Safeguarded Copy support in z/TPF

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Systems Control Program

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What is IBM Safeguarded Copy?

Announced in July 2021 Safeguarded Copy is a protection mechanism for data on DS8000 storage systems.

Safeguarded Copy backups provide the ability to create cyber-resilient, point-in-time copies of volumes of data.

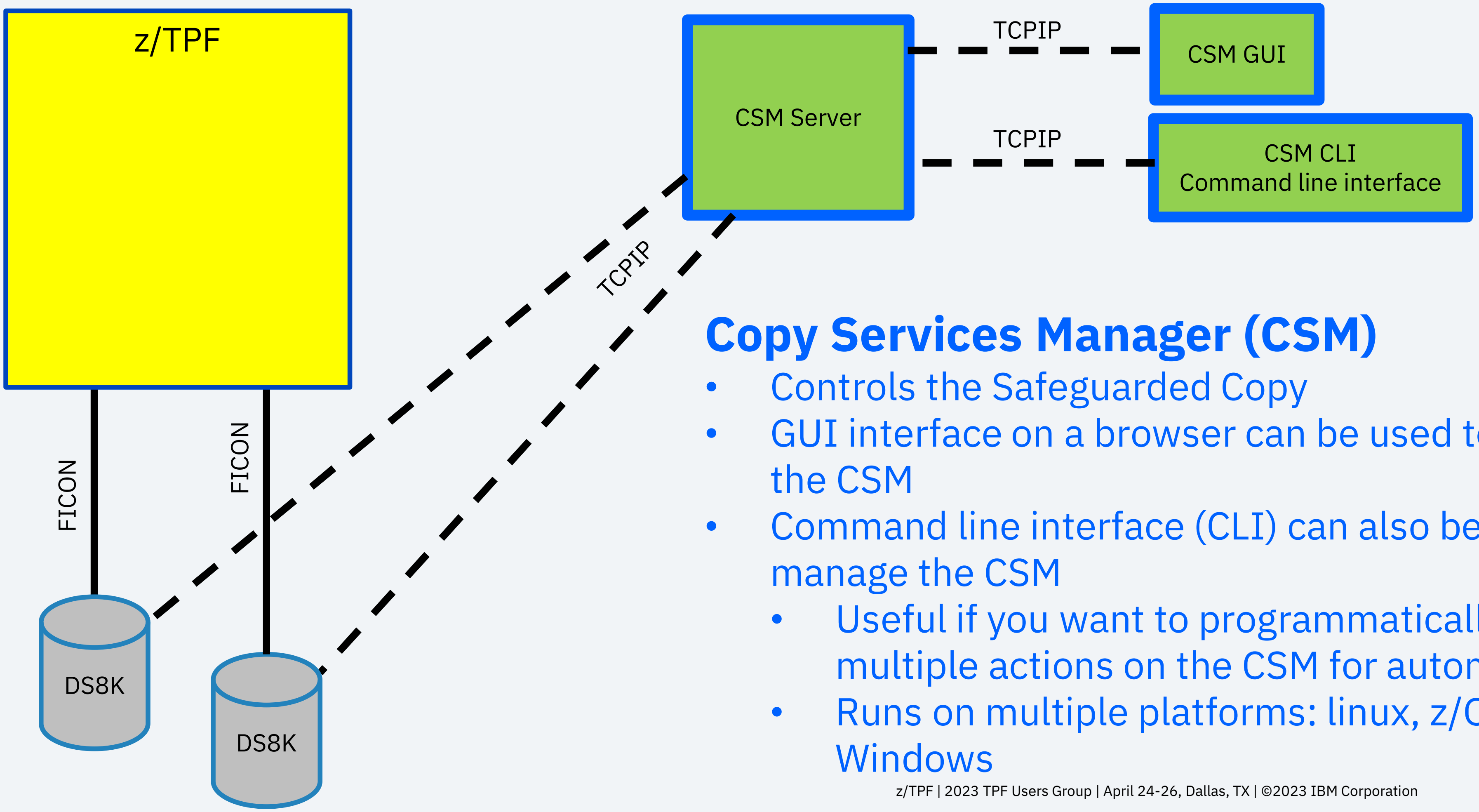
A Safeguarded Copy backup is put into a data vault that cannot be compromised, either accidentally or deliberately.

What is the value of IBM Safeguarded Copy?

Provides secure recovery from a malware or ransomware cyber attack or from an insider attack.

- A Safeguarded Copy backup is immutable, which provides protection against unauthorized manipulation.
- Safeguarded Copy backups can be run frequently.
  - Do a Safeguarded copy backup multiple times a day including during peak.
  - Restore to a point in time shortly before the cyber attack.
- Supports up to 500 point in time copies of production data.

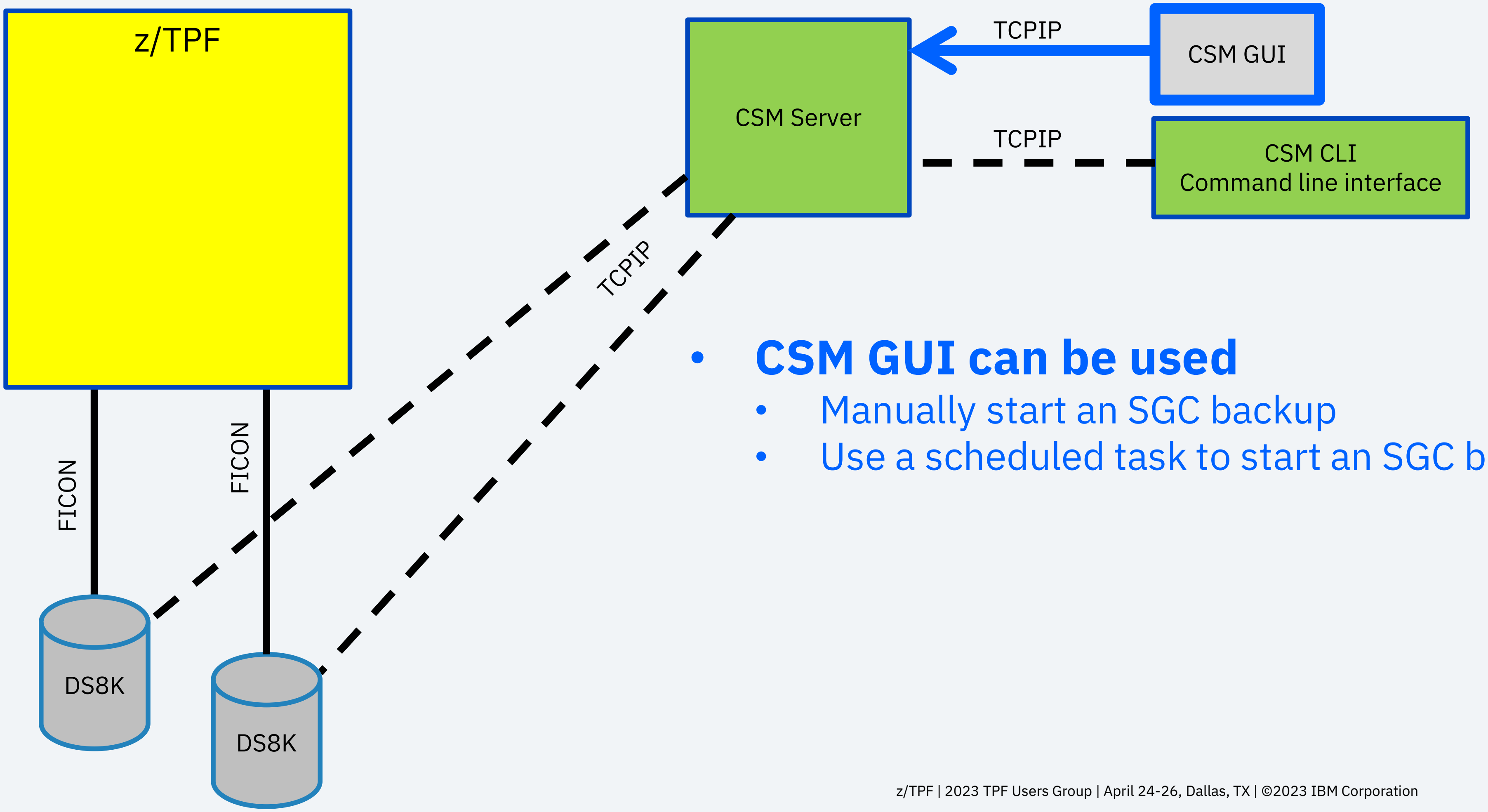
As-Is: Management of Safeguarded Copy



Copy Services Manager (CSM)

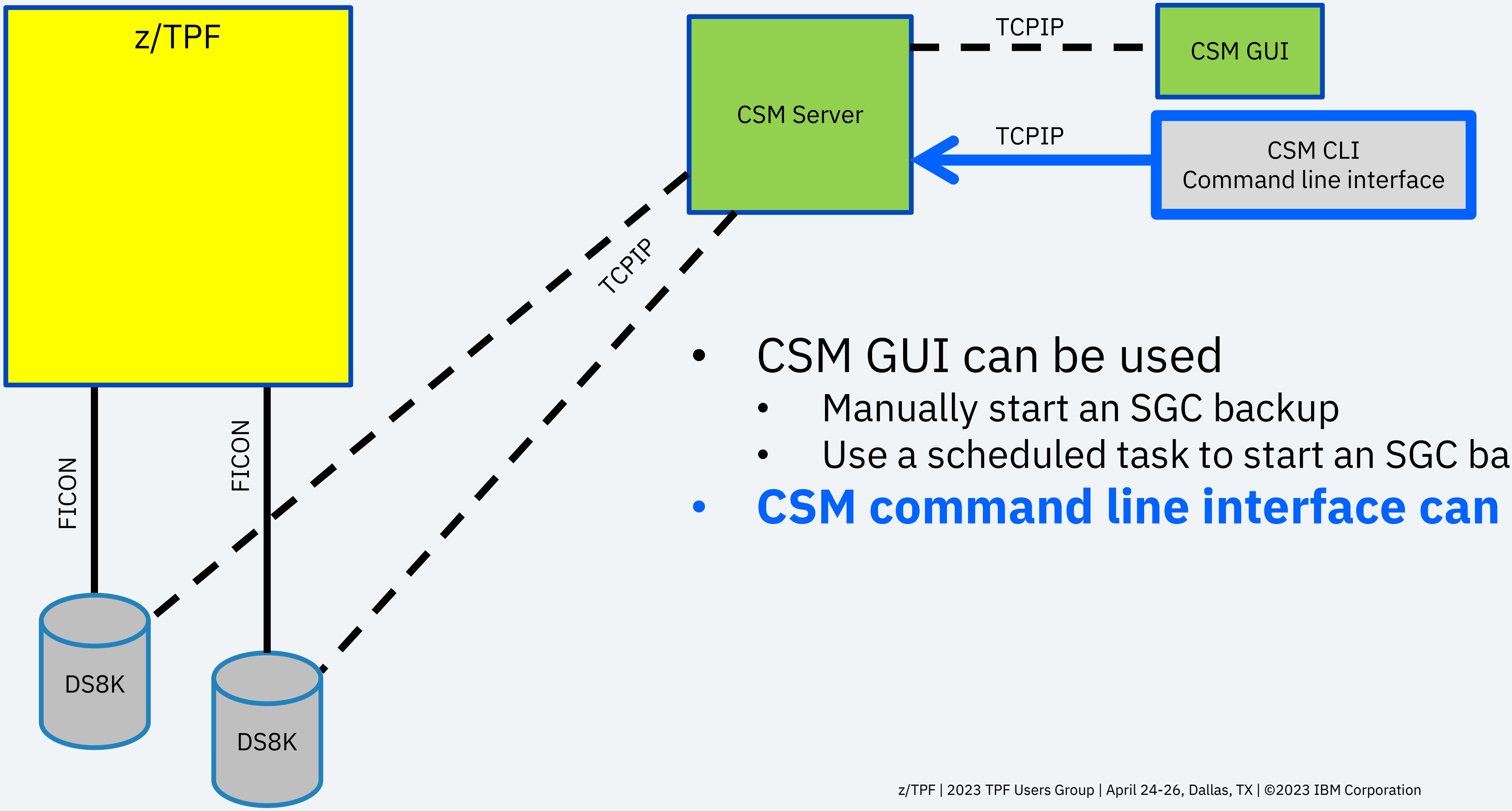
- Controls the Safeguarded Copy
- GUI interface on a browser can be used to manage the CSM
- Command line interface (CLI) can also be used to manage the CSM
  - Useful if you want to programmatically do multiple actions on the CSM for automation
  - Runs on multiple platforms: linux, z/OS, and Windows

As-Is: Start and control a Safeguarded Copy backup



- **CSM GUI can be used**
  - Manually start an SGC backup
  - Use a scheduled task to start an SGC backup

As-Is: Start and control a Safeguarded Copy backup

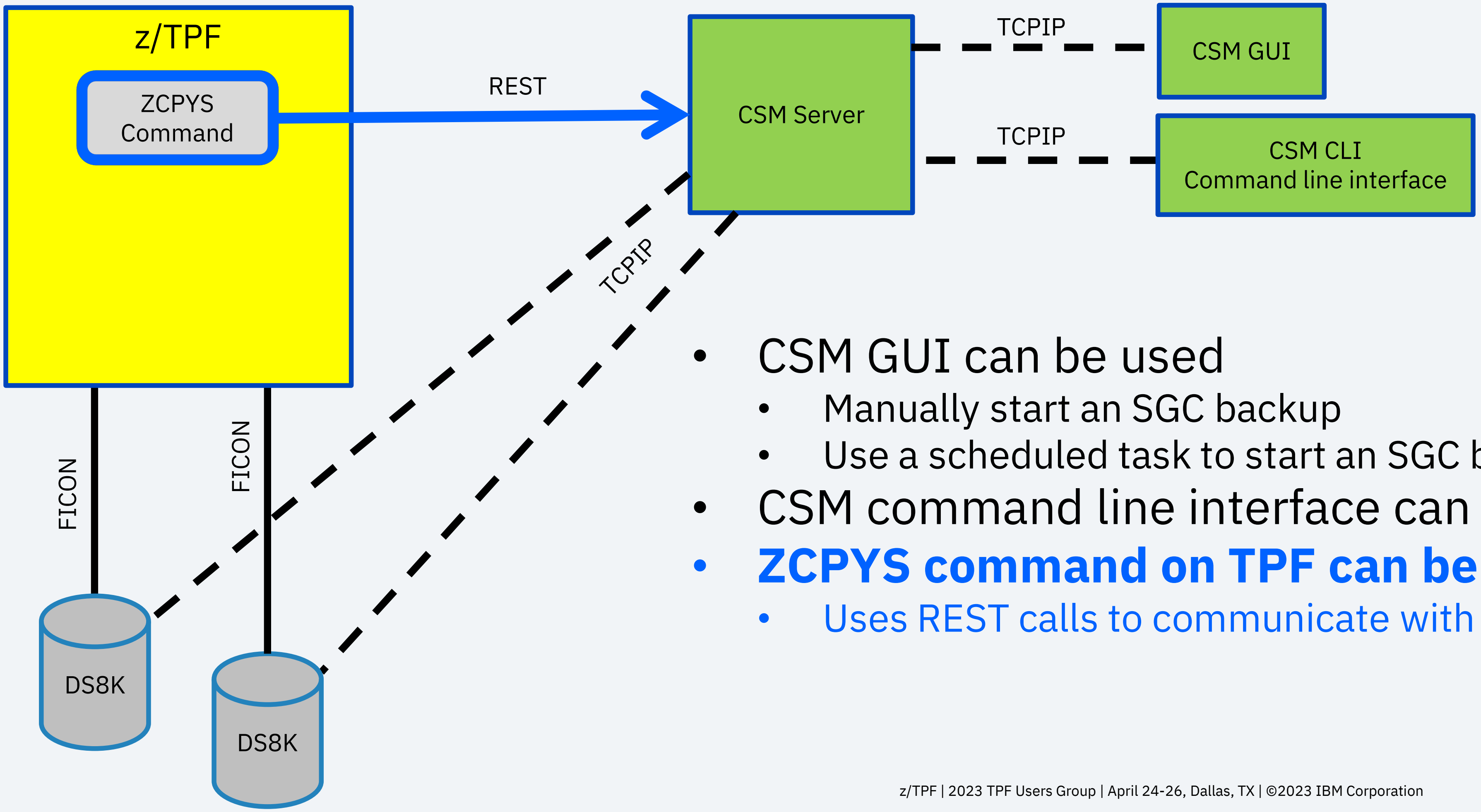


- CSM GUI can be used
  - Manually start an SGC backup
  - Use a scheduled task to start an SGC backup
- **CSM command line interface can be used**

Pain Point

To run Safeguarded Copy backup an operator must go to the CSM GUI or CSM CLI to start the backup. The operator must monitor both the z/TPF console and CSM interface.

To-Be: Start and control a Safeguarded Copy backup on z/TPF



- CSM GUI can be used
  - Manually start an SGC backup
  - Use a scheduled task to start an SGC backup
- CSM command line interface can be used
- **ZCPYS command on TPF can be used**
  - Uses REST calls to communicate with the CSM

Technical Details: ZCPYS PROFILE

ZCPYS PROFILE command manages the interface

- Must create a profile for the CSM that will be used
- A profile contains the following information
  - HOSTNAME (of the CSM)
  - PORT (to be used)
  - USERNAME (defined on the CSM)
  - PASSWORD (defined on the CSM)
  - HA (CSM high availability is in use)
- A profile can exist for the Active and Standby CSM

Technical Details: ZCPYS PROFILE

```
==> ZCPYS PROFILE DISPLAY
CSMP0097I 11.05.24 CPU-B SS-BSS  SSU-HPN  IS-01 _
CPYS0004I 11.05.24 COPY SERVICES MANAGER SERVER PROFILE SETTINGS

 ACTIVE SERVER PROFILE
  HOSTNAME: 9.114.201.108
  PORT: 9559
  USERNAME: csmadmin
  Password Set: Yes

 STANDBY SERVER PROFILE
  HOSTNAME:
  PORT:
  USERNAME:
  Password Set: No
  _
 High-availability environment required: No
 Response timeout: 200
END OF DISPLAY+
```

Technical Details: Safeguarded Copy

For Safeguarded Copy, a user can do the following:

- ZCPYS SGC DISPLAY to display a list of the Safeguarded Copy sessions that are defined on the CSM.
- ZCPYS SGC DISPLAY SESSION-*session_name* to display information about a session.
- ZCPYS SGC BACKUP SESSION-*session_name* to start a Safeguarded Copy backup.

Technical Details: Safeguarded Copy

```
==> ZCPYS SGC DISPLAY
CSMP0097I 11.13.19 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0001I 11.13.19 A REST REQUEST IS BEING SENT TO THE COPY SERVICES MANAGER.
COMMAND - ZCPYS SGC DISPLAY+

CSMP0097I 11.13.20 CPU-B SS-BSS  SSU-HPN  IS-01 _
CPYS0009I 11.13.20 SUMMARY OF SAFEGUARDED COPY SESSIONS
NAME                      STATUS           STATE            COPY RECOVER ERROR
                          DESCRIPTION
------------------------- ---------------- ---------------  ---  ---     ---   _
TPF Small Safeguarded     Normal           Protected        NO   YES     NO
                          Safeguarded Copy for 10 modules
TPFSafeguarded            Normal           Protected        NO   YES     NO
                          Safeguarded Copy for all primes and dupes            _
TPF_1mod_safeguarded      Normal           Protected        NO   YES     NO
                          Safeguarded Copy for 1 prime mod
END OF DISPLAY+
```

Technical Details: Safeguarded Copy

```
==> ZCPYS SGC BACKUP SESSION-TPFSafeguarded
CSMP0097I 11.14.10 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0001I 11.14.10 A REST REQUEST IS BEING SENT TO THE COPY SERVICES MANAGER.
COMMAND - ZCPYS SGC BACKUP SESSION-TPFSafeguarded+


CSMP0097I 11.14.19 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0005I 11.14.19 A REST RESPONSE WAS RECEIVED FROM THE COPY SERVICES MANAGER.
RESPONSE - IWNR1026I (Feb 20, 2023 11:14:19 AM) The Backup command in the
TPFSafeguarded session completed.
COMMAND - ZCPYS SGC BACKUP SESSION-TPFSafeguarded+
```

Technical Details: Safeguarded Copy

```
==> ZCPYS SGC DISPLAY SESSION-TPFSafeguarded
CSMP0097I 22.23.51 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0001I 22.23.51 A REST REQUEST IS BEING SENT TO THE COPY SERVICES MANAGER.
COMMAND - ZCPYS SGC DISPLAY SESSION-TPFSafeguarded+
CSMP0097I 22.23.53 CPU-B SS-BSS  SSU-HPN  IS-01 _
CPYS0010I 22.23.53 SAFEGUARDED COPY SESSION INFORMATION
 SESSION NAME: TPFSafeguarded
 STATUS: Normal             STATE: Target Available
 ACTIVE HOST: H1            COPY SETS: 116
 COPYING: NO    RECOVERABLE: YES   ERRORS: NO
 GROUP NAME:   _
 DESCRIPTION: Safeguarded Copy for all primes and dupes

BACKUP INFORMATION
 TOTAL: 7       SUCCESSFUL: 5       FAILED: 2
 BACKUP SEQUENCE: H1-B1              RECOVERY SEQUENCE: H1-R1
 LAST BACKUP TIMESTAMP: 2023-04-04 19:45:00 EDT
 LAST RECOVERABLE BACKUP TIMESTAMP: 2023-04-04 19:45:00 EDT
 LAST RESTORED BACKUP TIMESTAMP:  _
 TIMESTAMP WHEN BACKUP WAS RESTORED:
END OF DISPLAY+
```

Technical Details: FlashCopy

For FlashCopy, a user can do the following:

- ZCPYS FC DISPLAY to display a list of the FlashCopy sessions that are defined on the CSM.
- ZCPYS FC DISPLAY SESSION-session_name to display information about a session.
- ZCPYS FC FLASH SESSION-*session_name* to start a FlashCopy session.

Technical Details: FlashCopy

```
==> ZCPYS FC DISPLAY
CSMP0097I 11.29.50 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0001I 11.29.50 A REST REQUEST IS BEING SENT TO THE COPY SERVICES MANAGER.
COMMAND - ZCPYS FC DISPLAY+

CSMP0097I 11.29.50 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0014I 11.29.50 SUMMARY OF FLASHCOPY SESSIONS
NAME                      STATUS           STATE            COPY RECOVER ERROR
                          DESCRIPTION
------------------------  ---------------  ---------------  ---  ---     ---   _
TPF Flash                 Normal           Target Available NO   YES     NO
                          Test FlashCopy session
TPF Big Flash             Normal           Target Available NO   YES     NO
                          FlashCopy but more volumes
24x7_base-only_flash      Normal           Target Available NO   YES     NO
                          FlashCopy on non-loosely coupled system
END OF DISPLAY+
```

Technical Details: Scheduled task

CSM provides the ability to create a scheduled task, which allows the user to run actions like an SGC backup at a specified time. z/TPF provides the ability to run a scheduled task using the following ZCPYS commands.

- ZCPYS TASK DISPLAY to display a list of the scheduled tasks that are defined on the CSM.
- ZCPYS TASK RUN ASYNC ID-*task_id* to start a scheduled task and have it run asynchronously.
- ZCPYS TASK RUN SYNC ID-*task_id* to start a scheduled task and have it run synchronously.

Technical Details: Scheduled task

```
==> ZCPYS TASK DISPLAY
CSMP0097I 11.30.14 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0001I 11.30.14 A REST REQUEST IS BEING SENT TO THE COPY SERVICES MANAGER.
COMMAND - ZCPYS TASK DISPLAY+
CSMP0097I 11.30.19 CPU-B SS-BSS  SSU-HPN  IS-01
CPYS0012I 11.30.19 SUMMARY OF SCHEDULED TASKS
ID     NAME                                                    RUNNING ENABLED
       DESCRIPTION
-----  ------------------------                                ---     ---
                                                                               _
    1  TPF 1 mod task                                          NO      NO

    2  TPF Big Flash                                           NO      YES
                                                                               _
    3  TPF Small Safeguarded                                   NO      NO
                                                                               _
    4  24x7 LC flash                                           NO      NO
END OF DISPLAY+
```

Value Statement

An operator can use the z/TPF console to:

- Start a Safeguarded Copy backup
- Monitor Safeguarded Copy sessions
- Start a FlashCopy backup
- Monitor FlashCopy sessions
- Start a scheduled task

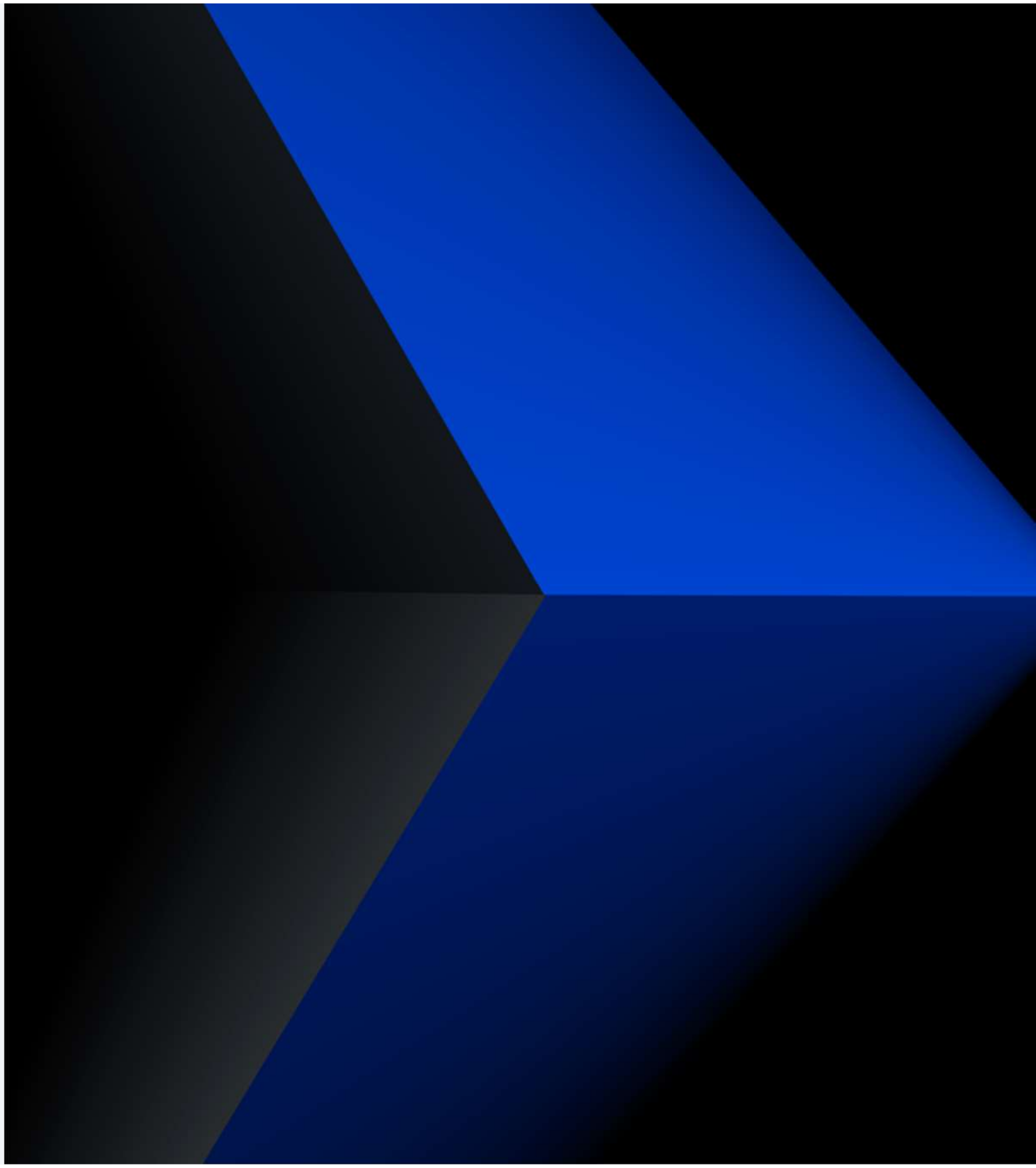
Conclusion

Two APARs were delivered in 2022.

- PJ46793 – Support for IBM Copy Service Manager REST APIs
  - Provides support for ZCPYS PROFILE and ZCPYS SGC
  - Delivered in September 2022
- PJ46910 – ZCPYS enhancement for FlashCopy and scheduled tasks
  - Provides support for ZCPYS FC and ZCPYS TASK
  - Delivered in December 2022

Disclaimer

Any reference to future plans are for planning purposes only. IBM reserves the right to change those plans at its discretion. Any reliance on such a disclosure is solely at your own risk. IBM makes no commitment to provide additional information in the future.



A Safeguarded Copy backup is a point in time backup

Internal steps to create the point in time backup

1. Create a reservation
   - Creates structures and prepares for the creation of a backup copy on all volumes in the consistency group (the volumes included in a Safeguarded Copy session).
   - IO request is made to every volume in the consistency group
2. Check in the reservation (freeze)
   - Inhibits writes to all volumes in the consistency group in order to create a consistent point in time for the backup copy. A long busy will be received after the check in.
   - IO request is made to every LSS in the consistency group for an SGC backup
3. Complete the check in (thaw)
   - Allow writes to all volumes in the consistency group and new updates to be stored in the log for the back up copy
   - IO request is made to every LSS in the consistency group

Problem Statement

IOs are inhibited to all volumes in the Safeguarded Copy consistency group as soon as the reservation check in has started (freeze starts) and continues until the check in has completed (thaw completes).

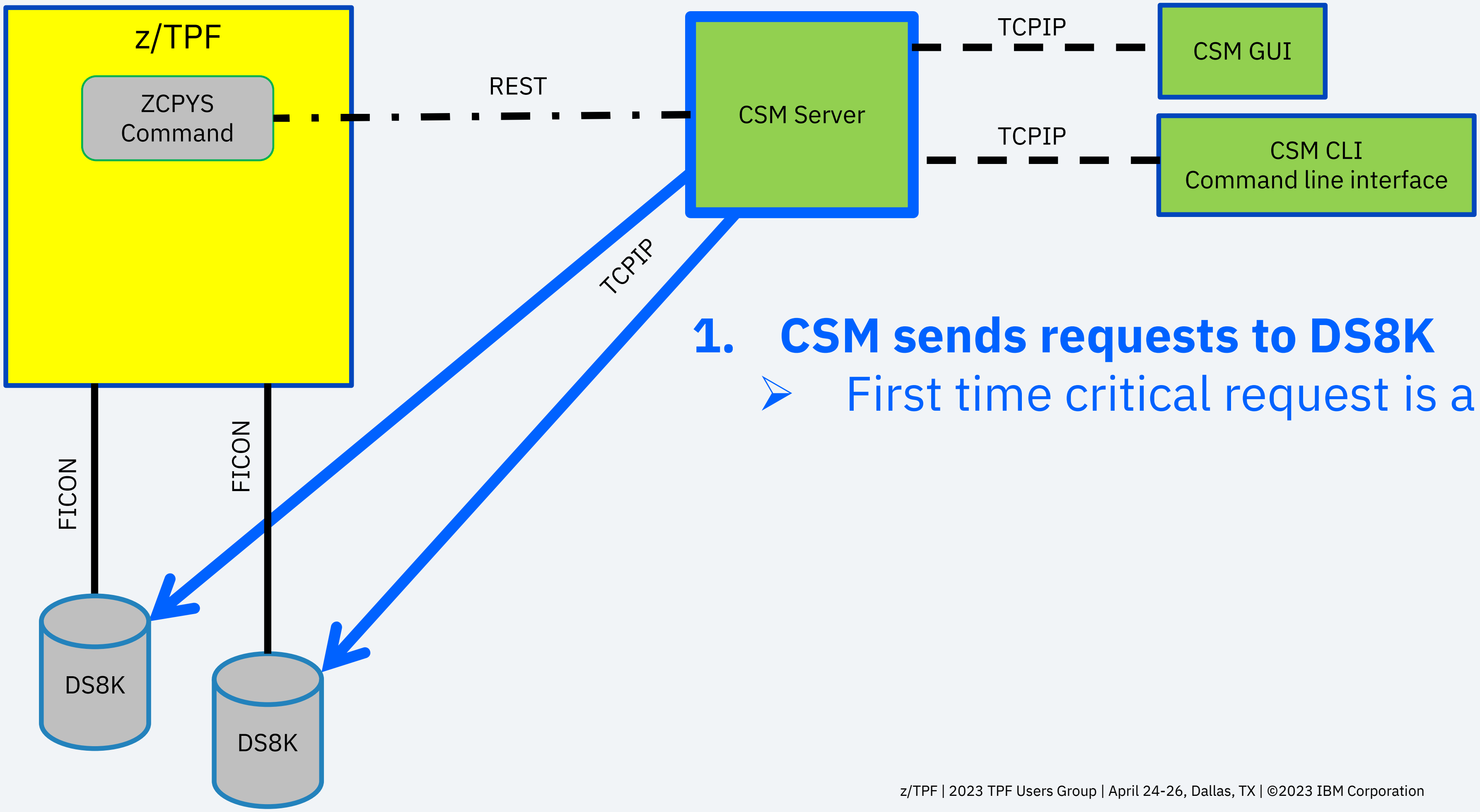
Note: all reservation check ins (freezes) must complete before the first check in completion (thaw) is started.

As-Is: Methods to communicate between the CSM and DS8K

1. CSM can send requests directly to the DS8K using TCP/IP
2. CSM can send requests to the DS8K through z/OS

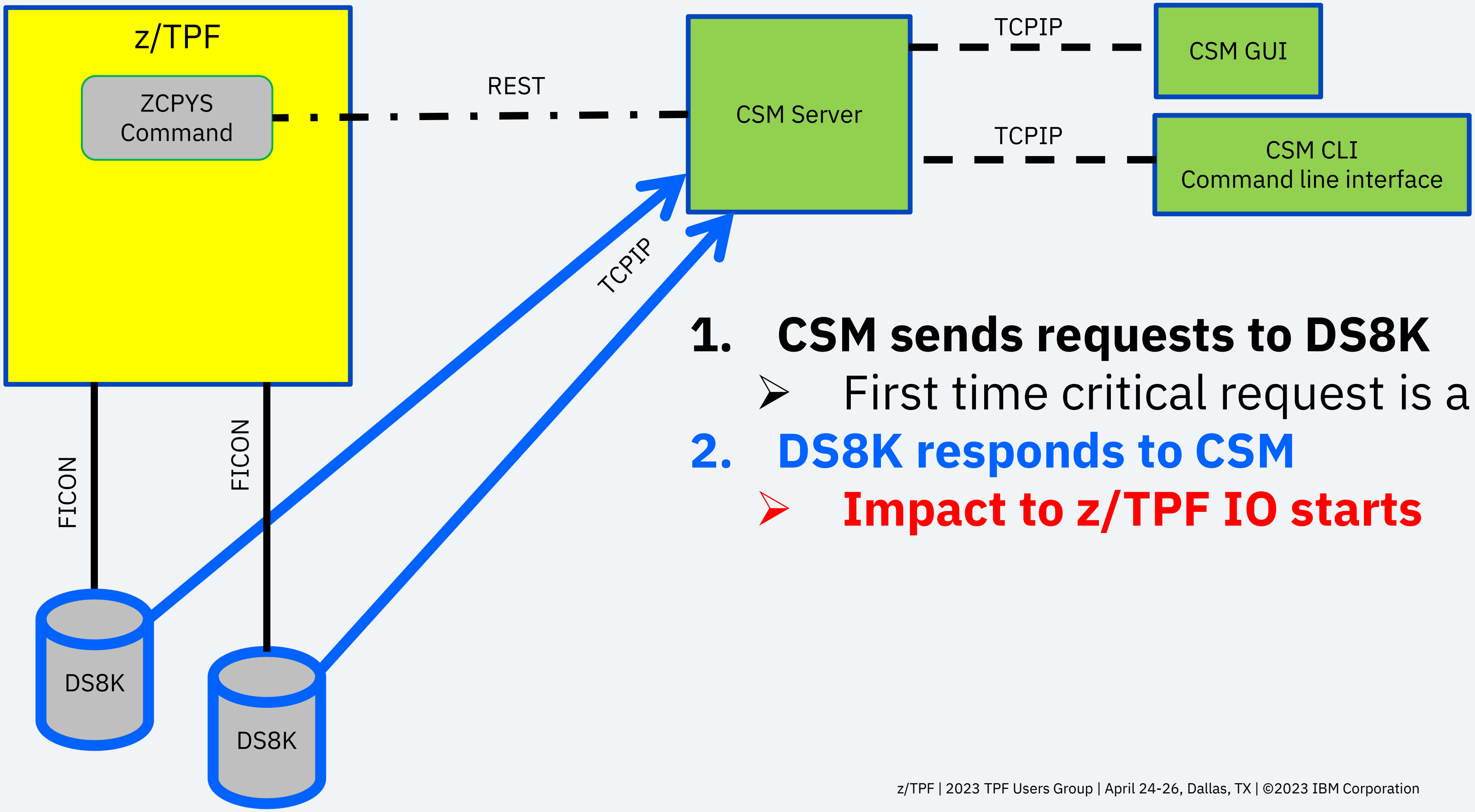
- CSM communicates to z/OS via TCP/IP
- z/OS executes CCWs requested by CSM
- z/OS returns results to CSM

As-Is: CSM sends requests to DS8K



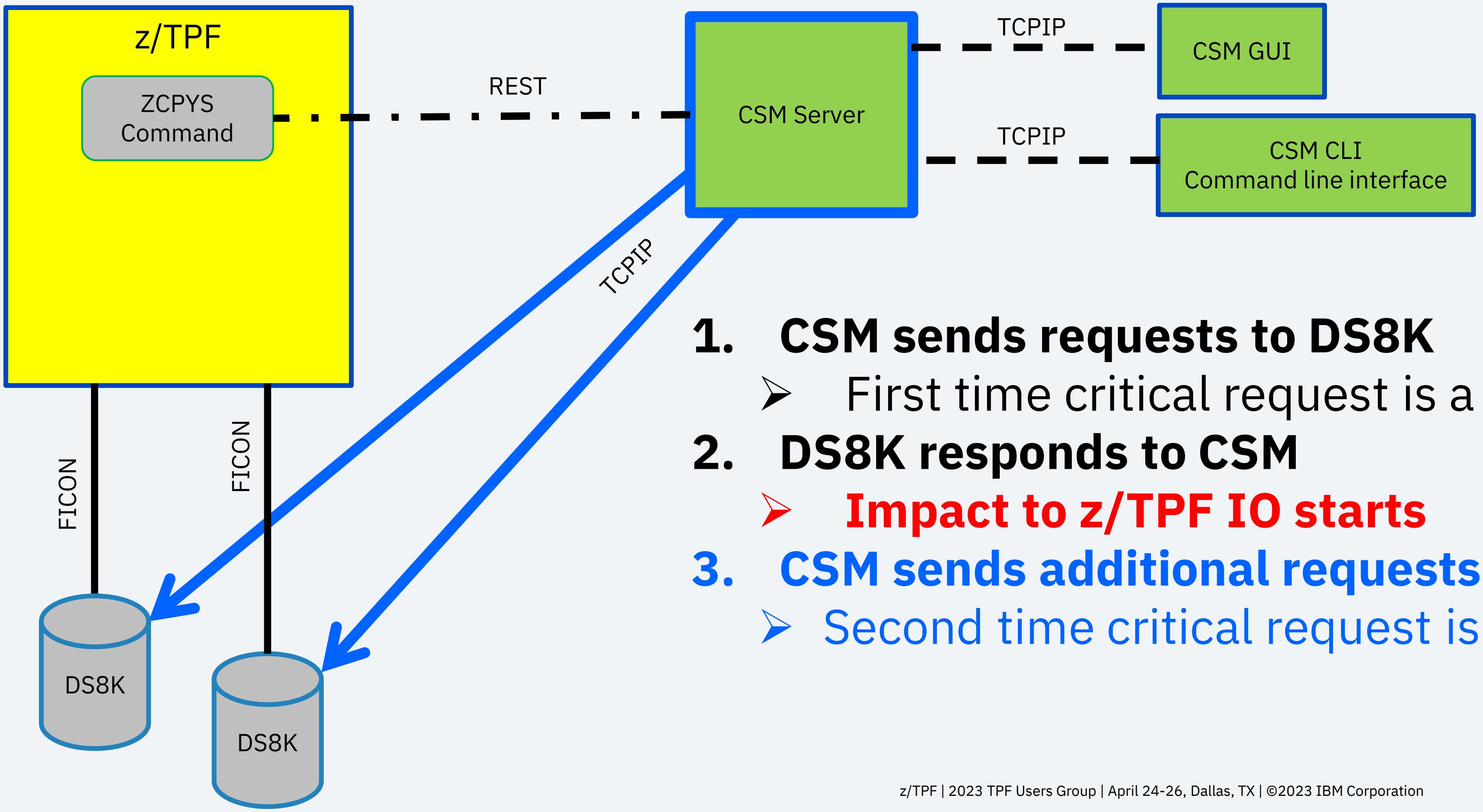
1. **CSM sends requests to DS8K**
   - ➢ First time critical request is a freeze

As-Is: DS8K responds to CSM



1. **CSM sends requests to DS8K**
   ➢ First time critical request is a freeze
2. **DS8K responds to CSM**
   ➢ **Impact to z/TPF IO starts**

As-Is: CSM sends additional requests to DS8K



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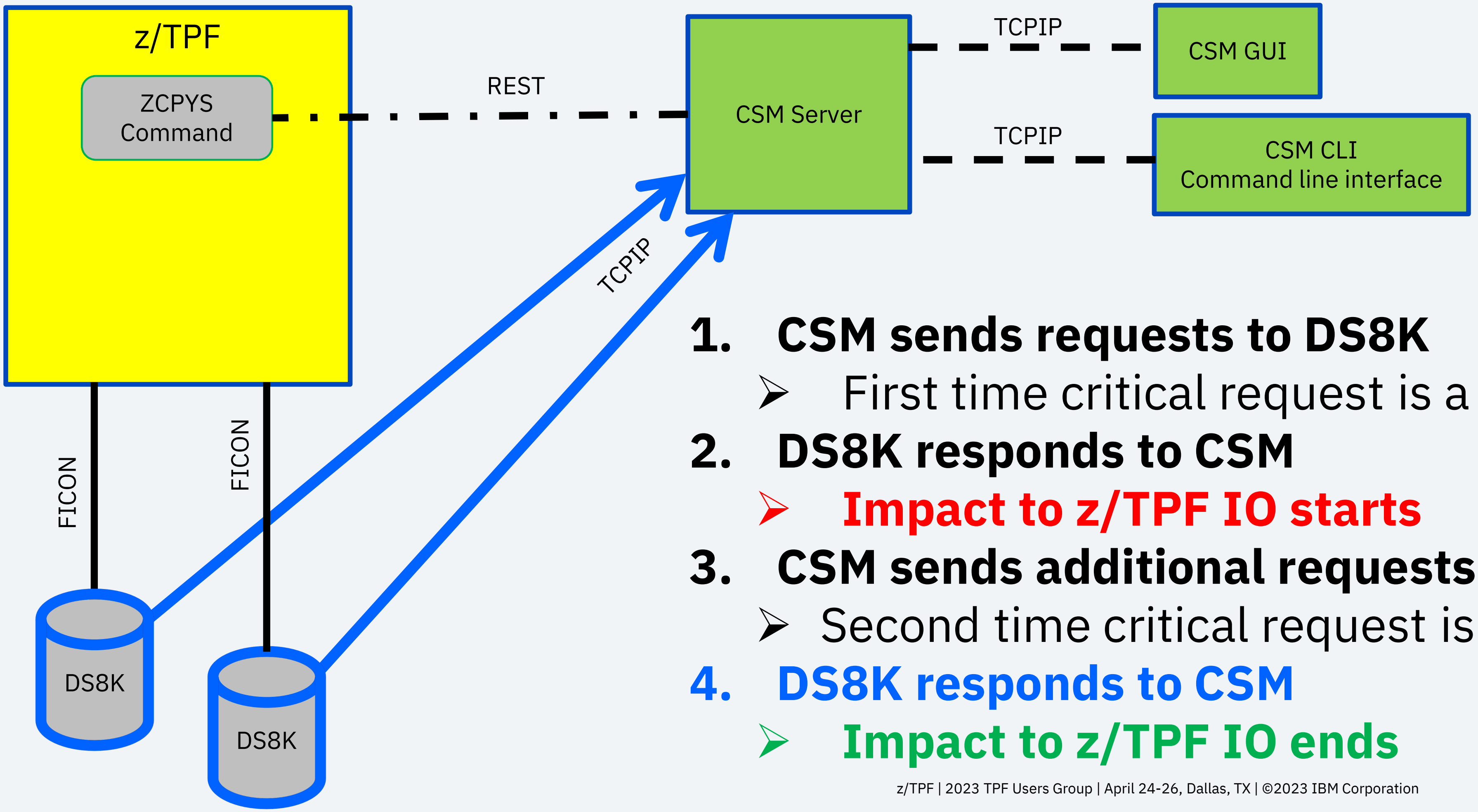

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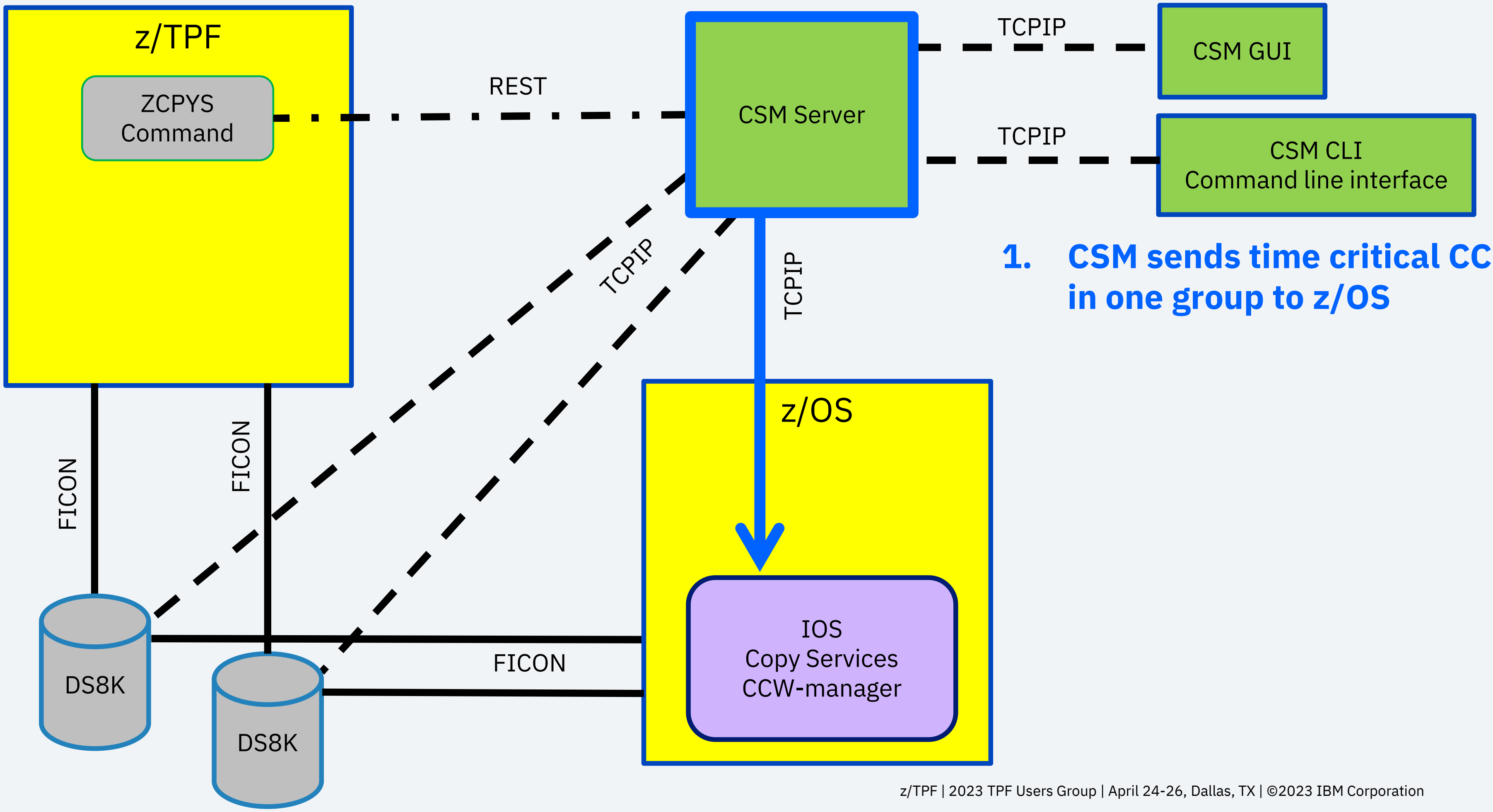
   - ➢ Second time critical request is a thaw
4. **DS8K responds to CSM**
   - ➢ **Impact to z/TPF IO ends**

Pain Points

Observations have shown that the time between the first freeze and last thaw can take multiple seconds. During this time period IO on z/TPF is stopped.

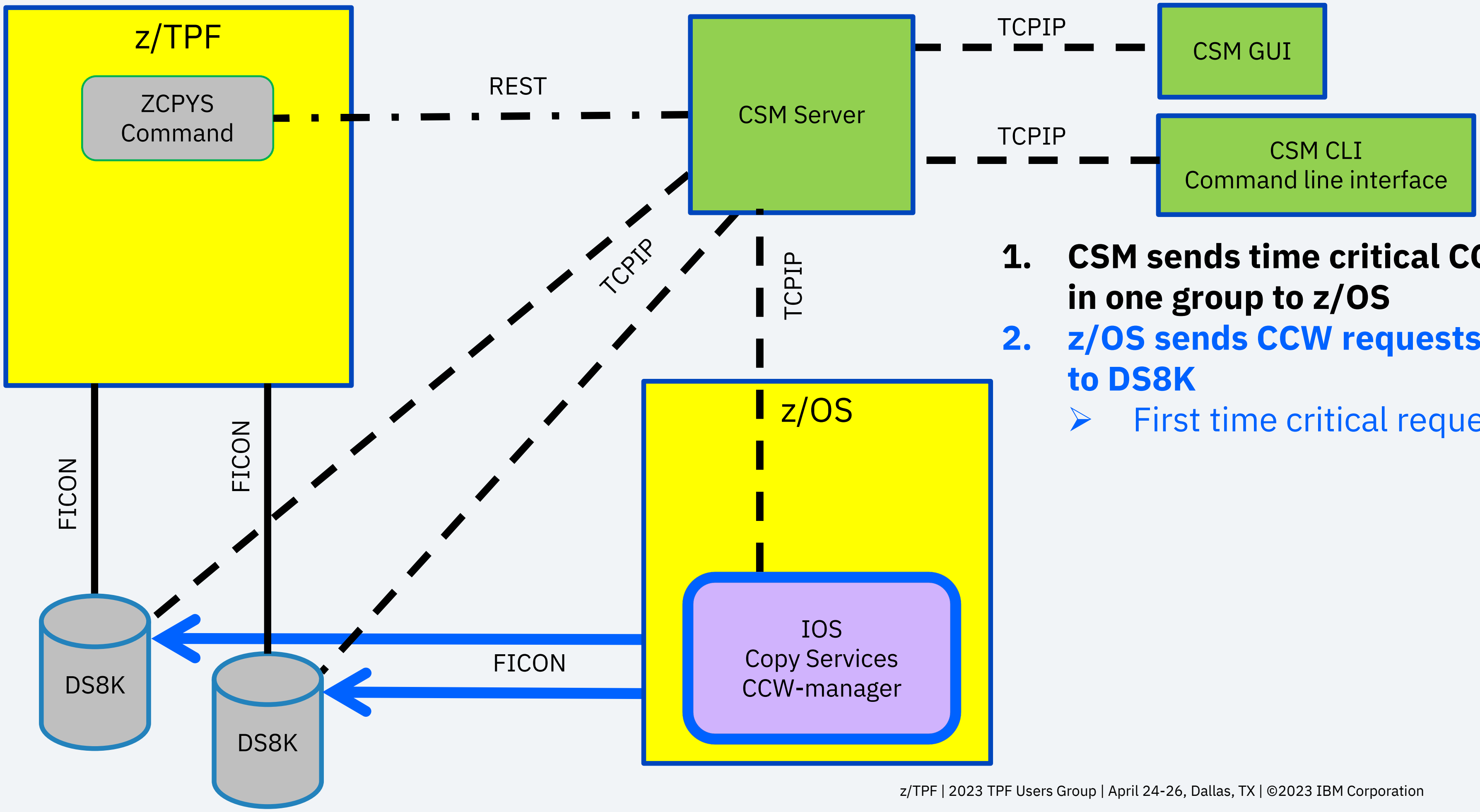
Latency of multiple messages sent using TCP/IP adds extra time between the freeze and thaw operations.

As-Is: CSM sends requests to z/OS



1. **CSM sends time critical CCW requests in one group to z/OS**

As-Is: z/OS executes CCW requests over FICON



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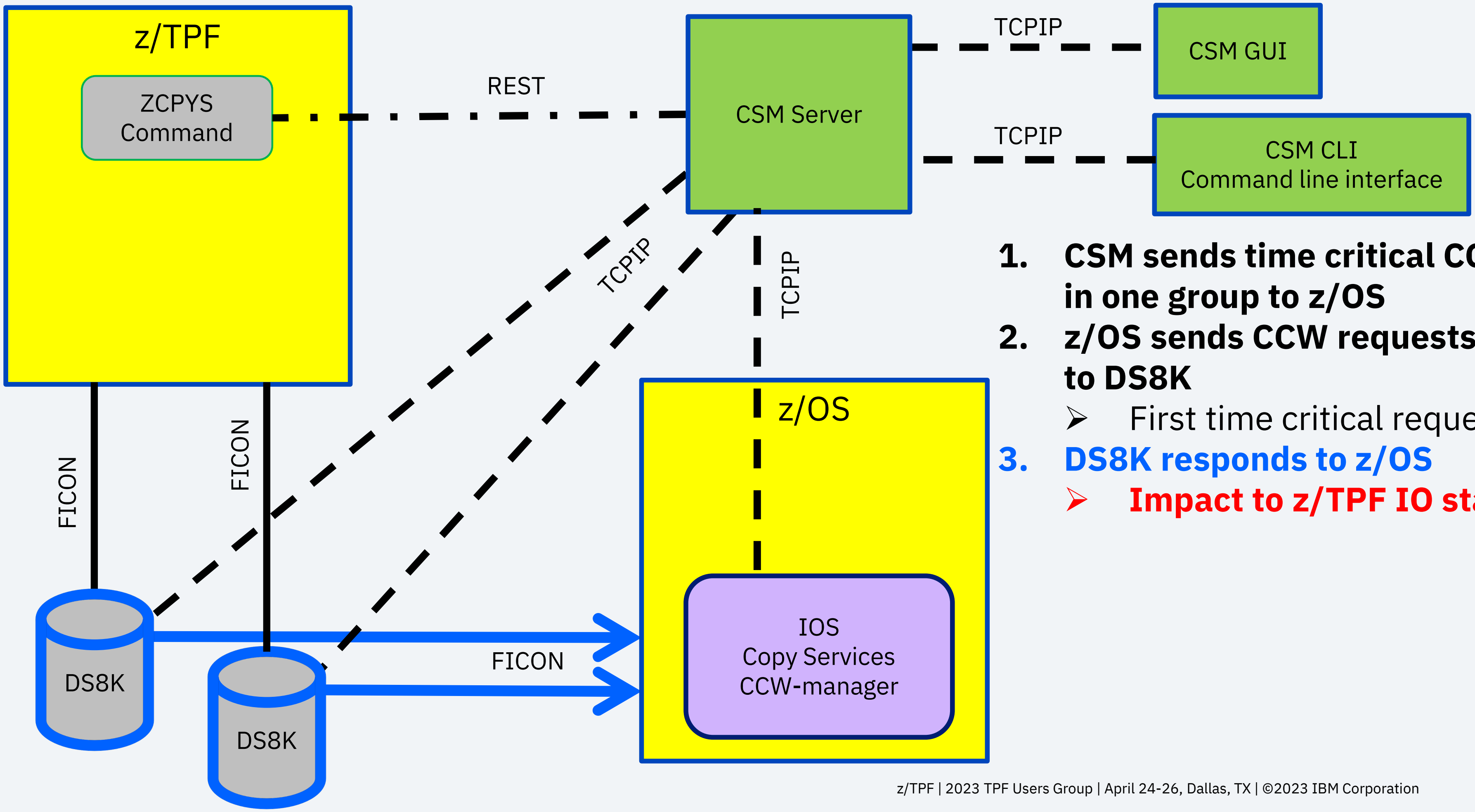

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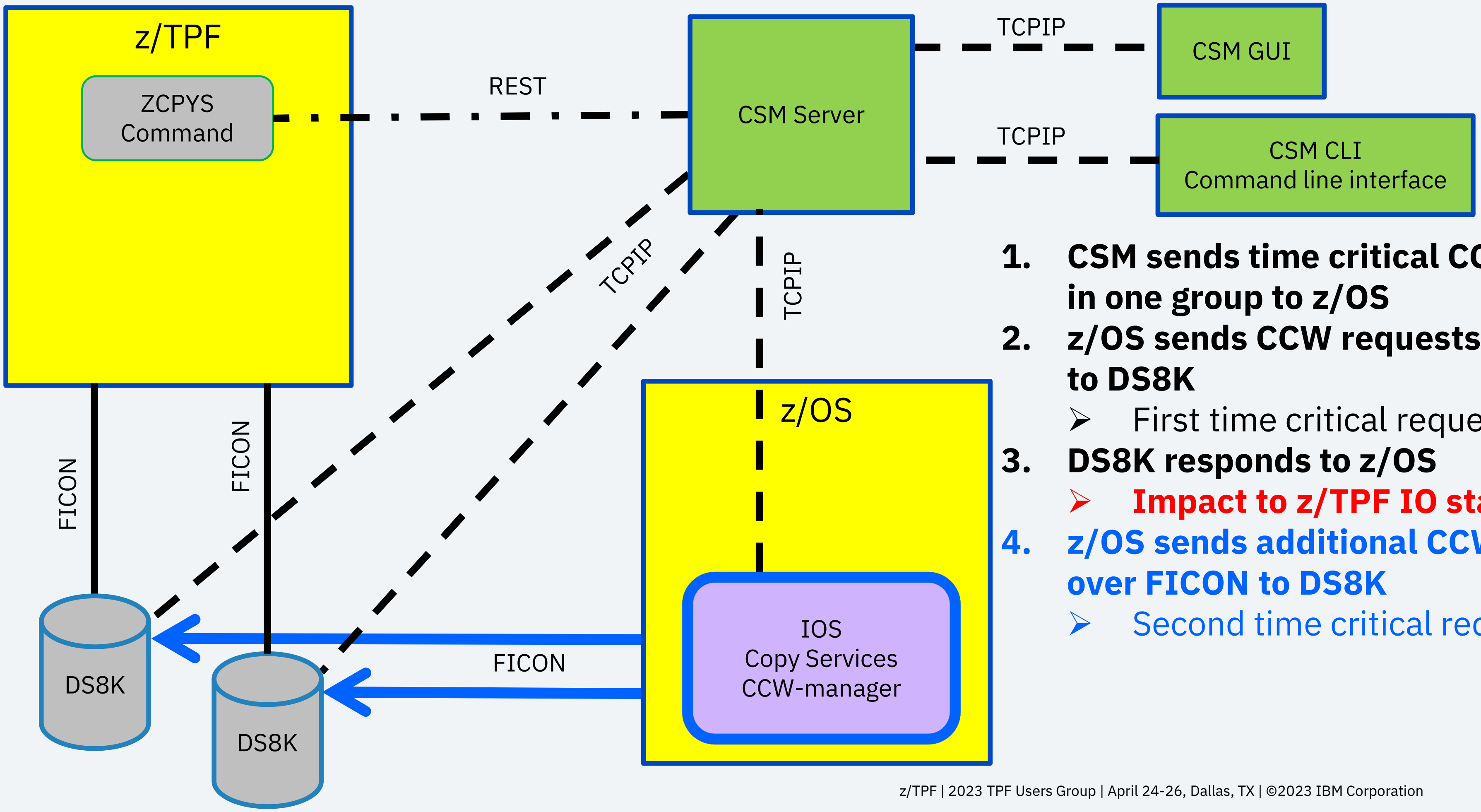
As-Is: z/OS executes additional CCWs over FICON



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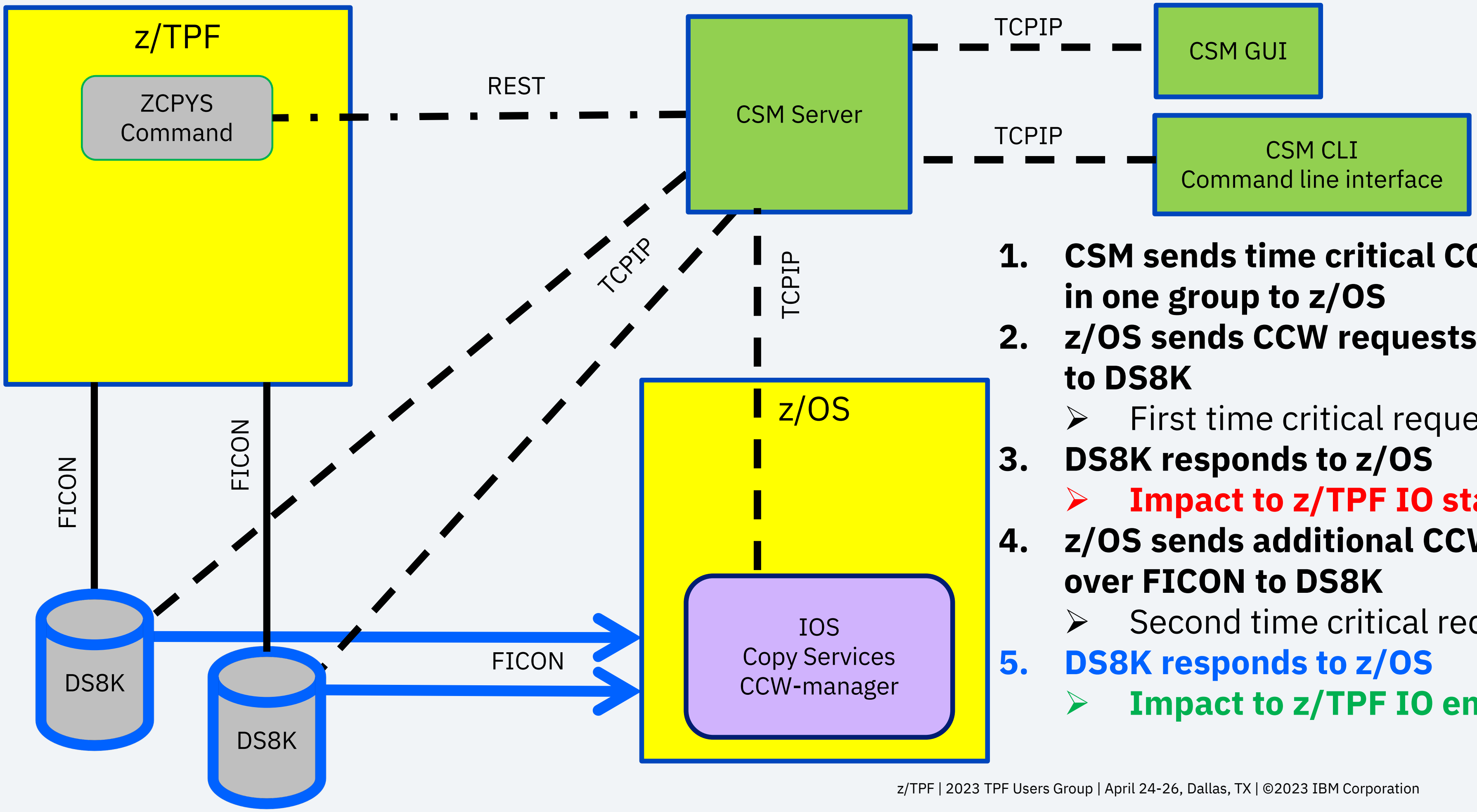

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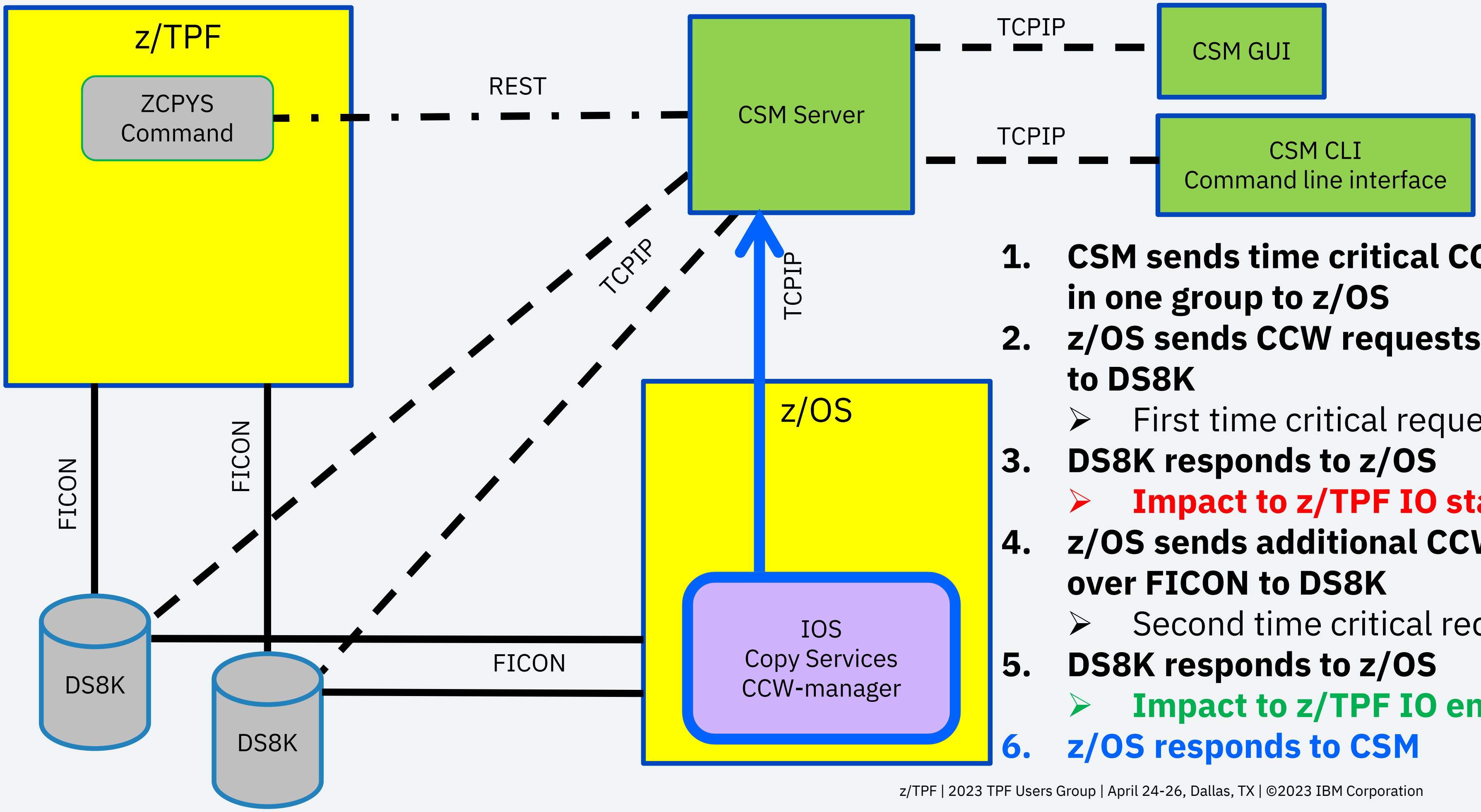
As-Is: z/OS gives results to the CSM



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   - ➢ **Impact to z/TPF IO ends**
6. **z/OS responds to CSM**

Technical details

When requests flow from CSM to z/OS, observations have shown that the impact to z/TPF IO is less than one second.

By sending requests over low-latency FICON connections, the combined CSM – z/OS solution minimizes the time between the freeze and thaw operations.

Pain Points

Having requests go from CSM to z/OS requires z/OS to be connected to z/TPF production control units.

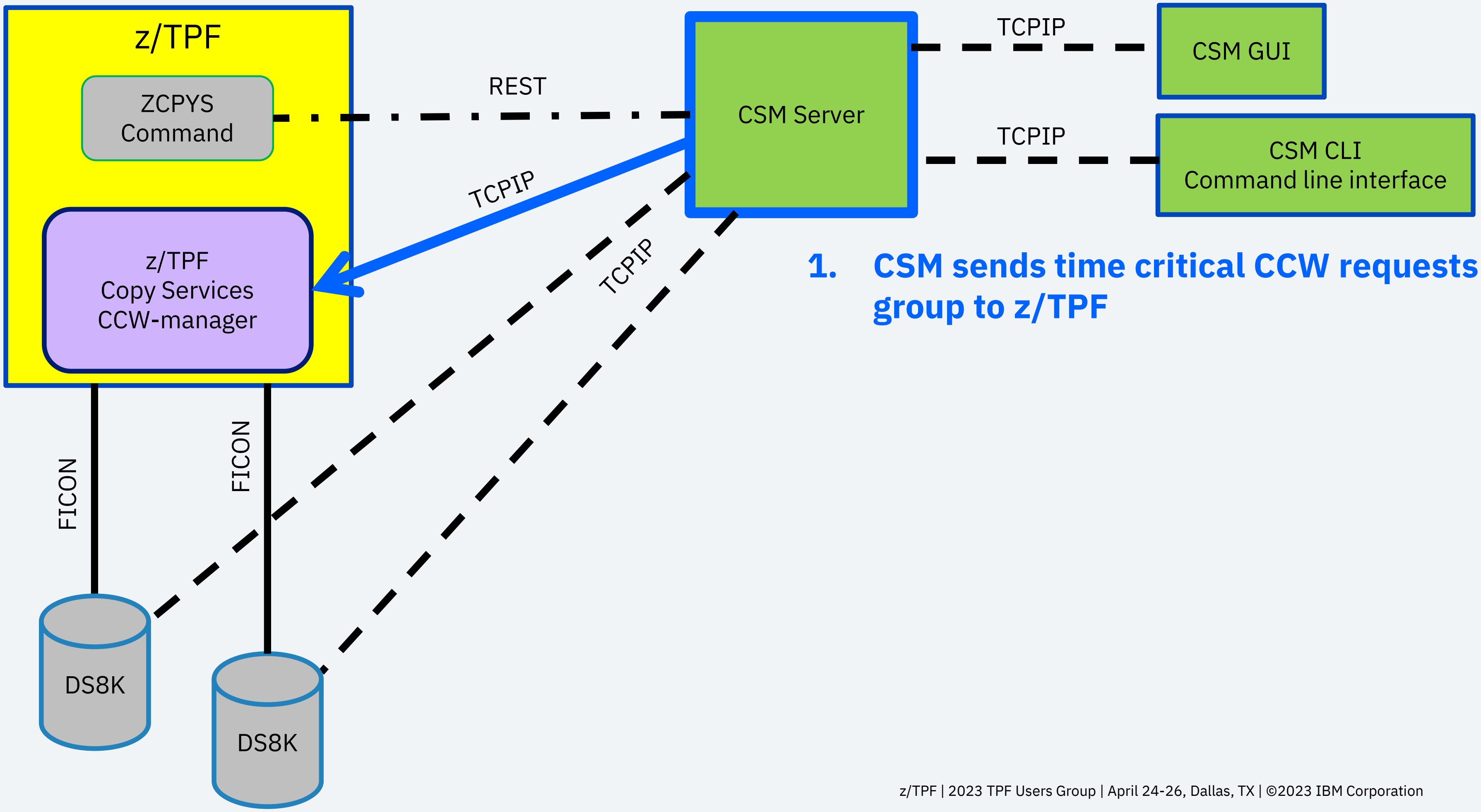
Also, z/OS must be available when an SGC backup is done.

To-Be: CSM can send requests to DS8K through z/TPF

z/TPF will have support similar to z/OS so that CSM will send requests to z/TPF and z/TPF will execute CCWs over FICON.

- CSM communicates via TCP/IP to z/TPF
- z/TPF executes specific CCWs
- z/TPF returns results to CSM

To-Be: CSM sends requests to z/TPF



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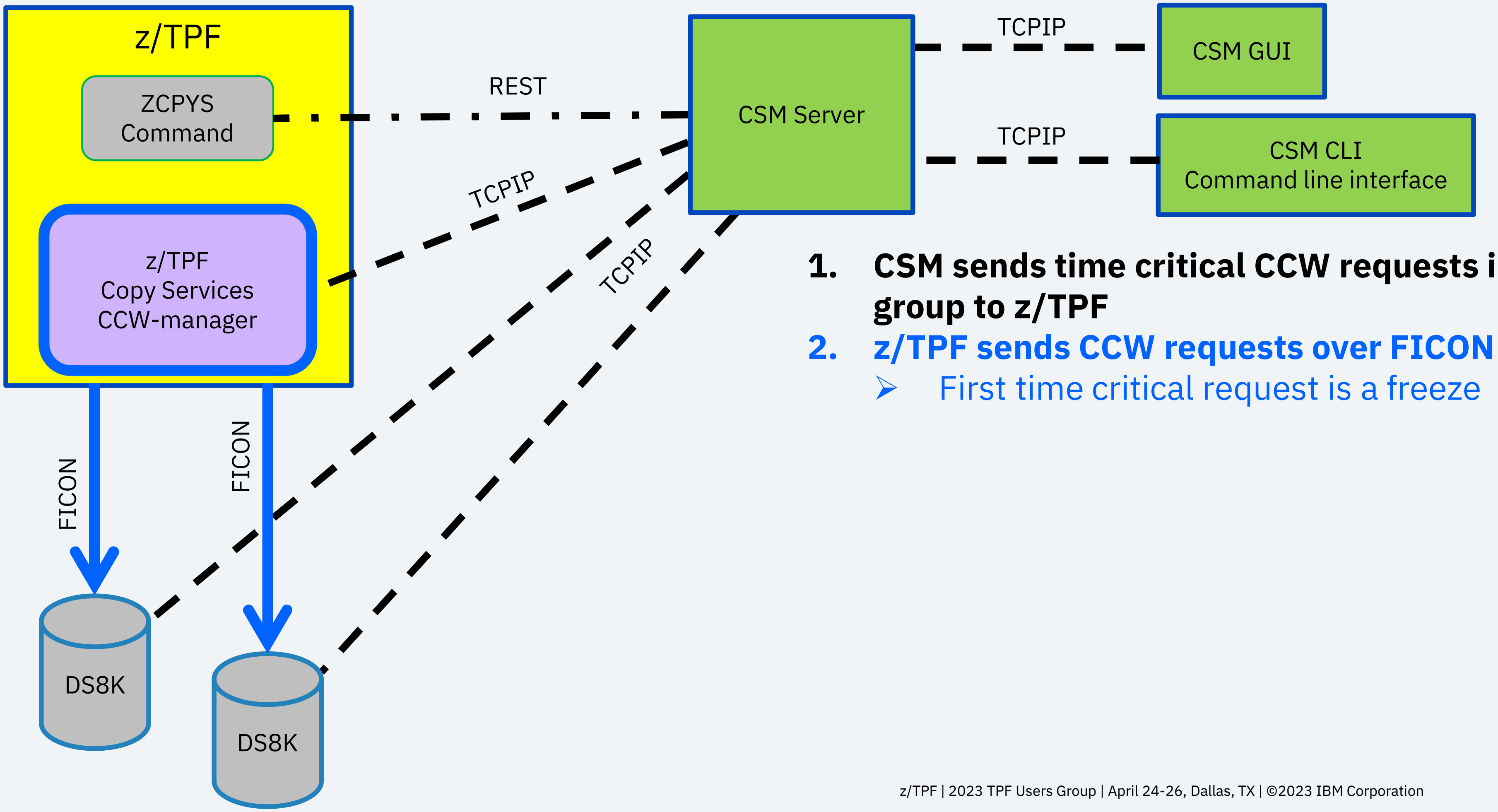

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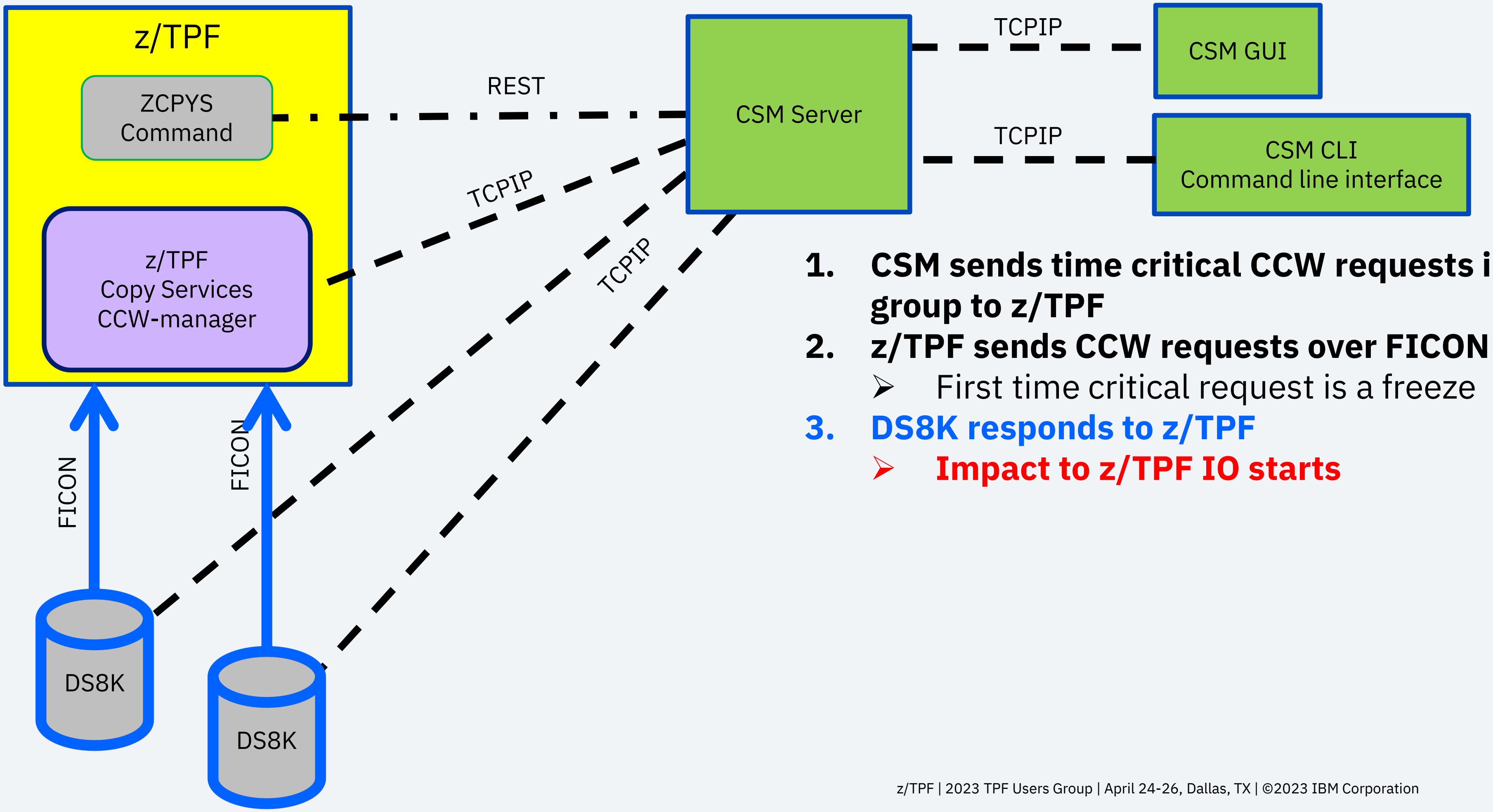

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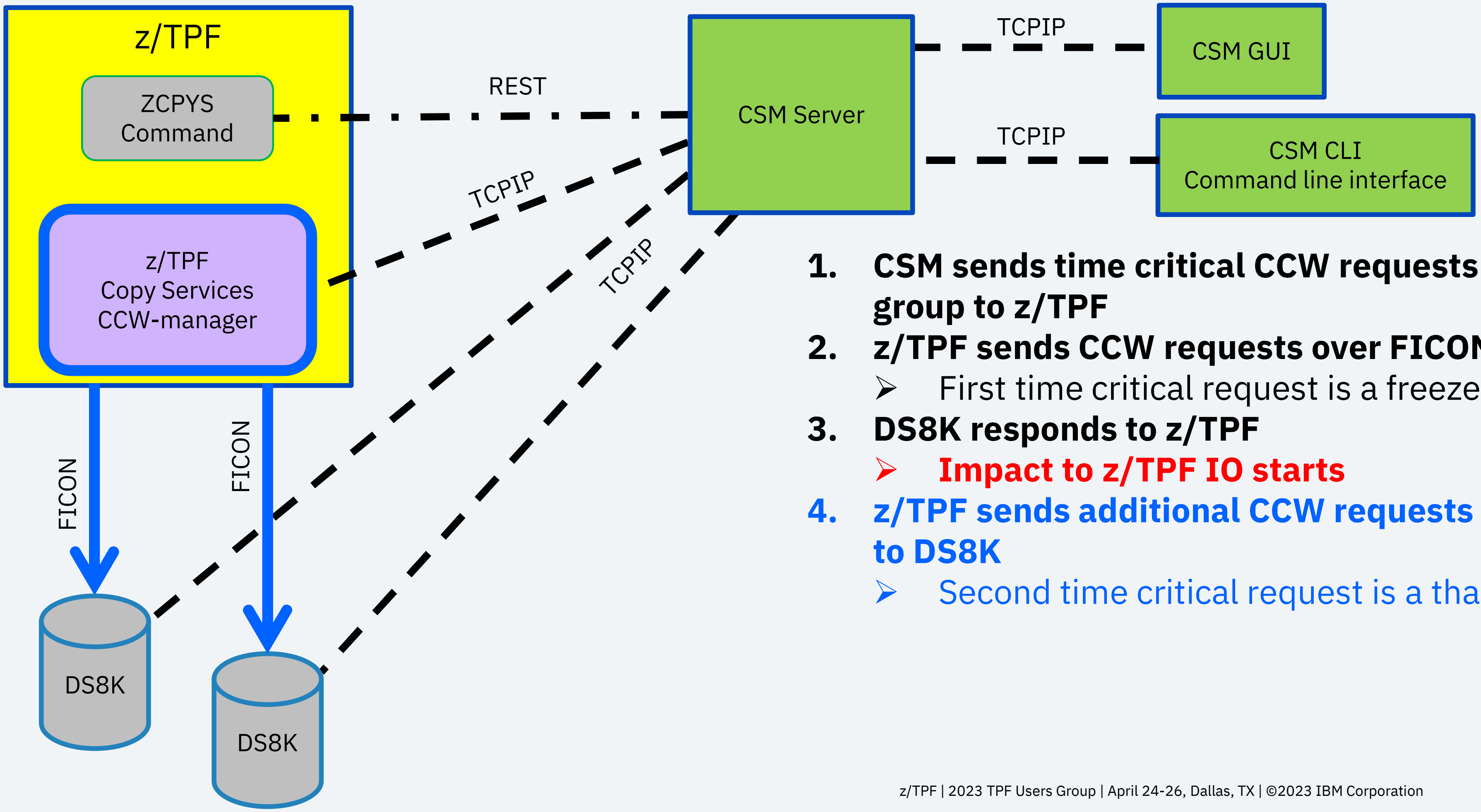
To-Be: z/TPF executes additional CCWs over FICON



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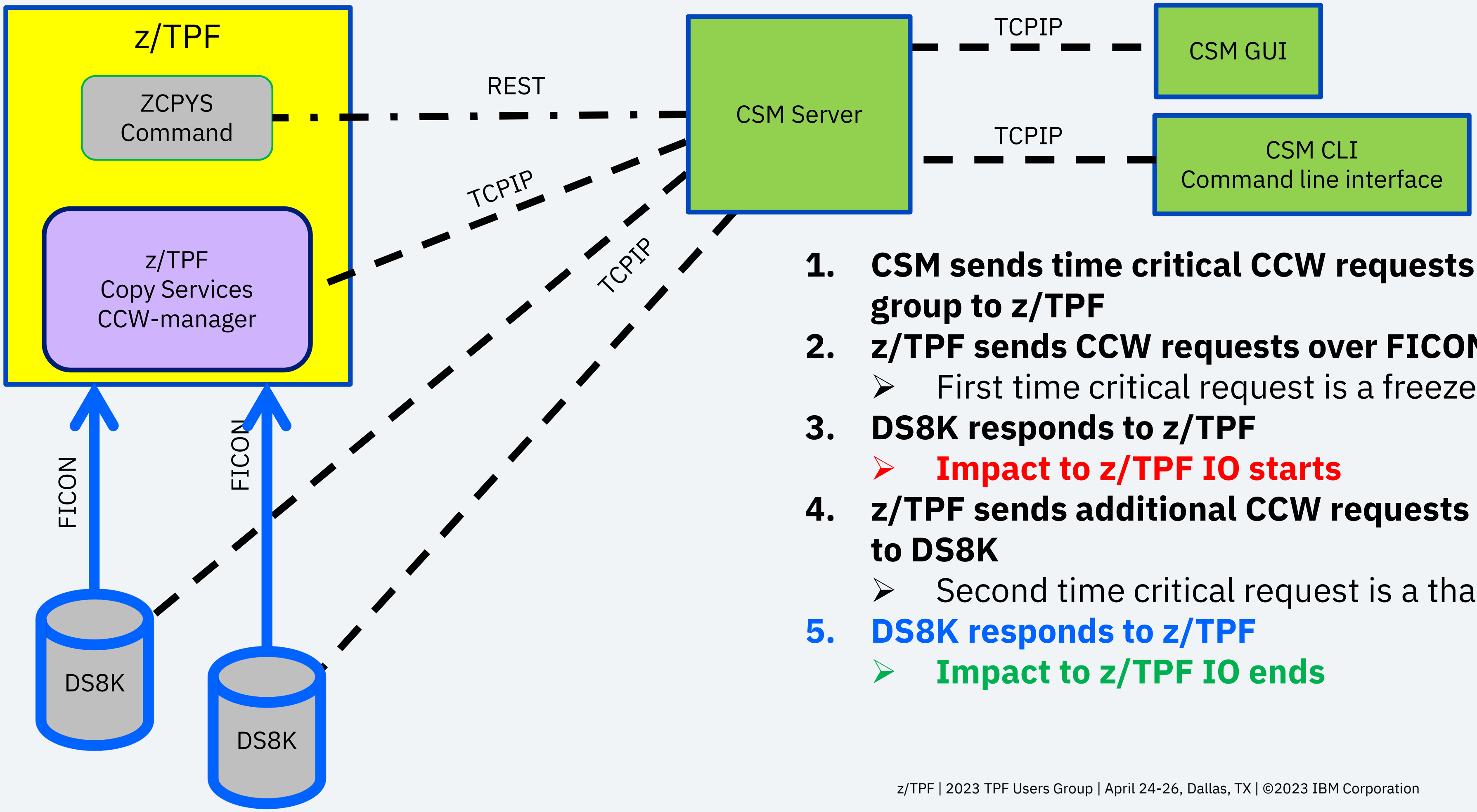
To-Be: DS8K responds to z/TPF



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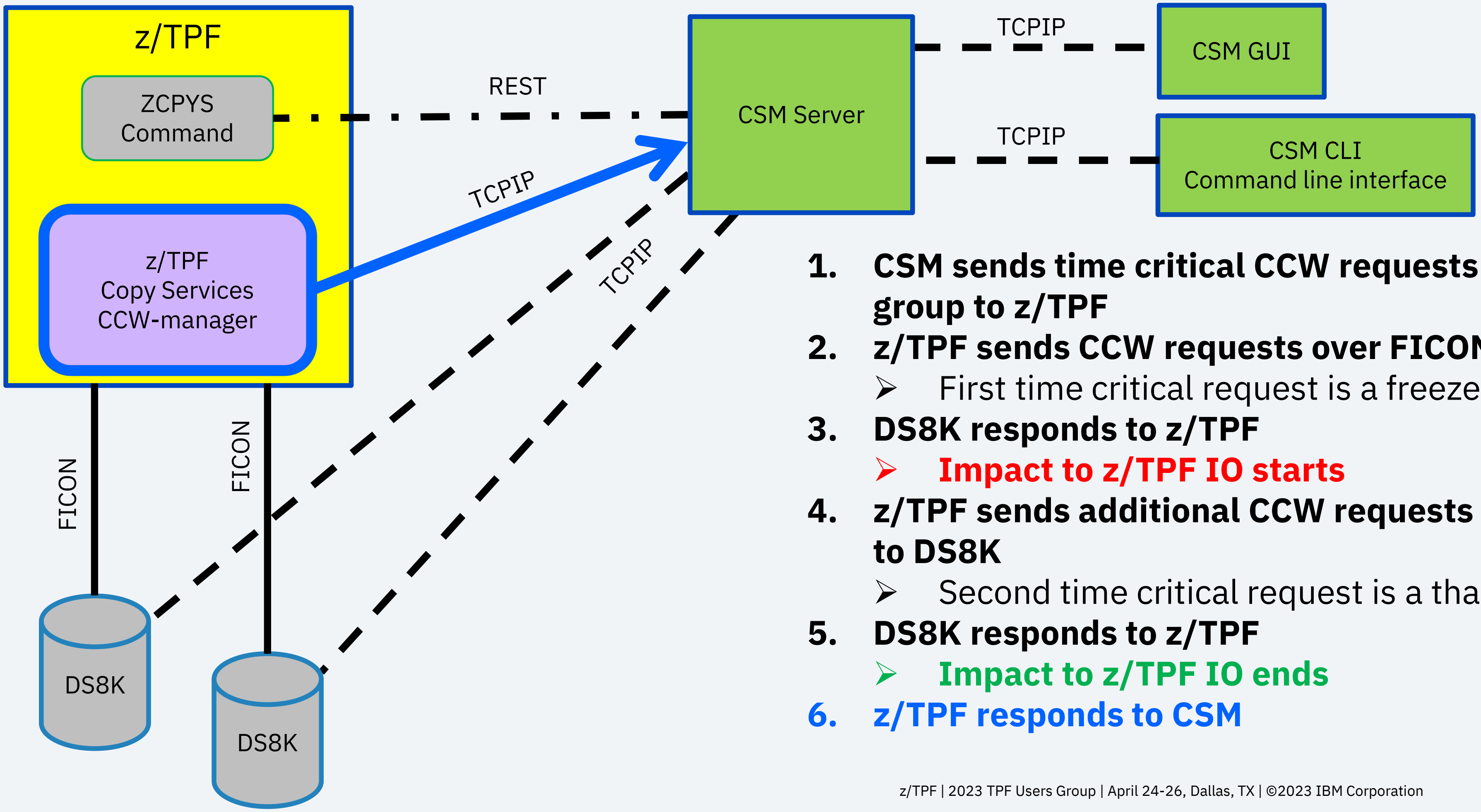
To-Be: z/TPF gives results to the CSM



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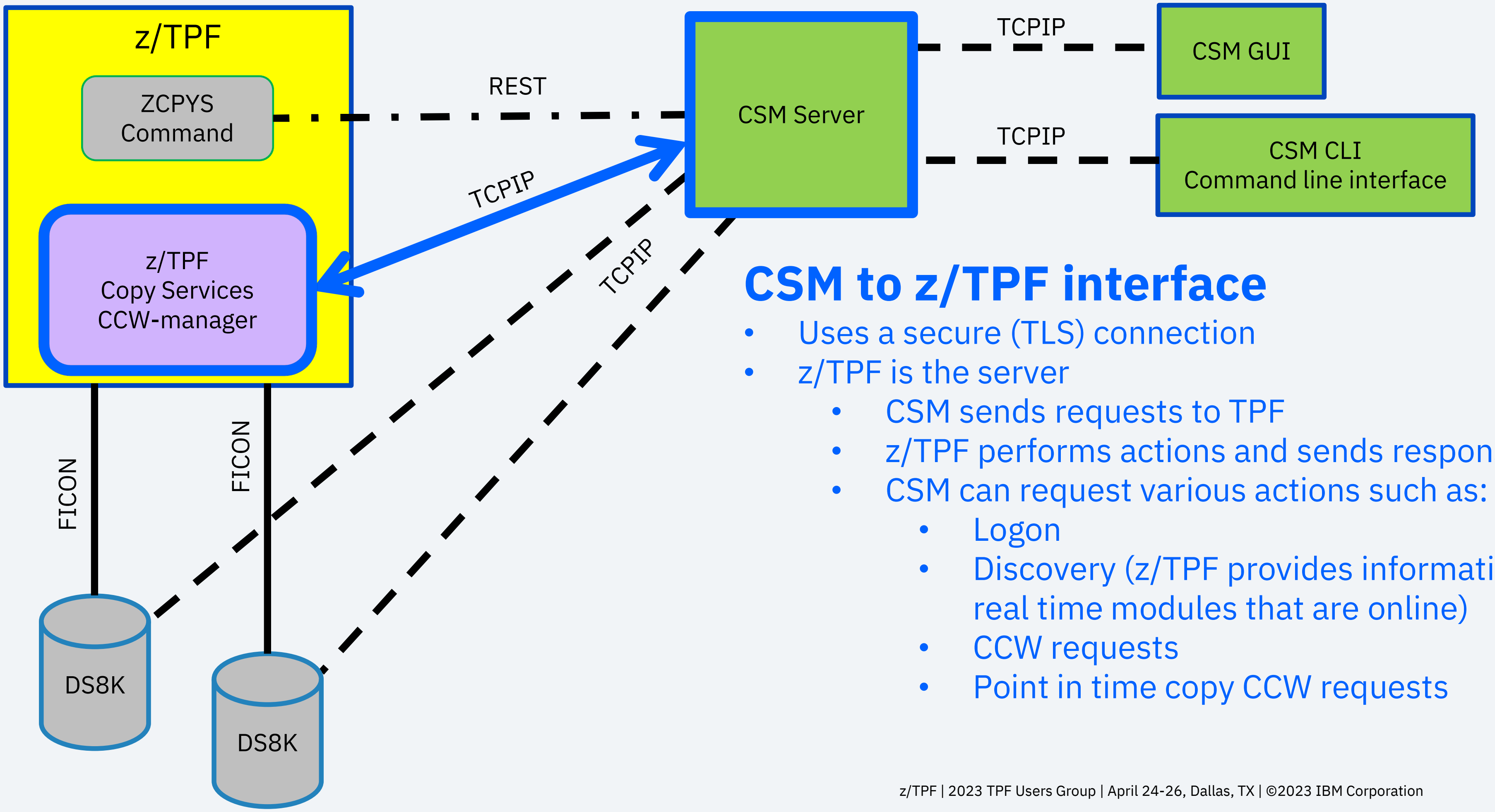
6. **z/TPF responds to CSM**

Technical details

When requests flow from CSM to z/TPF, observations from initial testing have shown that the impact to z/TPF IO is less than one second on a database with over 2000 modules.

By sending requests over low-latency FICON connections, the combined CSM – z/TPF solution minimizes the time between the freeze and thaw operations.

Technical details



CSM to z/TPF interface

- Uses a secure (TLS) connection
- z/TPF is the server
  - CSM sends requests to TPF
  - z/TPF performs actions and sends responses to CSM
  - CSM can request various actions such as:
    - Logon
    - Discovery (z/TPF provides information about real time modules that are online)
    - CCW requests
    - Point in time copy CCW requests

Technical Details

- INETD in TPF is used to control the TPF server.
- Need to define the server to INETD as MODEL-SSL

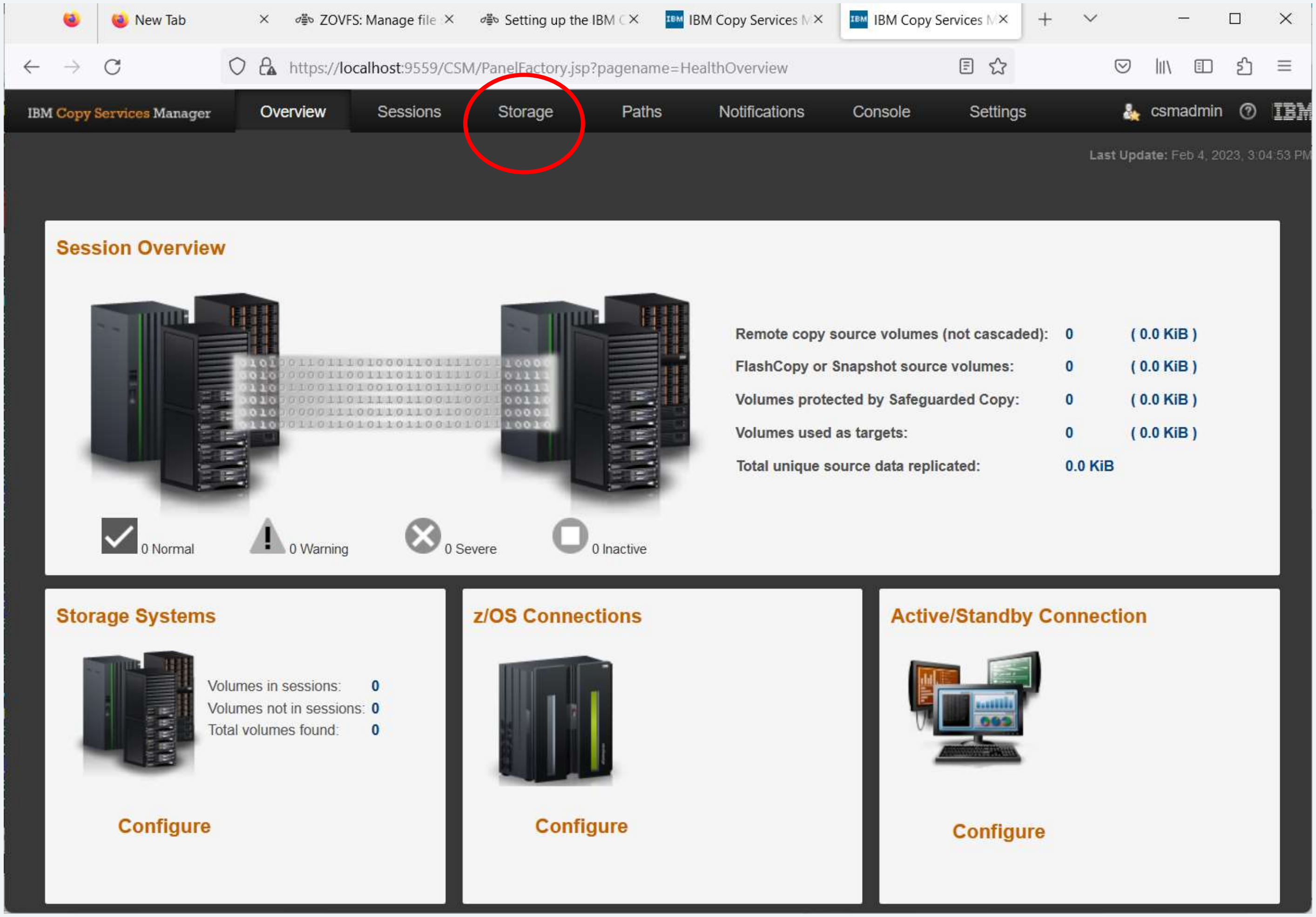
```
==> ZINET ADD SERVER-CSMSERV PGM-CSMR MODEL-SSL PORT-5858 BACKLOG-5 IP-ANY
ACTIVATION-AUTO STATE-CRAS
CSMP0097I 14.55.40 CPU-B SS-BSS  SSU-HPN  IS-01
INET0011I 14.55.40 SERVER CSMSERV ADDED TO THE
                   INETD CONFIGURATION FILE+

==> Put ascii file CSMSERV.conf to directory /etc/ssl/inetd on z/TPF

==> ZINET START SERVER-CSMSERV
CSMP0097I 14.59.21 CPU-B SS-BSS  SSU-HPN  IS-01
INET0017I 14.59.21 SERVER CSMSERV STARTED+
CSMP0097I 14.59.22 CPU-B SS-BSS  SSU-HPN  IS-01
INET0050I 14.59.22 CSMSERV    IS NOW ACCEPTING CONNECTIONS ON
                   IP - ANY PORT - 05858 PID - 40FE0013+
```

Technical Details

CSM GUI

- Need to tell CSM about the z/TPF host
- Go to Storage – z/OS Connections

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.



https://localhost:9559/CSM/PanelFactory.jsp?pagename=HealthOverview

Last Update: Feb 4, 2023, 3:04:53 PM

Session Overview

Remote copy source volumes (not cascaded): 0 (0.0 KiB)
FlashCopy or Snapshot source volumes: 0 (0.0 KiB)
Volumes protected by Safeguarded Copy: 0 (0.0 KiB)
Volumes used as targets: 0 (0.0 KiB)
Total unique source data replicated: 0.0 KiB

✓ 0 Normal
! 0 Warning
☒ 0 Severe
□ 0 Inactive

Storage Systems

Volumes in sessions: 0
Volumes not in sessions: 0
Total volumes found: 0

z/OS Connections

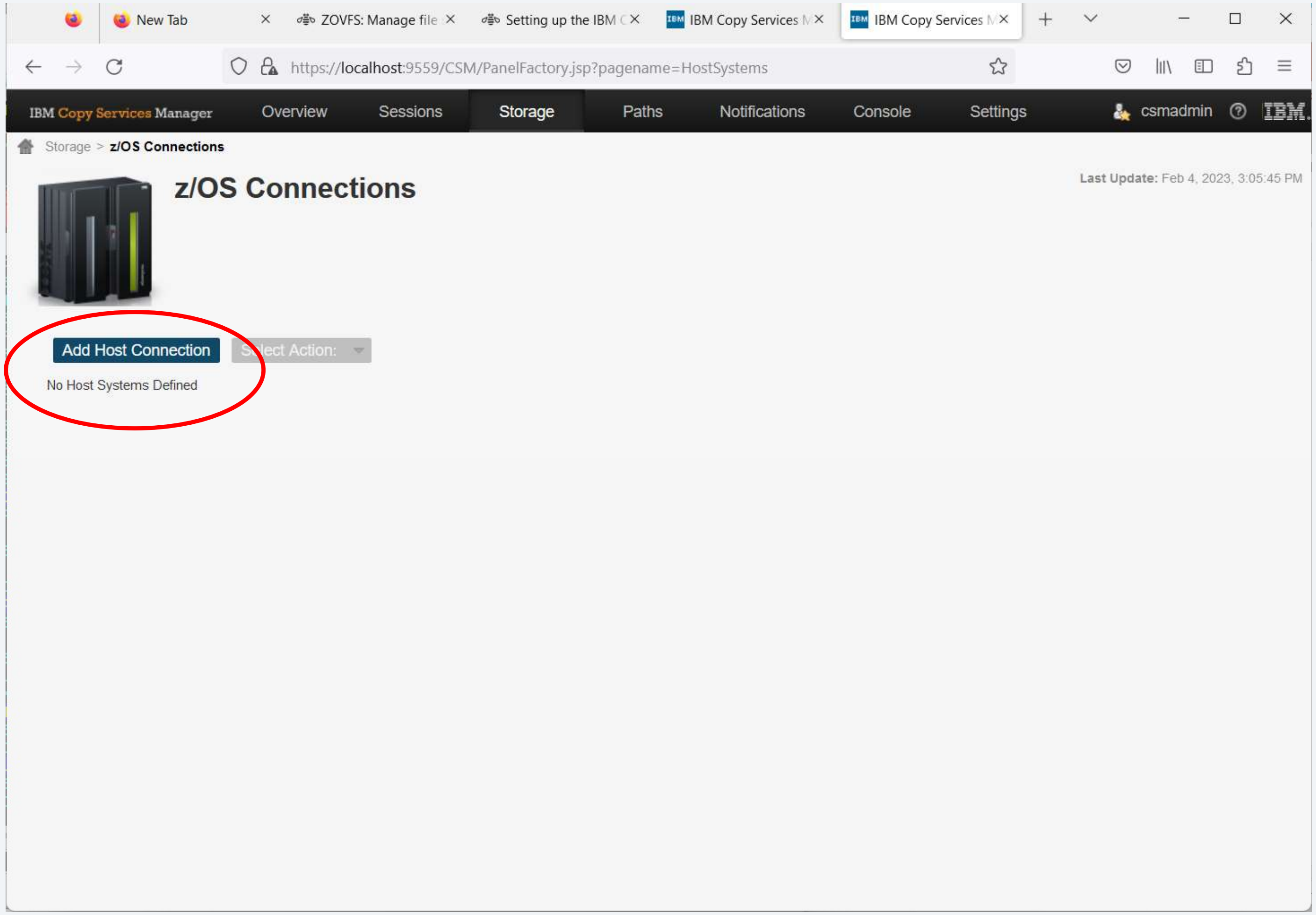
Active/Standby Connection

Technical Details

CSM GUI

- Click Add Host Connection

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.



z/OS Connections

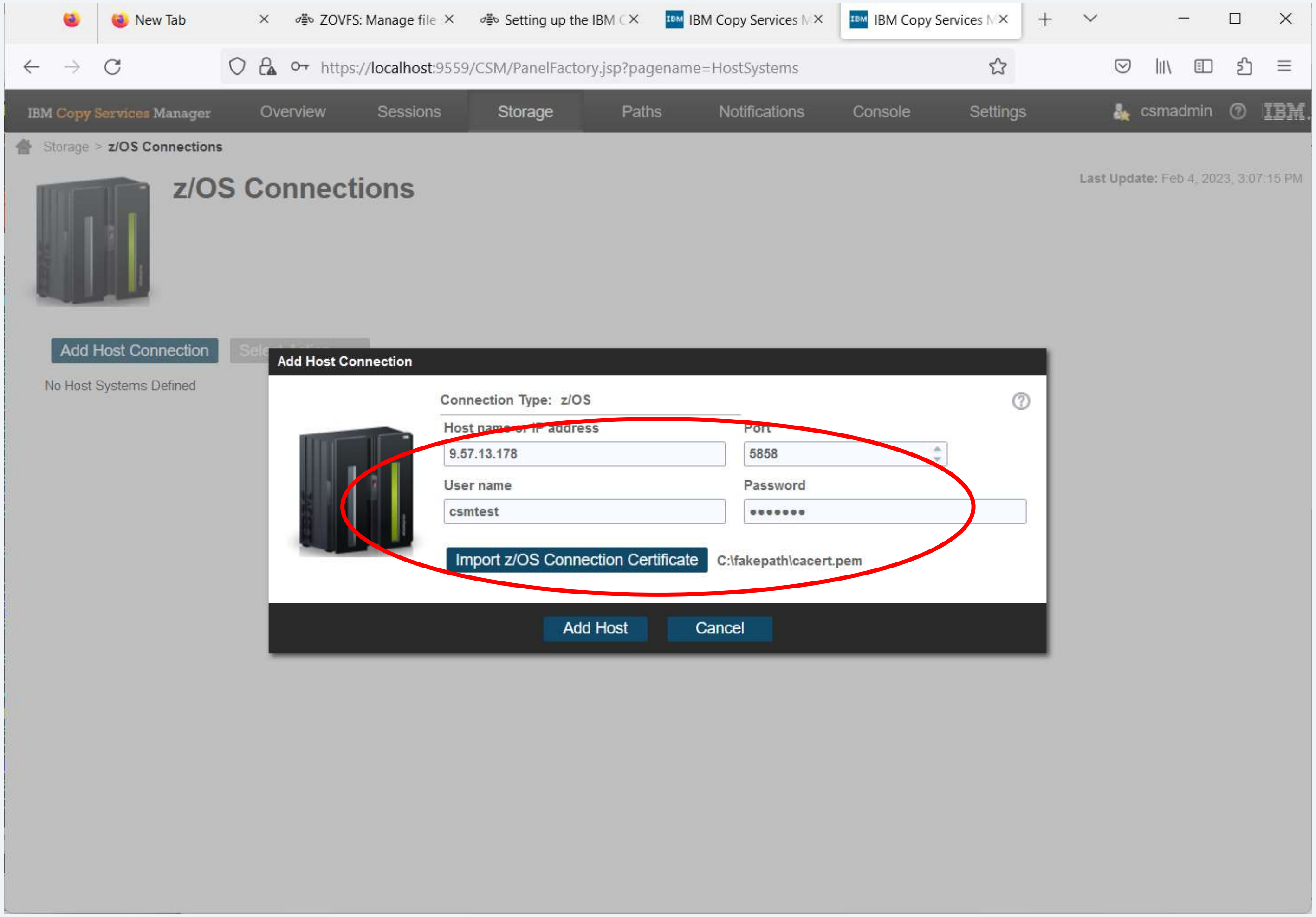
Last Update: Feb 4, 2023, 3:05:45 PM

No Host Systems Defined

Technical Details

CSM GUI

- Add Host name or IP address
- Port number must match the port on the TPF ZINET command
- Add a userid and password
- Add a certificate to be used for encryption



https://localhost:9559/CSM/PanelFactory.jsp?pagename=HostSystems

Storage > z/OS Connections

z/OS Connections

Last Update: Feb 4, 2023, 3:07:15 PM

No Host Systems Defined

Add Host Connection

Connection Type: z/OS

Host name or IP address: 9.57.13.178

Port: 5858

User name: csmtest

Password: •••••••

Import z/OS Connection Certificate C:\fakepath\cacert.pem

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.

Technical Details

CSM sends the userid and password to z/TPF for authentication

- A userid and password for File system security must be used
- Example for creating a File system security userid

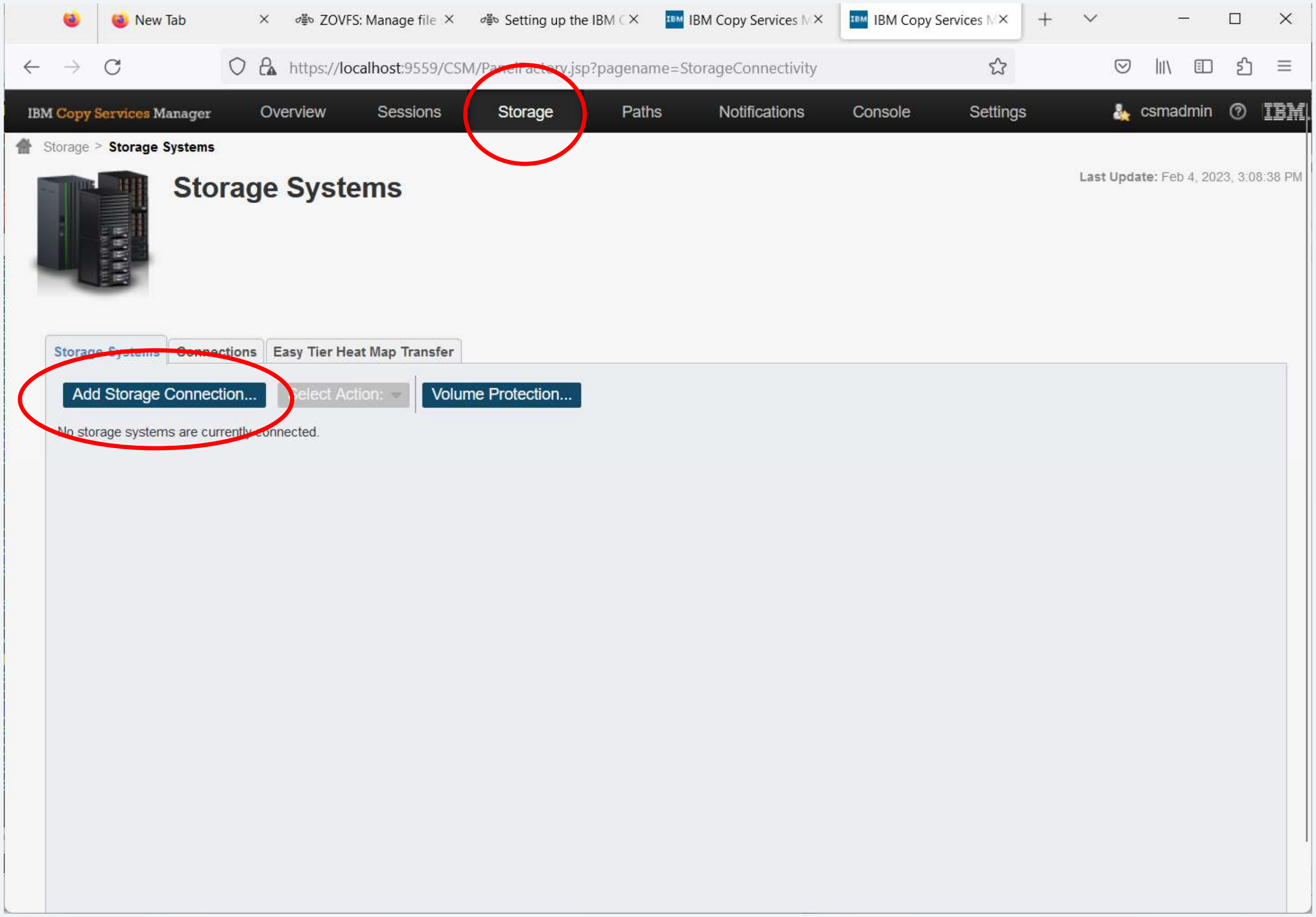
```
==> ZOVFS INIT
CSMP0097I 15.01.39 CPU-B SS-BSS  SSU-HPN  IS-01
OVFS0002I 15.01.39 INIT COMPLETED SUCCESSFULLY            +

==> ZOVFS MKUSR csmtest PASSWD bermuda UID 500
CSMP0097I 15.04.22 CPU-B SS-BSS  SSU-HPN  IS-01
OVFS0002I 15.04.22 MKUSR COMPLETED SUCCESSFULLY            +
```

Technical Details

CSM GUI

- Need to tell CSM about volumes that the TPF host manages
- Go to Storage – Storage systems
- Click Add Storage connection

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.



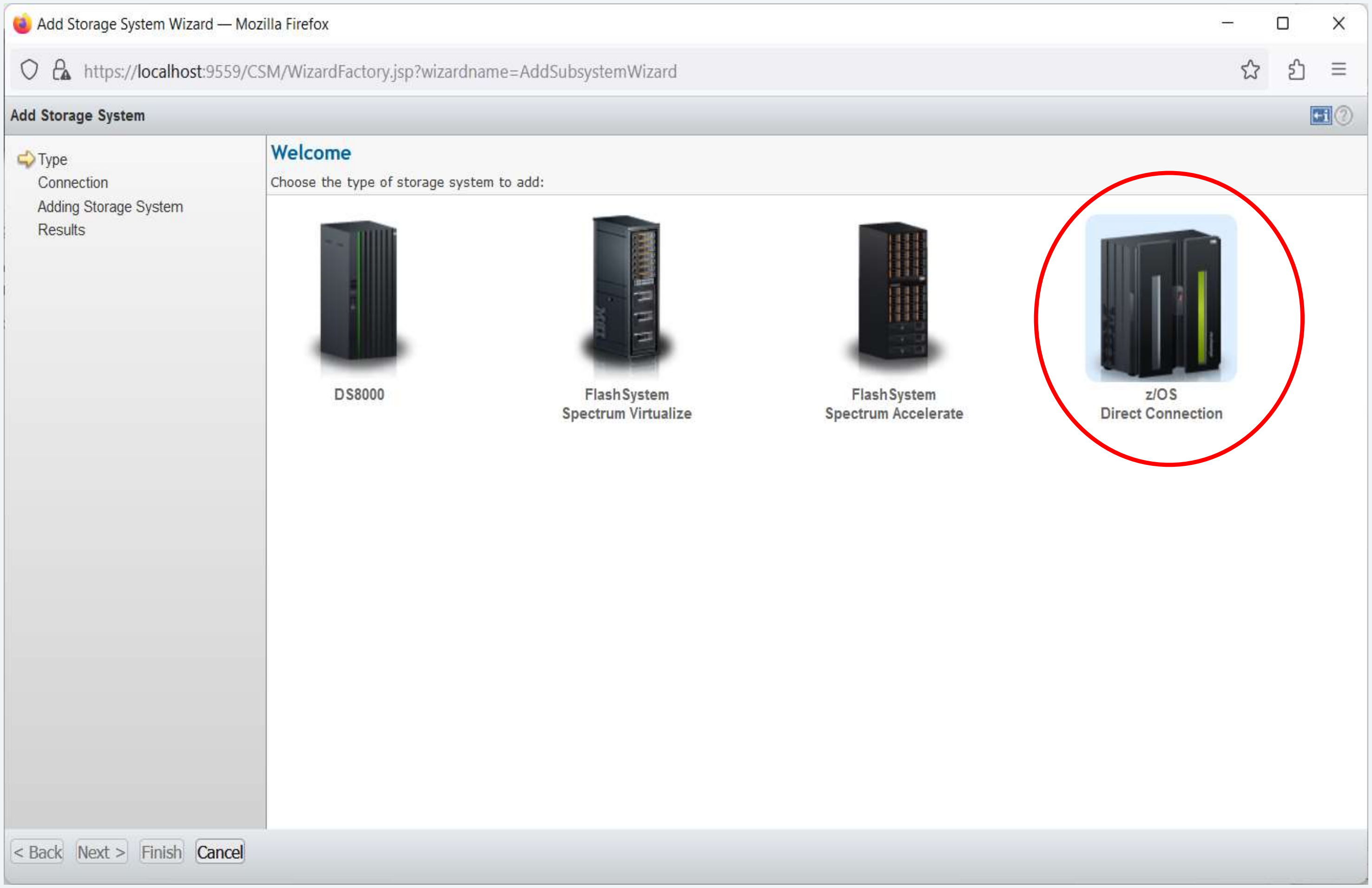
No storage systems are currently connected.

Technical Details

CSM GUI

- Click z/OS Direct Connection
- CSM will contact z/TPF to get a list of all online realtime modules

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.



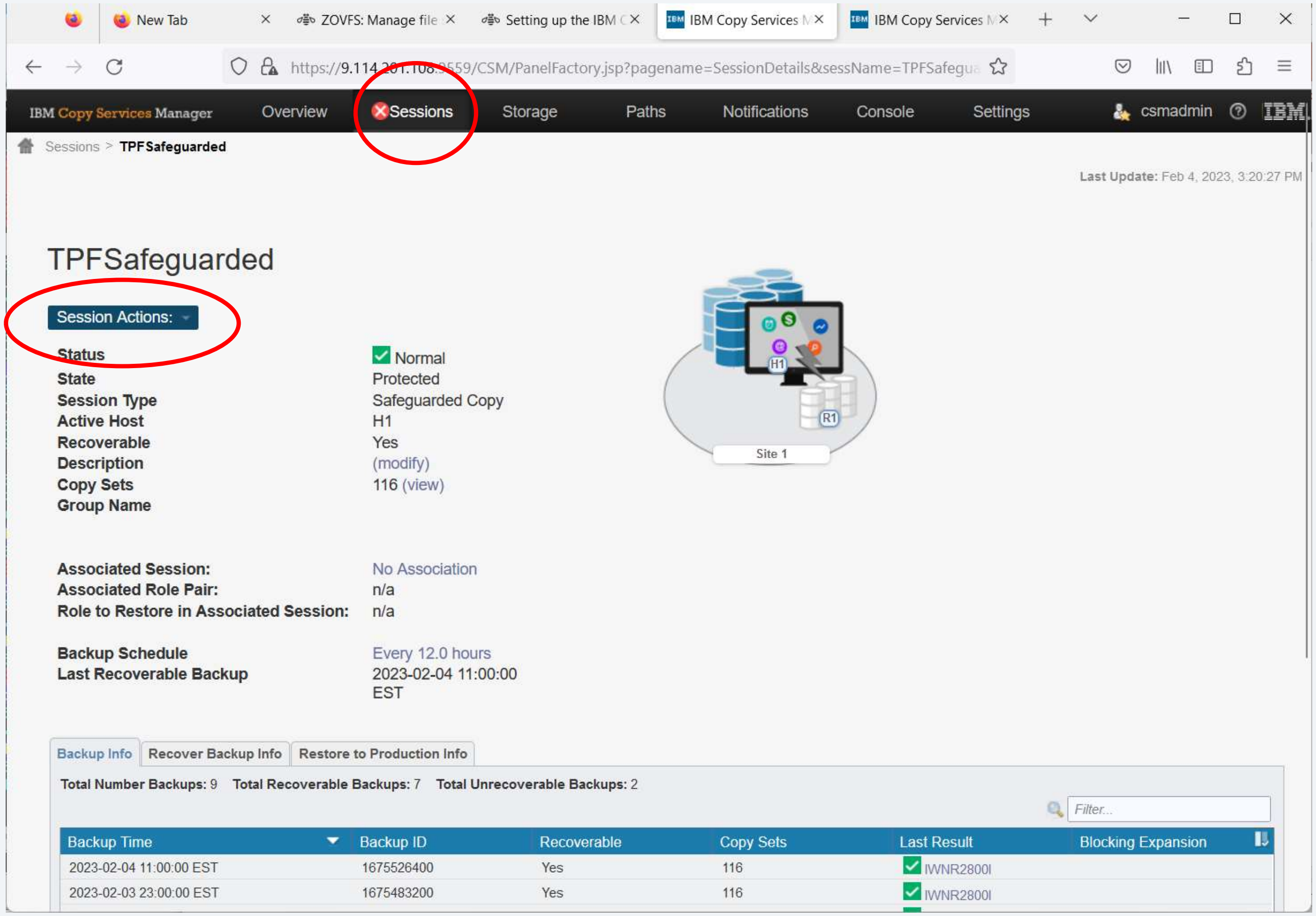
Add Storage System Wizard — Mozilla Firefox
https://localhost:9559/CSM/WizardFactory.jsp?wizardname=AddSubsystemWizard
Add Storage System
Type
Connection
Adding Storage System
Results
Welcome
Choose the type of storage system to add:
DS8000
FlashSystem Spectrum Virtualize
FlashSystem Spectrum Accelerate
z/OS Direct Connection
< Back
Next >
Finish
Cancel

Technical Details

CSM GUI

- For a specific Safeguarded Copy session, need to associate it with the TPF complex.
- Go to Session Actions – View/Modify - Properties

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.



Last Update: Feb 4, 2023, 3:20:27 PM

TPFSafeguarded

Status	✓ Normal
State	Protected
Session Type	Safeguarded Copy
Active Host	H1
Recoverable	Yes
Description	(modify)
Copy Sets	116 (view)
Group Name	
Associated Session:	No Association
Associated Role Pair:	n/a
Role to Restore in Associated Session:	n/a
Backup Schedule	Every 12.0 hours
Last Recoverable Backup	2023-02-04 11:00:00 EST

Total Number Backups: 9 **Total Recoverable Backups:** 7 **Total Unrecoverable Backups:** 2

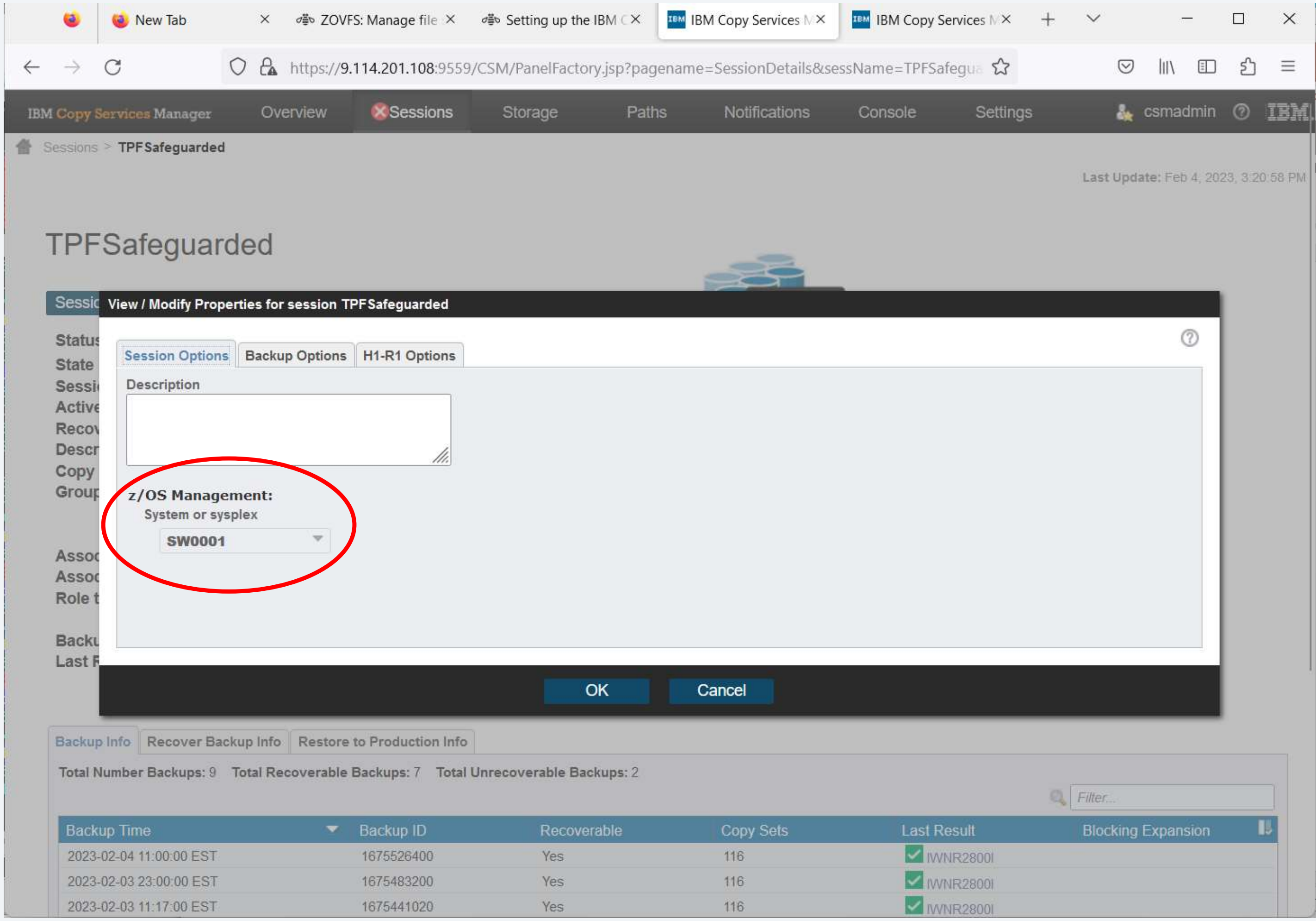
Backup Time	Backup ID	Recoverable	Copy Sets	Last Result	Blocking Expansion
2023-02-04 11:00:00 EST	1675526400	Yes	116	✓ IWNR2800I	
2023-02-03 23:00:00 EST	1675483200	Yes	116	✓ IWNR2800I	

Technical Details

CSM GUI

- Under System or sysplex, select the TPF complex name

Note: CSM development team will update the names to include z/TPF after the z/TPF support has been released.



Last Update: Feb 4, 2023, 3:20:58 PM

TPFSafeguarded

View / Modify Properties for session TPFSafeguarded

Description

z/OS Management:

System or sysplex

SW0001

Total Number Backups: 9 Total Recoverable Backups: 7 Total Unrecoverable Backups: 2

Backup Time	Backup ID	Recoverable	Copy Sets	Last Result	Blocking Expansion
2023-02-04 11:00:00 EST	1675526400	Yes	116	✓ IWNR2800I	
2023-02-03 23:00:00 EST	1675483200	Yes	116	✓ IWNR2800I	
2023-02-03 11:17:00 EST	1675441020	Yes	116	✓ IWNR2800I	

Technical Details

Issue

- When CSM requests a CCW to be executed, it passes the Control Unit (CU) name and LSS number. Depending on the request, the unit address is in the CCW parameters.
- TPF module file status table (MFST) is not organized by CU name and LSS number.
- In order to execute the CCW on TPF, need a symbolic module number.
- Need to translate from CU Name and LSS number and Unit address into symbolic module number.

Technical Details

Resolution

- Create a new table (device information table) that can be used to translate between CU Name and LSS number and Unit address into an MFST section 1 address.
  - Contains translation for real time modules only. GDS and General Files are not included.
  - Created in restart
  - Kept in 64-bit system heap
  - Refreshed when a change in a module status happens: ZMCPY ALL, ZMCPY UP, or ZMCPY DOWN
  - Requires data from Read Configuration Data (RCD) and Read Device Characteristics (RDC) to populate the table
- Update MFST section 1 to have an extended area.
  - Keep the results from Read Configuration Data (RCD) and Read Device Characteristics (RDC) in memory
  - Pointer in MFST section 1 to extended area
  - Extended area is above 4GB bar

Technical Details

Command ZDDTI created to display the device information table

```
==> ZDDTI DISPLAY
CSMP0097I 21.54.19 CPU-B SS-BSS  SSU-HPN  IS-01
DDTI0001I 21.54.19 DEVICE TABLE INFORMATION
 CONTROL UNIT NAME  NBR OF LSS  NBR OF UA  MANUFACTURER    PLANT
 0000000KMP51           2            116          IBM       75
END OF DISPLAY +

==> ZDDTI DISPLAY CU-KMP51
CSMP0097I 21.55.09 CPU-B SS-BSS  SSU-HPN  IS-01
DDTI0002I 21.55.09 DEVICE TABLE INFORMATION CU-0000000KMP51
 LSS   SSID    NUMBER OF UA
 22   5122          58
 23   5123          58
END OF DISPLAY +

==> ZDDTI DISPLAY CU-KMP51 LSS-22
```

Technical Details

Issue

For problem determination the following data will be needed:

- Ability to see the exact data that CSM sends to TPF
- Ability to see the exact data that TPF returns to CSM

Technical Details

Resolution

- Write the CSM requests and responses to a file in the file system
- New API will be created: tpf_logSystemData()
  - For CSM, data will be written into directory /IBMLog/CSM
  - File names have a predefined names using the CPU ID and the current date.
    - For example, the file name for February 21, 2023 is: log_B_20230221.txt
- New command will be created: ZTLCG
  - Control whether logging is active
  - Control automatic removal of these files after a specified period of time
- File size in a TPF lab test system with 116 mods is typically about 30 MB but we have seen file size up to 45 MB
  - File size will vary based on the size of your DASD configuration
- This new support is extensible for other future support.
  - Use a different subdirectory
    - For example: /IBMLog/My_important_situations
  - This new support is NOT intended for high frequency logging

Technical Details

To use the new logging, file system directories must be defined and retention periods must be set.

```
==> zfile mkdir /IBMLog
CSMP0097I 15.13.52 CPU-B SS-BSS  SSU-HPN  IS-01
FILE0003I 15.13.52 mkdir /IBMLog COMPLETED SUCCESSFULLY.  NO OUTPUT TO DISPLAY+

==> zfile mkdir /IBMLog/CSM
CSMP0097I 15.14.02 CPU-B SS-BSS  SSU-HPN  IS-01
FILE0003I 15.14.02 mkdir /IBML... COMPLETED SUCCESSFULLY.  NO OUTPUT TO DISPLAY+

==> ZTLCG SET DIRECTORY-CSM RETENTION-7
CSMP0097I 15.14.05 CPU-B SS-BSS  SSU-HPN  IS-01
TLCG0008I 15.14.05 THE RETENTION TIME FOR THE CSM DIRECTORY WAS SET TO 7 DAYS FO
R PROCESSOR-B.+
```

Value Statement

When a Safeguarded Copy session is run, IO impact on z/TPF is reduced without the need for z/OS to access z/TPF production control units.

Conclusion

Target 2Q2023

- APAR will be PJ46826

Thank you

Reference

Safeguarded Copy announcement:
https://newsroom.ibm.com/2021-07-20-IBM-Adds-Enhanced-Data-Protection-to-FlashSystem-to-Help-Thwart-Cyber-Attacks