3VR

Migrating Appliance and ES Phase I

Software Design Document

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Lab Section:

Workstation:

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1. INTRODUCTION

This document describes the architecture and system design of 3VR Migrating Appliance and ES Phase I.

1. SYSTEM OVERVIEW

Following are the requirement of 3VR Migrating Appliance and ES Phase I:

1. Only backup specified channel’s data to ESS

In phase I and phase II, we backup all channel’s data files. In phase III, only the specified channel’s data files could be backup to ESS. Meanwhile, when user accesses them, they will be retrieved from ESS if they are trimmed in local file system.

They will also impact the local file system trimming logic.

**Note: If we remove one specified channel in SM ‘Configure Client Extended Storage Dialog’ after some of its videos have already been backup to ESS, its already backup videos on ESS won’t be trimmed because the copy of these backup videos maybe already trimmed on ESS client(because of ESS client low of free space). Please double confirm it.**

1. OpCenter could choose connecting to CS or ESS to play back videos.

When playing back videos, the OpCenter could choose connecting to CS or ESS to play back videos.

**Whether show “Playback from Extended Storage Server” Option:**

* **If login to appliance directly:**

**If the appliance is ESS client and could access the data already backup on ESS and not specify channel backup, this option will visible. Otherwise it is invisible.**

* **If login to appliance via Enterprise:**

**This option will visible if at least one appliance is ESS client.**

**When “Playback from Extended Storage Server” is chosen:**

* **If login to appliance directly:**

**All viewed channels will connect to ESS to do playback when it’s full channel backup, otherwise still connect to CS to do playback.**

* **If login to appliance via Enterprise:**

**If appliance is ESS client and could access the data already backup on ESS and not specify channel backup, in such case, we connect to ESS do playback. Otherwise we still connect to CS do playback.**

**Note:**

**Check whether the appliance is specify channel backup:**

**If all the active channels are active backup channel, this appliance is full backup, otherwise is specify channel backup.**

**Whether to show “Playback from Extended Storage Server” or whether connect to ESS when login appliance via Enterprise. There are 3 conditions:**

**1. Is ESS client**

**2. Could access already backup data**

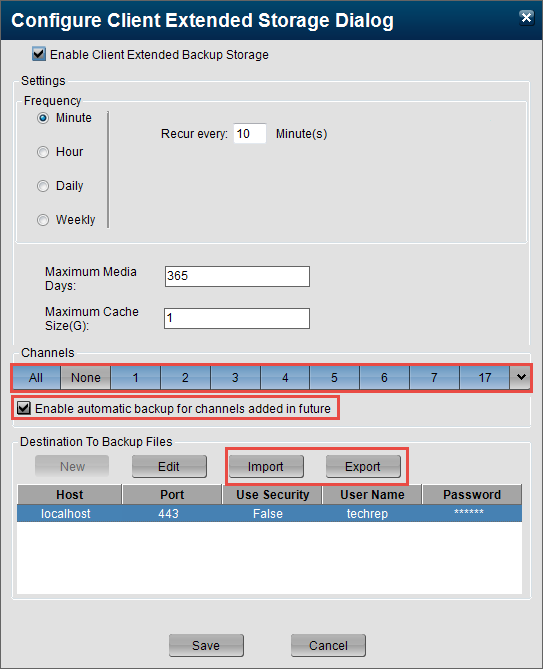
**3. Not specify channel backup**

1. **After the OpCenter launched, the user change the check conditions we will not change this option’s state to visible or invisible. Unless the user restart OpCenter.**
2. **If the user change the check conditions after the connection created, we will not switch the connection. Unless the user change the check state of “Playback from Extended Storage Server”.**
3. Export and import configuration settings used for ESS.

Provide export and import of configuration settings used for ESS. In ESS client configure wizard, we provide ESS server settings (such as ESS server hostname, port number, user/password etc…). Our intention is we should be able to export that settings in to XML file and save it to disk. Later when we configure to other systems with similar configuration we can use the import same xml file and configure quickly. The reason is it will save lot of time to do ESS configuration if same setting is applied to lot many ESS clients.

1. SYSTEM ARCHITECTURE
   1. Architectural Design
   2. Decomposition Description
      1. Only backup specified channel’s data files to ESS
         1. System Manager

In Configure Client Extended Storage Dialog, we add panel for select channels, please see below GUI:

. 

* + - 1. New table BackupDetails

We need a new table ‘BackupDetails’ to store the backup details about specified channels, because maybe some channels are not specified at the same time.

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannleId | IsActive | BackupEndTime |
|  |  |  |

Following is the details for each column:

ChannleId: primary key, it is use to indicate specified channel.

IsActive: it is use to indicate whether continue backup this channel’s data.

BackupEndTime: the latest backup video file timestamp of this channel. It is used to indicate whether this channel is new added.

If its value is less than the EndTime of BackupSummary that is means this channel is new added.

After click Save button of Configure Client Extended Storage Dialog, we will add or modify selected channels in BackupDetails table.

For example, at beginning, the BackupSummary and BackupDetails are empty.

|  |  |  |  |
| --- | --- | --- | --- |
| **BackupSummary** | | | |
| BackupSummaryId | BackupDestId | BeginTime | EndTime |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannleId | IsActive | BackupEndTime |
|  |  |  |
|  |  |  |
|  |  |  |

**Then specify channel 1 to backup**. Add new record to BackupDetails

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannleId | IsActive | BackupEndTime |
| 1 | 1 | DateTime.MinValue |
|  |  |  |
|  |  |  |

After channel 1 backup sometimes then **add channel 2 to backup**.

|  |  |  |  |
| --- | --- | --- | --- |
| **BackupSummary** | | | |
| BackupSummaryId | BackupDestId | BeginTime | EndTime |
| 1 | 1 | 2014/12/06 09:25:34 | 2014/12/07 11:25:30 |

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannleId | IsActive | BackupEndTime |
| 1 | 1 | 2014/12/07 11:25:30 |
| 2 | 1 | DateTime.MinValue |
|  |  |  |

Note: because at first, all the selected channels’ BackupEndTime are equals the EndTime of BackupSummary.

After add channel 2 to backup, the backup timer will reset, and check whether channels are new added (BackupDetails. BackupEndTime < BackupSummary. EndTime), and found channel 2 is new added, so first backup channel2’

After channel2annel 2 is new added, so the table content should be like below:

|  |  |  |  |
| --- | --- | --- | --- |
| **BackupSummary** | | | |
| BackupSummaryId | BackupDestId | BeginTime | EndTime |
| 1 | 1 | 2014/12/06 09:25:34 | 2014/12/07 11:25:30 |

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannleId | IsActive | BackupEndTime |
| 1 | 1 | 2014/12/07 11:25:30 |
| 2 | 1 | 2014/12/07 11:25:30 |
|  |  |  |

Disable channel2 backup.

|  |  |  |  |
| --- | --- | --- | --- |
| **BackupSummary** | | | |
| BackupSummaryId | BackupDestId | BeginTime | EndTime |
| 1 | 1 | 2014/12/06 09:25:34 | 2014/12/07 11:25:30 |

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannleId | IsActive | BackupEndTime |
| 1 | 1 | 2014/12/07 11:25:30 |
| 2 | **0** | 2014/12/07 11:25:30 |
|  |  |  |

Note: not all the channel’ote: not all the channellike

* + - 1. Extended Storage Client API

Get the specified channel’s data file list between begin and end timestamp:

For videos:

Fetch specified channel’s file pathname list between begin time and end time stamp order by timestamp.

For audios:

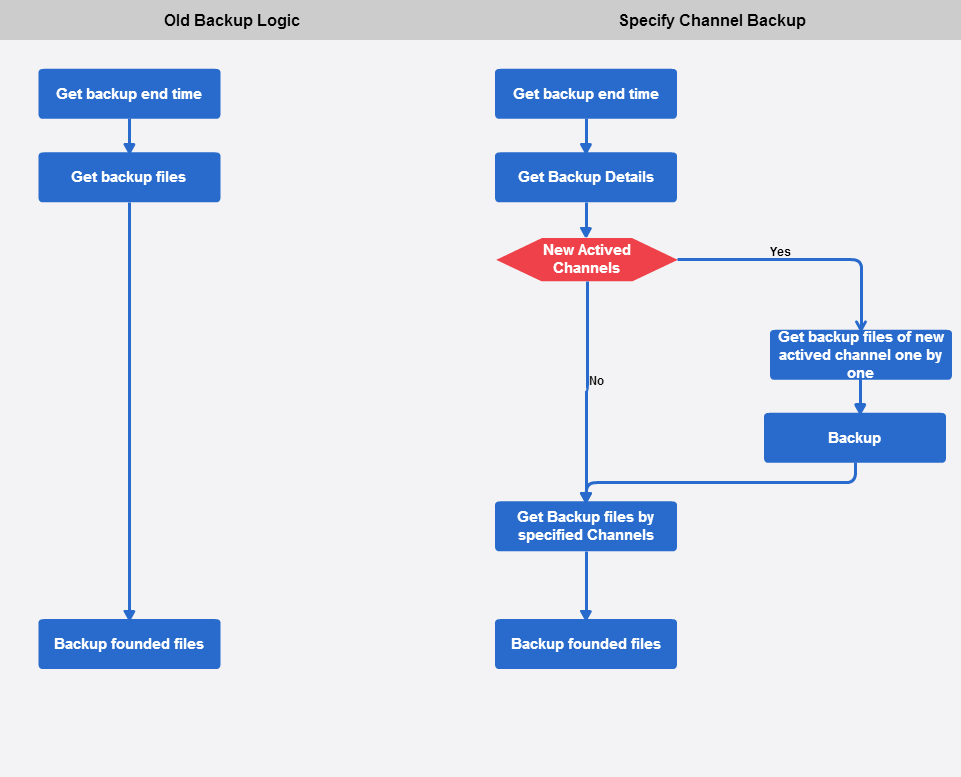
Directly read subfolders on media storage devices. Because the audio storage folder structure is ‘date/hour/audio/channelNumber/filename’, we can filter folder name based on begin and end timestamp and get file list.

And then filter by channel number.

For images:

**Because all channel’s images stored in the same image file at one time, we have to backup all image files even specified channels are specified**.

So for images there is no change.



* + - 1. Content Server
         * Read an video, audio or image file

Nothing should be change.

* + - * + FS Trimming

When free space on client local file system is not enough, trimming will happen.

Impacted class: DataTrimmer, ScheduledTrimTimer

Current functionality:

For ESS client trimming:

First trim files already backup on ESS

Second do scheduled trimming

Third do emergency trimming

For ESS server trimming:

There is a timer by default which trim files both on client and destination before maximum storage days (configurable, 365 days). It will also delete related records in videos, transcodVideos, and eventsIndex table.

To do:

For ESS client trimming:

In first step ‘trim files already backup on ESS’, trim video, audio and image files by backup channels.

First trim half data files of specified channel, and then check whether free space is enough, if yes exit trim. If not, continue trim another specified channel.

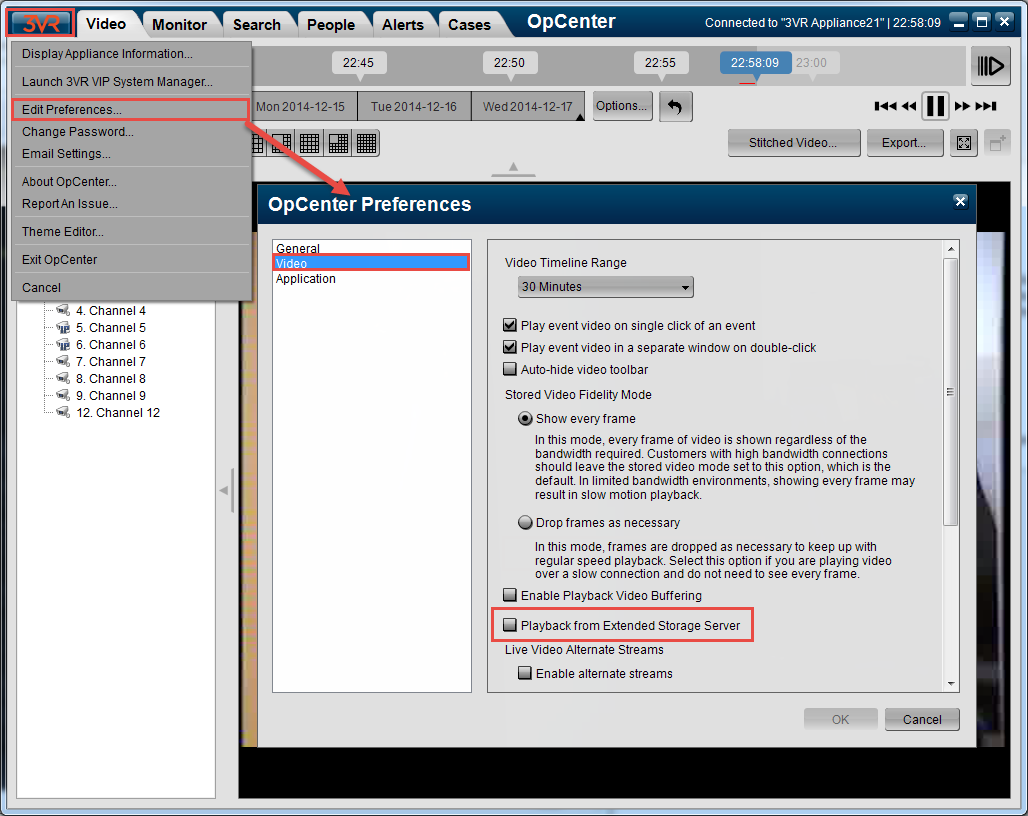
In second step ‘schedule trimming’,

For ESS server trimming:

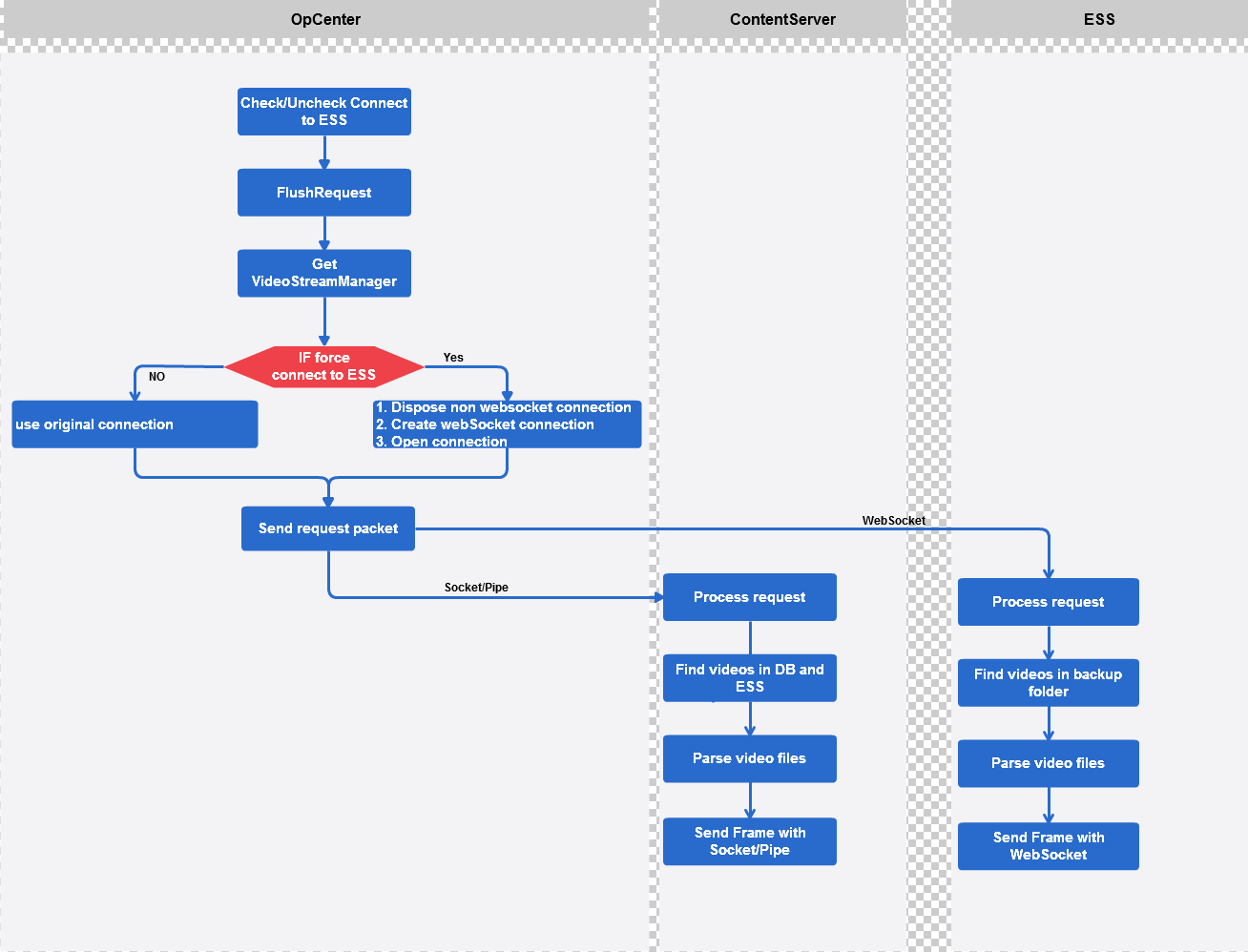
Nothing should be change.

* + 1. OpCenter could choose connect to CS or ESS to playback videos
       1. OpCenter

In OpCenter Preferences dialog, we add a checkbox “Playback from Extended Storage Server”, please see below GUI:



* + - * + Force OpCenter connect to ESS



1. DATA DESIGN

We need a new table for the details about specified channels, because maybe some channels are not specified at the same time.

ChannleId: primary key, it is use to indicate specified channel.

IsActive: it is use to indicate whether continue backup this channel’s data.

BackupEndTime: the latest backup video file timestamp of this channel. It is used to indicate whether this channel is new added.

If its value is less than the EndTime of BackupSummary that is means this channel is new added.

|  |  |  |
| --- | --- | --- |
| **BackupDetails** | | |
| ChannelId | IsActive | BackupEndTime |
|  |  |  |
|  |  |  |

1. HUMAN INTERFACE DESIGN

N/A

1. REQUIREMENTS MATRIX

N/A

1. Error Conditions

N/A

1. APPENDICES

N/A