IBM Spectrum Scale Strategy Days 2019

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News from the development and test lab

- IBM Spectrum Protect Client 817 – News
- The Power LE client 817
- SOBAR (Scale Out Backup and Restore) for System Migration

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IBM Spectrum Protect Client 817 – News

New options:

- hsmrecallbufferalignment

The hsmrecallbufferalignment option specifies whether and how the internal buffer address for recall operations is aligned in the recall process memory. The alignment can significantly impact the recall performance.

- hsmrecallbuffersize

The hsmrecallbuffersize option specifies the size (in kilobytes) of the buffer that is used to collect data before the data is written to a file system as part of a recall operation.

IBM Spectrum Protect Client 817 – News

New options:

TCP Port	Initiator: From Host	Target: To Host	Inbound / Outbound	Usage
1500 (TCP Port)	HSM client	IBM Spectrum Protect server	Outbound	Migrate and recall files
hsmrpcport	HSM client	HSM client (on all cluster nodes where HSM is running)	Inbound and Outbound	RPC communication between Recall daemons controlled by **hsmrpcport** option
RPC bind daemon port (for example, 111)	HSM client	HSM client (on all cluster nodes where HSM is running)	Inbound and Outbound	Communication of recall daemon with RPCbind daemon (specific port depends on operating system)
23154 (or next free port)	HSM client	HSM client (on all cluster nodes where HSM is running)	Inbound and Outbound	**dsmautomig** (if not using **hsmdisable automig daemons**=**YES**)
23155 (or next free port)	HSM client	HSM client (on all cluster nodes where HSM is running)	Inbound and Outbound	**dsmmonitord** (if not using **hsmdisable automig daemons**=**YES**)
23157 (or next free port)	HSM client	HSM client (on all cluster nodes where HSM is running)	Inbound and Outbound	**dsmwatchd**

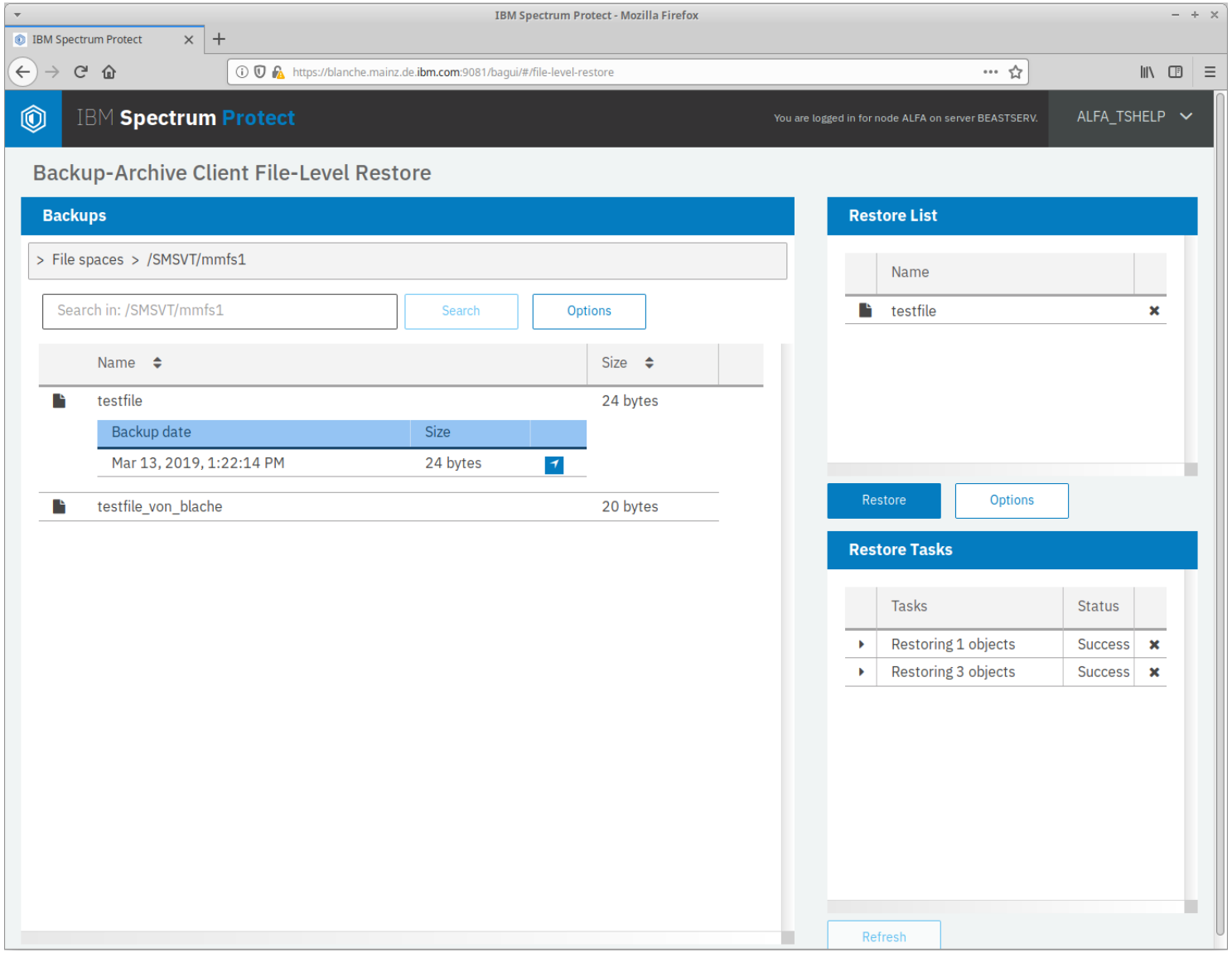
Example (Linux) → firewall-cmd --add-service=rpc-bind

for the HSM recall services.

IBM Spectrum Protect Client 817 – News

New Restore UI - WebUI 2.0
- available on linux x86 & WIN

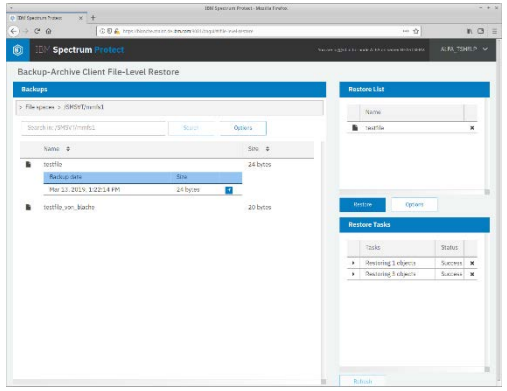
- Beta planned for next deliverable on system z



IBM Spectrum Protect Client 817 – News

New Restore UI - WebUI 2.0

- ASNODE is not supported
  → workaround for scale clusters
  setup 2 server stanzas



NODE1 alfaromeo

dsm.opt: SERVERNAME BEASTSERV

dsm.sys:
```
DEFAULTSERVER BEASTSERV
MIGRATESERVER BEASTSERV

SERVERNAME BEASTSERV
        TCPPORT 1505
        TCPSERVERADDRESS BEAST
        PASSWORDACCESS generate
NODENAME alfaromeo
ASNODENAME alfa

SERVERNAME BEASTSERV4CAD
        TCPPORT 1505
        TCPSERVERADDRESS BEAST
        PASSWORDACCESS generate
NODENAME alfa
```

NODE2 blanche

dsm.opt: SERVERNAME BEASTSERV

dsm.sys:
```
DEFAULTSERVER BEASTSERV
MIGRATESERVER BEASTSERV

SERVERNAME BEASTSERV
        TCPPORT 1505
        TCPSERVERADDRESS BEAST
        PASSWORDACCESS generate
NODENAME blanche
ASNODENAME alfa
```

IBM Spectrum Protect Client 817 – News

New Restore UI - WebUI 2.0

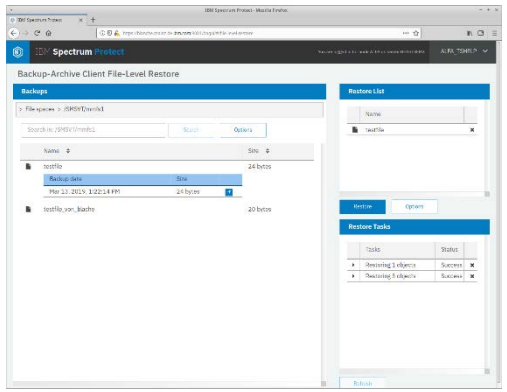
- ASNODE is not supported
  → workaround for scale clusters
  setup 2 server stanzas
  register and grant auth

dsmadmc =>

```
reg node alfa alfa dom=BASVT1
reg node alfaromeo alfaromeo dom=BASVT1
reg node blanche blanche dom=BASVT1
reg node buck buck dom=BASVT1

reg admin alfa_tshelp alfa_tshelp
grant auth alfa_tshelp cl=node node=alfa
grant auth alfa_tshelp cl=node node=alfaromeo

grant  proxy target=alfa  agent=alfaromeo
grant  proxy target=alfa  agent=blanche
grant  proxy target=alfa  agent=buck
```

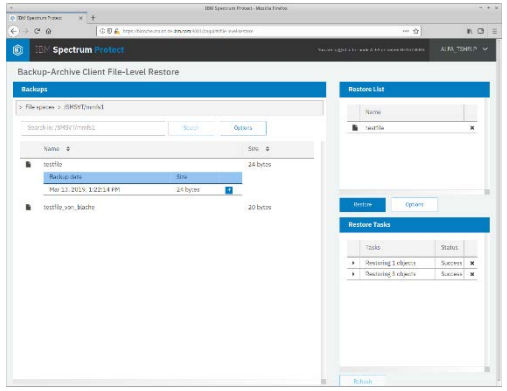


IBM Spectrum Protect Client 817 – News

New Restore UI - WebUI 2.0

- ASNODE is not supported
  → workaround for scale clusters
  setup 2 server stanzas
  register and grant auth
  get the certificates

node1: dsmc (to get certificate) => "Accessing as node: ALFA"
dsmc -se=**BEASTSERV4CAD** (to get certificate)

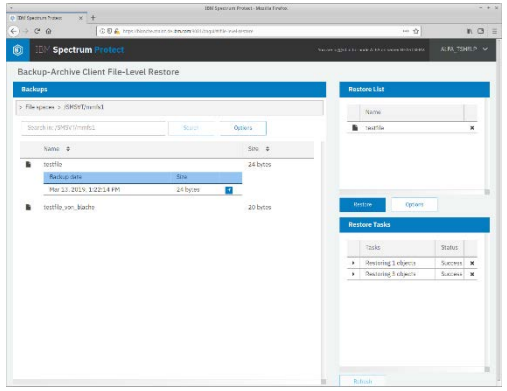


IBM Spectrum Protect Client 817 – News

New Restore UI - WebUI 2.0

- ASNODE is not supported
  → workaround for scale clusters
  setup 2 server stanzas
  register and grant auth
  get the certificates
  start dsmcad with -se option

dsmcad -se=**BEASTSERV4CAD**



- IBM Spectrum Protect Client 817 – News
- The Power LE client 817
- SOBAR (Scale Out Backup and Restore) for System Migration

IBM Spectrum Protect Power LE Clients 817

- IBM Spectrum Protect Backup/Archive
- IBM Spectrum Protect for Space Management (UNIX HSM)

- Running on Linux Power LE with new support for
  → SLES 15
  → RH 7.6

- Next IBM Spectrum Scale version already tested and will be added to support as soon as the Scale version will be published

This does also apply to Linux x86 clients

- IBM Spectrum Protect Client 817 – News
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- SOBAR (Scale Out Backup and Restore) for System Migration

SOBAR (Scale Out Backup and Restore) for System Migration – general usage SOBAR

Small number of files (Full Restore):

✓ dsmc restore –restormigstate=no

Huge number of files or full directory trees (Stub Restore):

✓ dsmc restore –restoremigstate=yes

or

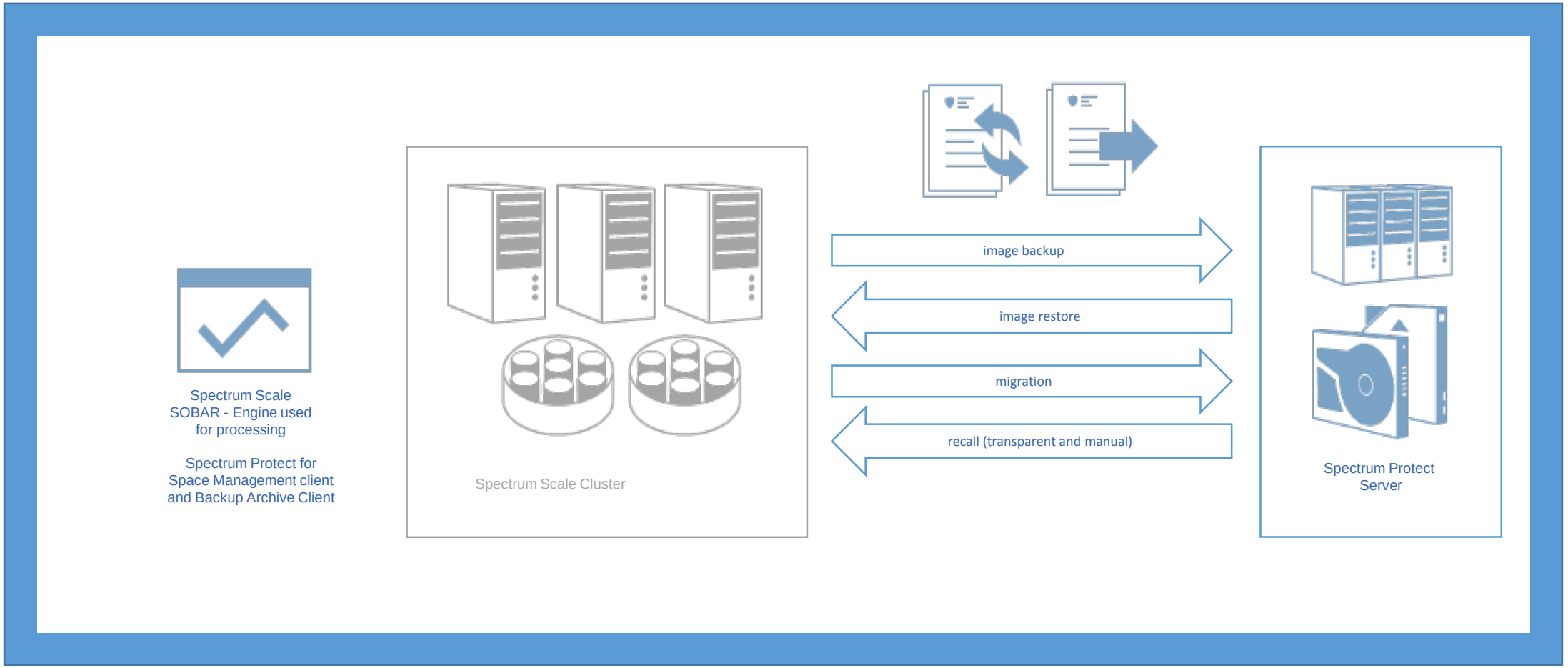
✓ dsmc restore –dirsonly

✓ dsmmigundelete

Full filesystem recovery (SOBAR Restore):

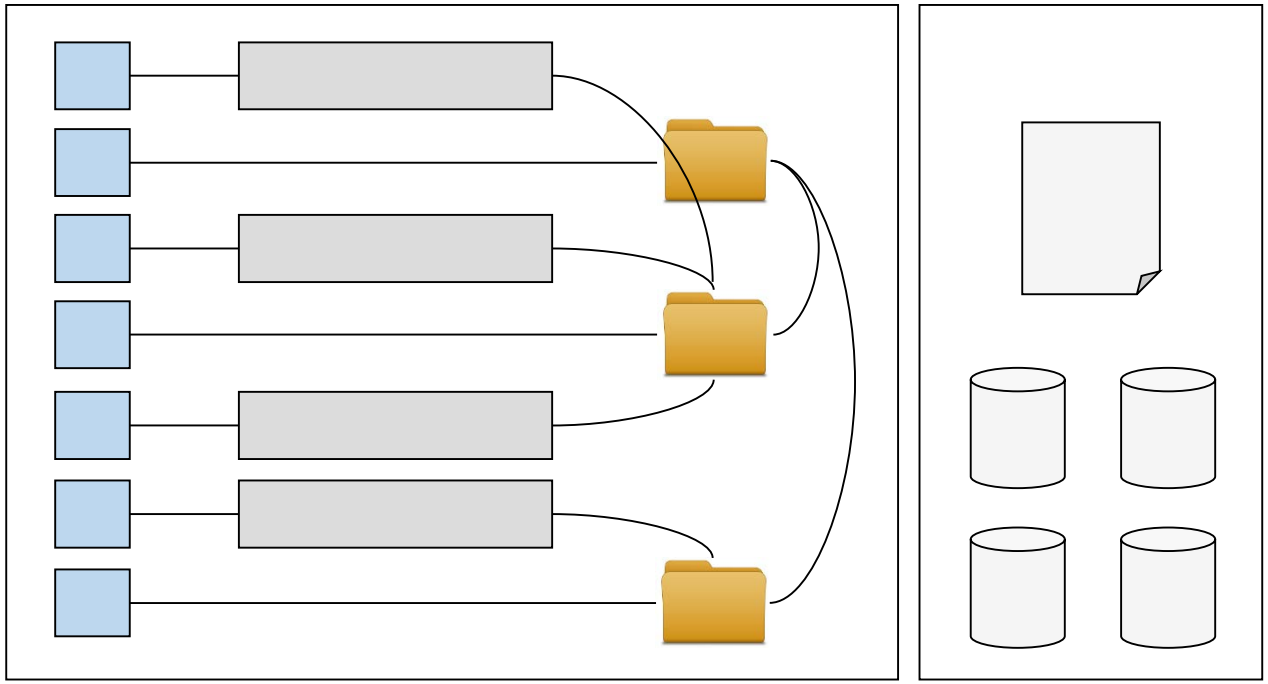
✓ SOBAR

SOBAR (Scale Out Backup and Restore) for System Migration – general usage SOBAR



SOBAR (Scale Out Backup and Restore) for System Migration – general usage SOBAR

Protected items



Metadata (Inode & ACL)

File Data

Directory Data & Directory Tree Relation

File System Configuration Data

IBM Spectrum Storage

IBM Spectrum Protect

IBM

SOBAR (Scale Out Backup and Restore) for System Migration – general usage SOBAR

Function Backup

- Spectrum Protect Space Management client used to premigrate files
- SOBAR toolset used to generate filesystem metadata image
- Spectrum Protect backup archive client used to backup image files

Function Restore

- Spectrum Protect backup archive client used to restore image files
- SOBAR toolset used to recreate file system structure
- Spectrum Protect for Space Management client used to pre-fetch files and allow direct access by applying transparent recall

SOBAR (Scale Out Backup and Restore) for System Migration - Procedure

The SOBAR functionality can be used to migrate a file system from legacy to new hardware and was already used on a customer side for a system migration.
This procedure can be done without any data transfer or new backup of files.
Example: V7000U to ESS

Note: On the target system run at least IBM Spectrum Protect for Space Management client version 7.1.6.4
Both systems must have network access to the same IBM Spectrum Protect server
Do not mix AIX and Linux operating systems, there is another system migration procedure for such a migration.

SOBAR (Scale Out Backup and Restore) for System Migration - Procedure

- Preparation of the **source system**:
  - Disconnect the source file system from production
  - Process a final incremental backup
  - List all files that are in HSM file state „resident“. This can be done with a simple list policy.

Example:

```
/* Define is resident */
define( is_resident,(MISC_ATTRIBUTES NOT LIKE '%M%') )
/* list rule to list all resident files */
RULE EXTERNAL LIST 'res' EXEC ''
RULE 'list_res' LIST 'res' WHERE ( is_resident ) AND ( NOT (exclude_list)
```

- Migrate all files that should be included in the system migration with:
  - Perform a manual filelist based migration using the previously generated filelist (dsmmigrate –filelist) or
  - Perform a policy driven migration

- Process the SOBAR image backup but keep the image files locally

SOBAR (Scale Out Backup and Restore) for System Migration - Procedure

- Preparation of the **target system:**
  - Install IBM Spectrum Protect clients (Backup-Archive and Space Management) version 7.1.6.4 or newer
  - Configure the IBM Spectrum Protect environment for the existing server using same node name that was used for the source system
- Copy SOBAR image backup files from source system to target system
- Perform an image restore at the target system
  → You get a new file system that is binary identical to the legacy file system on the source system
- Enable the new created file system for IBM Spectrum Protect for Space Management
- Reconcile the new file system (dsmreconcileGPFS.pl /<fsname>)
- Perform an initial incremental backup of the file system. It is expected that the backup shouldn‘t backup any file data at this time.
- Test the configuration by performing file read tests on the target system. The reads will trigger recall activity.

SOBAR (Scale Out Backup and Restore) for System Migration - Procedure

Please note, this is only a brief decription of the procedure.

If you plan to run such a system migration with SOBAR, please get in contact with the IBM EMEA Storage Competence Center Rhein Main. We can hand over contacts.