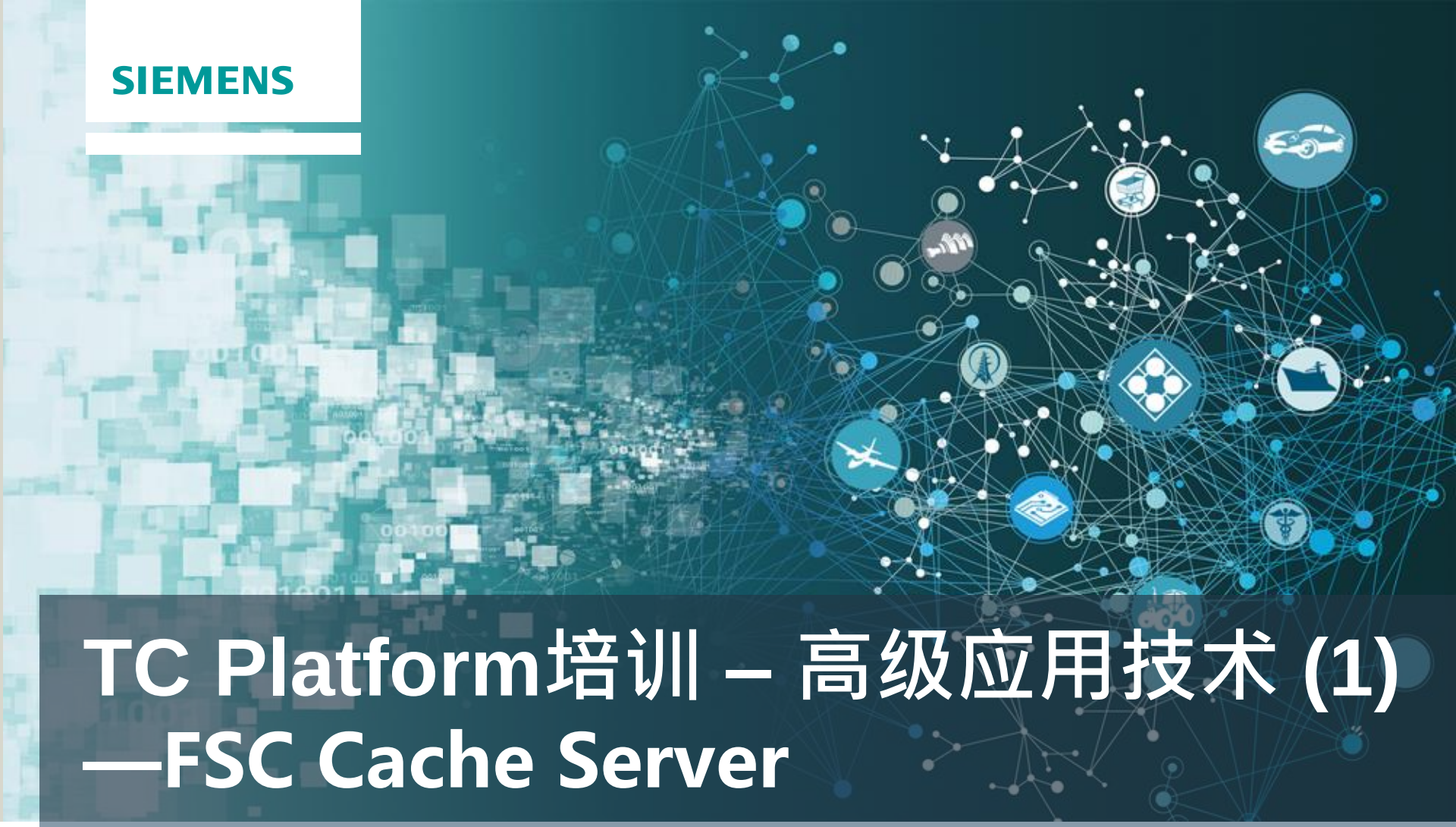

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TC Platform培训 – 高级应用技术 (1)—FSC Cache Server

龙永义，2017年6月

Contents

Description

目的

在本课程中，您将以培训系统环境为例，学习FSC Cache 基本架构，文件传输机制，安装与配置，FSC Cache 服务器的预置方法。此外，您还将学习FSC Cache服务器的实用工具。

目标

完成本课程后，您应能够：

- 掌握FSC Cache服务器的基本架构，文件传输机制。
- 掌握FSC Cache服务器的安装与配置方法。
- 掌握FSC Cache服务器预置方法，以及工具。

FSC Cache Server Architecture

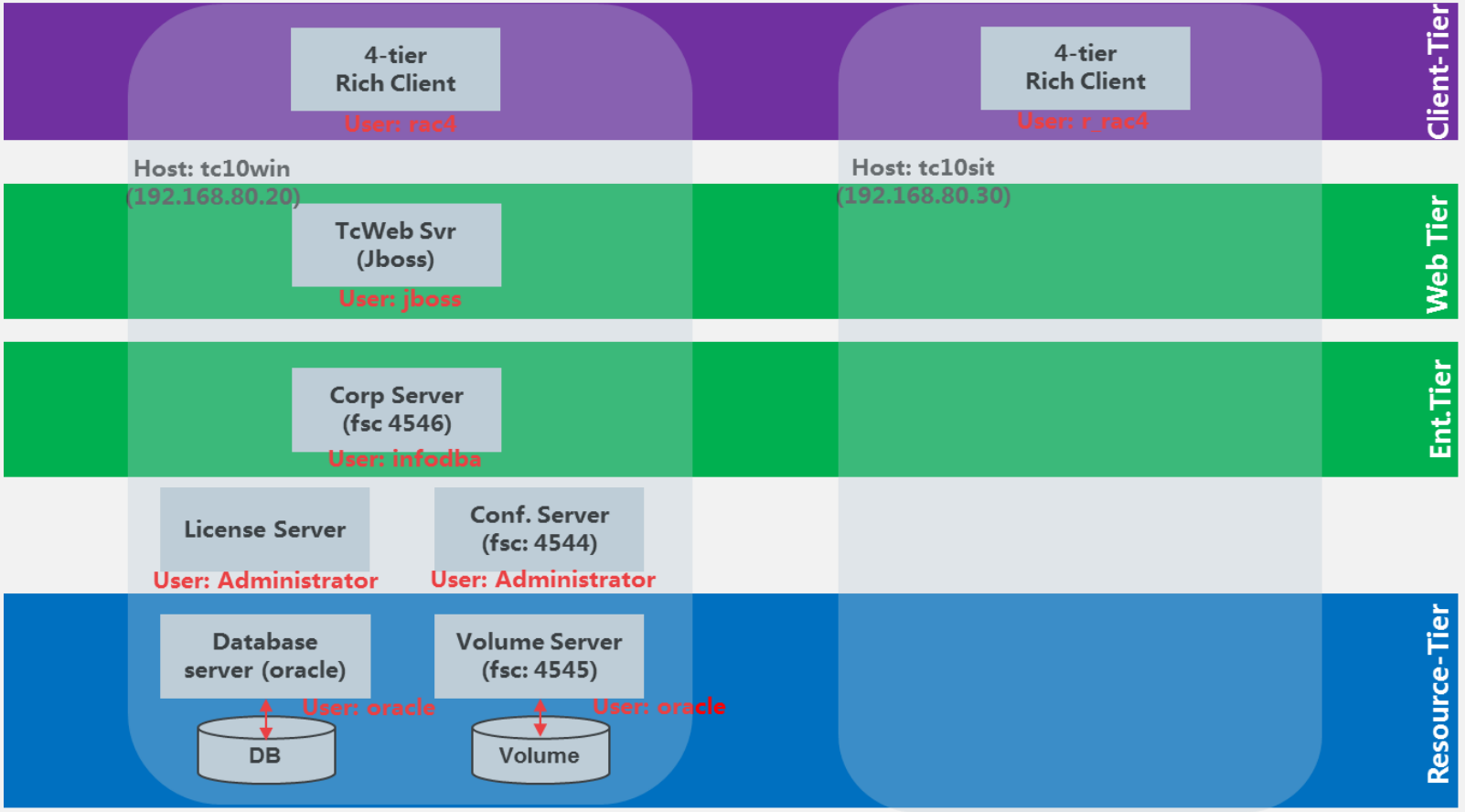
- FSC Performance Cache Server

  An FSC server installed on a host where a volume is not located or directly mounted is referred to as a performance cache server.

  - Enables placing the data close to the user, while maintaining a central file volume and database store.
  - Checks all file access requests for a ticket that Teamcenter generates to authorize file access.
  - Manages two segment caches, one for downloading files and one for uploading files.
  - Can be prepopulated with files that are accessed frequently.

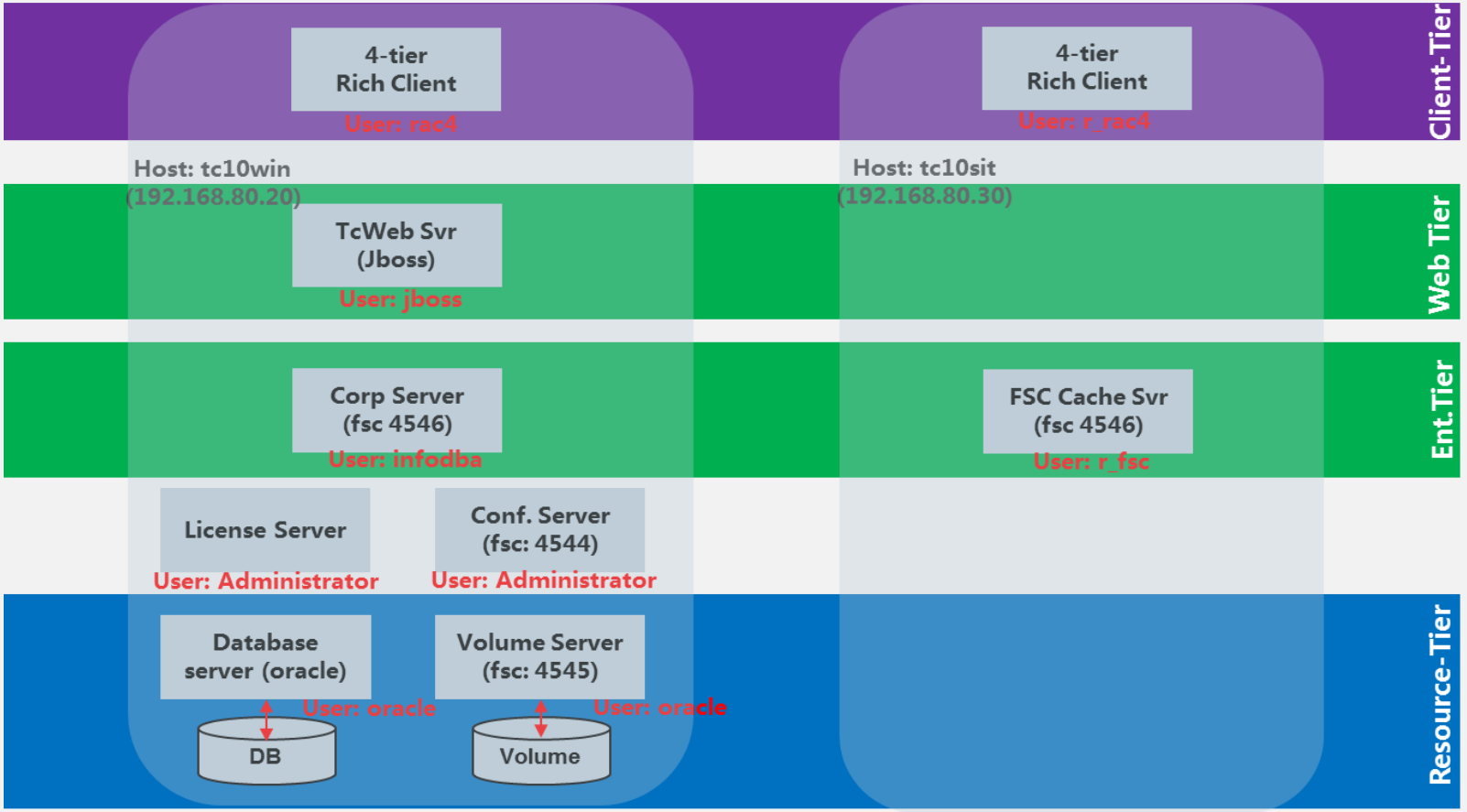
FSC Cache Server Architecture (2)

- Teamcenter System without FSC Cache Server at remote site (Source)



FSC Cache Server Architecture (3)

- Teamcenter System with an FSC Cache Server at remote site (Target)

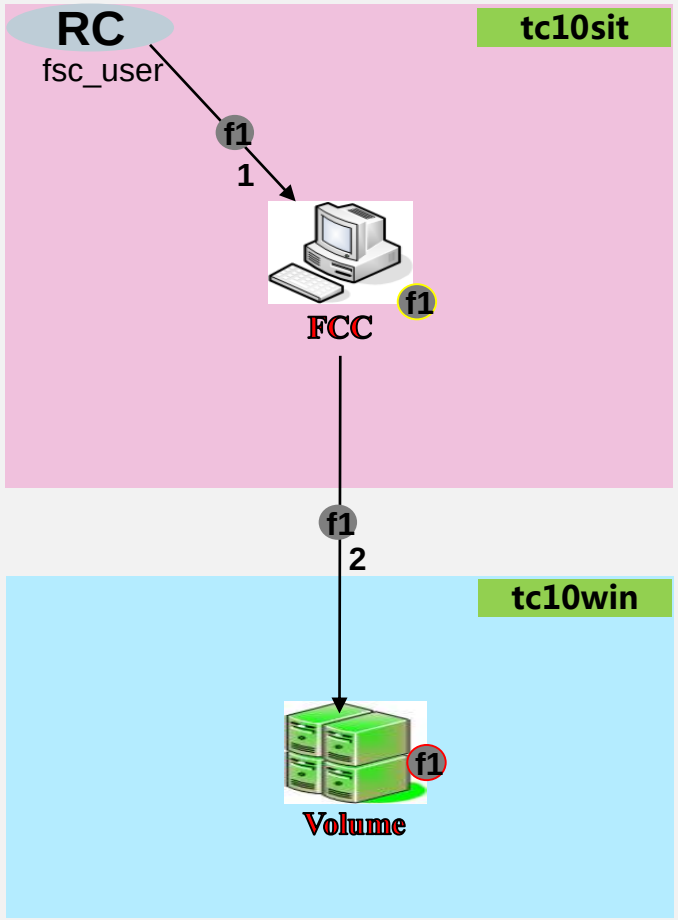


File Transfer Process

- **Upload without FSC Cache Server**

  On **tc10sit**, user **fsc_user** creates a dataset **f1**.

  - TC makes a copy of the dataset **f1** in the **FCC Write Cache.**
  - TC transfers the dataset **f1** to the **volume** on the site **tc10win**.

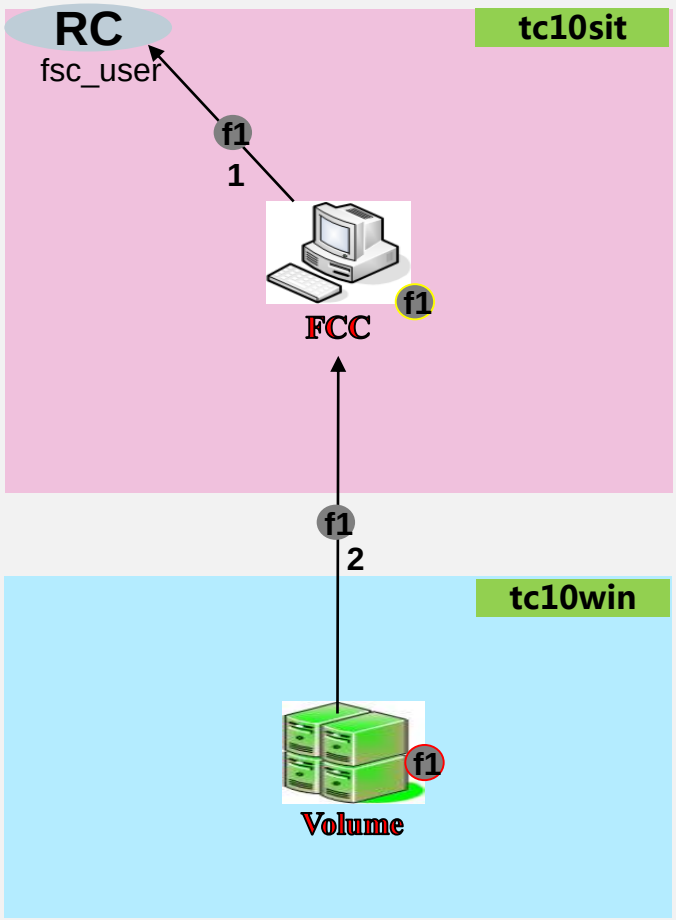


File Transfer Process (2)

- **Download without FSC Cache Server**

  On **tc10sit**, user **fsc_user** opens the dataset **f1**.

  - If **f1** is cached in the **FCC Write Cache**, the process is: **1->RC**, moving f1 from the **FCC Write Cache** to the **FCC Read Cache**
  - If **f1** is cached in the **FCC Read Cache**, the process is: **1->RC**,
  - If **f1** is not cache in the **FCC**, the process is: **2->1->RC**, leaving a copy cached in the **FCC Read Cache**.

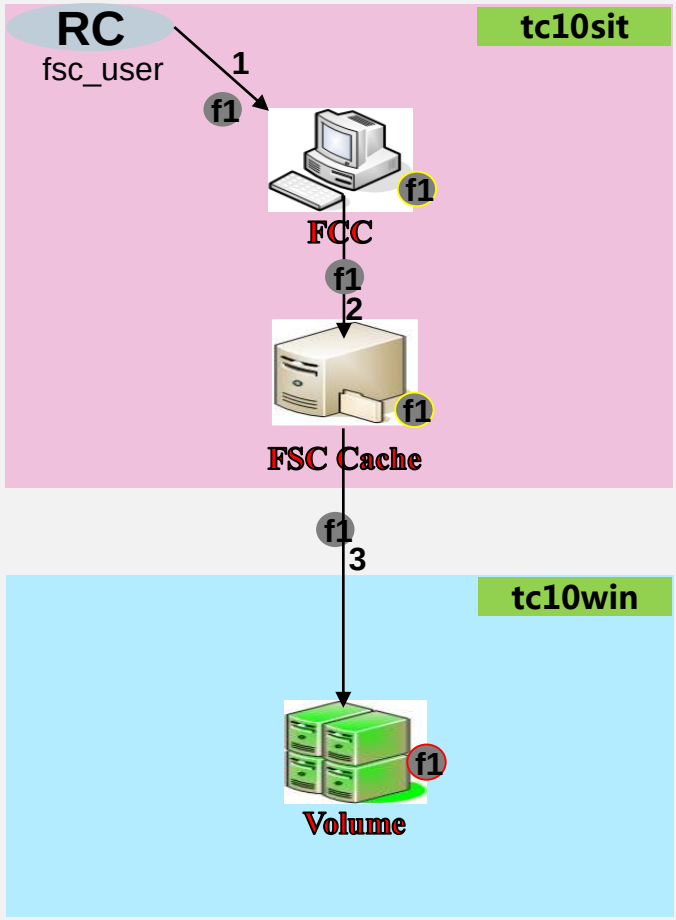


File Transfer Process (3)

- **Upload with an FSC Cache Server**

  On **tc10sit**, user **fsc_user** creates a dataset **f1**.

  - TC makes a copy of **f1** in the **FCC Write Cache**
  - TC transfers the dataset **f1** to the **FSC Cache**.
  - TC transfers the dataset **f1** to the **volume** on the site **tc10win**, leaving one copy in the **FSC Write Cache**.

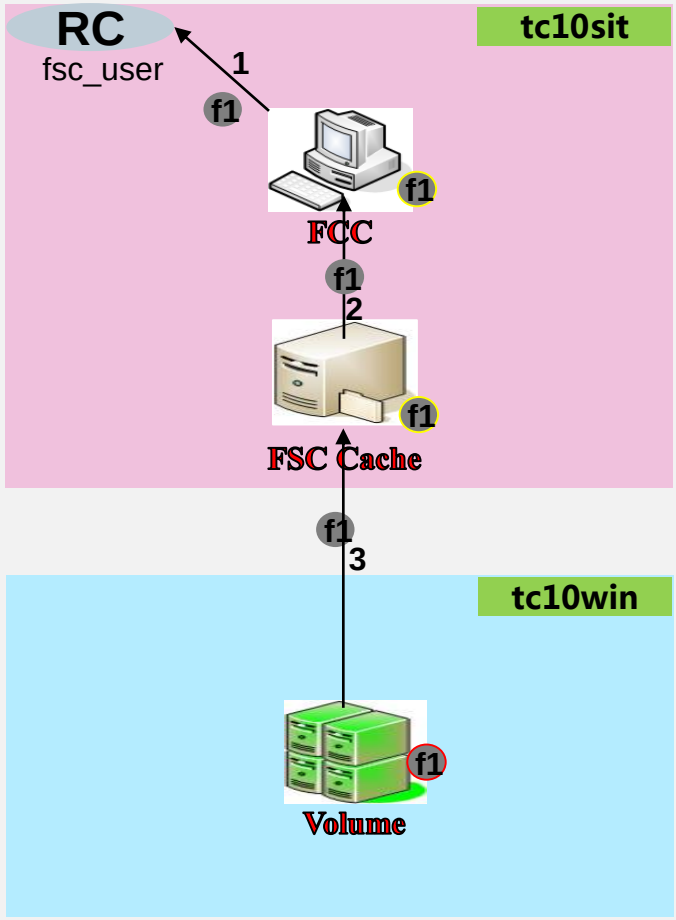


File Transfer Process (4)

- **Download with an FSC Cache Server (f1 is not cached in FCC)**

  On **tc10sit**, user **fsc_user** opens the dataset **f1**.

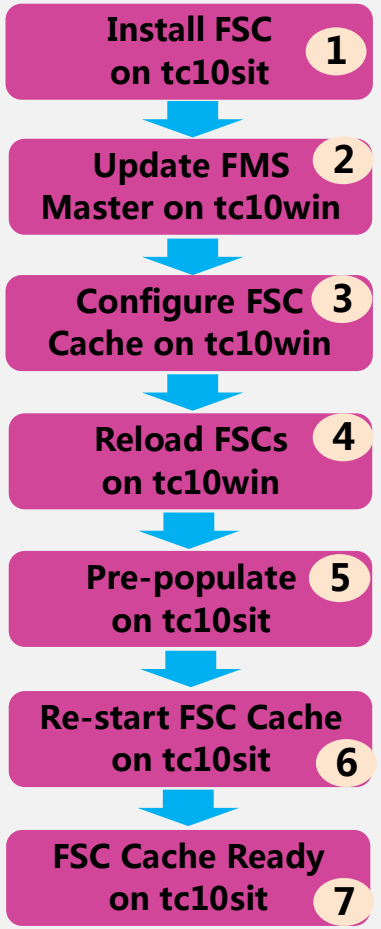
  - If the data set **f1** is cached in the **FSC write cache**, the process is: **2->1->RC**; the data set **f1** is moved from the **FSC Write Cache** to the **FSC Read Cache**; and leaving a copy in the **FCC Read Cache**.
  - If the data set is cached in the **FSC Read Cache**, the process is: **2->1->RC**; and leaving a copy in the **FCC Read Cache**.
  - If the data set is not cached in the **FSC Cache**, the process is: **3->2->1->RC;** leaving a copy in the **FSC Read Cache**; and leaving a copy in the **FCC Read Cache**.



Install & Configuration

- **Installation Process**

1. Run TEM on tc10sit to install a FMS Server Cache.
2. Run TEM on tc10win to update FMS Master, defining LAN group and set client map.
3. On tc10win, manually modify master FMS file to verify or add more configurations (see next section).
4. On tc10win, reload FSCs to distribute configurations to all the FSCs (FSC:4544, FSC:4545 and FSC:4546)
5. Pre-populate RSC Cache (may be required for product environment).
6. Re-start FSC Cache on tc10sit.
7. FSC Cache Server is then ready to use.



Install & Configuration (2)

- Configuration

  Manually open master configuration file to add the configurations for FSC Cache Server, and/or verify the configurations made by TEM

  - set **FCC_EnableDirectFSCRouting** to **false**

  Disable direct routing, or enable the local cache. This causes all FCC data access to be provided by the FCC's assigned FSC.

  If this parameter is not set, the client FSCs directly access the FSC volume servers.

  Add **FCC_EnableDirectFSCRouting** inside **<fccdefaults> </fccdefaults>** tag in the master configuration file. For example:

```
<fccdefaults>
    ……
    <property name="FCC_MaxWriteCacheSize" value="1000M" overridable="true" />
    <property name="FCC_MaximumNumberOfFilePages" value="28672" overridable="true" />
    <property name="FCC_MaximumNumberOfSegments" value="10688" overridable="true" />
    <property name="FCC_EnableDirectFSCRouting" value="false" overridable="false" />
</fccdefaults>
```

Install & Configuration (3)

- Configuration - continued
  - Define an fscgroup for every LAN.

    For example for tc10sit, the group r_mygroup is defined:

```
<fscgroup id="r_mygroup">
    <fsc id="FSC_tc10sit_r_fsc_cache" address="http://tc10sit:4546" ismaster="false" />
    …
</fscgroup>
```

Install & Configuration (4)

- Configuration - continued
  - Define clientmap(s) for the group

    Each clientmap must contains:

    - subnet and mask
    - assignedfsc and priority, **enabling the FSC Read Caching for downloading.**

    For example:

```
<fscgroup id="r_mygroup">
    <fsc id="FSC_tc10sit_r_fsc_cache" address="http://tc10sit:4546" ismaster="false" />
    <clientmap subnet="192.168.80.30" mask="255.255.255.255">
        <assignedfsc fscid="FSC_tc10sit_r_fsc_cache" priority="0" />
    </clientmap>
</fscgroup>
```

Install & Configuration (5)

- Configuration - continued
  - Define existfsc

    Enable caching the data be moved to the outside group or volume (**for uploading**).

    For example;

```
<fscgroup id="r_mygroup">
    <fsc id="FSC_tc10sit_r_fsc_cache" address="http://tc10sit:4546" ismaster="false" />
    <clientmap subnet="192.168.80.30" mask="255.255.255.255">
        <assignedfsc fscid="FSC_tc10sit_r_fsc_cache" priority="0" />
    </clientmap>
    <exitfsc fscid="FSC_tc10sit_r_fsc_cache" priority="0" />
</fscgroup>
```

    The **assignedFsc** and **exitfsc** could be the same, or different. In most cases they are same. In the training system, they are **FSC:4546** on the **tc10sit**.

Install & Configuration (6)

- Configuration - continued
  - For WAN environment, use “wan” acceleration and/or “gzip” compression

    For example, If tc10win and tc10sit are connected thru WAN:

```
<fmsenterprise id="-1954878951" volumestate="normal">

    <fscgroup id="mygroup">
        <fsc id="FSC_tc10win_Administrator" address="http://tc10win:4544" ismaster="true" />
        …
    </fscgroup>

    <fscgroup id="r_mygroup">
        <fsc id="FSC_tc10sit_r_fsc_cache" address="http://tc10sit:4546" ismaster="false" />
        …
    </fscgroup>

    <linkparameters fromgroup= “mygroup" togroup= “r_mygroup" transport="wan"
    compression="gzip" maxpipes="8"/>

</fmsenterprise>
```

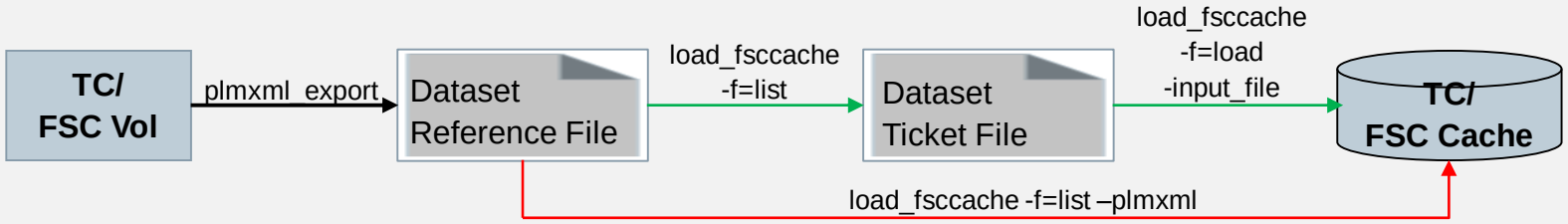
Prepopulate the Cache

- Prepopulating a cache server

To improve performance for end users, you can prepopulate the performance cache server with files that are frequently accessed. To do this:

- Use the plmxml_export utility to export a file containing information on the datasets referenced by an item revision.
- There are two ways you can prepopulate the cache:
  - **Populate with reference**: Directly load the references in the output of plmxml_export using the load_fsccache command with the -f=load option.
  - **Populate with ticket**: generate a tickets file using the load_fsccache command with the -f=list option. Then load the tickets file using the load_fsccache command with the -f=load option.

The diagram for prepopulating process:



Prepopulate the Cache (2)

- **Prepopulating a performance cache server: plmxml_export**

  - When prepopulating a performance cache server, first use the **plmxml_export** utility to export a file containing information on the datasets referenced by an item revision. This file is later used to either generate a tickets file or is used directly to load datasets in the cache.

  - Specify the following options:

    • Use the **-item** argument to specific the item. This option requires that you use the item's **ID** as the value for the **-item** option.

    • Use the **-rev** argument to specify the revision of the item.

    • Use the **-transfermode** argument. You can use **justDatasetsOut** or use your own the transfermode. For more information on transfermodes, see the *plmxml_export* topic in the *Utilities Reference*.

    • Use the **-rev_rule** argument to specify the revision rule to use. You can use **Latest Working** or you can substitute your own revision rule. For more information on revision rules, see the *Structure Manager Guide*.

Prepopulate the Cache (3)

- **Prepopulating a performance cache server: plmxml_export example**
  - For example:

    plmxml_export -u=infodba -p=infodba -g=dba -item=000022 -rev=A -rev_rule="Latest Working" -export_bom=yes -transfermode=justDatasetsOut -xml_file=C:\activities\cntc004\temp\export_cntc004_fsc_test_10.xml

Prepopulate the Cache (4)

- **Prepopulating a performance cache server: load_fsccache -f=list**
  - You can generate a tickets file from the output of the **plmxml_export** utility using the **load_fsccache** command with the **list** option.
  - Specify the following options:
    - Use **-f=list** to generate a tickets file.
    - Use **-plmxml** to specify the file containing the list of files to generate tickets for.
    - Use **-output_file** to specify the name of the tickets file.

For example:

load_fsccache -u=infodba -p=infodba -g=dba -f=list -plmxml=C:\activities\cntc004\temp\export_cntc004_fsc_test_10.xml -output_file=C:\activities\cntc004\temp\export_cntc004_fsc_test_10_tickets.xml

Prepopulate the Cache (5)

- **Prepopulating a performance cache server: load_fsccache -f=load**
  - When prepopulating a cache, you can use **load_fsccache -f=load** to:
    - Load FMS tickets generated from **load_fsccache -f=list**.
    - Load the output of **plmxml_export**.
  - Specify the following options:
    - Use **-f=load** to prepopulate the cache.
    - Use **-plmxml** to specify the file containing the information on files to be loaded.
    - Use **-fsctargets** to specify the FSC ID of the cache to be prepopulated.

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Prepopulate the Cache (6)

- **Prepopulating a performance cache server: load_fsccache -f=load example**
  - For example:

    load_fsccache -u=infodba -p=infodba -g=dba -fsctargets=FSC_tc10sit_r_fsc_cache -f=load -input_file=C:\activities\cntc004\temp\export_cntc004_fsc_test_10_tickets.xml.xml

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Activities

- In this training session, do the following activities using different os accounts on both tc10win and tc10sit:
  - Install an FSC cache server
  - Update the FMS Master
  - Create a test user
  - Test the FSC cache server
  - Pre-populate the cache

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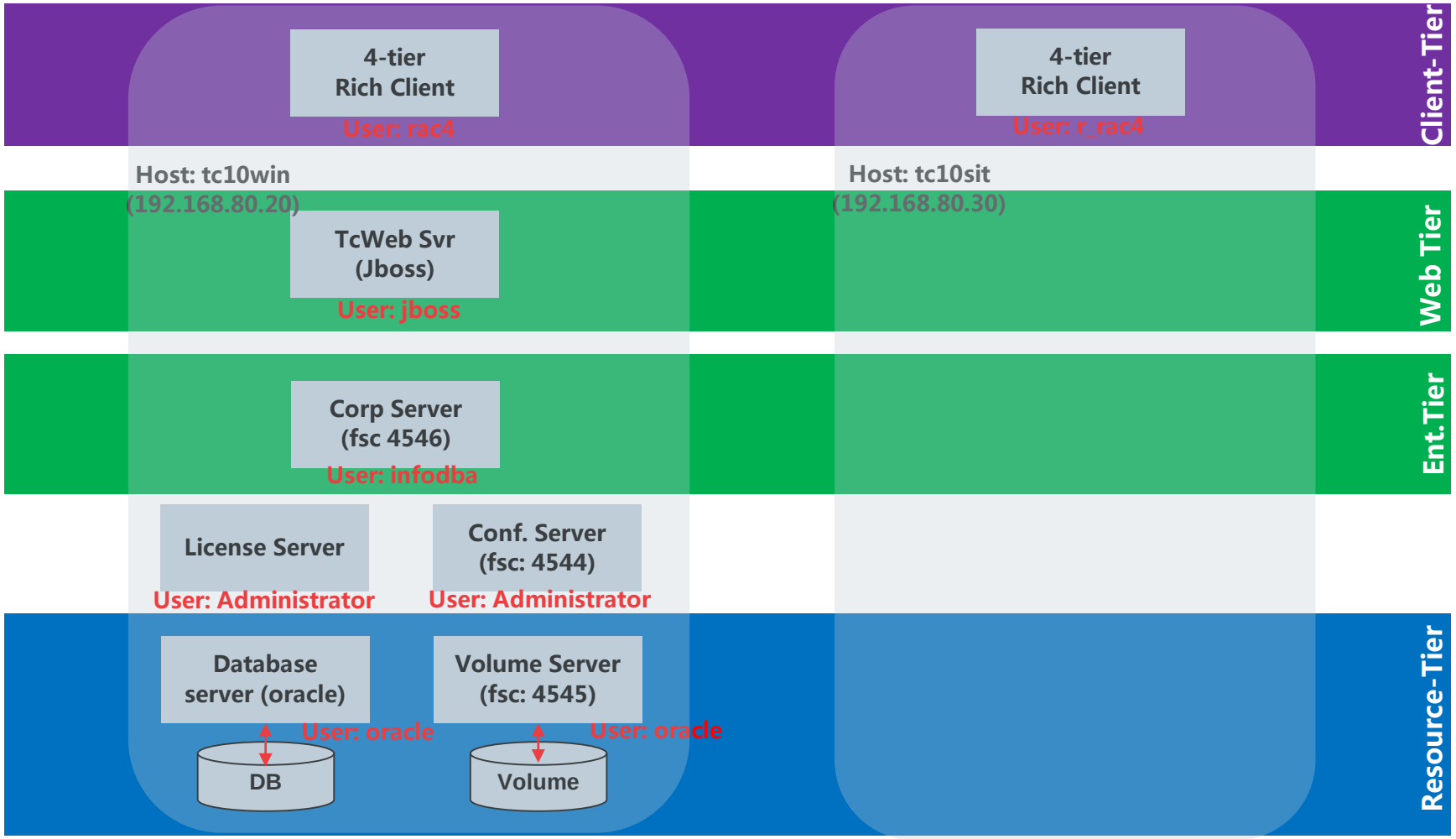
Summary

- The following topics were taught and practiced in this session.
  - FSC cache server architecture
  - File transfer process w/o a FSC cache server
  - Install & configure the FSC cache server
  - Pre-Populate the cache

Thank you!

Learn and grow with our customers every day!

FSC Cache Server Architecture



FSC Cache Server Architecture