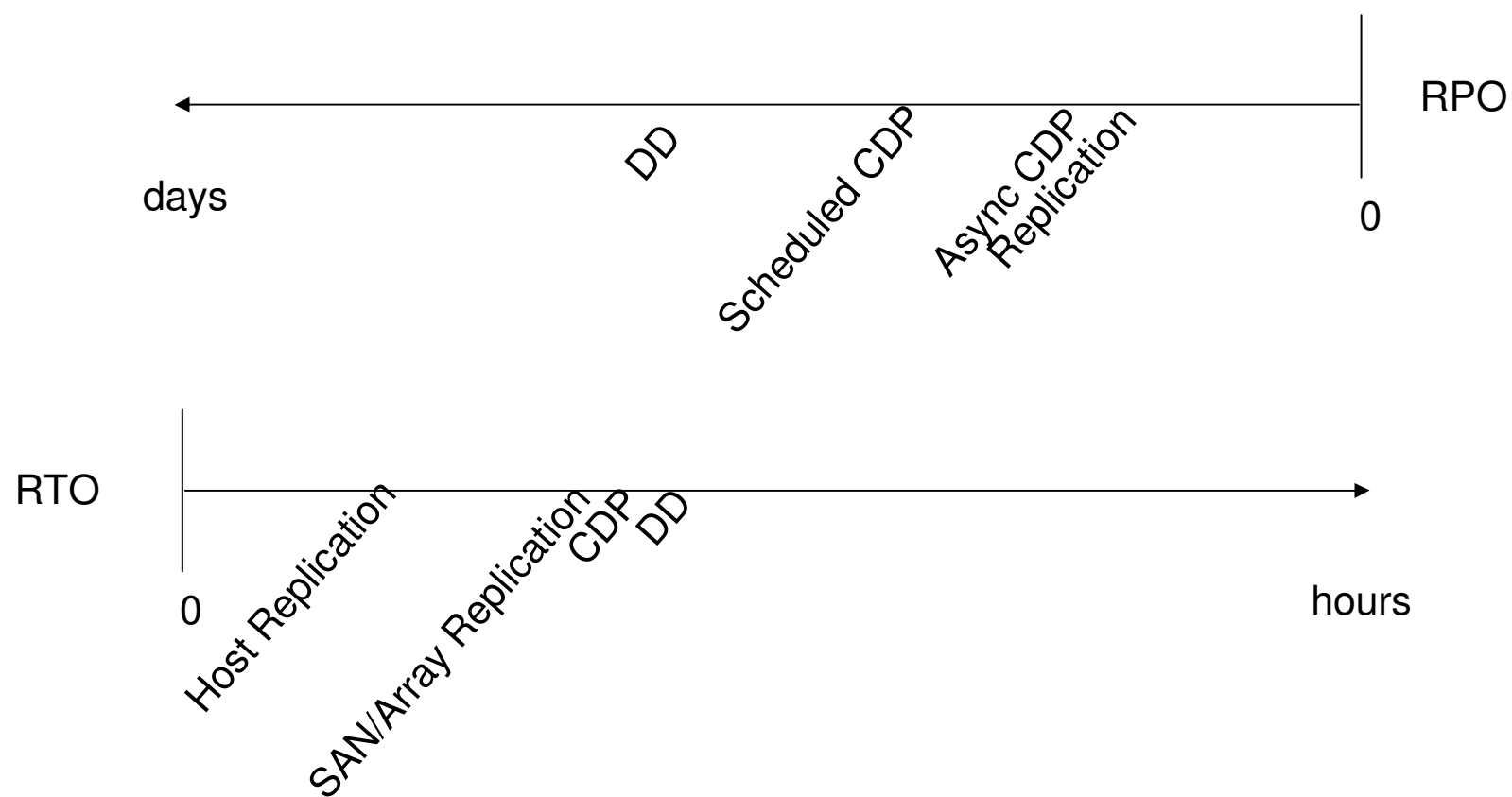
CDP – Continuous Data Protection

- Provides instantaneous (or near instantaneous) and perpetual auxiliary copies of data
 - Writes (blocks) are replicated/written, not entire files
 - Provides for many copies of data
- CDP (true asynchronous)
 - Transaction Data is written via blocks asynchronously to alternate device
 - Generally appliances or devices
 - EMC RecoverPoint
- CDP (periodic schedule)
 - Group Data is written via snapshots to alternate device
 - Can be appliances or backup software
 - Veritas BackupExec, CommVault Galaxy

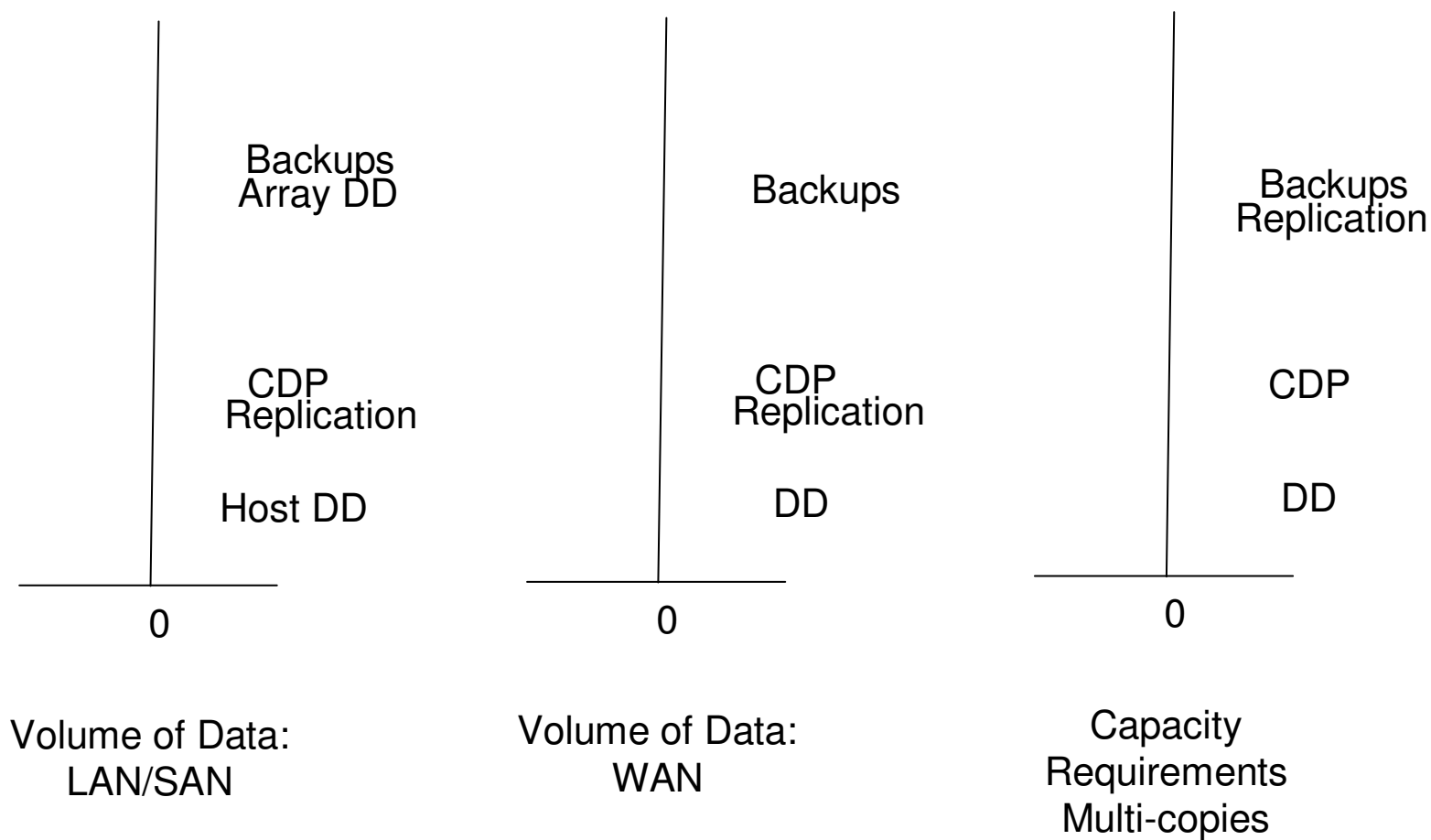
DD – Data Deduplication

- Reduces information to the common denominator
 - Matches blocks of information, not files
 - Much better than matching file names & attributes
 - Better than Single Instance Storage
 - Can be block aligned or non-block aligned
 - Used primarily in backups today
- Host Level
 - Host decides what is changed
 - Transmits only changed data
 - EMC Avamar
- Appliance
 - Appliance decides what is changed
 - All data is backed-up to the appliance
 - Data Domain

Replication vs CDP vs Data Deduplication



Replication vs CDP vs Data Deduplication



Archiving Impact

- Increase Backup Performance
- Increase Server Performance
- Reduce cost by matching data performance requirements to the media

Data Protection Best Practices

- Local Copies
- Remote Copy

Data Classification

- Structured (DB)
 - OLTP
 - SAN
 - Data Deduplication
- Unstructured
 - Imaging
 - NAS
 - Archive
- Quasi-structured
 - Email
 - SAN
 - Data Deduplication
- Change rate