GSE GUIDE SHARE EUROPE UK REGION

GSE UK Conference 2019
*Dock into the Dark Side*

# What's New in GDPS?

Dave Clitherow
IBM

November 2019
Session BE

# Quick reminder, new names since V4.1

| Current name | New name full | New name short |
|---|---|---|
| GDPS/PPRC HM | GDPS Metro HyperSwap Manager | GDPS HM |
| GDPS/PPRC | GDPS Metro | GDPS Metro (single leg) |
| GDPS/MTMM | GDPS Metro | GDPS Metro (dual leg) |
| GDPS/XRC | GDPS Global – XRC | GDPS XRC |
| GDPS/GM | GDPS Global – GM | GDPS GM |
| GDPS/MzGM | GDPS Metro Global – XRC | GDPS MzGM |
| GDPS/MGM | GDPS Metro Global – GM | GDPS MGM |
| GDPS/Active-Active | GDPS Continuous Availability | GDPS AA |
| GDPS Virtual Appliance | GDPS Virtual Appliance | GVA |

# GDPS V4.1 Summary

- **GDPS Metro**
  - HyperSwap Manager (replaces GDPS/PPRC HM)
  - Single leg (replaces GDPS/PPRC)
  - Dual leg (replaces GDPS/MTMM)
  - Migration utilities
  - XML GEOPARM
  - HC extensions
  - Monitoring optimization
  - Testcopy Manager
  - Logical Corruption Protection (LCP) Manager
  - New GUI (SPE)
  - SSC support (SPE)

- **GDPS Continuous Availability**
  - Zero data loss extension to symmetrical config
  - MQ cluster support
  - New GUI (SPE)

- **GDPS Global**
  - Monitoring optimization
  - New GUI (GM) (SPE)
  - DVIPA support for GEOGROUP and Rsys comms (GM)
  - HC extensions
  - HMT performance optimization (GM)
  - Full offline Primary volume support (XRC) (SPE)
  - Device based management (XRC) (SPE)
  - QHA performance optimizations for volumes (SPE)
  - Refresh & script verification (XRC) (SPE)

- **GDPS Metro Global**
  - Alternate subchannel set support (XRC) (SPE)
  - XML conversion utility (3 & 4 site) (GM)
  - MT PROCEDURE enhancements (3 & 4 site) (GM)
  - More explicit migration process defined
  - Testcopy Manager

# Minor V4.1 changes affecting migration

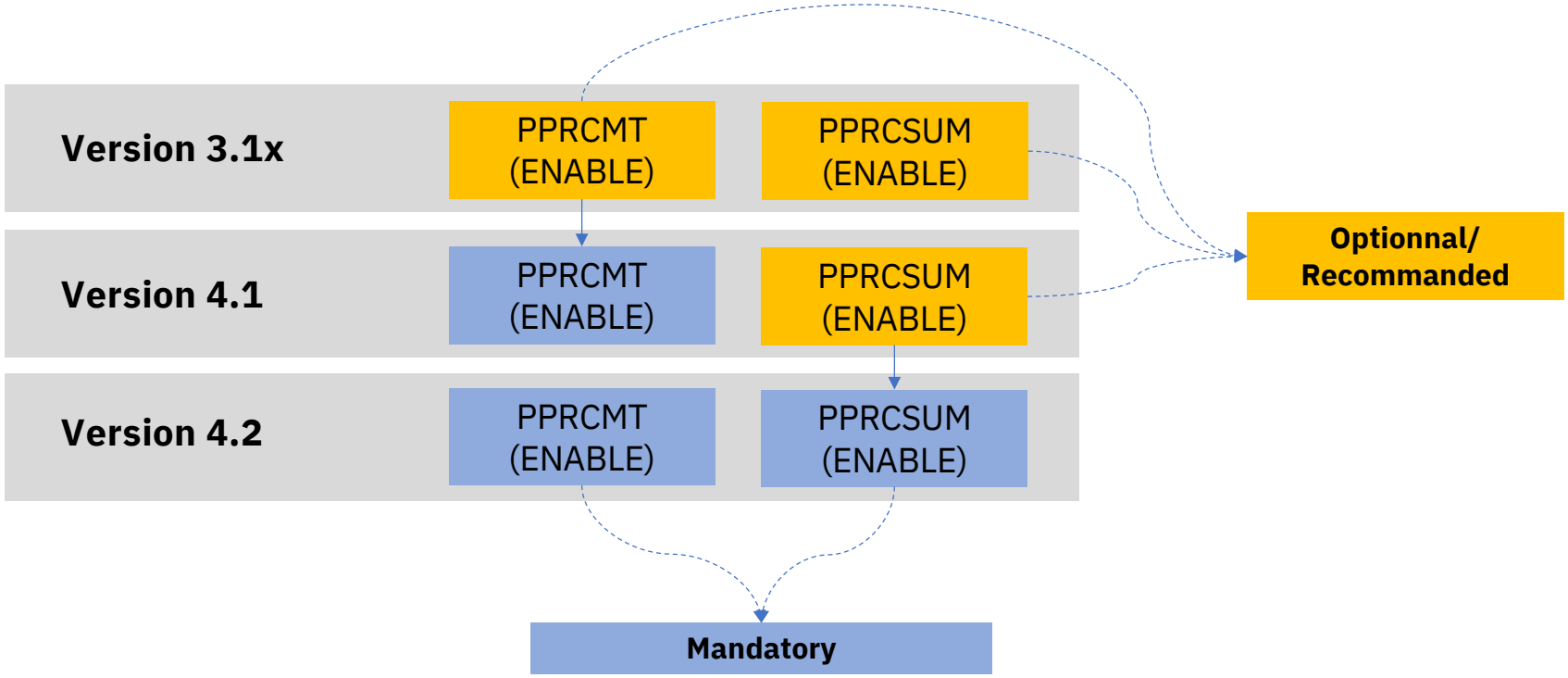
- DSISVRT free space is checked in GDPS Metro. If DSISVRT is more than 50% full, a CONFIG operation will not be allowed.
- New GDPS Mandatory operators – all GDPS solutions apart from GDPS Continuous Availability
  - GEOOPER8/AUTGEO8
  - GEOOPER9/AUTGEO9
- New automation operator profile – GEOPRFAO provided for GDPS operators
  - SGDPPPRF data set needs to added to DSIPRF concatenation
  - Used to ensure an EMCS console of a known name is allocated to the operator when started
- GDPS Metro will no longer vary the primary devices online to the Ksys
  - Effectively the same as KSYSOFF=YES
  - KSYSOFF parameter is removed from GEOPLEX OPTIONS

# GDPS V4.2

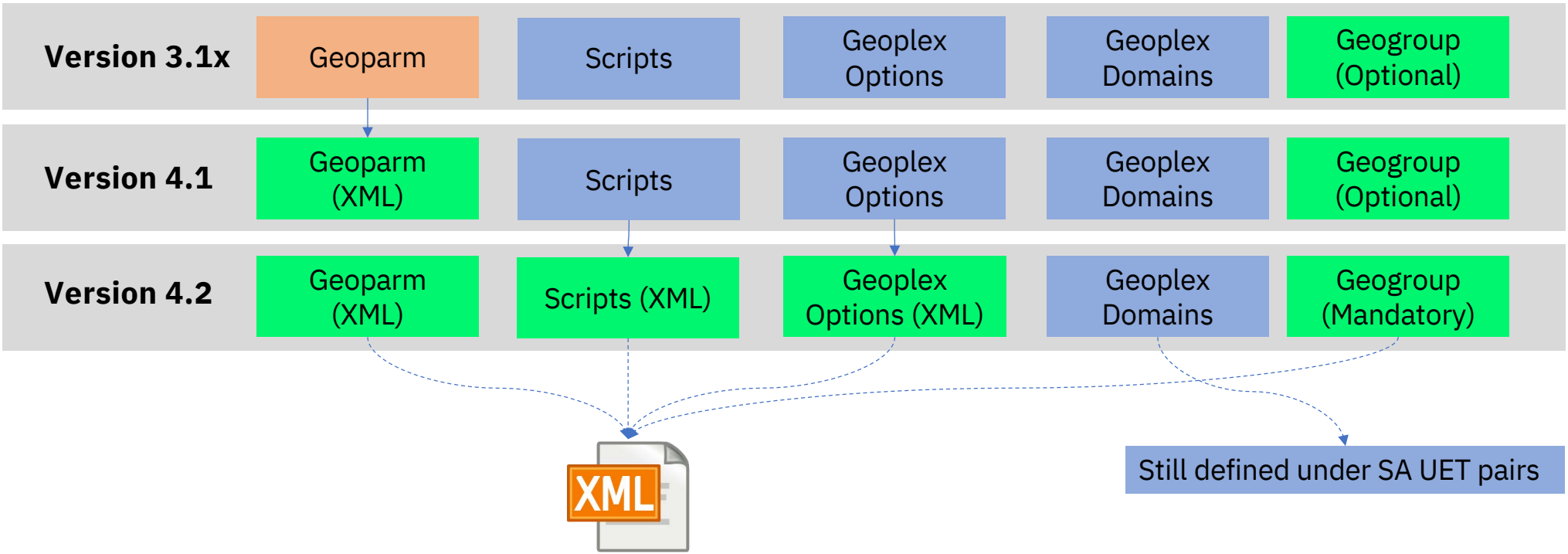
# GDPS Metro Highlights

## New setup requirements

- PPRCSUM(ENABLE) and PPRCMT(ENABLE) in DEVSUPxx are required



# GDPS Configuration files




No need to do an INGAMS REFRESH anymore.

GDPS is not exposed to a window where HyperSwap protection is unavailable.

GEOPLEX OPTIONS and SCRIPT can be updated manually or via an user interface (GUI).

Capacity to « test » syntax before to commit the change.

SA Pdb

Flat file

XML file

# SA UET GEOPLEX OPTIONS and SCRIPT definitions moved to XML

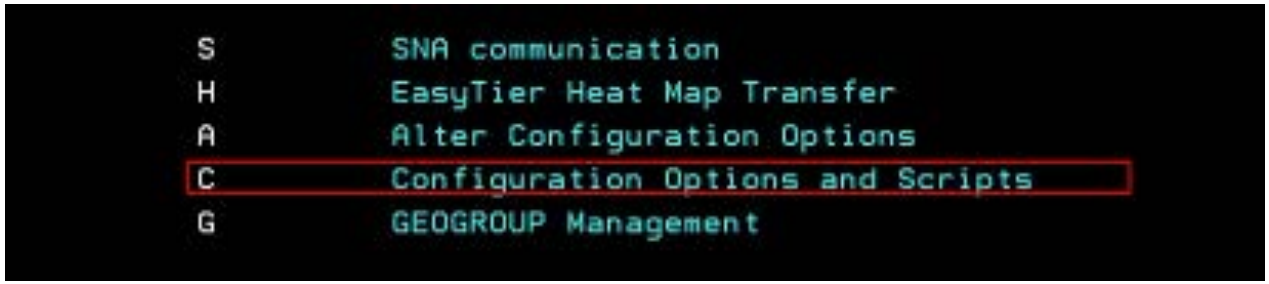
GUIDE SHARE EUROPE UK REGION

```
<GDPS_OPTIONS>
 <OPTION KEY="TOPOLOGY" VALUE="MGM3SITE">           </OPTION>
 <OPTION KEY="MGM3SITE" VALUE="MTFO(YES) IR(YES)"> </OPTION>
</GDPS_OPTIONS>
```

```
<GDPS_SCRIPTS>
<!-- CONTROL SCRIPTS -->
 <SCRIPT TYPE="CONTROL" NAME="KG_STARTSEC_RST">
  <STEP  TYPE="COMM"   VALUE="RESTART AFTER RECOVER">         </STEP>
  <STEP  TYPE="GDASD"  VALUE="PROD START SECONDARY RESTART"> </STEP>
 </SCRIPT>
</GDPS_SCRIPTS>
```

# GEOPLEX OPTIONS and SCRIPTS enhancement

- This new way to store the Options & Script simplifies the way they can be managed and updates.
  - No longer requires update to SA Policy
  - No longer requires INGAMS REFRESH – use C – Config Management



# GEOPLEX OPTIONS and SCRIPTS enhancement

```
Select one of the following:


TO        Test    Options
RO        Refresh Options

TS        Test    Scripts
RS        Refresh Scripts
```

```
VPCPDEE1                          Definition Management          MVS8

 Messages issued during definition process. Screen is automatically refreshed.


GEO2710I DEFINITION SYNTAX VALIDATION STARTED BY SE79197
GEOTRC1 Request: TEST OPTIONS
GEOTRC1 INFO: GEOPLEX OPTIONS found in SA UET definitions
GEOTRC1 INFO: The SA UET defintions will be ignored
GEOTRC1 OPTIONS: IPXDRPORT=5001
GEOTRC1 OPTIONS: TOPOLOGY=MZGM3SITE
GEOTRC1 OPTIONS: REPEATTAKE=00:06:00
GEOTRC1 * Key Repeattake changed. old value: 00:05:00 *
GEOTRC1 *                         new value: 00:06:00 *
GEOTRC1 OPTIONS: MZGM3SITE=IR(YES) SYSPLEX(REGDPS,XRC1,FRZ)
GEOTRC1 OPTIONS: CONTROLLINGSYSTEMS=2
GEOTRC1 OPTIONS: STOPAPPL=JES
GEOTRC1 OPTIONS: MASTER=MVS8 MVS7 MVS9 DUMMY1 DUMMY22 DUMMY33 DUMMY44 DUMMY55
DUMMY66
GEOTRC1 * Changes found *
GEO2710I DEFINITION SYNTAX VALIDATION COMPLETED


  F1=Help        F3=Return          F6=Roll                  PF10=No Det
```

```
VPCPDEE1                          Definition Management          MVS8

 Messages issued during definition process. Screen is automatically refreshed.


GEO2710I DEFINITION SYNTAX VALIDATION STARTED BY SE79197
GEOTRC1 Request: TEST Scripts
GEOTRC1 INFO: BATCH scripts found in SA UET definitions
GEOTRC1 INFO: CONTROL scripts found in SA UET definitions
GEOTRC1 INFO: TAKEOVER scripts found in SA UET definitions
GEOTRC1 INFO: The SA UET defintions will be ignored
GEOTRC1 CONTROL script SWAPSITE12 is using a reserved name and will be ignored
GEO073W GDPS Script Warning, Script SWAPSITE12 invalid.
GEOTRC1 Warning: Script name SYSWRONGSCRIPTNAME for a TAKEOVER script is
invalid and will be ignored.
GEO073W GDPS Script Warning, Script SYSWRONGSCRIPTNAME invalid.
GEO2729I GEODEF SCRIPTS PROCESSING SUCCESSFUL


  F1=Help        F3=Return          F6=Roll                  PF10=No Det
```

A report is generated when script and options are refreshed.
Can be used as input to track changes.

Script and options file can be tested to verify the syntax without impacting GDPS

# GDPS Metro Highlights

## New setup requirements

- MAT INGMSGGP now GEOMSG01 and managed by GDPS development (OA56473)
- License Check for Metro dual leg – IFAPRD00 FeatureName(MM_Dual_Leg)
- Topology keyword

Example: Metro

```
<OPTION KEY="TOPOLOGY“ VALUE=“MM2SITE"></OPTION>
<OPTION KEY=" MM2SITE “ VALUE="HM(NO)"></OPTION>
```

Example: MzGM

```
<OPTION KEY="TOPOLOGY“ VALUE="MZGM3SITE"></OPTION>
<OPTION KEY="MZGM3SITE" VALUE="SYSPLEX(G3PLEX,KXB3SYS,FRZ) HM(NO)">
</OPTION>
```

# Key migration considerations first

- GDPS 4.2 has a hard pre-requisite of System Automation 4.1 at a minimum
  - Note: System Automation 3.5 went end of support September 2019
- GEOPLEX OPTIONS and SCRIPTS removed from SA policy
- GEOGROUP definitions are now mandatory for the majority of GDPS solutions
- TOPOLOGY used in all solutions
- DCM has been removed
- GCI tool update available
  - Note: GCI will be replaced by the GDPS RESTful API.

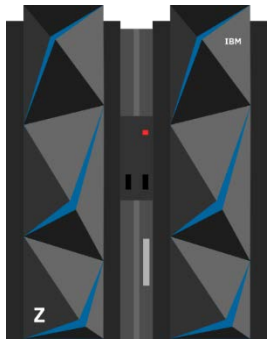
# Migration path

| | | |
|---|---|---|
| PPRC 3.14 | → Metro 4.1 | 'Enhanced' migration |
| PPRC 3.1x | → Metro 4.2 | Bigbang |
| MTMM 3.14 | → Metro 4.1 | Rolling migration |
| Metro 4.1 | → Metro 4.2 | Rolling migration |

- Co-existence between GDPS 4.1 and 4.2 is supported
- GDPS Metro Global – XRC: You must migrate a KSYS to 4.2 as the first system

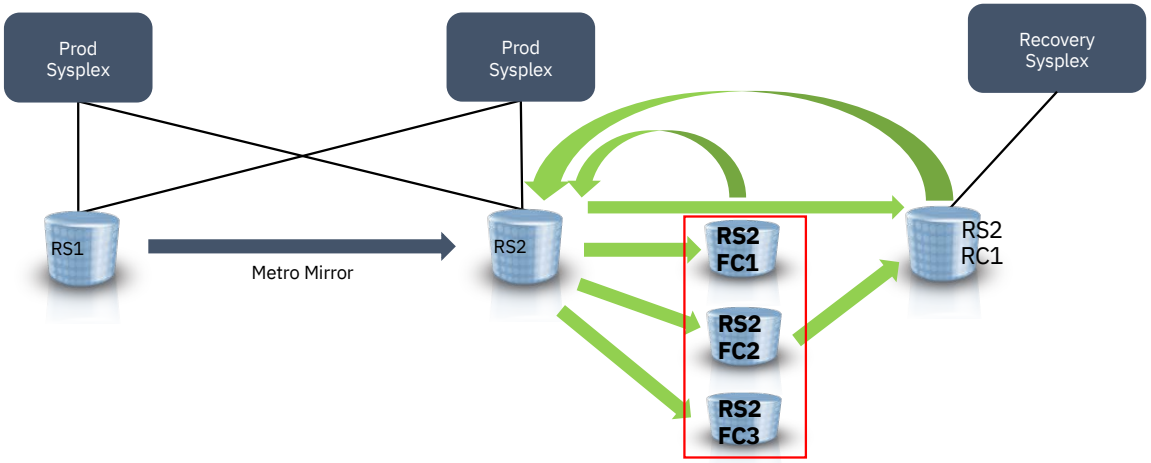
**Important step:**

- Moving from 3.14 to 4.1 required to convert the GEOPARM
  → Can be done with the XML Conversion tool
- Moving from 3.1x or 4.1 to 4.2 required to convert GEOPLEX OPTIONS and SCRIPTS
  → Can be done via SA UET Conversion process
  3.13 UI62197 & UI62199,
  3.14 UI62198
  4.1 UI62196



# LCP Changes

# Why LCP?




**Interest**

Secure solution because FCn & RCn are isolated from the production environment.

**Configuration:**

Every hour, you use FCn disk to take a copy of your DB2+CICS environment.

or

Every hour via a batch process you take a FlashCopy of your disks.

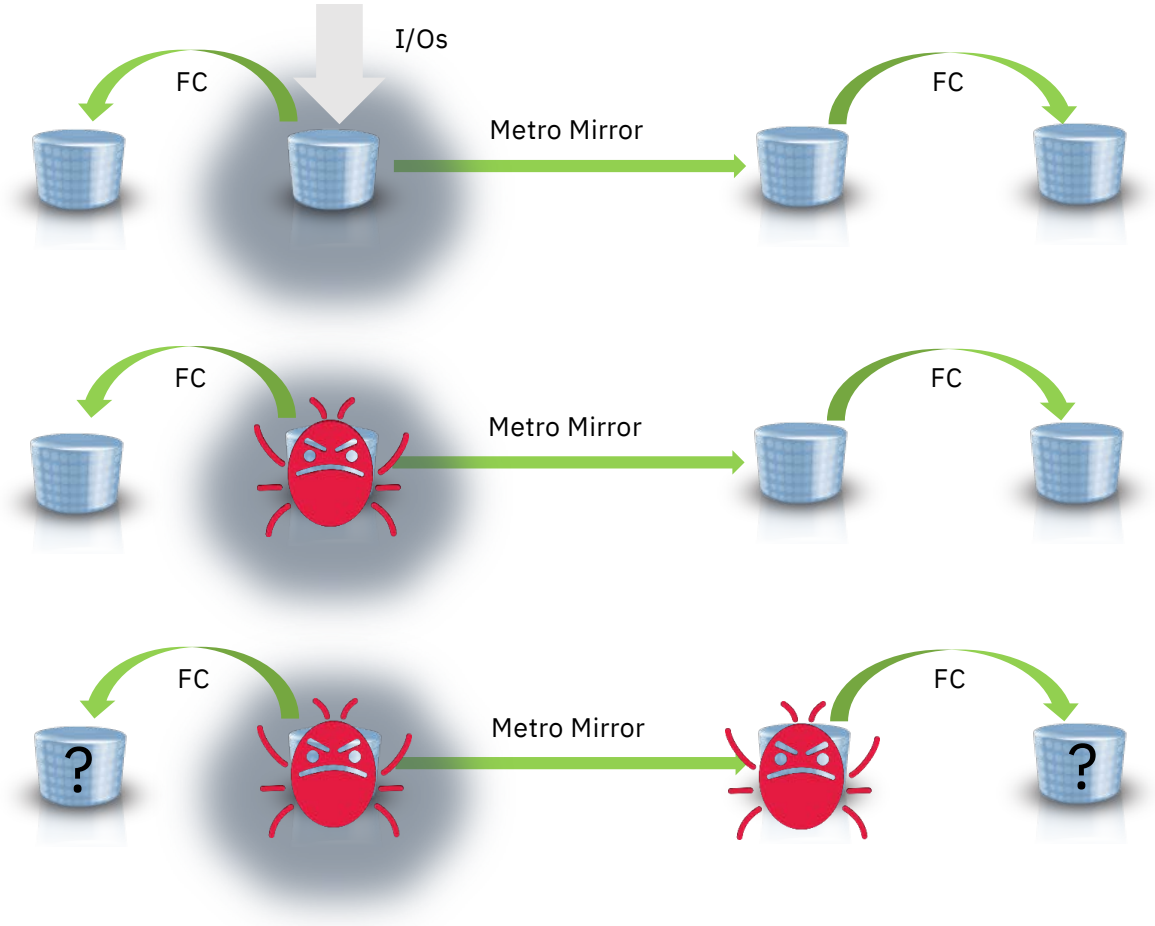
**Catastrophic event:**

After n minutes you notice a corruption of your environment and want to analyse your old data.

**Solution:**

From a isolated/protected recovery system you can restore your FCn disk to your RC1 disk to restart with a non-corrupted version of your data and analyse the problem.

# Data corruption in a classic Metro environment

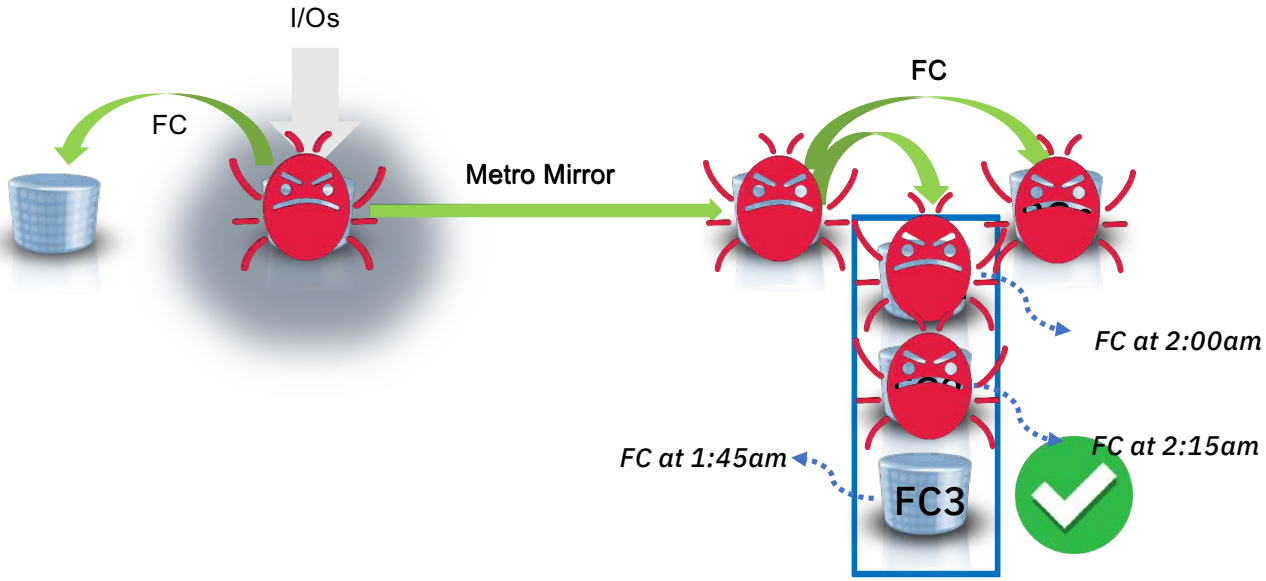



"Classic" config with two disks synchronized by Metro Mirror + One FC copy per site

If data corruption is done on a disk, the corruption is transmitted synchronously to the other site via Metro Mirror

The only disks "usable" are the two FC Copies but how old are they? 1 days, 2 days,  1 week?

# Data corruption in a LCP environment




Data start to be corrupted at **1:50**

Corruption is transferred to site2 via Metro Mirror

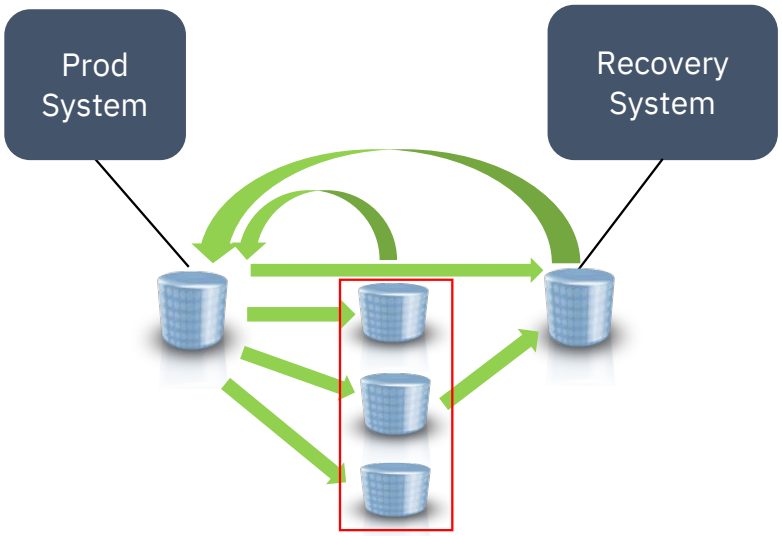
At 2:20, corruption is identified.

Action: We want to recover the last “good” copy of data.

FC3 (taken at 1:45) is identified by system admin as the last “good” copy.

You can restore your FC3 disk to your RC1 disk to restart with a non-corrupted version of your data and analyse the problem.

# LCP RESTORE and RECOVER




**Available at GA 4.1**

**Capture** a consistent protection copy at a particular point in time to provide a **Recovery Point**

**Available at GA 4.2**

**Recover** a protection copy to the recovery devices

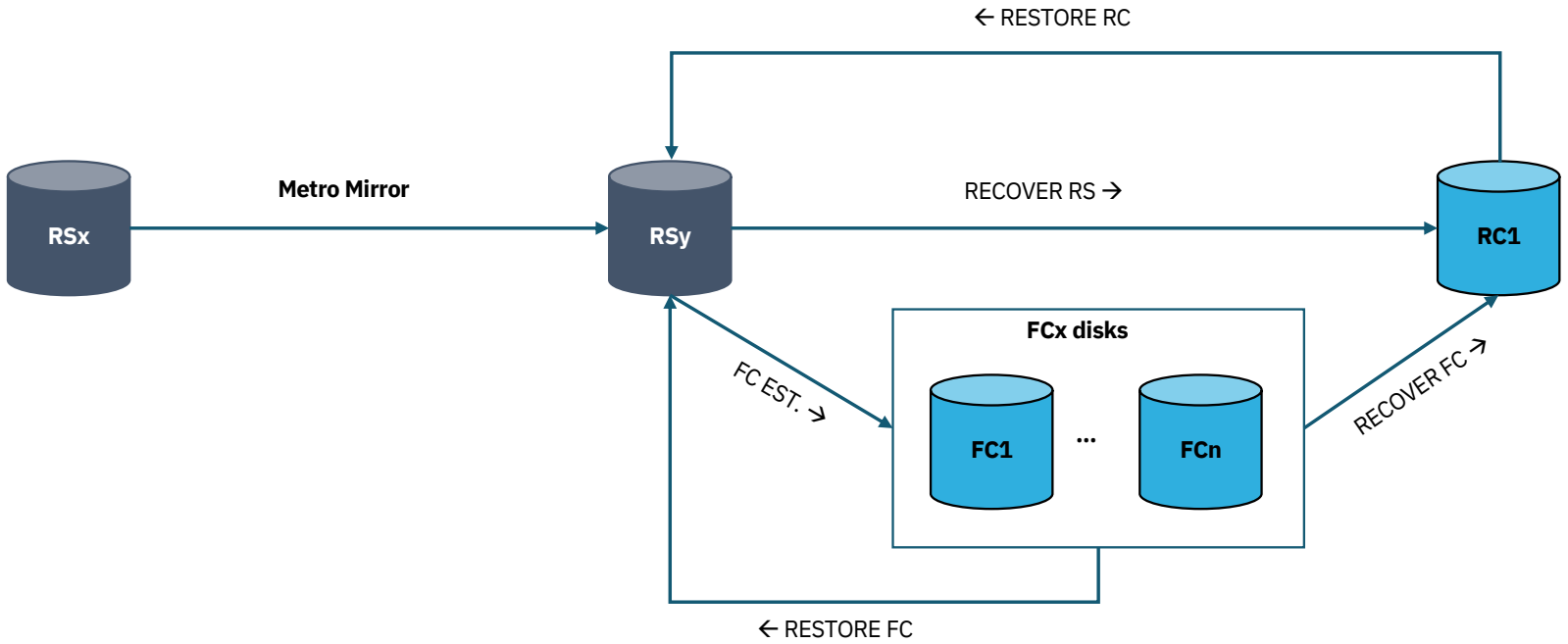
**Restore** a protection copy or the recovery copy to the production devices

**Available as future SPE**

***Release*** *a protection copy once the retention period has been exceeded*

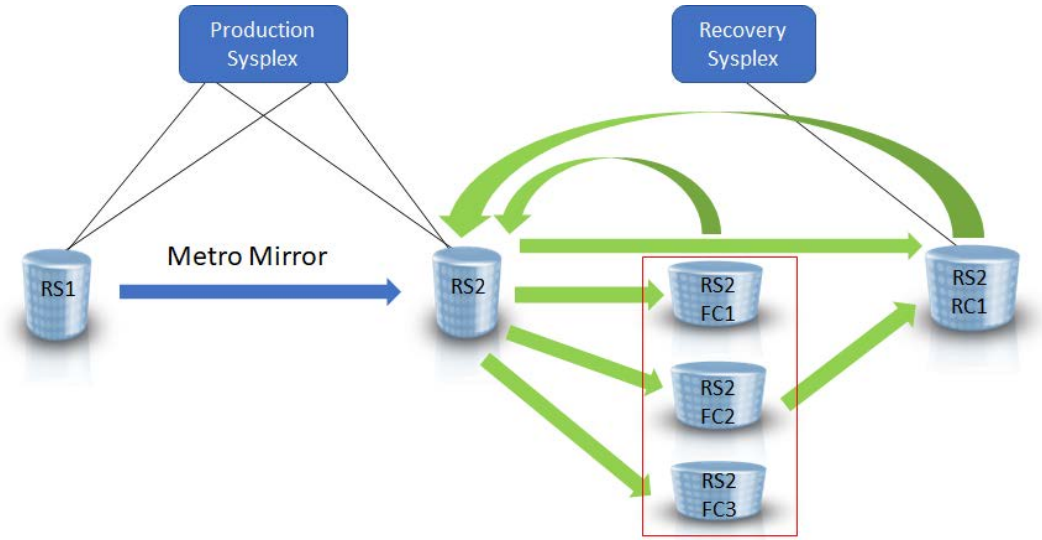
# LCP script statements RESTORE and RECOVER

- Up to ten Flashcopy Set (FCn) and one Recovery Set (RC1)
- Safe Guarded Copy support for LCP will be available as a 4.2 SPE in 4Q19 allowing up to 500 point-in-time copies



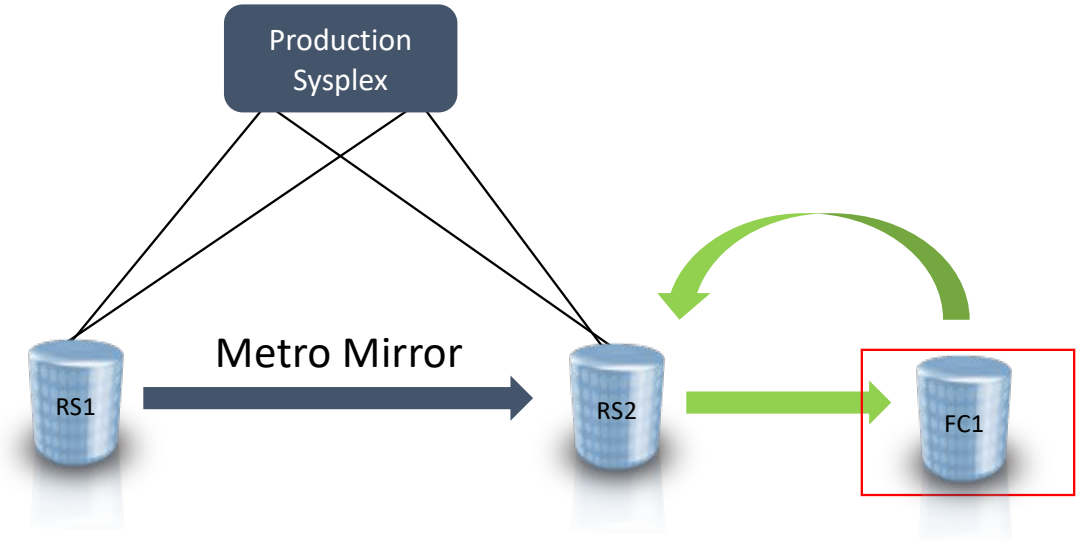
# GDPS Metro – LCP RESTORE and LCP RECOVER

- New Logical Corruption Protection script statements available in GDPS Metro
- Will be extended to further solutions via SPE's
- Requires the LCP production registration feature to be enabled:
  - FeatureName('LCP_MGR')
- **LCP=RESTORE**
  - Restore a captured FlashCopy volume set to an RS(n) volume set
  - Supports up to 10 FlashCopy volume sets
  - LCP 'RESTORE FC(n) RS(n)'
  - LCP 'RESTORE RC(1) RS(n)'
- **LCP=RECOVER**
  - Recover a captured FlashCopy volume set to an RC(n) Recovery volume set
  - Supports 1 Recovery volume set
  - LCP 'RECOVER RS(n) FC(n) RC(1) NOCOPY'
  - LCP 'RECOVER RS(n) FC(n) RC(1) COPY'
  - LCP 'RECOVER RS(n) FC(n) RC(1) NOCOPY2COPY'
  - LCP 'RECOVER RS(n) RC(n) END'



# DASD script statement RESTORE

- New DASD RESTORE available in GDPS Metro
- Allows the non-LCP user to restore the FC(1) volume set to an RS(n) volume set
- DASD ‘RESTORE RS(n)’ for non-LCP environments



GUIDE SHARE EUROPE UK REGION

# RTO Enhancements

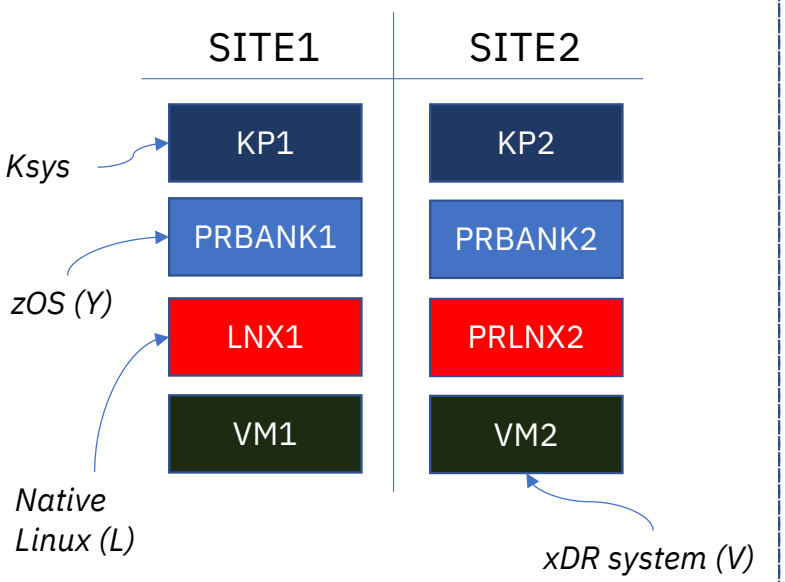
Doing things faster through parallelization

# RTO Improvements

- Improving the RTO of server infrastructure recovery actions can potentially be addressed at multiple levels:
  1. HW – Improvements to SE & HMC related tasks etc - such as System Recovery Boost
  2. SA – Improvements to the BCPii implementation
  3. GDPS – Improvements and simplification of BCPii related management tasks
  4. GDPS – Autonomic improvements related to CPC failure scenarios  (planned 4.2 SPE or 4.3 item)

# RTO Improvements

- By using **new filter mechanism** and **increasing command parallelism**, GDPS 4.2 will parallelize the actions used in situation of disaster recovery such as ACTIVATE, LOAD, CAPACITY actions etc...
- New keywords can be used to select a subset of the systems involved into the environment.
- *Note: Ksys are excluded when using GROUP()*




**SYSPLEX *action* SYSTEM(PR*)** will target systems beginning with PR

PRBANK1 PRBANK2 PRLNX2

**SYSPLEX *action* GROUP(SITE = 1)** will target all systems in SITE1

PRBANK1 LNX1 VM1

**SYSPLEX action GROUP(TYPE=L)** will target all native linux environment

LNX1 PRLNX2

# RTO Improvements

An action can now target multiple systems. Method is much more flexible than before and allows user to group systems as they want.

**SYSPLEX action SYSTEM(sysnam1,sysnam2,...,sysnam6)**

**SYSPLEX action GROUP([SITE=*|1|2][TYPE=*|Type_List])**

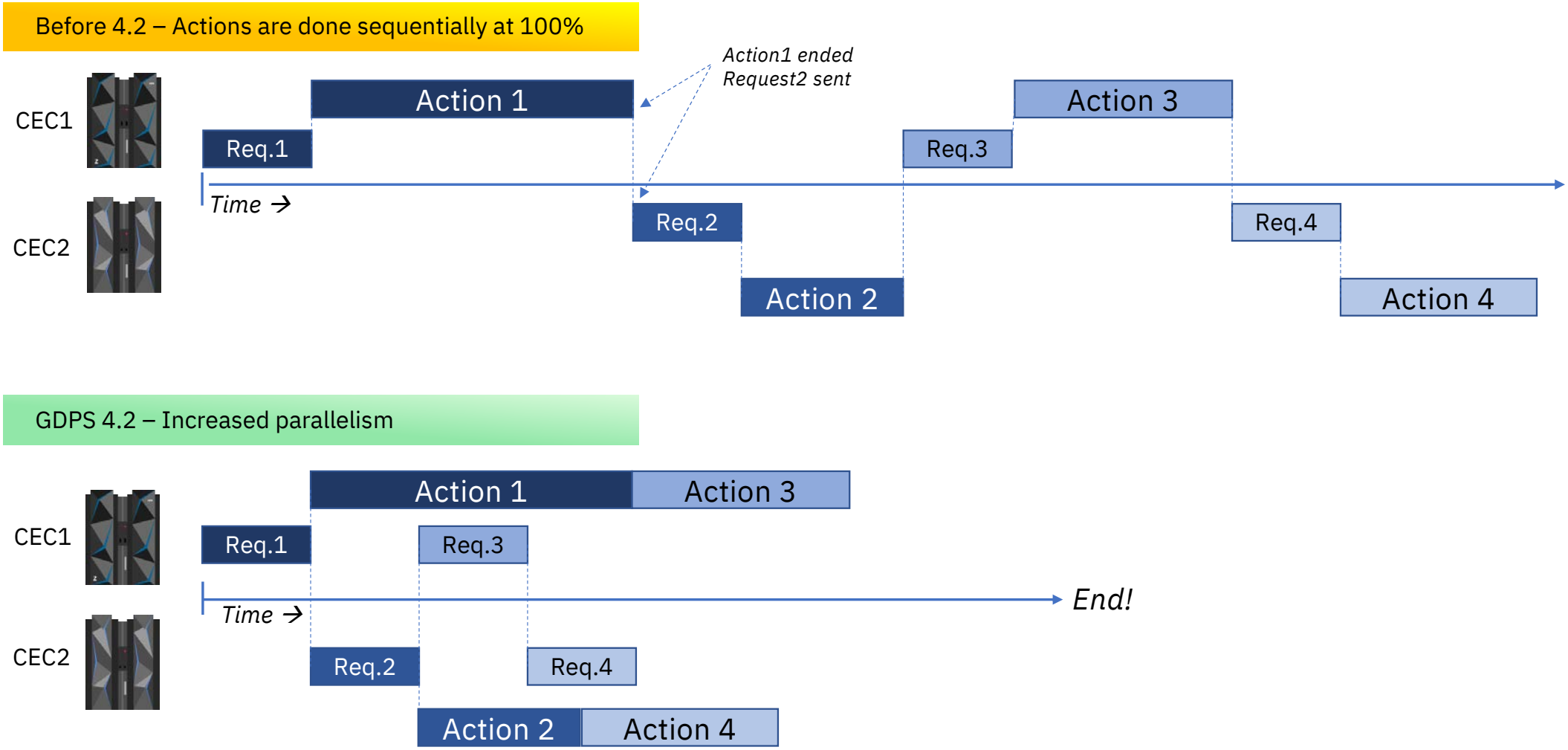
**SYSPLEX action SYSPLEX(sysplex_name)** ←*Available in GDPS CA only*

**GROUP parameter**

- **SITE=*|1|2** Any systems defined in SITEn (excluding Controlling Systems)
- **TYPE=*|NYLV** (Multiple types can be specified)

  Y Any zOS system running GDPS
  V Any xDR system (including z/OS Proxy-managed systems)
  L Any Native Linux systems.
  N Any Foreign systems.

# RTO Improvements – increased parallelism



# GDPS can deactivate, activate and load a partition up to 4x faster on z15 than on z14.

| | z14 & GDPS 4.1 (control) | z15 & GDPS 4.2 grouped | z15 & GDPS 4.2 & SAz NF APAR | z15 & GDPS 4.2 grouped & SAz NF APAR | z14/z15 (GDPS 4.2 & SAz NF APAR) ratio | z14/z15 (GDPS 4.2 grouped & SAz NF APAR) ratio |
|---|---|---|---|---|---|---|
| Deactivate (sec) 4*LPARs | 170 | 40 | 38 | 29 | 4.4X | 5.9X |
| Activate (sec) 5*LPARs | 146 | 54 | 55 | 40 | 2.7X | 3.7X |
| Load (sec) 5*LPARs | 351 | 66 | n/a | n/a | n/a | n/a |
| Total (sec) | 667 | 160 | n/a | n/a | n/a | n/a |

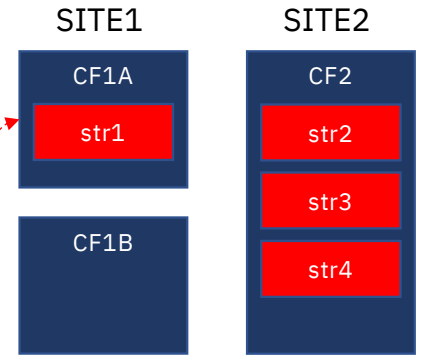
The z15 System Recovery Boost capability will introduce additional benefits for the systems being loaded

# Preventing user from performing disruptive operations

- GDPS has now the capability to check if CF are in use or not.
- If the CF is in use, GDPS will refuse to perform the action

```
CF CF1 still in use. ACTIVATE command will fail if CF not cleared
COMM=RTO REDUCTION ACTIVATE SITE1
SYSPLEX=ACTIVATE GROUP(SITE=1)
```

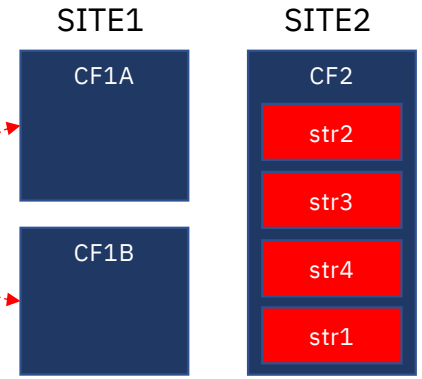
CF1A still contain structure.
Activate action is not allowed




- You need to empty SITE1 CFs before to run the activate.
  With a « SYSPLEX CF SITE2 » for example.

```
COMM=RTO REDUCTION ACTIVATE SITE1
SYSPLEX=ACTIVATE GROUP(SITE=1)
```

CF1A & CF1B are empty.
Activate action is allowed



# New/Extended Health Checks

- GDPS_Check_STATE extension: Keep track of message queue counter, issue exception if task has message queue count higher than a value depending on operator type (short or long running execution).

- GDPS_Check_XCF_CDS Logr allocation rule Allowaccess parameter exploitation: to control whether or not the LOGR CDS will be allocated by XCFAS.

  *GDPS recommendation:*

  ***Ksys**: ALLOWACCESS(NO) in IXGCNFxx*

  ***Prod system**: MANAGE LOGRCDS ALLOWACCESS(YES)*

  *(Check with Display LOGGER,IXGCNF on Production systems)*

- *GDPS_Check_REPORT: Generate reports related to all Health Checks*
  - *Exception Report* - Summarize each exception being raised
  - *Maintenance Report* - Maintenance level of each GDPS Health Check
  - *Bypass Exception Report* - All exception messages that have been bypassed using the BYP_EXCPT GEOHCPxx parameter
  - *Bypass Check Report* - Exception messages that have been bypassed using the BYP_CHECK GEOHCPxx parameter

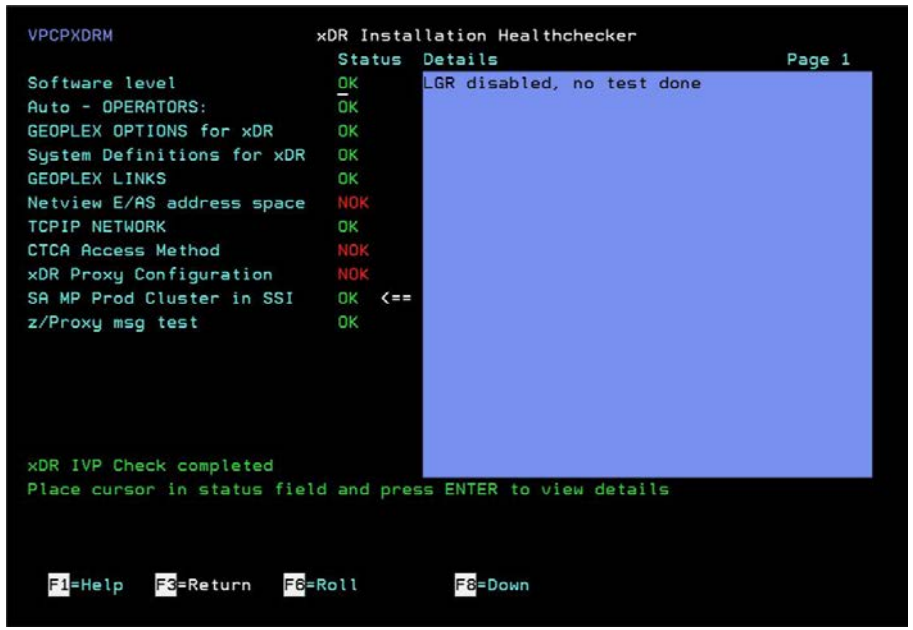
```
CHECK(IBMGDPS,GDPS_CHECK_STATE)
SYSPLEX:  GA      SYSTEM: GAC2
START TIME: 02/06/2019 12:14:44.884779
CHECK DATE: 20170131  CHECK SEVERITY: MEDIUM-DYNAMIC
GDPS CHECK VERSION: 4.02.0 LEVEL: GDPS420 COMPILE: 2019.036 18:50:27
GEOH007I VPC8C004 ******* Monitor1 check for CNMPROC  *******
GEOH007I VPC8C004 Last Monitor1 run : 2019-02-06 at 12:14:35
GEOH007I VPC8C004 Next Monitor1 run : 2019-02-06 at 12:19:35
GEOH007I VPC8C004 Monitor1 interval : 300 seconds
GEOH007I VPC8C004 Next monitor1 in:  291 seconds
GEOH007I VPC8C004 ******* GDPS task check for CNMPROC  ******
GEOH007I VPC8C004 No GDPS task checked inactive
GEOH007I VPC8C004 ******* GDPS operator check for CNMPROC  **
GEOH007I VPC8C004 No GDPS operator checked queue excessive condition
GEOH007I VPC8C004 ******* GDPS operator check for CNMPROC  **
GEOH007I VPC8C004 No GDPS operator checked queue persistent message
END TIME: 02/06/2019 12:14:44.900768  STATUS: SUCCESSFUL
```

```
**********************************
* Maintenance Report             *
**********************************
GDPS_CHECK_JOBS          4.02.0  GDPS420  2019.050 23:06:41
GDPS_CHECK_NUMUCBS       4.02.0  GDPS420  2019.050 23:06:57
GDPS_CHECK_DASDMIH       4.02.0  GDPS420  2019.050 23:06:59
GDPS_CHECK_STATE         4.02.0  GDPS420  2019.049 02:59:16
GDPS_CHECK_CONSOLE       4.02.0  GDPS420  2019.049 02:59:18
GDPS_CHECK_K_SYS_LPAR    4.02.0  GDPS420  2019.049 02:59:19
GDPS_CHECK_MAXSYS        4.02.0  GDPS420  2019.049 02:59:21
GDPS_CHECK_SDM_CAP       4.02.0  GDPS420  2019.050 23:07:00
GDPS_CHECK_XCF_CDS       4.02.0  GDPS420  2019.049 02:59:24
GDPS_CHECK_GRS           4.02.0  GDPS420  2019.049 02:59:26
GDPS_CHECK_XCF           4.02.0  GDPS420  2019.049 02:59:28
GDPS_CHECK_SPOF          4.02.0  GDPS420  2019.050 23:06:46
GDPS_CHECK_CONFIG        4.02.0  GDPS420  2019.049 02:59:43
GDPS_CHECK_DEVICE        4.02.0  GDPS420  2019.049 02:59:46
GDPS_CHECK_LOGR          4.02.0  GDPS420  2019.049 02:59:51
GDPS_CHECK_REPORT        4.02.0  GDPS420  2019.049 02:59:54
```

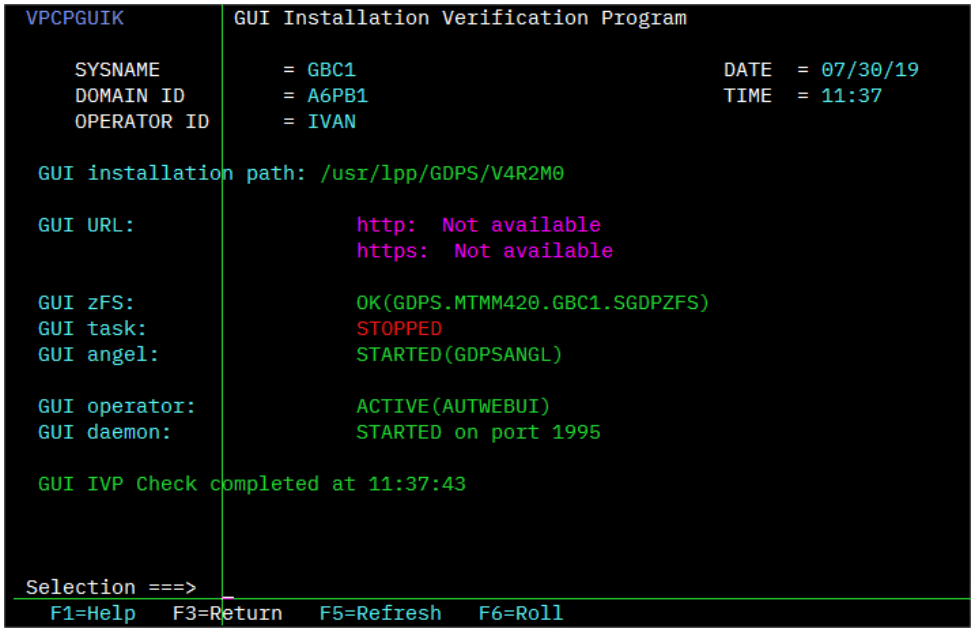
# GDPSIVP - Installation Verification Procedure

- A new internal command **GDPSIVP** is now available to help user to configure GDPS.
- As of today two IVPs are available:

## xDR




## GUI



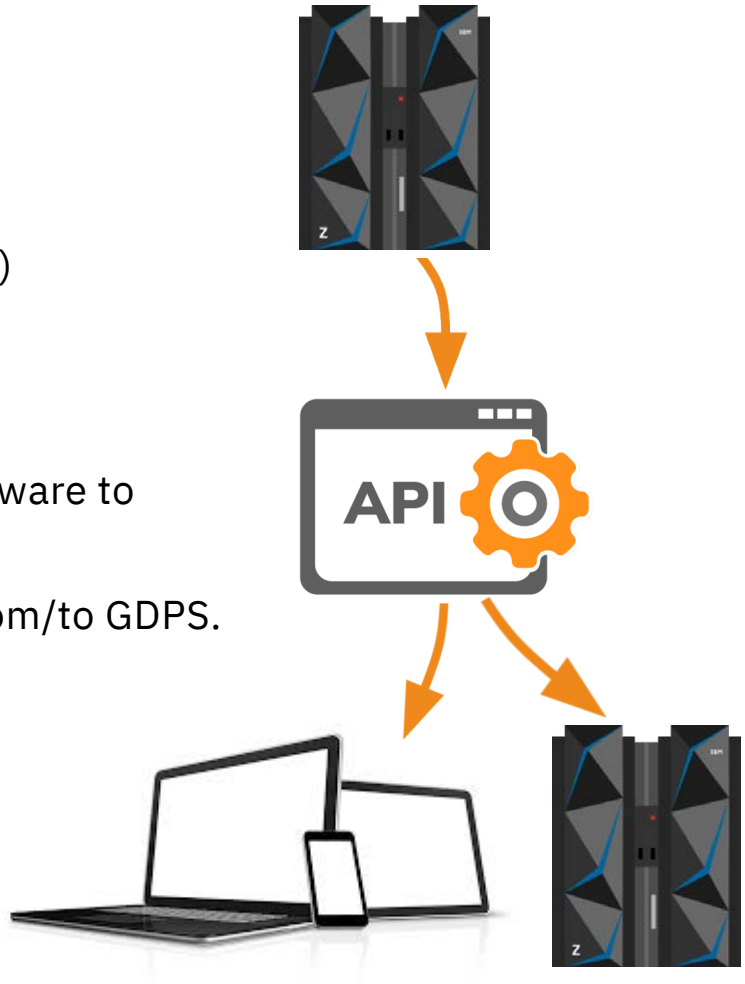
GUIDE SHARE EUROPE UK REGION

# GDPS GUI and RESTful API

# GDPS RESTful API

- Provides access to information held in GDPS
- Enables actions (DASD, standard actions, initiate scripts etc)
- Intention – replace GCI (stabilised at 4.1 and sunset at 4.x)

- Allows you to quickly connect existing or new tools and software to GDPS.
- Allows you to collect (GET) or update (POST) information from/to GDPS.
- Drastically simplify creation of new tool and or interface.



# How it works?

1. Client sends authentication command:

   POST *hostname:port*/org.ibm.gdps/rest/authenticate
   {Authorization: Basic user:password or digital certificate}

2. API authenticates user with SAF using z/OS authorized services and returns token:

   {securityToken=MQsmDsuLV...AmqCyKQw==}

3. Client sends request with token and target domain:

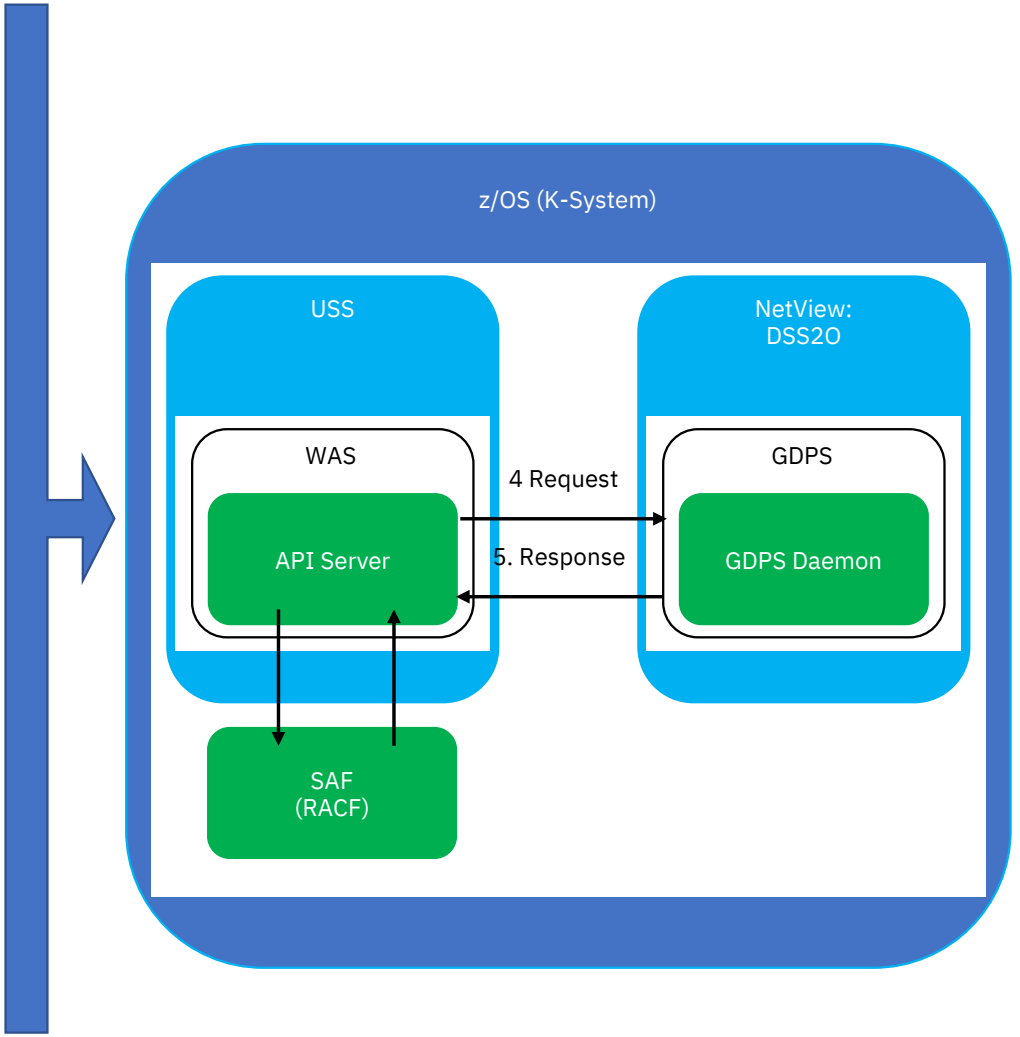
   POST *hostname:port*/org.ibm.gdps/rest/status/global_status
   {securityToken=MQsmDsuLV...AmqCyKQw==
   domain=DSS2O}

*4. API validates the passed token and routes the request to the target NetView domain*

*5. NetView daemon:*
   *a) Checks that the connection is trusted*
   *b) Processes request*
   *c) Returns response to API*

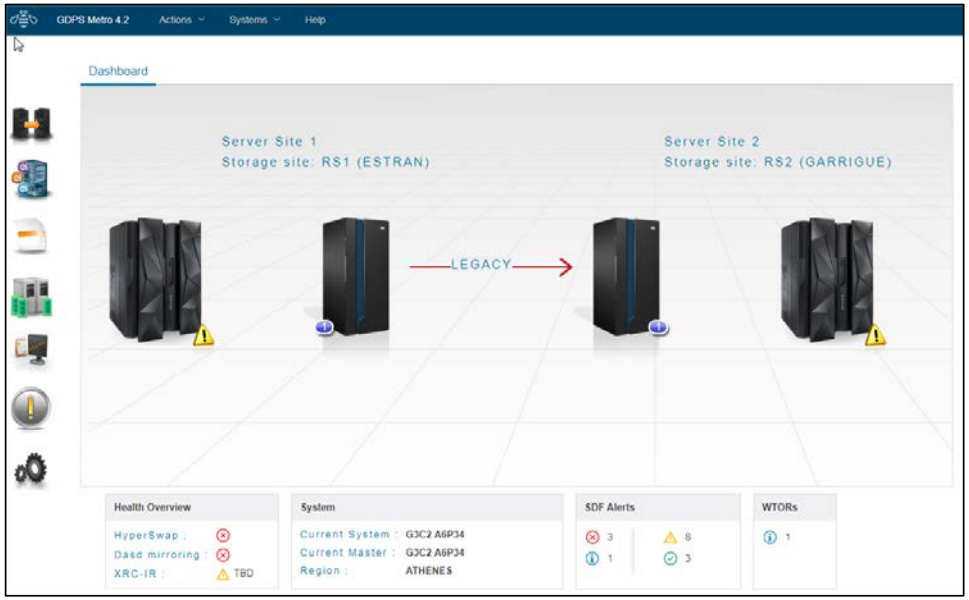
6. API returns JSON object to client in response:

   { ... }



# GUI improvements

- GDPS GUI configuration and installation changes
- New authentication mechanisms supported: RACF passphrase, digital certificates. (Requires additionnal steps in the installation)
- Performances enhancement in large environments
- New GDPS XML editor for managing GDPS options and scripts
- New XML Editor for managing GEOPARM
- New XML Editor for managing workloads (CA only)
- New GDPS Installation verification tool

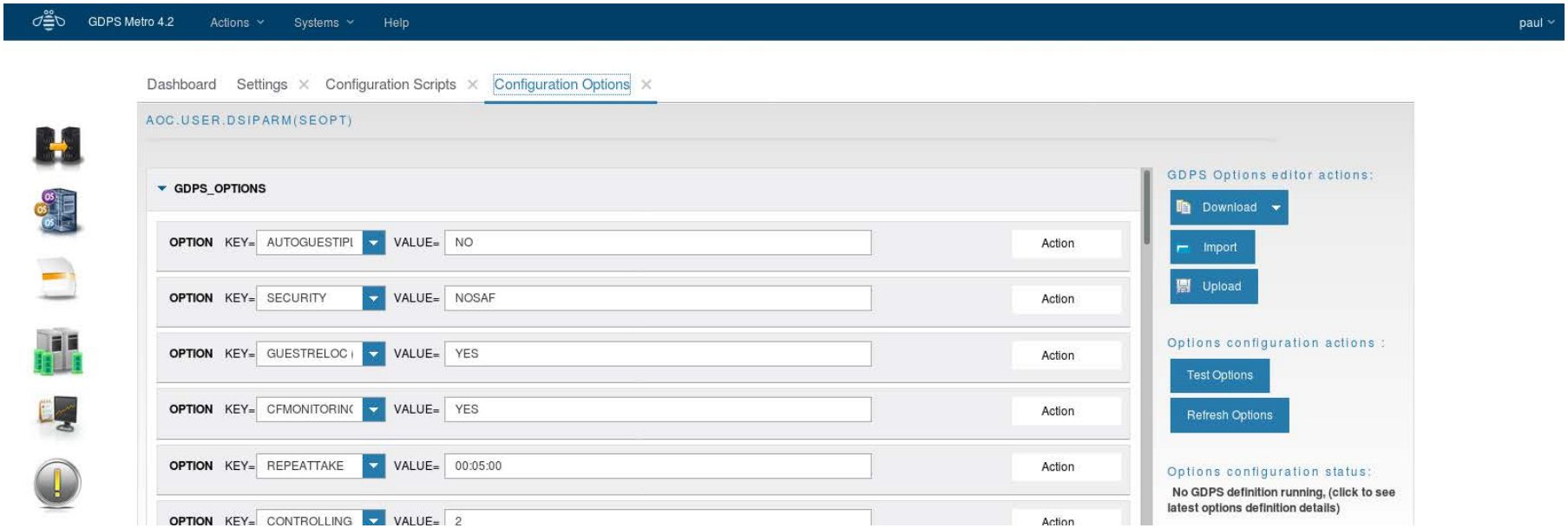


# GUI Installation changes

- New RACF definitions to allow Liberty web server to authenticate users
- New angel process (an STC) to enable z/os authorized services on Liberty
- New parameters in Liberty's bootstrap.properties file
- The config.properties file is no longer used by Liberty -the definitions are moved to GEOGROUP
- Shared infrastructure with the GDPS RESTful API

# GDPS XML GUI Editor

- Allows editing scripts, options and GEOPARM
- Simplified operations
- Syntax and semantic pre-checking, reducing risk of errors

# GUI IVP

- New panels to validate sub-function installation
  - GUI (4.2 GA)
  - xDR (4.2 GA)
  - …
- Accessible thru GDPSIVP command.

```
VPCPGUIK          GUI Installation Verification Program

    SYSNAME          = GAC2                              DATE  = 04/08/19
    DOMAIN ID        = A6PA4                             TIME  = 10:44
    OPERATOR ID      = IVAN

 GUI installation path: /usr/lpp/GDPS/V4R2M0

 GUI URL:                  http://:9080/org.ibm.gdps/login
                           https://:9443/org.ibm.gdps/login

 GUI zFS:                  OK(GDPS.MTMM420.GAC2.SGDPZFS)
 GUI task:                 STOPPED
 GUI angel:                STOPPED

 GUI operator:             ACTIVE(AUTWEBUI)
 GUI daemon:               STARTED on port 1995

 GUI IVP Check completed at 10:43:47



Selection ===>
  F1=Help    F3=Return    F5=Refresh    F6=Roll
```

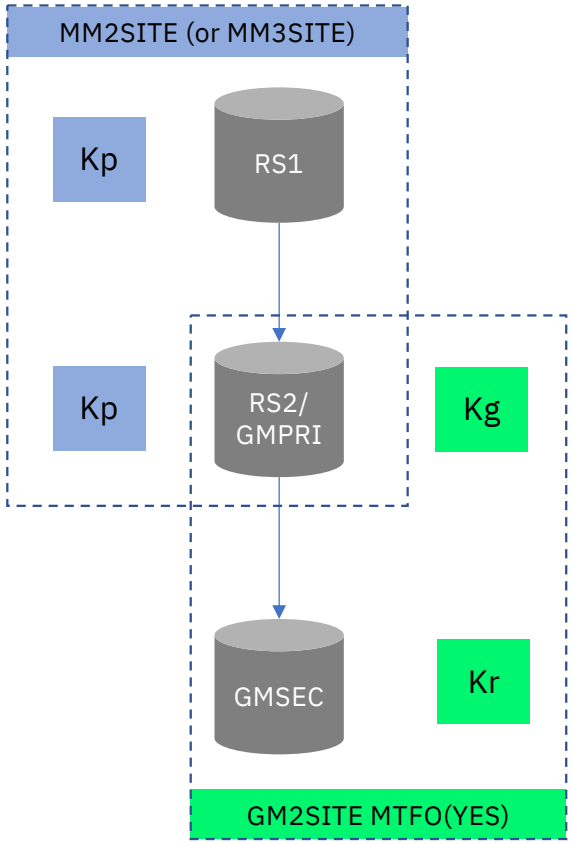
# GDPS Metro - Miscellaneous

- DASD script statements no longer supported in production systems
- GDPS HMT no longer requires UID(0) for AUTETHM
- Support for thinly provisioned PPRC devices from fully provisioned devices (migration - rolled back to 3.14 and 4.1 via PH08239)
- z/OS Proxy – wait state loaded when system is RESET
- New z/OS Proxy MODIFY QUERY LEVEL command + performance enhancements (increased buffer space)
- Restriction on use of BTRFS is lifted for xDR Linux
- Transparent Cloud Tiering and Hyperlink (write) – Mop verification testing

# GDPS GM and MGM highlights

# TOPOLOGY GM2SITE MTFO(YES)

- Up to and including GDPS/PPRC 3.14, clients could specify THREESITE=CASCADE in their GEOPLEX OPTIONS
- Indicates that a GM replication leg is cascaded without MGM Incremental Resync capability from GDPS/PPRC secondary disks
- The equivalent support is now introduced via the TOPOLOGY GM2SITE MTFO(YES) option
- Allows an MM2SITE and GM2SITE combination to be established/tolerated. Solutions operate independently and are not part of the same GEOGROUP group

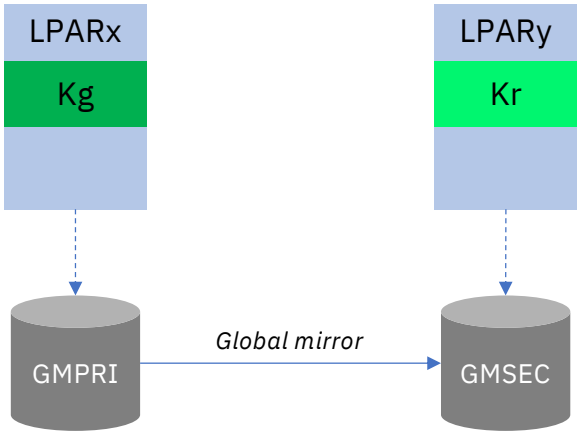



Designed to be used as a physically isolated LCP replication leg in a GDPS Metro solution

Can also be adopted by clients who have no connectivity between Region-A RS1 and Region-B RS1 site (i.e. no MGM Incremental Resynchronization capability)

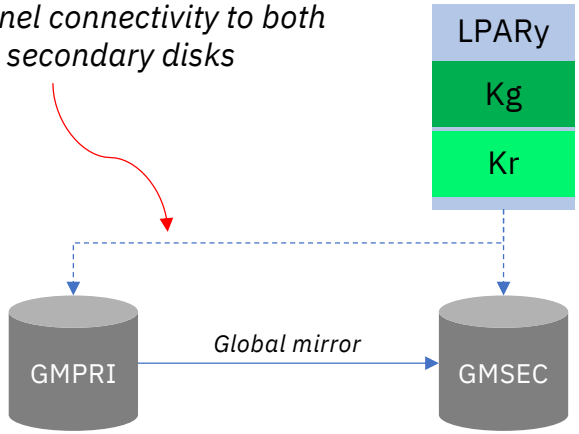
# Hosting the Kg and Kr NetViews in the same LPAR

- Kg and Kr Netviews can run in the same LPAR. This configuration is NOT recommended for full Disaster Recovery capability.
- It is designed to be used in an LCP configuration where the client needs to maintain a physically isolated replication leg in a GDPS Metro solution




*Standard setup*

*The LPAR hosting both the Kg and Kr NetViews require FICON channel connectivity to both the GM primary and secondary disks*




*New setup*

# Other GDPS GM and MGM Highlights

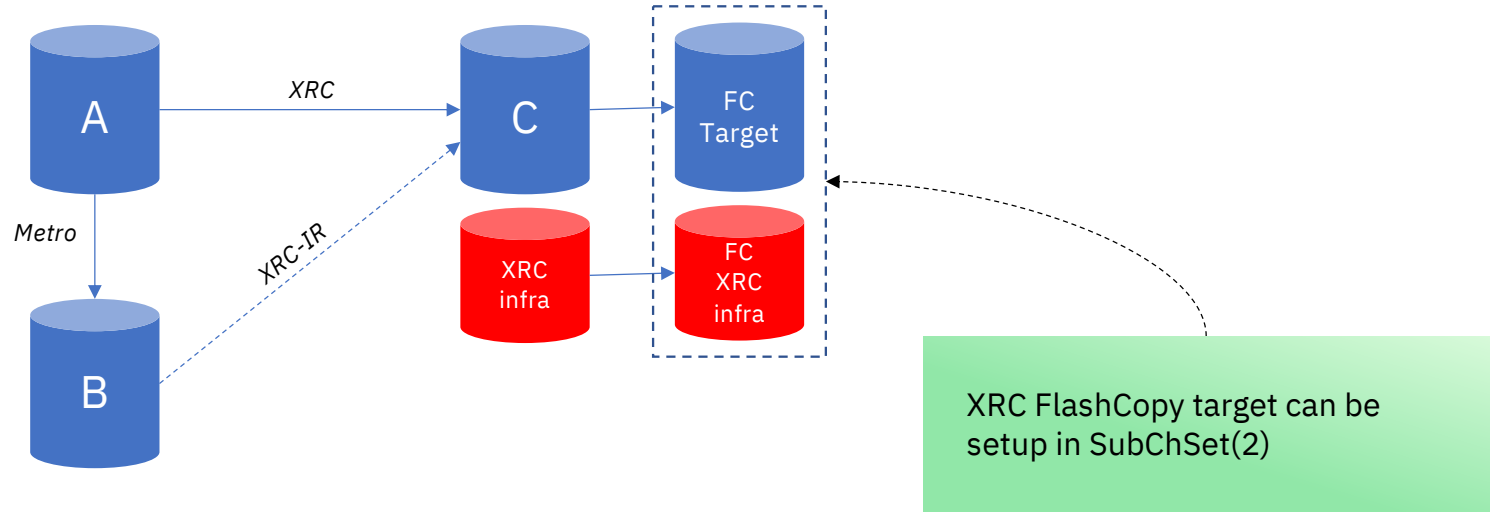
- Improved SDF trace reporting for replication related error events
- SCRIPT and OPTIONS UET now in XML format
- GDPS GUI Installation changes
- GDPS HMT no longer requires UID(0) for AUTETHM
- MAT INGMSGGP now GEOMSG01 and managed by GDPS development (OA56473)

GUIDE SHARE EUROPE UK REGION

# GDPS XRC and MzGM highlights

# XRC FlashCopy targets in Subchset(2)

- XRC Recovery can use alternate subchannel set devices 2
- New GEOXPARM option in GDPS 4.2: **USEMSSFC=Y**



# GDPS XRC and MzGM Highlight

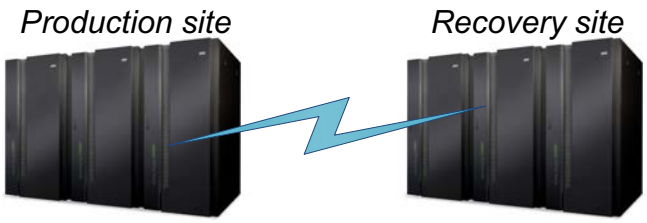
- REFRESHS script/panel command support to update XRC secondary disk information. This support can be leveraged during hardware refresh of  XRC secondary DS8K

GUIDE SHARE EUROPE UK REGION

# Extending recovery beyond GDPS

IBM Batch Resiliency and GDPS

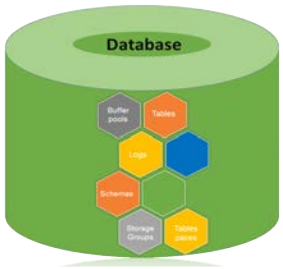
# GDPS and IBM Z Batch Resiliency – Recovery Beyond the Infrastructure




GDPS brings you to a state of data consistency at the Recovery site

*Database management software restores transactional integrity on restart*

*Recovery site*




Database management subsystem restart takes care of backing out in-flight transactions ready to commence OLTP workloads

IZBR provides an Auditable, Actionable, Repeatable recovery process that can prove your compliance because IZBR provides a three-pronged data management approach to know:

- How it's used
- Who's using it
- Where the data is located

*But who restores transactional integrity for batch? There are no logs, journals or DBMS tools for batch…until IZBR*

*Recovery site*

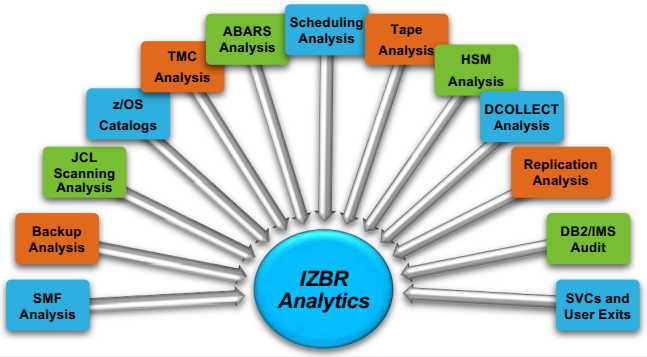
```
Cascade Impact Report for STEP

Job name  : ATMJD010
Job id    : JOB11235
Step name : ATM00UPD
Step start: 2018/09/25 02:58:25.36
Step end  : 2018/09/25 03:08:26.52

------------------------------------------------ ------------------------------ -------- --------
Dataset name                                     Affected D/T                   Jobname  Jobid    Stepname
------------------------------------------------ ------------------------------ -------- --------
ATM.NEWTXS.PS.G0010V00                           2018/09/25 02:58:28.46 ATMJD010 JOB11235 ATMJD010
ATM.DDATXS.PS.G0011V00                           2018/09/25 02:58:28.46 ATMJD010 JOB11235 ATMJD010
ATM.DDATXS.PS.G0011V00                           2018/09/25 03:22:26.38 DDAJD004 JOB11259 DDA00ACT
DDA.ACTTXS.PS.G0012V00                           2018/09/25 03:22:26.38 DDAJD004 JOB11259 DDA00ACT
DDA.TXSHST.VSAM                                  2018/09/25 03:22:26.38 DDAJD004 JOB11259 DDA00ACT
================================================================================================================

TOTAL DATA SETS IMPACTED: 4
================================================================================================================
```

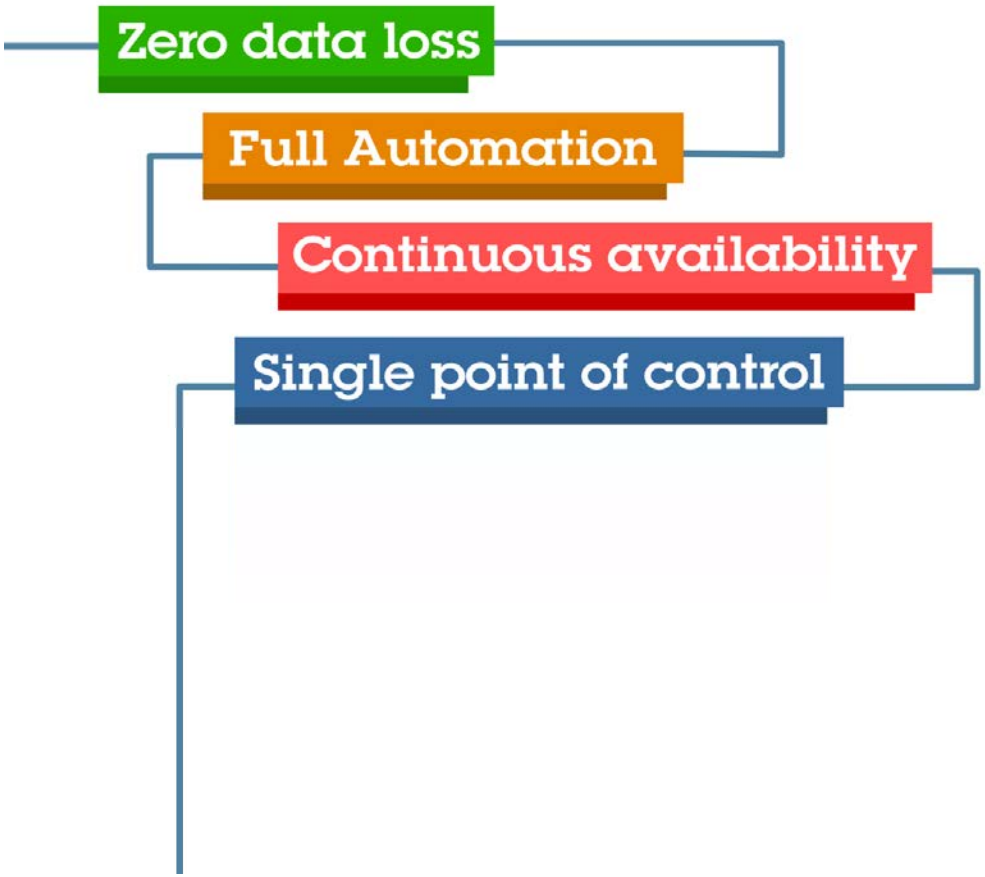
IZBR knows the downstream affects of in doubt data




IZBR leverages the power of the Z environment for up-to-date information surrounding the current state of batch processing

IZBR: IBM Program number 5698-BR1 & http://ibm.biz/IZBR_Announcement

# GDPS Roadmap




- Four main themes for the future GDPS deliverables
  - Solution Vitality
    - Support new functions in H/W or S/W
  - Ease of use improvements
    - Easier to install, use and manage
  - Security
    - Introduce new SAF support
    - Finer grained security
  - Logical Corruption Protection/Cyber Resiliency
    - Protect your data from new threats

# Additional Information

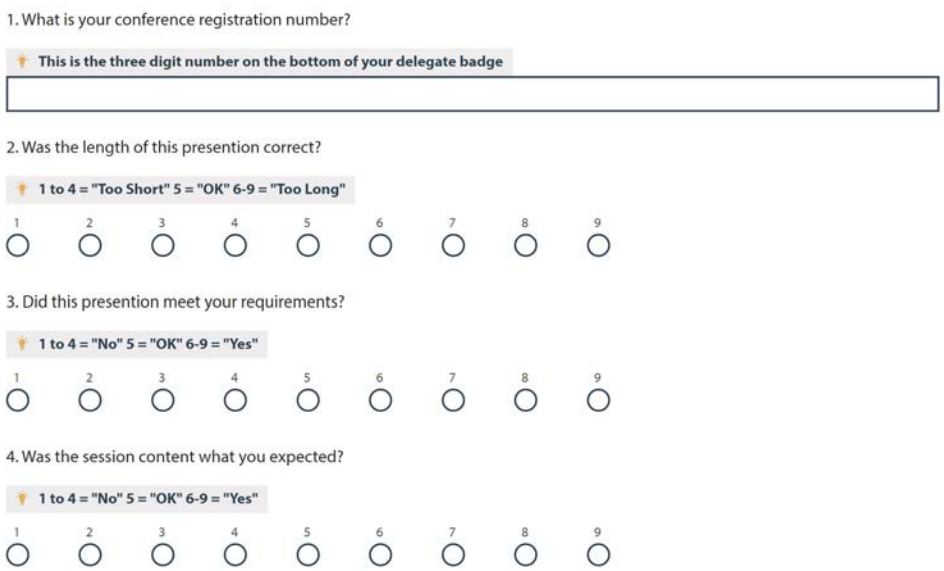
- Web sites:
- GDPS https://www.ibm.com/it-infrastructure/z/technologies/gdps
- IBM Z https://www.ibm.com/it-infrastructure/z
- IBM Z Resiliency https://www.ibm.com/it-infrastructure/z/capabilities/resiliency
- Storage https://www.ibm.com/it-infrastructure/storage
- Redbooks GDPS Family: An Introduction to Concepts and Capabilities http://www.redbooks.ibm.com/abstracts/sg246374.html?Open

- GDPS Web site resources
- GDPS: The Enterprise Continuous Availability / Disaster Recovery Solution white paper
- GDPS pre-requisite information
- GDPS training schedule
- GDPS hardware qualification letters

- e-mail: gdps@us.ibm.com

# Please submit your session feedback!

- Do it online at http://conferences.gse.org.uk/2019/feedback/BE
- This session is BE


1. What is your conference registration number?

This is the three digit number on the bottom of your delegate badge

2. Was the length of this presention correct?

1 to 4 = "Too Short" 5 = "OK" 6-9 = "Too Long"

1 2 3 4 5 6 7 8 9

3. Did this presention meet your requirements?

1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

4. Was the session content what you expected?

1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9