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IBM **Spectrum** Protect

IBM Spectrum Protect™ for
Data Retention (SSAM) - Introduction

Version 13

IBM

Agenda

▶ **Introduction to archiving**

Introduction to Spectrum Protect for Data Retention

Deployment guidance

Archiving context and requirements

Reasons

- Data Growth
- Regulatory Duty
- Preservation of Information

Challenges

- Long Lifecycle
- Technological Progress

Requirements

- Cost and Efficiency
- Scalability, Flexibility
- Compliance
- Operative Requirements

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Archive solution architecture

Agenda
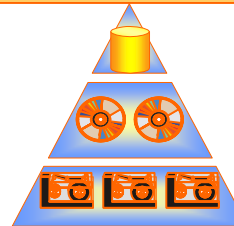
Introduction to archiving

▶ **Introduction to Spectrum Protect for Data Retention**

Deployment guidance

IBM Archive storage evolution

IBM DR450/DR550   **IBM Information Archive**   **Spectrum Protect for Data Retention Solution (SSAM)**

IBM Systems

IBM Disk

IBM Tape

Bundled solution with TSM-DR on AIX including disk and network

Product with SSAM on Linux including hardware, software and GUI

Software defined solution based on SSAM and later SP-DR, full cloud support

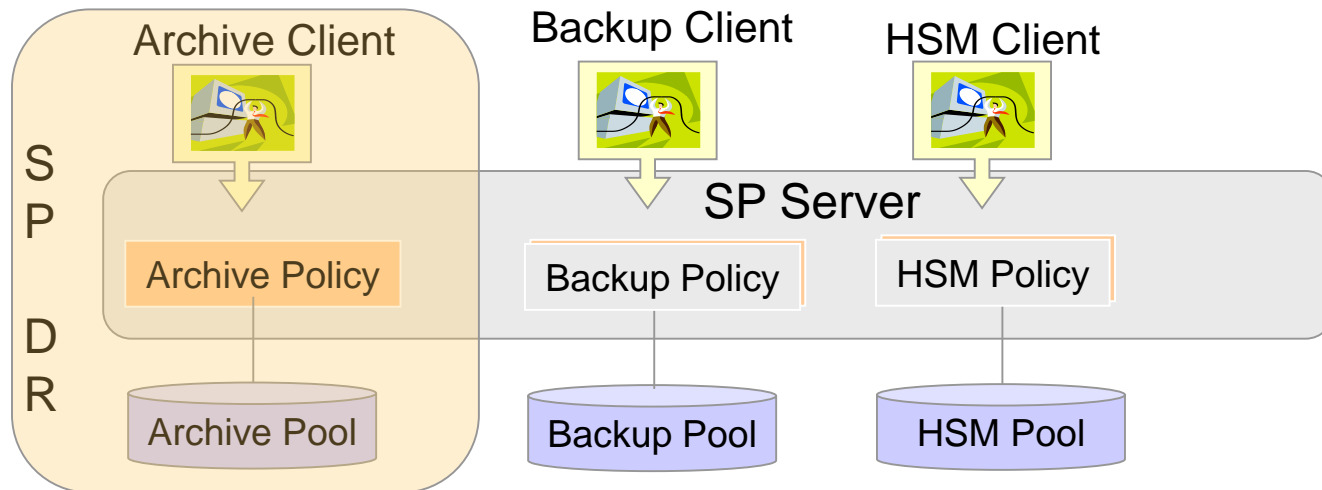TSM for Data Retention → System Storage Archive Manager → Spectrum Protect for Data Retention

2005   2010   2013   Future

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What is Spectrum Protect for Data Retention (SP-DR)?
SP-DR is a special variation of Spectrum Protect (TSM)

S
P

D

R

Archive Client

Backup Client

HSM Client

SP Server

Archive Policy

Backup Policy

HSM Policy

Archive Pool

Backup Pool

HSM Pool

➔ Spectrum Protect for Data Retention (SP-DR) is made for archiving and has been assessed for compliance by an independent auditor

Spectrum Protect for Data Retention characteristics

- **Spectrum Protect for Data Retention is variation of Spectrum Protect server**
  - Does not accept data from TSM backup and HSM client
  - Does not support TSM node replication

- **SP-DR supports archiving via TSM API (and B/A client)**
  - TSM API supports event based retention and deletion hold
  - TSM API works session and transaction oriented
  - TSM API supports encryption and compression

- **SP-DR prevents deletion of data**
  - Via data interface (TSM API)
    - Deletion only possible via Retention policies
  - Via admin interface
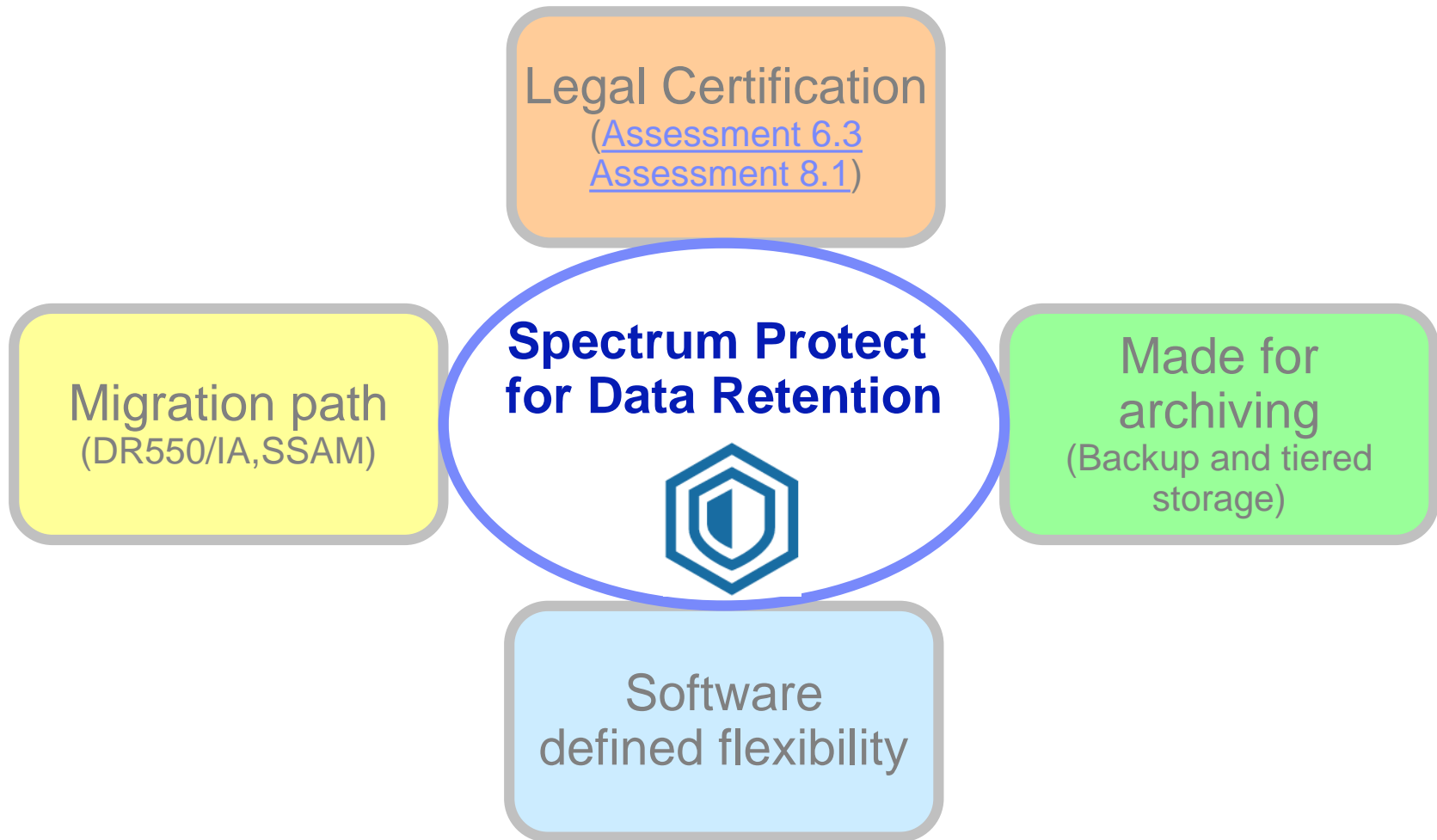   - Delete commands are not honored for archived data

➔Spectrum Protect for Data Retention is made for compliant archiving

Differences between SP and SP-DR

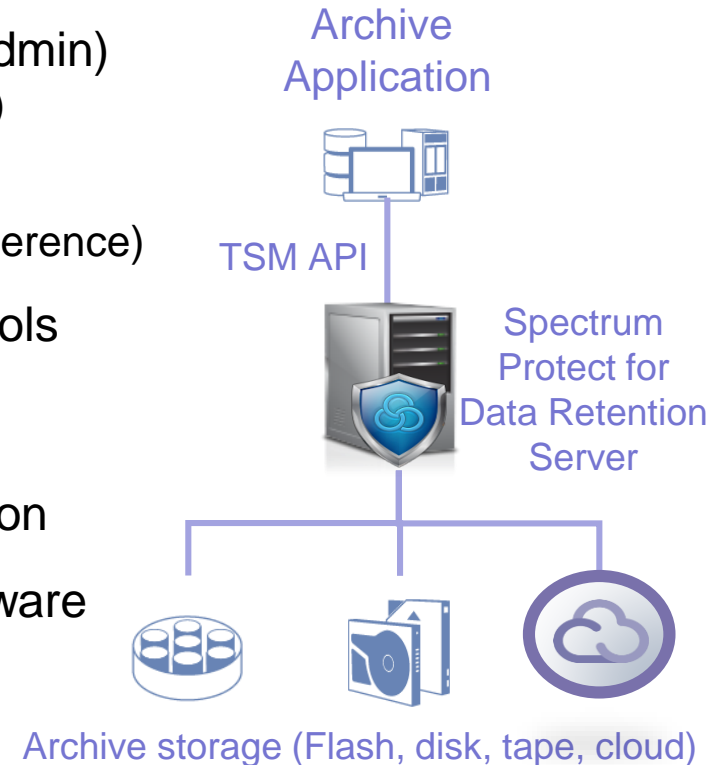- SP-DR is enabled on a empty SP server via option and license

	Spectrum Protect for Data Retention	Spectrum Protect
Clients	Archiving via API and B/A client	backup and archive via API and B/A client, HSM
Data ingest	archive	Archive, backup, LAN free, HSM, NDMP, etc
Admin delete	No	Yes
Client delete	No	Yes
Enforce retention	No retention decrease	Can increase or decrease
Rename object	No	Yes
Node replication	No	Yes
Server-to-Server	Only Library Sharing	Everything

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SP-DR solution offer additional values for archiving

Legal Certification
([Assessment 6.3](#)
[Assessment 8.1](#))

Migration path
(DR550/IA,SSAM)

**Spectrum Protect
for Data Retention**

**Made for
archiving**
(Backup and tiered
storage)

**Software
defined flexibility**

SP-DR solution architecture - Overview

- **SP-DR prevents deletion and changes (data and admin)**
  - Internationally certified for compliance (see reference)

- **Supports backup and migration to WORM tape**
  - IBM WORM Tape is assessed for compliance (see reference)

- **Facilitates data deduplication and cloud storage pools**
  - Cloud storage on-or off-premises

- **Business continuity through clustering and replication**

- **Software defined storage – flexible choice for hardware**

- **Scalability in regard to capacity and performance**

Archive
Application

TSM API

Spectrum
Protect for
Data Retention
Server

Archive storage (Flash, disk, tape, cloud)

What's new with SP-DR version 8.1

- **Support for container pools**
  - Inline deduplication on local directory or cloud object storage pools
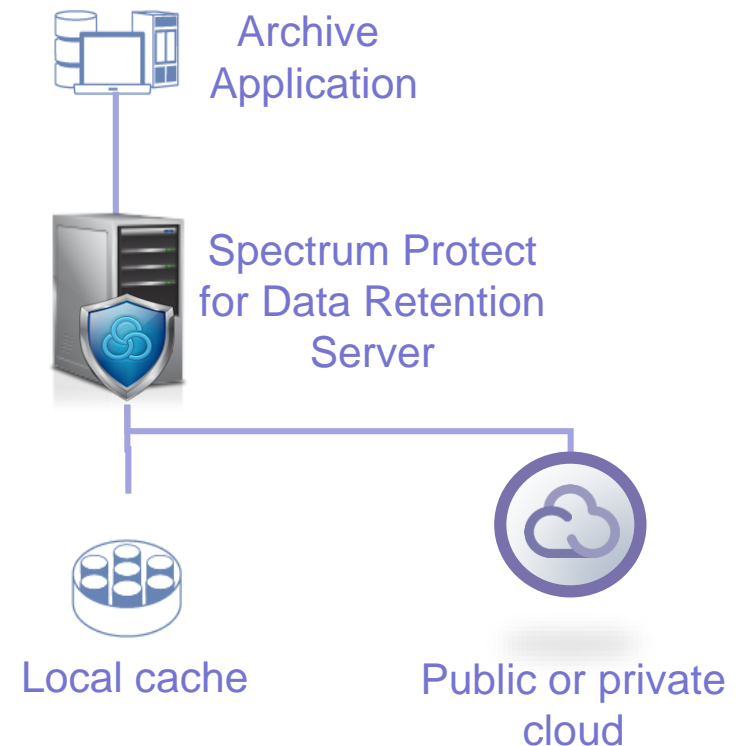
- **Container storage pool protection**
  - To another server or to tape (protect storage pool)
  - Only for directory container
  - Node replication is not supported

- **Operation Center for administration and monitoring**
  - Can be used in combination with normal Spectrum Protect servers
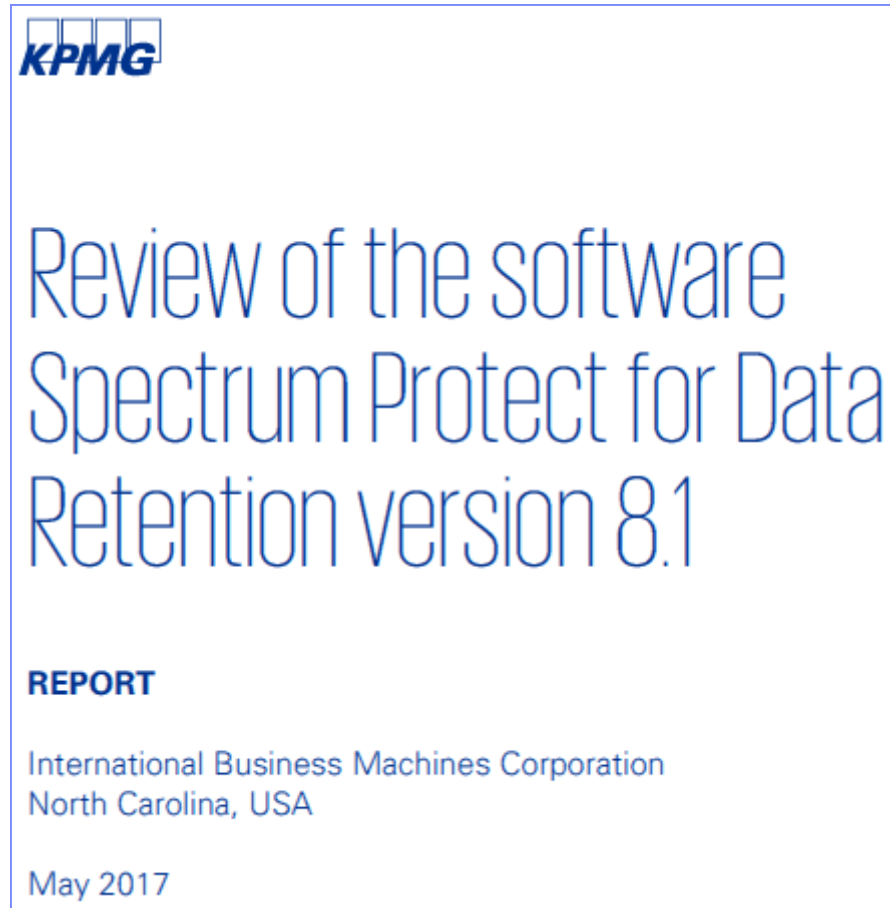
- **In addition all functions in SSAM 6.3 are supported by SP-DR 8.1**
  - Except: SP-DR 8.1 does not allow to rename objects via the API (dsmRenameObj)

Hybrid Cloud solution

- **SP-DR supports cloud container pools**
  - Cloud container pools can be on-or off-premises

- **Facilitates hybrid cloud solutions**
  - SP-DR server with local cache is on-premises
  - Cloud storage is off-premises
  - Archive data is cached and sent to the cloud

- **Hybrid cloud can also be used for directory container pool protection**
  - Protect storage pool can be directed to a server in the cloud (Node replication is not supported)

- **Supports all cloud pool supported by Spectrum Protect (link)**

Archive Application

Spectrum Protect for Data Retention Server

Local cache

Public or private cloud

SP-DR solution – International certification

KPMG

Review of the software Spectrum Protect for Data Retention version 8.1

REPORT

International Business Machines Corporation
North Carolina, USA

May 2017

- According to US SEC17a-4(f), German and Swiss tax and trade laws

- Link to certificate: http://www.kpmg.de/bescheinigungen/RequestReport.aspx?56B00E998BA14B31AF2E0F0FB63F0034

Spectrum Protect for Data Retention 8.1- Benefits

- **Internationally certified for compliance (link)**

- **Build-in cloud object storage and tape support**

- **Seamless upgrade path from SSAM 6.3**
  - Direct migration path from DR550, IA and SSAM 5

- **Software defined flexibility**
  - Supports a variety of server and storage platforms

- **Made for compliant archiving of many different data types**
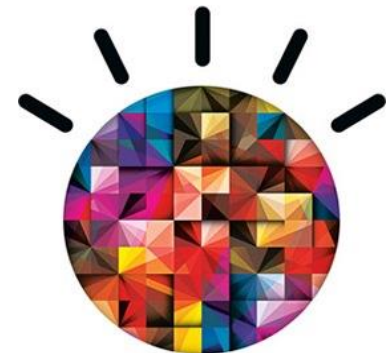
Agenda

Introduction to archiving

Introduction to Spectrum Protect for Data Retention

▶ **Deployment guidance**

Planning

- SP-DR is supported on all server platforms supported by SP (link)

- SP-DR server licensing is typically based on capacity

- Plan for backing up data and metadata
  - For legacy pools use tape copy pools
  - For container pools use protect storage pool (tape or container pool)

- Dual site solutions alternatives
  - File system replication (e.g. Spectrum Scale)
  - DB2 HADR in combination with file system or storage replication
  - Use cluster software when appropriate (PowerHA,TSMCluster)
    - To facilitate quick failover

Client and Server compatibility

- See: http://www-01.ibm.com/support/docview.wss?uid=swg21053218
  Example:

| IBM SPECTRUM PROTECT CLIENT SUPPORT	
includes the Backup-Archive, API, UNIX HSM, and Web clients that are compatible with, and currently supported with, IBM Spectrum Protect Servers and Storage Agents.	
IBM Spectrum Protect Client Version	**Supported IBM Spectrum Protect Server and Storage Agent Versions**
8.1.2	8.1, 7.1
8.1.0	8.1, 7.1, 6.3.x [1]
7.1	8.1, 7.1, 6.3.x [1]
6.4	8.1, 7.1, 6.3.x [1]
6.3 [2]	8.1, 7.1, 6.3.x [1]

- Check with application vendor if they support SP-DR V8.1

SP-DR solution design and sizing

- **Understand requirements in regard to performance and capacities**

- **Use Spectrum Protect blue prints to size server and storage (link)**
  - Consider placing SP-DR DB on fast storage when using deduplication

- **Implement SP-DR solution according to best practices**
  - Do not forget to activate data retention before archiving any data
  - Harden the server operating system

- **General guidance**
  - When using cloud storage pools as primary storage then take latency, retrieval cost and space reclamation limitations into account
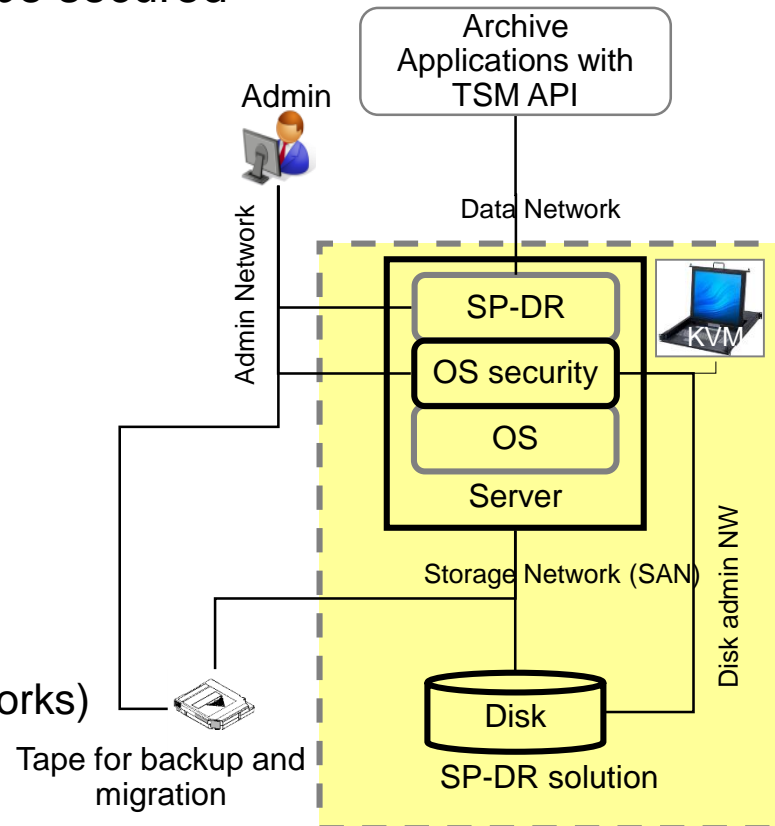
SP-DR solution - Building blocks

- SP-DR is software defined and provides flexibility for hardware deployments
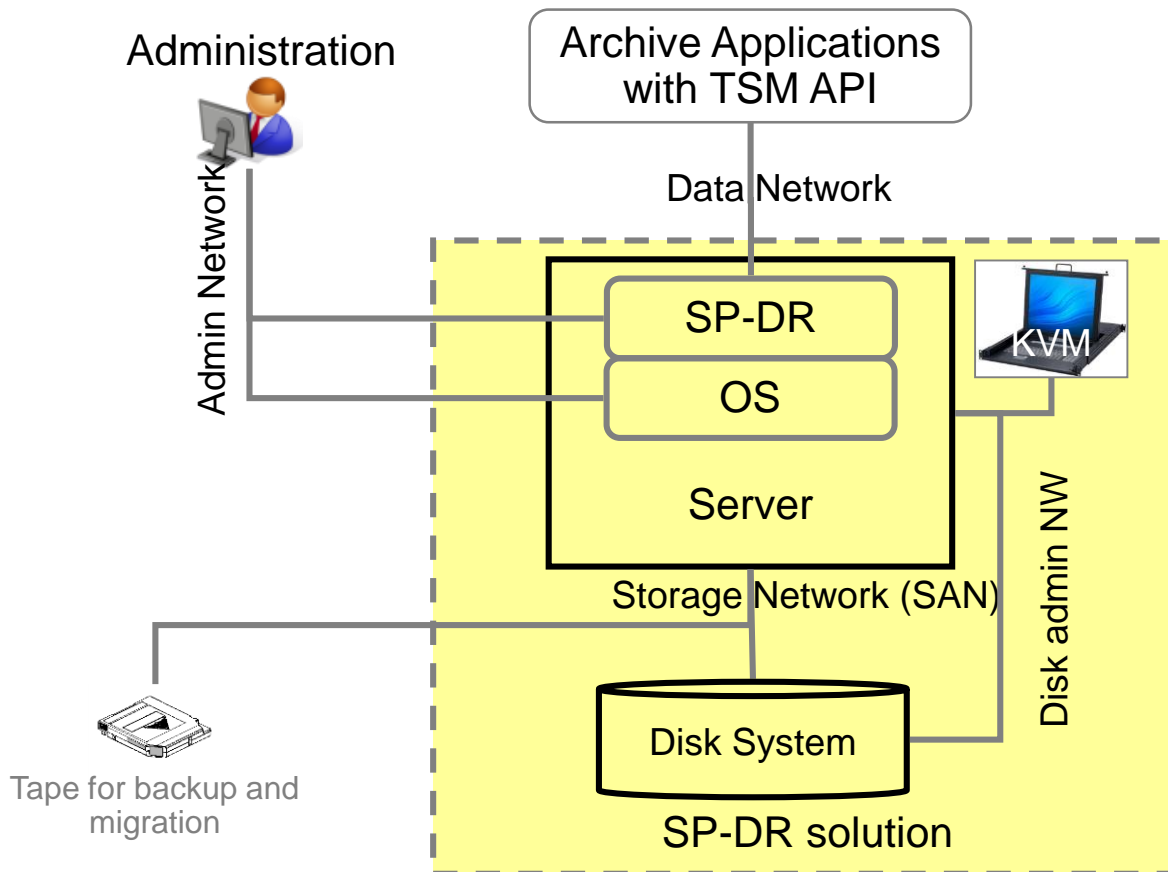
SP-DR solution – System security

- While SP-DR prevent deletion and changes the entire solution with server, network and storage must be secured

- Common practices:
  – Use sudo to prevent direct root logon and facilitate named user logon

  – Log and audit OS admin activity

  – Use firewall to control TCP/IP ports

  – Use secure NTP source to protect server time

  – Log and audit SP-DR admin activities (actlog)

  – Backup SP-DR DB and STG

  – Use appropriate retention policies

  – Manage access to network and disk (private networks)

  – Monitor system health (operation center)

Archive Applications with TSM API

Admin

Data Network

Admin Network

SP-DR

KVM

OS security

OS

Server

Storage Network (SAN)

Disk admin NW

Disk

Tape for backup and migration

SP-DR solution

Migration path from SSAM 6.3 to SP-DR 8.1

- **Upgrading from SSAM 6.3 to SP-DR 8.1 is a simple software upgrade**

- **Spectrum Protect cross platform migration is also possible (link)**
  - From AIX, HP-UX, Solaris to Linux

- **Export server from SSAM 6.3 to SP-DR 8.1 is possible**
  - However file space on source may be locked during migration causing read errors
  - Consider normal upgrade or cross-platform migration
  - DR550 and Information Archive can be migrated to SP-DR 8.1 using export server

Source	Target	Migration method
DR550, SSAM 5.x, IA	SP-DR 8.1	Export server
SSAM 6.3.x, 7.1.x	SP-DR 8.1, same platform	Software upgrade
SSAM 6.3.x, 7.1.x	SP-DR 8.1, other platform	Cross platform migration

External References

- KPMG assessment for SP-DR 8.1:
  http://www.kpmg.de/bescheinigungen/RequestReport.aspx?56B00E998BA14B31AF2E0F0FB63F0034

- KPMG assessment for SSAM 6.3:
  - German: http://www.kpmg.de/bescheinigungen/RequestReport.aspx?38014
  - English: http://www.kpmg.de/bescheinigungen/RequestReport.aspx?38076

- KPMG Certification TS1120 WORM Tape:
  http://www.kpmg.de/bescheinigung/ibmdeutschland/link_wormtape.html

- KPMG Certification LTO-3 WORM Tape:
  http://www.kpmg.de/bescheinigung/ibmdeutschland/link_wormtape_lto.html

- Cross platform migration with Spectrum Protect
  https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Storage%20Manager/page/Migrating%20Tivoli%20Storage%20Manager%20Servers%20from%20one%20Operating%20System%20to%20another

- Cloud provider supported by Spectrum Protect.
  https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Storage%20Manager/page/Cloud-container%20storage%20pools%20FAQs

- Spectrum Protect client and server compatibility
  http://www-01.ibm.com/support/docview.wss?rs=663&context=SSGSG7&q1=client+server+compatibility&uid=swg21053218&loc=en_US&cs=utf-8&lang=en

- Spectrum Protect server blueprints
  https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Tivoli%20Storage%20Manager/page/IBM%20Spectrum%20Protect%20Blueprints

- Whitepaper: Long term archiving with IBM Spectrum Protect for Data Retention
  http://www-01.ibm.com/support/docview.wss?uid=tss1wp102451

References

- KPMG assessment for SP-DR 8.1:
  http://www.kpmg.de/bescheinigungen/RequestReport.aspx?56B00E998BA14B31AF2E0F0FB63F0034

- KPMG assessment for SSAM 6.3:
  German: http://www.kpmg.de/bescheinigungen/RequestReport.aspx?38014
  English: http://www.kpmg.de/bescheinigungen/RequestReport.aspx?38076

- Reference Architecture for SSAM solutions:
  IBM: http://w3.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102345
  BP: https://www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/tech_WP102345

- Whitepaper: Solving the long term archiving challenges with IBM System Storage Archive Manager solutions
  External: http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102451
  IBM: https://w3-connections.ibm.com/files/app#/file/d671a24b-c2ae-4414-a6c0-0096d3bf41b7

- Introduction to migration from DR550 to SSAM 6.3:
  IBM: http://w3.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS5049
  BP https://www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/tech_PRS5049

- Introduction to migration from IA to SSAM 6.3:
  IBM: http://w3.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS5092
  BP: https://www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/tech_PRS5092

- Migration enablement service:
  IBM: http://w3.escc.mainz.de.ibm.com/ESCC4U/EUSTO128
  BP: email to: stg.labservices@de.ibm.com

- SSAM interoperability with applications:
  https://www-304.ibm.com/software/brandcatalog/ismlibrary/search#rc=TivoliSystemStorageArchiveManager:System%20Storage%20Archive%20Manager

- KPMG Certification TS1120 WORM Tape:
  http://www.kpmg.de/bescheinigung/ibmdeutschland/link_wormtape.html

- KPMG Certification LTO-3 WORM Tape:
  http://www.kpmg.de/bescheinigung/ibmdeutschland/link_wormtape_lto.html

- Guidance for implementation with SnapLock:
  https://www.ibm.com/developerworks/community/blogs/storageneers/entry/setting_up_system_storage_archive_manager_with_snaplock_storage_pools?lang=en

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