

Mainframe Storage and Connectivity Solutions



Mainframe Virtual Tape

The Optimal Solution for z/VM & z/VSE Users

VM Workshop 2020

June 17, 2020



Agenda

- Who is Optica?
- zVT Family Overview
 - Broadest range of options in the industry
 - Model comparisons
- Flexible Replication Options
- Investment in z/VM & z/VSE
 - Integration with z/VSE tape management systems
 - Supporting utilities
- GUI Overview
- Questions



Optica Background

- More than 50 years of datacenter experience
- Strategic IBM Z partner and exclusive provider of IBM Z channel conversion solutions since 2002
- Thousands of datacenter deployments worldwide
 - Keen understanding of mainframe customer requirements and expectations
 - High customer satisfaction
- Deep commitment to the mainframe
 - World-class knowledge of mainframe protocols
 - Extensive experience in tape emulation, tape operations and support
 - Significant investment Mainframe lab and resources
- Optica zVT family
 - Announced January 2015
 - 2nd Generation announced May 2018

zVT 5000-iNAS**Modular, Scalable and Fully Featured**



Family of Mainframe Virtual Tape Products

VT 5000-iNAS

Modular, Scalable and Fully Featured

- HA architecture - no single-point of failure designs
- Modular and scalable design building blocks
 - Starts at 24/TB Useable / 120TB Effective to Multi-PB capacity
 - Licensed for 256 Virtual Tape Drives (VTDs) per VTN
 - 1000-8000 MB/s throughput (1000 per VTN)
- Deduplication and compression (standard)
- WAN optimized replication, encryption and WORM optional
- Powerful data resiliency technology



VT 5000-FLEX

Virtual Tape Engine with FLEXible Storage Platform Support

- Industry exclusive support for your strategic NFS, FC and Cloud storage
- Compatible with the existing features of your storage
- Support for multiple replication options for the enterprise
- FLEX license support for 16, 64 or 256 VTDs
- HA/Multi-node VTN support for NFS environments



VT 3000i

Affordable, Internal Storage

- Three capacity options: 8TB, 16TB and 24TB useable RAID 6 internal
- Effective Capacity: 32TB, 64TB and 96TB with HW compression*
- Licensed for 16 VTDs
- Support for multiple replication options; compression and **encryption at rest**
- Serves smaller z/OS, z/VM and z/VSE requirements well





Virtual Tape Node (VTN) Overview

Mainframe Connectivity

- (2) FICON per VTN

Virtual Tape Drive License Support

- 16, 64 or 256 VTDs

Operating Systems Support

- z/OS, z/VSE & z/VM

Storage Connectivity

- zVT-5000-iNAS: 10GbE NFS standard
- zVT-5000-FLEX: 10GbE, 1GbE or 8Gbps FC
- zVT-3000i: RAID-6 Internal/Local Storage

Mainframe Tape Drive Emulations

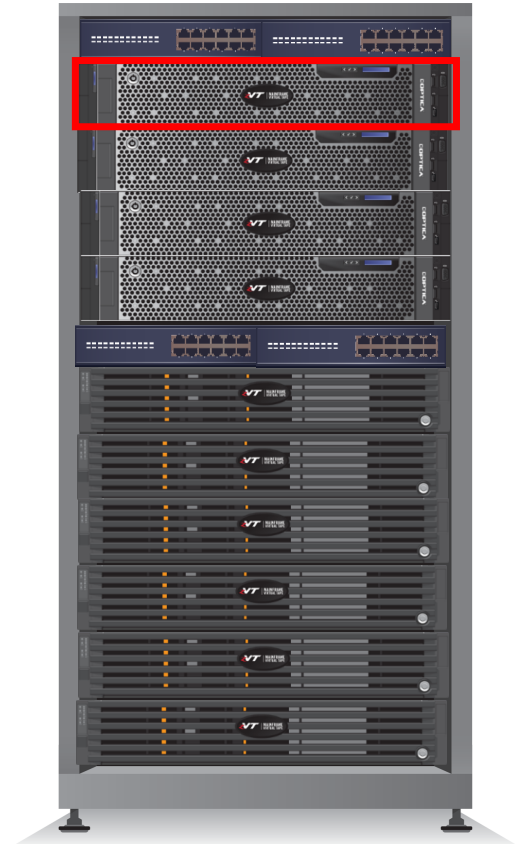
- IBM 3490 & 3590

Features

- User management – **GUI, CLI & JCL**
- Support for up to 32 virtual tape libraries per zVT node
- Support for 1,000,000+ virtual volumes
- Hardware compression standard
- 1,000 MB/s throughput per VTN*
- Multi-level data integrity checking
- VTN to VTN replication and monitoring with Cloud support
- zVT Hostless Migration Engine
- ***Non-proprietary AWS file format (it's your data!)***

Complete testing and integration:

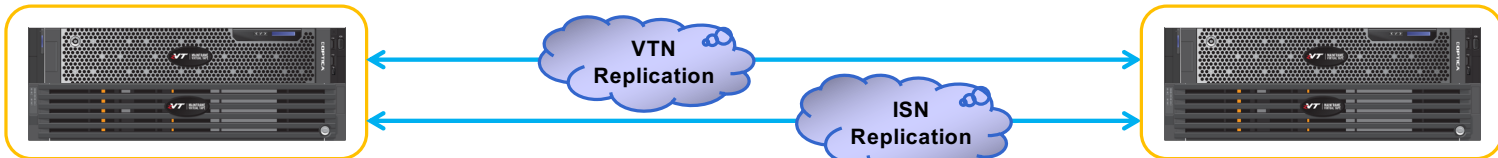
- IBM, CA, IDP/FDR, CSI, BVS, DTS and more



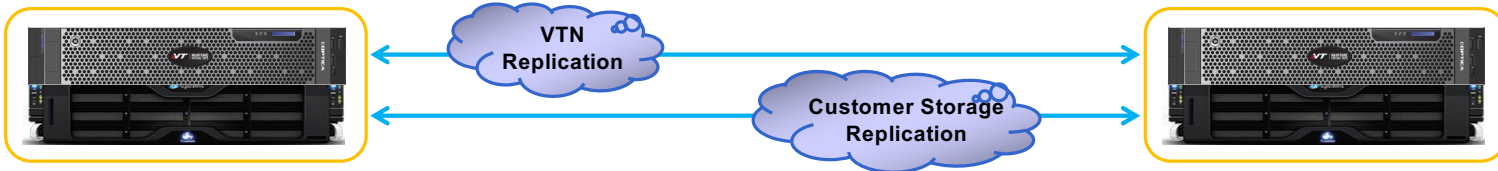


Replication – Flexible Options

VT 5000-iNAS



VT 5000-FLEX



VT 3000i



VTN Replication (available in all models)

VTN to VTN or VTN to Cloud Gateway or VTN to any NFS Mount
 • 1 or 2 destinations from source VTN

Asynchronous and Synchronous Options

- **Asynchronous:**
 - Background task by VOLSER
 - Scheduled replication background task by library. Replicates all changed VOLSERS within the library since prior replication task
- **Synchronous:**
 - Job held until replication completes

ISN Replication (5000-iNAS only)

ISN to ISN only
 • 1 ISN to 1 ISN -or- 1 ISN to many ISN's

Asynchronous

- Scheduled replication background task by file system
- WAN-Optimized: Replicates only changed de-duplicated data in File System



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Optica's Commitment to z/VM and z/VSE Customers

Mainframe Lab - Test and Development

- Large investment in mainframe lab
- Development, Support and Interop/Regression Testing
- Partnerships with all leading tape/storage management software providers to ensure interoperability with zVT
 - IBM
 - CA
 - SVA
 - IDP/FDR
 - CSI



Full Support for z/VSE Environments with zVT

Tape Management

- CSI BIM-EPIC
- CA-Dynam/T
- SVA BVS
- CA-EPIC

Full Set of Utilities

- Allowing use of JCLs for management
- Customized set for each tape manager
- Generic zVT Utilities:
 - ZVTMOUNT Common Mount utility.
 - ZVTMAINT Maintenance utility to find, scratch, retain tapes.
 - ZVTCMDUtility to read / write zVT command tape.
- Specific TMS Utilities:
 - Scratch processing for CA Epic and Dynam/T (ZVTESYNC & ZVTDSYNC)
 - Dynam/T exit
 - Console monitor for mount related messages

** Source code is provided for all utilities.



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zVT GUI – Landing screen

The screenshot shows the zVT GUI Network Configuration page. The interface includes a top navigation bar with 'Management', 'Maintenance', and 'Status' tabs. A left sidebar contains buttons for 'Network', 'User Accounts', 'Time and Date', 'Devices', 'Mount Points', 'Libraries', 'Scripts', 'Alerts', and 'Manage'. The main content area is titled 'Network Configuration' and contains a table of network settings. A 'Submit Net Changes' button is at the bottom. On the right, a status panel displays system information and a 'Log out' link.

Field	Value
Host Name:	Prod_zVT
NIC 2 & 7 IP Address:	192.168.23.235
NIC 2 & 7 Network Mask:	255.255.255.0
NIC 2 & 7 Gateway Address:	192.168.23.1
NIC 1 & 8 IP Address:	192.168.253.250
NIC 1 & 8 Network Mask:	255.255.255.0
DNS 1:	192.168.23.177
DNS 2:	192.168.23.5



Submit Net Changes

May 28, 2019 08:04
Prod_zVT
zVT Status: **Started**
DB Status: **Primary/Active**
User: **chriso**
Group: **root**
[Log out](#)



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zVT GUI – Libraries



ManagementMaintenanceStatus

NetworkUser AccountsTime and DateDevicesMount PointsLibrariesScriptsAlertsManage

LibrariesViews

Library	Library Name	Total Volsers	Actions
1	PROD	11054	Select
2	TEST	1010	Select
3	MTL_AF1B0 (3490)	1000	Select
4	LUN0	19	Select
5	Library 5	10998	Select

May 28, 2019 08:06

Prod_zVT

zVT Status: Started

DB Status: Primary/Active

User: chriso

Group: root

[Log out](#)



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zVT GUI – Library Action Menu

zVT **OPTICA**

Management Maintenance Status

Network
User Accounts
Time and Date
Devices
Mount Points
Libraries
Scripts
Alerts
Manage

Libraries Views

Library	Library Name	Total Volsers	Actions
1	PROD	11054	Select ----- Tape Management Add Policy List Policies Unmount Select
2	TEST	1010	
3	MTL_AF1B0 (3490)	1000	
4	LUN0	19	Select
5	Library 5	10998	Select

May 28, 2019 08:09
Prod_zVT
zVT Status: **Started**
DB Status:
Primary/Active
User: **chriso**
Group: **root**
[Log out](#)



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zVT GUI – Tape Management

Tape Management, Library [1] PROD

Match ALL of the following:

Volser

Contains

%

Search

N/A

Contains

Reset Criteria

N/A

Contains

Volser

Found 11,054 Volsers, Using 90.1124 MB

Page

1

 of 222

Auto Refresh

Disable

Select All Found ☐

Select All This Page ☐

Action

Select

View

Administrative

Volser	Path	Type	Label	DS Name	Created	Modified	Job	File Size	Owner	Expiry	Protected	Locked
<input type="checkbox"/> 100000	PROD	Data	SL	CWO.TESTEX01	2019-04-30	1969-12-31 18:00:00-06	COL0EX01/STEP1	270		1970-01-01	No	No
<input type="checkbox"/> 100001	PROD	Data	SL	CWO.TESTEX01	2019-04-30	2019-04-30 13:48:27-05	COL0EX01/STEP1	26,640,739		1970-01-01	No	No
<input type="checkbox"/> 100002	PROD	Data	SL	CWO.TESTEX01	2019-04-30	2019-04-30 13:37:56-05	COL0EX01/STEP1	60,943,823		1970-01-01	No	No
<input type="checkbox"/> 100003	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100004	PROD	Data	SL	CWO.TESTEX04	2019-05-13	1969-12-31 18:00:00-06	COL0EX04/STEP1	270		1970-01-01	No	No
<input type="checkbox"/> 100005	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100006	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100007	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100008	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100009	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100010	PROD	Data	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100011	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100012	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100013	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100014	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100015	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100016	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100017	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100018	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No
<input type="checkbox"/> 100019	PROD	Scratch	SL	000000000000000000	1970-01-01	1969-12-31 18:00:00-06		184		1970-01-01	No	No



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zVT GUI – VTN Replication Status screen

Tape Management, Library [1] PROD

Match ALL of the following:

Volser

Contains

%

Search

N/A

Contains

Reset Criteria

N/A

Contains

Volser

Found 11,054 Volsers, Using 90.1124 MB

Page

1

 of 222

Auto Refresh

Disable

Select All Found ☐

Select All This Page ☐

Action

Select

View

Mountpoint Repl

Volser	Path	Type	Modified	BG RepStat 1	BG Replicated 1	BG Path 1	BG RepStat 2	BG Replicated 2	BG Path 2	
<input type="checkbox"/> 100000		PROD	Data	1969-12-31 18:00:00-06		2019-05-20 08:20:22-05	ChrisO		2019-05-20 06:56:04-05	PROD_REPL
<input type="checkbox"/> 100001		PROD	Data	2019-04-30 13:48:27-05		2019-05-20 08:20:08-05	ChrisO		2019-05-20 06:56:04-05	PROD_REPL
<input type="checkbox"/> 100002		PROD	Data	2019-04-30 13:37:56-05		2019-05-20 08:20:22-05	ChrisO		2019-05-20 06:56:04-05	PROD_REPL
<input type="checkbox"/> 100003		PROD	Data	1969-12-31 18:00:00-06		2019-05-20 08:20:22-05	ChrisO		2019-05-20 06:56:04-05	PROD_REPL
<input type="checkbox"/> 100004		PROD	Data							
<input type="checkbox"/> 100005		PROD	Data							
<input type="checkbox"/> 100006		PROD	Data							
<input type="checkbox"/> 100007		PROD	Data							
<input type="checkbox"/> 100008		PROD	Data							
<input type="checkbox"/> 100009		PROD	Data							
<input type="checkbox"/> 100010		PROD	Data	1969-12-31 18:00:00-06		2019-05-20 08:20:26-05	ChrisO		2019-05-20 06:56:05-05	PROD_REPL
<input type="checkbox"/> 100011		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:26-05	ChrisO		2019-05-20 06:56:05-05	PROD_REPL
<input type="checkbox"/> 100012		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:27-05	ChrisO		2019-05-20 06:56:05-05	PROD_REPL
<input type="checkbox"/> 100013		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:27-05	ChrisO		2019-05-20 06:56:05-05	PROD_REPL
<input type="checkbox"/> 100014		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:27-05	ChrisO		2019-05-20 06:56:05-05	PROD_REPL
<input type="checkbox"/> 100015		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:28-05	ChrisO		2019-05-20 06:56:05-05	PROD_REPL
<input type="checkbox"/> 100016		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:29-05	ChrisO		2019-05-20 06:56:06-05	PROD_REPL
<input type="checkbox"/> 100017		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:29-05	ChrisO		2019-05-20 06:56:06-05	PROD_REPL
<input type="checkbox"/> 100018		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:29-05	ChrisO		2019-05-20 06:56:06-05	PROD_REPL
<input type="checkbox"/> 100019		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:30-05	ChrisO		2019-05-20 06:56:06-05	PROD_REPL
<input type="checkbox"/> 100020		PROD	Scratch	1969-12-31 18:00:00-06		2019-05-20 08:20:30-05	ChrisO		2019-05-20 06:56:06-05	PROD_REPL

In Progress

 – Tape is currently being replicated.

In Queue

 – Tape is in the queue to be replicated.

Failed



 – Replication failed for this tape. Contact Optica Support.
Blank – Replication completed at the time shown in the corresponding Replicated field.



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zVT GUI – Configuring Alerts



ManagementMaintenanceStatus

NetworkUser AccountsTime and DateDevicesMount PointsLibrariesScriptsAlerts

SNMPEmail

SMTP Server:
smtp.comcast.net:587

SMTP User Name:
Prod_zVT@opticatech.com

SMTP Password:
.....

Mail from:
cwoleson@comcast.net

Mail to:
chris.oleson@opticatech.com

Apply Trap Settings

Send Test Trap

Trap Type	Enabled
zVT Panic	<input checked="" type="checkbox"/>
Link Outages	<input type="checkbox"/>
Path Outages	<input type="checkbox"/>
Link Recoveries	<input checked="" type="checkbox"/>
Storage Warnings	<input checked="" type="checkbox"/>
Selective Resets	<input type="checkbox"/>
I/O Errors	<input checked="" type="checkbox"/>
FRU Failures	<input checked="" type="checkbox"/>
zVT Up	<input checked="" type="checkbox"/>
zVT Down	<input checked="" type="checkbox"/>
Test Trap	<input checked="" type="checkbox"/>

Mar 3, 2020 09:59
Prod_zVT
zVT Status: **Started**
DB Status:
Primary/Active
User: **chriso**
Group: **root**
[Log out](#)



Mainframe Storage and Connectivity Solutions



Questions?

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