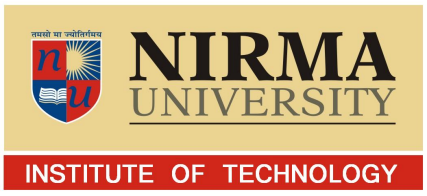
Content Delivery On Multiple Devices

By

Nirav Dhami

10MCEC04



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INSTITUTE OF TECHNOLOGY

NIRMA UNIVERSITY

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Content Delivery On Multiple Devices

Major Report

Submitted in fulfillment of the requirements

For the degree of

Master of Technology in Computer Science And Engineering

By

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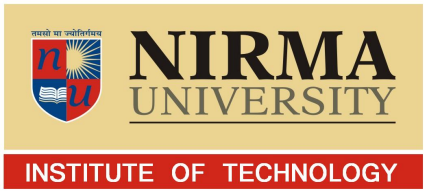

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Declaration

This is to certify that, I, **Nirav D. Dhami**, **10MCEC04**, give undertaking that the Major Project entitled **"Content Delivery on multiple Devices"** submitted by me, towards the fulfillment of the requirements for the degree of Master of Technology in Institute of Technology of Nirma University, Ahmedabad, is the original work carried out by me and I give assurance that no attempt of plagiarism has been made. I understand that in the event of any similarity found subsequently with any published work or any dissertation work elsewhere; it will result in severe disciplinary action.

Nirav D. Dhami

Certificate

This is to certify that the Major Project entitled "Content Delivery System on Multiple devices" submitted by Nirav Dhami (10MCEC04), towards the fulfillment of the requirements for the degree of Master of Technology in Computer Science and Engineering of Nirma University, Ahmedabad is the record of work carried out by him under my supervision and guidance. In my opinion, the submitted work has reached a level required for being accepted for examination. The results embodied in this major project, to the best of my knowledge, haven't been submitted to any other university or institution for award of any degree or diploma.

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Abstract

Content Delivery on Multiple Devices is a multi-screen service management software suite that allows service providers to deliver a next-generation video experience. It allows operators to better manage assets, security, monetization, service assurance and personalized experiences that will put them in an ideal position to define "what's next" in the Internet Era of TV. It offers powerful software modules for advanced content delivery and service management, and is architected for maximum flexibility, easy integration and rapid service development. It can be deployed separately or as a whole. By relying on open systems and standards-based interfaces to enable flexible and easily-deployed integration with existing customer-developed and/or third-party systems, it represents a true evolutionary path for existing video services infrastructure.

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- Nirav Dhami

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Abbreviations

VF ..... Video Flow
VOD ..... Video On Demand
EAMS ..... Enhanced Asset Management System
ACK ..... Acknowledgement
AMC ..... Asset Management Console
CDS ..... Content Delivery System

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Chapter 1

Introduction

1.1 Introduction

Content Delivery On Multiple Devices is a component of the cloud solution that helps service providers manage and grow their on-demand catalog to include music, games, web content and enhanced TV applications, without increasing staff.

Using automated workflows and secure digital rights management, *VideoFlow* helps service providers deliver these assets across multiple screens. It solves the problems associated with managing the infinite library of content demanded by consumers today.

It comprises a suite of software products that can be deployed separately or as a whole. It offers powerful software modules for advanced content delivery and service management.

It is placing greater control into consumers hands to personalize their TV viewing across multiple devices anywhere in the home with the launch of its CDN platform. As part of it multi-screen service management software suite, the cloud-based applications platform allows service providers to merge video content with social networking, games and web-based content and delivers greater interaction capabilities with broadcast television and video-on-demand (VOD) services.

Figure 1.1: Objective of Content delivery On multiple devices

As an added benefit for service providers, it allows them to offer customized user experiences and application combinations to subscribers in a cost-effective, scalable and open framework. To help service providers get started, its platform has several core experiences built-in that they can immediately deploy for increased consumer value. Providers can also choose to build on these use-cases to scale their portfolio of multi-screen experiences.

Figure 1.1 gives the idea about the product. More than one person can see the videos on more than one devices any where.

Chapter 2

Problem And Scope Of the System

2.1 Scope of System:

Service providers can immediately deploy the following key services to their subscribers:

- **TV and VOD Remote**: Transforms a companion device, such as a tablet, smart phone or laptop, into a remote control to browse the enhanced programming guide, choose a VOD or linear title, and launch it on their device or any TV in the home. The experience will be part of a service providers branded site allowing consumers to look for content without interfering with the TV-watching experience.

- **TV and VOD Streaming**: Uses a companion device to browse a VOD store or enhanced linear electronic program guide (EPG), search and discover content, and watch it on the device. The functionality adds the flexibility of another screen in the home to consume premium content along with menu-based social networking options to further enhance the TV-watching experience

- **Enhanced User Interface**: Provides a rich and intuitive visual interface that improves search, navigation and discovery of content such as movies and TV shows. Featuring personalized recommendations, streamlined decision-making scenarios and a watch-queue, the enhanced user guide leverages the devices consumers are already using and helps service providers to manage usability and experience improvements and increase average revenue per user (ARPU) while more effectively competing with web providers vying for subscribers attention.

2.2 Back Ground Of The Problem

In earlier days, On video on demands, Service provider needed to wait for any request from the customer. Then the request is processed by first finding the movie and process the movie through all the worksteps and put into the CDN systems so that customers are able to see the movie. All worksteps are done by operators manually.

At that time, Operators were need to enter the movie to third party system and wait till the movie was getting transcoded.Then they were put the movie to the CDN system without checking the quality.So sometimes movie was corrupted and all the problems were arise then again need to do transcoding and put the movie or they need to check manually and check the movie quality.

Now let's say you have staff of 50 operators and at a time you have almost 100 request, so the Problem is how to serve the request with 50 operators. This system will be helpful to solve this problem. It will do the all worksteps automatically. Once the operator ingest the Package into the catcher.

Chapter 3

Architecture Of CDS

This chapter talks about the current system architecture which is a flowbased architecture. Figure3.1 shows the architecture of the Contentdelivery System. It talks lot about the third party System. Ingestation Block describes how Videos comes into this system from IP network, Catcher through export or through FTP. It will come to the Public Catcher.

Before ingest there are certain PreIngestaion step are there. In PreIngestaion steps, it normalize the content and convert it into the CDS specific format. Here conversion means it will remove the special characters or blankspaces and do certain naming conventation.

Once PreIngestaion step is over it comes to the Ingestation steps. In ingestation we will verify the package has 5 things with him or not. (movie, preview, poster, box cover, high res, thumbnails).

After that package got picked by process(Which is run every five minutes and see is any package is available into the spool directory or not.After the package got picked it will go to the Workstep which we defined.(QA,TRANSCODE,ENCRYPTION).

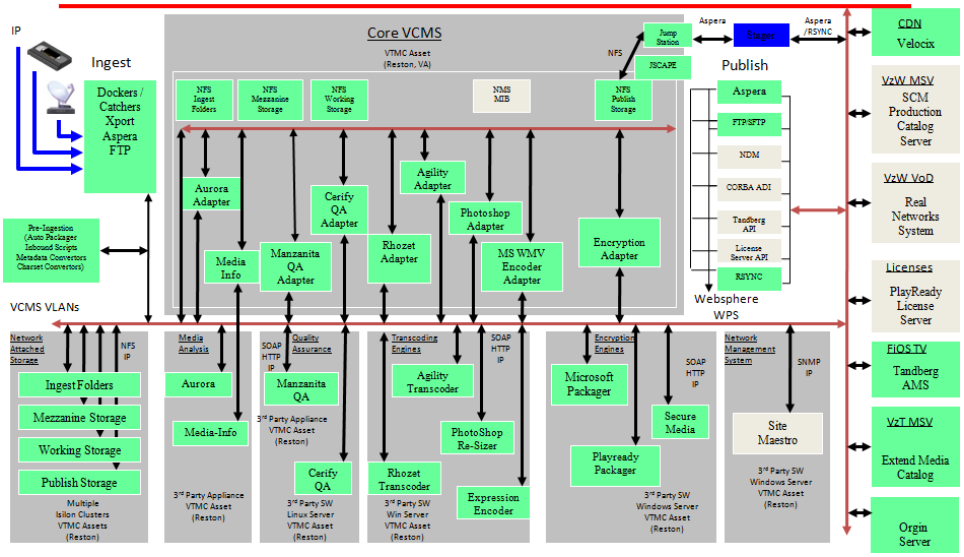

Figure 3.1: General Architecture of Content Delivery On multiple devices

In below figure3.1 , above parts talk about the quality analysis ,media analysis and encryption analysis system. And below part talks about the what the third party system will do and we have one working storage available from that one by one workstep pick the assets and doing the processing.

Below figure3.2 shows the functional view of the system. In this figure3.2 individual workstep shoud be described.

- **Ingest WorkStep**:

  a. Packager: It will use the autopackage and multipackage functionality and package the different media and prepare the package.Package should contains movie,preview,poster,boxcover,high res,thumbnail.So packager step will package the asset and ready for the proceessing

  b. Normalizer: In this step, we will normalize the package .If whitespace is there then we will remove it.we give the certain naming convention so that we will able to differntiate between the assets.

  c. QA: here we will check the quality of the media.if the coming media is the

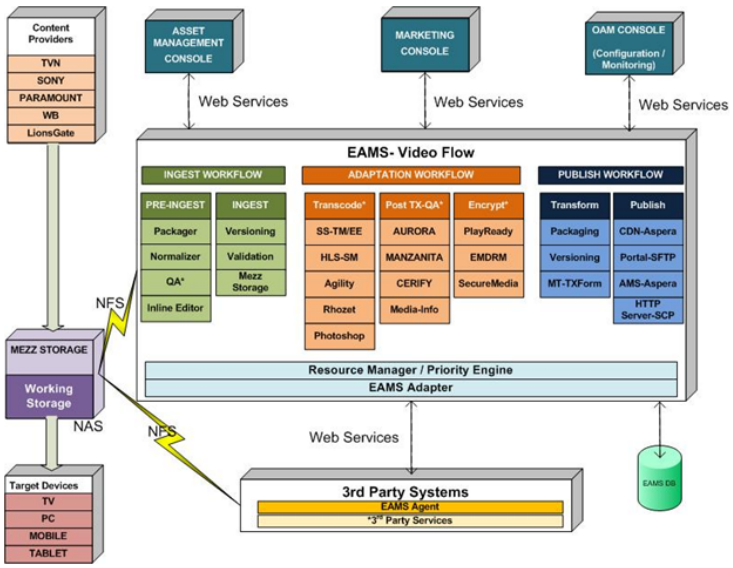

Figure 3.2: Functional View of Content delivery On multiple devices

corrupted or not.We will check the resolution and bitrates of the assets if they are not perfect or according to the criteria.(according to the ADI standard) then we will go to the contnent provider and ask for the different assets.

d. Inline Editor: In this step,we will edit the assets ,If any scene needs to be cut from the movies we will cut it from the movie in this step.

- **INGEST**:

a. Versioning: once I'll get the package it is the first version we received.We process the package .After words it they want to release some better quality picture or some added scene picture so we will get the new package or asset and we will increament the version.

b. Validation: In this step, We will validate the asset according to the ADI standard like this is the tags we need into the with assets.we will check the values if any check is fail we will go to the content provides and get the new assets with valild tags.

c. Mazz Storage: Here we will check the quality of the media.if the coming media is the corruped or not.We will check the resolution and bitrates of the assets if they are not perfect or according to the criteria.(according to the ADI standard) then we will go to the contnent provider and ask for the different assets.

d. Inline Editor: In this step,we will edit the assets ,If any scene needs to be cut from the movies we will cut it from the movie in this step.

- **Adaptation WorkFlow**:

- **Transcoding And PostTranscode QA**:

a. Transcoding: Here we use two type of transcoding HLS AND SS . SS for the microsoft platform and HLS for the non microsoft platform.
Agility ,Photoshop,rhozet are the third party systems.

b. PostTranscode-QA: After the movie is transcoded complete we will check the it is according to quality or not .We will check the movie for certain quality parameters.

- **Publish WorkFlow**:

- **TransForm**:

a. Packaging: Why packaging required here? Because I will publish the package for the different target platforms like movie,preview,poster,high res,thumbnails. so I'll get the one asset and I'll transform this one asset into the more than one assests so this assets needs to be package for the particular target platforms.sssss

b. Versioning: Version is done for the identify the different assets for the particular target platforms.

c. Meta-data transformation: For doing the Metadata-transformation ,I get to know for tv this is the pricing for mobile this is the pricing.

- **Publish** :

    a. In this step we will publish the asset to the outbound location from there , service provider will able to deleiver from here to any device via delivery systems.

In this figure, there are three management consoles are available.

- **Consoles** :

    a. AssetManagementConsole: This will give you the view of the how many assets are there in your system. so that we have easily found how many assets are in our systems.It is a GUI based Utility.

    b. Marketing Console: In this Console we will define the pricing.We will define the category of the movie.Movie is the Adult movie or cartoon movie or Action movie etc.

    c. OAM Console: it is configuration console.

Chapter 4

Processes On Packages

This chapter talks about the what other processes are requires with this architecture and how they are invented.
After package is published what other possibilities are come into the scene

a. Right now we are considering what all are the target platforms are avail- able. What happen if the new target platform comes. So if any demand comes for the published movie for the new target platform then it is not able to play that movie.

b. If one movie came but no demand comes for that movie for the particular price. If I need to change the price then what should I need to change?

c. What happen on any origin server my asset got corrupt and it is not able to play on devices ?

- **Reprocess** :

    a. This process is helpful when the new target platform comes into the market. We will select all the asset and Reprocess this asset for the newly coming target platform. In this case we will assign the incremental publish version and need to put the target platform specific format into the profiles

and workflow so that It is pass through all the workflow steps and publish the asset for that target platforms.

- **RePublish**:

  a. This process is helpful when any content is corrupt then we will have to do the Republish for that target platform's asset. Let's say for RIM mobile ,movie got corrupted then movie is not able to play on this target platform. so when movie got corrupt then we will do the republish on particular target platform. IN republish we will start the process from the Transcode workstep.Because we have already ingested movie and all the steps are completed in that.so this process will start from the Transcoding.
  In that We have to specify the Workflow and process for the particular target platforms.

- **MetadataUpdate**:

  a. After asset got published, If service provider wants to sell this movie for less price then It has to change into the metadata for the particular asset. In this case we need to do the metadata update. Here we are not doing anything with movie. So we are not going to include the workflow steps.so as workflow we pass "NoMediaWorkFlow" so that it won't go to any Transocing ,QA and Encryption. It just updates the movie pricing and publish the packge with updated pricing.

Chapter 5

New Layer Based Architecture

In this chapter, we talk about the LayerBasedArchitecture and added new functionality.Figure5.1 is shown as layer based architecture We added presentation layer, business process layer, workflowlayer and their interconnection with eachother.

5.1 Presentation Layer

This Layer is generally related to GUI.(graphical user interdace). It consists of following types:

- Security: Login and password for user to enter
- Business function: It is used for adding to new vendor to the system.Need to following cetain steps.
- Editors: It is used to edit the Workflow.We are able to add and remove the profile from the workflow and activeate and deactivate the workflow. Editors like If any error occurs during the package Transocding or encryption then we will get to know which error are there and which are the causes for the errors.
- System Enum: System Enum contains information about the target devices,Media format and Metadata Types.

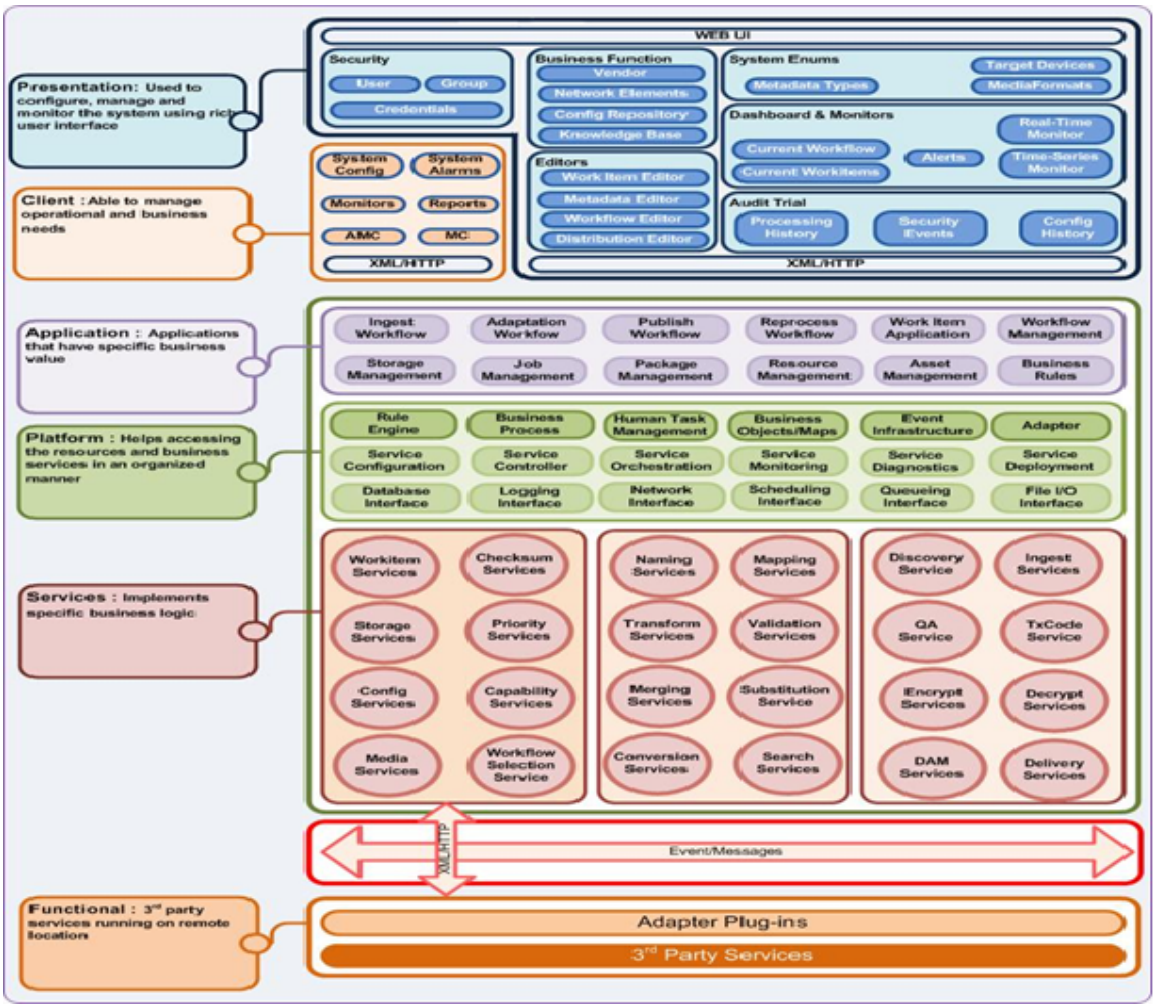

Figure 5.1: New Layer Based Architecture

- Audittrail: Contains Processing History,Security events and config repository.

5.2 Applications

Applications sections contains the applications which have specific business values.

- IngestWorkFlow: When packages comes from Provides so we need to normalize the package and put into the system.
- AdaptionWorkFlow: Paackage will by default take the workflow according to the their catcher and vendor.
- PublishWorkflow: Publish workflow is used for which target platform the package got published.
- ReprocessWorkFlow: Reprocess workflow used when new target platform is getting added into the system.
- Workitem: Workitem Is used to identify the defect into the system. Once the defect come we have three options to do the things like either retry,Skip and continue,Reject.
- JobManagement: Means we have added the Capacity for the every element and need to specify to which we need to give the job and to which we need to remove from the job.

5.3 Services

- CheckSum services: We are calculate the checksum of all the assets of the package for security purpose.
- Work Item Services: Workitem services check the DB and give us the Information about the errors in the system.

- Storage Services: This will use for package when under processing let's say once the packages are into the system one process will pick the packages from the NAS locatons(Common network storage).

- Capability Services: Capability services are used for the registering the capabilites of the target platforms.Means it is decides that For WinMobile only images are published.

- Workitem: Workitem is used to identify the defect into the system. Once the defect come we have three options to do the things like either retry,Skip and continue,Reject.

- JobManagement: Means we have added the Capacity for the every element and need to specify to which we need to give the job and to which we need to remove from the job.

Chapter 6

TCS(Tightly Couple Scripts)

TCS is a framework developed for content Providers. Content Providers are put their packages into the public folder. From public folder, we run the background process like Pre-Ingest Discover. which is poll after every five minutes to this public folder. Each provider has their own public folder. Providers put the package into the public catcher and pre-ingest discovery will pick the package and put it into action.

Stages of a packages are define in Table6.1 in TCS Process:

6.1 Introduction

This chapter contains:

- TCS Overview
- Scope
- Intended Audience

6.1.1 Tightly Coupled Scripts (TCS) Overview

TCS is developed to replace Inbound Scripts. TCS process packages from various content providers and convert to ADI standards, perform media analysis on incoming

Table 6.1: Stages of a package in TCS Process

WorkStep Name	End Result
Discovery	Package and its contents discovered in Public Catcher
Resource Normalization	File Names Normalized
Role Recognition	Package assets identified, video, image and metadata assets identified.
Resource Normalization	The identified Metadata asset is normalized
Role Recognition	Identifying metadata as film2.0, film 2.1, xls or ADI1.1
Metadata Conversion	If metadata is non ADI 1.1, its converted to ADI1.1 format
Resource Analysis	Analyze video, image and metadata files.
Resource Normalization	Normalize analyzed metadata from previous step.
Auto detect	Co-relate assets of package.
Workflow Identification	Check for matching local catcher (with matching tag list and vendor)
Package Ingestion	Package moved to local catcher

media files, transform the metadata appropriately - prior ingesting to VIDEOFLOW system. TCS support following content providers:

1 Paramount

2 Sony

3 WB

4 LionsGate

5 NBCU

6 HBO

TCS supports to onboard new content providers to process and ingest into VIDEOFLOW system.

6.2 TCS FEATURES

TCS process the packages from various content providers to convert to ADI standard, performing media analysis and transform the package - Ready for Ingestion. This is driven by rules/workflow to process the packages. This chapter contains:

TCS Properties Files Configuration

- Rules
- Catchers
- Package Flow in TCS
- Handling Media Assets

6.2.1 Rules

The steps that a package goes through before actual Ingestion (when a package is in PreIngestion workflow process) can be configured as Drools file (In VIDEOFLOW GUI, go to Management ' Repository). The sequence of steps is as follows:

- Discovery: It identifies the package in Public Catcher's Spool directory and moves it to the Public catcher's Copy directory.
- Name Normalization: It identifies the file names with special characters and converts them to file safe characters.
- Role Recognition: This checks if discovered content is a file or directory. It recognizes type of files such as Video file, Metadata file, Image file, SCC, etc.
- Metadata Normalization: In this process, extended characters in metadata files are normalized.
- Detail Role Recognition: Identifies the internal format of a resource. For ex. if it's a metadata file, which file is it: film2.0 xml, film 2.1 xml, xls, etc.
- Metadata Conversion: In this process, conversion of metadata to ADI format happens.
- Resource Analysis:
  - Media Analysis: Gets the media attributes like Aspect Ratio, Scan Type, Frame rate, Audio Channels, Content Type (HD/non-HD) etc.
  - Metadata Analysis: Passes the ADI metadata and gets information about the package and the assets contained by the package.
- Workflow Identification: Identifies matching Local Catcher for the Public Catcher in which the package is dropped.

- Packaging Ingestion: It ingests the package into Local Catcher's Spool directory Below snapshot represents the TCS workstep flow

6.2.2 Catchers

Post processing the inbound packages, TCS drops the package to the Local catcher based on the following configuration/criteria

- Matching Content Provider for Public/Local Catcher.
- Media Parameters configured for Local catcher.

6.2.3 Package Flow in TCS

Following flow applies to all packages with respective of content providers. When new package is dropped in TCS catcher (termed as public catcher) discovery. During discovery process which polls public catcher drop folder (pre-configured duration), detects news packages, copy from spool folder to copy folder. During this process, file sizes (of movie, preview and Imags) are detected and persisted in the system. Discovery process removes unwanted files other than what is configured in the property file (fileFormatConfig.cfg). The non-supported files are moved to error directory. The non-supported files are moved to error directory.Following are the supporting files in the system. ".mpeg", ".jpg", ".dv", ".rtf", ".bmp", ".xml", ".scc", ".ts", ".ram", ".txt", ".png", ".flv", ".avi", ".tif", ".mpg", ".swf",".rm",".m2t",".wmv",".m3u",".gif", ".mp4",".mov"

Conversion (varies for each of content providers based on configuration) AssetID naming conventions The assetID notion is the length to be 20 character lengths - first four character - alphabets and following 16 characters as numbers. SONY - SNYP (Package), SNYT (Title), SNYM (Movie), SNYW (Preview), SNYB (Poster)

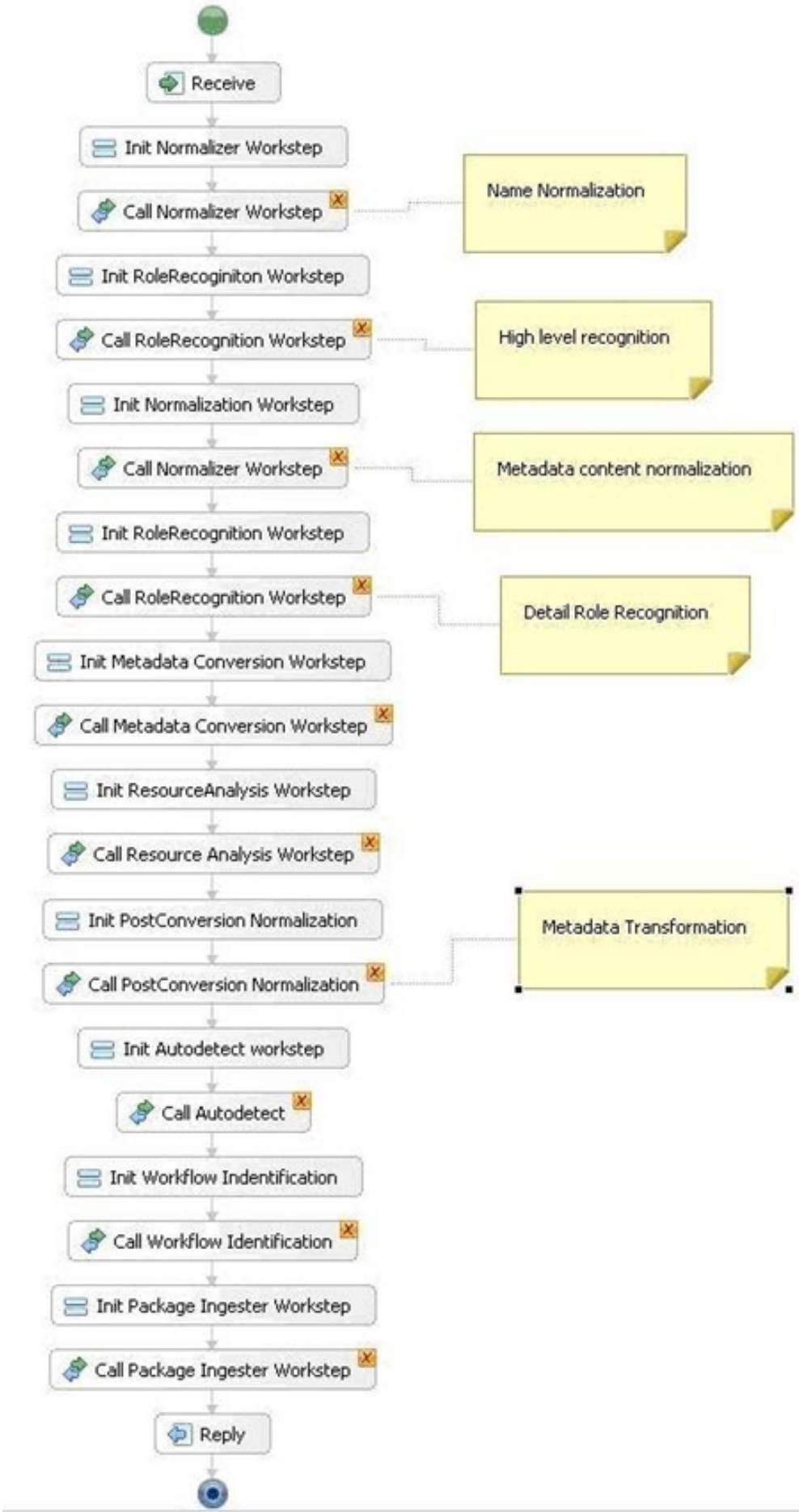

Figure 6.1: Workstep Flow - TCS

PARAMOUNT - PMTP (Package), PMTT (Title), PMTM (Movie), PMTW (Preview), PMTB (Poster) LIONSGATE - LGPG (Package), LGTT (Title), LGMV (Movie), LGPV (Preview), LGPT (Poster) WB - WBPG (Package), WBTT (Title), WBMV (Movie), WBPV (Preview), WBPT (Poster), WBPY (Boxcover) VODREADY - No Change NBCU - NBCK (Package), NBCT (Title), NBCM (Movie), NBCW (Preview), NBCB (Poster) Metadata conversion - according to the ADI mapping implemented for each of content provider Transformation Metadata transformation as applicable for each of content provider Data Nuggets Support (Refer section: Data Nuggets) AutoDetect (MediaInfo Analysis) and Metadata changes Identification of Poster, Boxcover, Movie and Preview (verifying/analyzing through Media Info based on resolution/size). Based on above media analysis File size identified during discovery process, metadata is updated appropriately with the file size. Metadata is updated for Movie and Preview, whether it's HD or SD Content (setting tag HDContent=Y). Workflow Identification Processed metadata shall get ingested as ADI.XML along with respective packages Processed package shall be dropped in the VIDEOFLOW Local catcher based on the following package/media properties Display Aspect Ratio Frame rate Scan type (interlace/progress - property of the media) HD/SD content type Audio Channel Processed metadata shall be ingested as ADI.XML along with respective packages.

6.2.4 Handling Media Assets

On Images TCS checks the media assets using MediaInfo (as a part of Autodetect component). If it finds two images, based on image resolution associates appropriately to Poster and Box Cover. If the incoming ADI.XML does have only Poster asset (and NO Boxcover) - associates the higher resolution image to Poster and ignores the other image. On Media Files TCS check the media runtime/size to determine if the incoming content is movie or preview and updates the metadata with Content value. Determines if the movie or preview content is HD or SD and updates metadata

with appropriate tags (HDContent). Note: If a package has more than one jpeg in the directory, TCS does not create any work item. Based on MediaInfo analysis it determines/picks the high resolution image as Poster and the later as Boxcover. If Boxcover asset class is not present in the metadata, it ignores the image.

6.3 TCS Properties Files Configuration

TCS has been enhanced with following properties file to configure the variations evolve to handle packages of different formats from various content providers. A. EAMSRoleRecognizer.properties This properties file support to configure different file types. E.g. suppose if user wants to support new file type (for ex, .txt file), then user has to add a rule in EAMSRoleRecognizer.properties file (Location path: /opt/cce/eams/sw/utils). txt=TXT Note: The new file extension has been associated to TXT role. For more details on Roles, refer section Resource Role of VIDEOFLOW User Guide. 'B. EAMSRoleDetailRecognizer.properties This properties file support different types of metadata files in TCS and assigns existing metadata (film2.0, film2.1) rules to new metadata. Suppose user wants to support film3.0 files using 2.0 conversion utility and wants to assign fim2.0 properties to it, then user has to add following lines to EAMSRoleDetailRecognizer.properties file (Location path: /opt/cce/eams/sw/utils): Film3.0=FILM20 This properties file support to extract tags from metadata to store in resource context. Suppose users want to display a new attribute in pre-ingest monitor or use the value in later steps, (ex: Asset_Name) in Title asset class in metadata, then user has to add following rule in EAMSMetadataAnalyzer.properties (Location path: /opt/cce/eams/sw/utils): AMSXPATH.title.TITLEASSETNAME=Asset_Name

Chapter 7

TCS ARCHIVAL SCRIPT

7.1 Execution

To archive records in tables used for TCS, a procedure is created and must be run. Following are the two modes in which the procedure can be run:

- Manual Mode: A separate procedure exists for this. User should create this procedure first, on execution, user is asked for Package ID (Resource ID) which needs to be archived. Once proper ID is fed, that package is archived.

- Automatic Mode: A separate procedure exists for this. User should create this procedure, on execution, it will archive all records older than two days (including today). In both modes, only packages which have status as "Package Ingestion" Complete will be archived, In Progress, Error or Cancelled packages will not be archived.

7.2 Verification

- GUI Verification Pre Ingest Monitors will show only ADI and directory related rows when user digs into Resource ID.

- Database Verification: Tables used for TCS are archived from Ciadmin and stored in Ciarch. It can be verified that records related to media and properties files are removed from Ciadmin and inserted to Ciarch. Only metadata (ADI) and directory related records will be retained in Ciadmin.

- Log Verification: This procedure logs information into an lst file as provided in the Instructions along with the release. This file contains information about the SQL statements executed during the procedure. Also a log file contains information of the start and end of archival process.

Chapter 8

Ingestion

After Package Ingestation step in TCS Packages are moving to the EAMS Ingestation.Here It is validate the package so that it is ready to move further.If any validation fails it will be not moving further. In validation Complete We will check the following things:

- FileSize
- File CheckSum
- For Poster ImageAspectratio.
- Product Tag
- AppData
- AMS
- Content

If everything is validated then it will move to the ValidateComplete state.

After Ingestion into the VideoFlow,It will pick the workflow. After Validate Complete Packages are able to shown the metadata which are pass to the thirdparty systems .

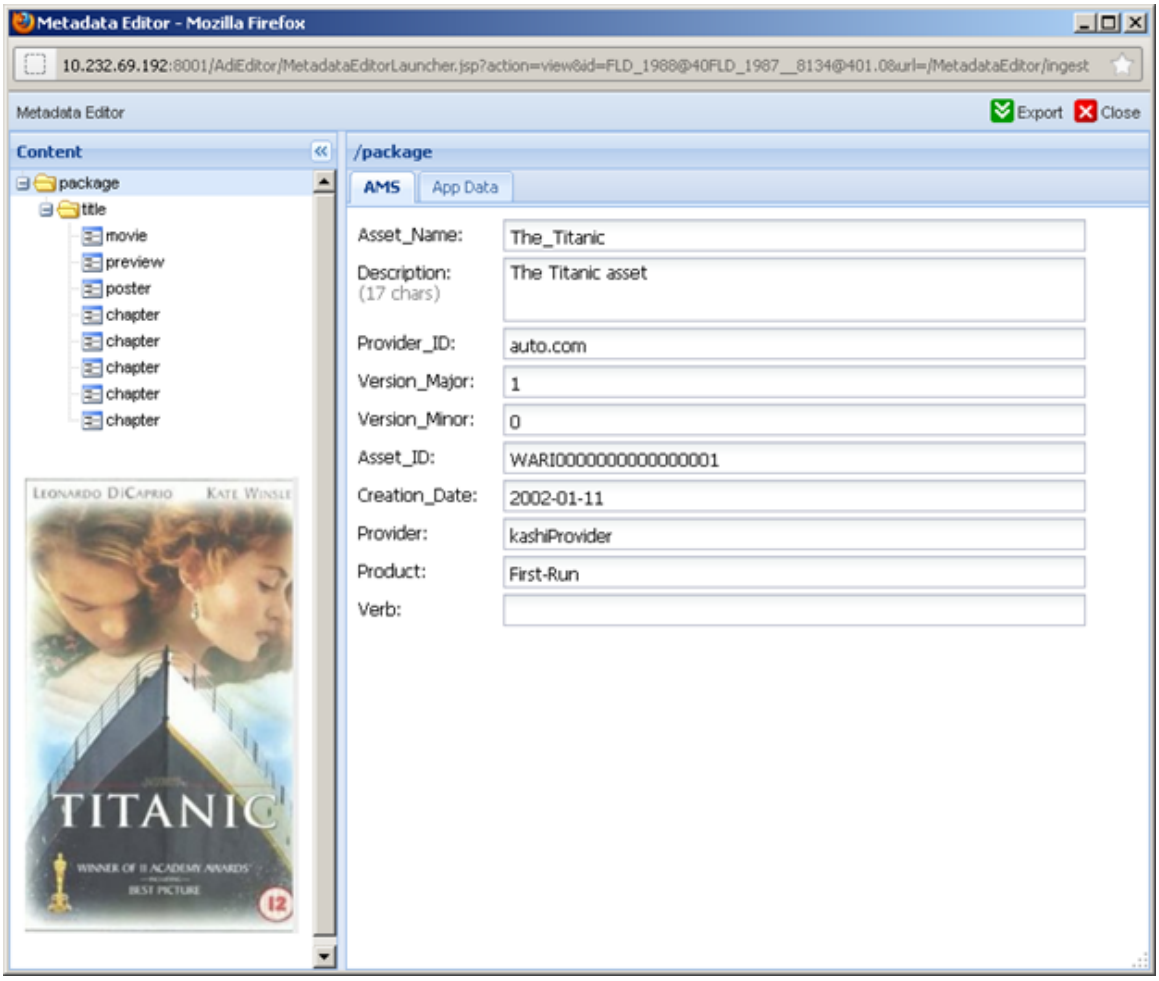

Figure 8.1: Ingested Metadata

8.1 Ingested Metadata

Figure8.1 is the ingested Metadata. Which describe the assets of the package.Package have Movie,preview,posters,chapters and scrubber images and all.

Package has Follwing fields :

- AMS:
  - AssetName: Name of the asset
  - Asset Id: Which is the system generated id,it is always unique and with validation like first four digits are character.

  - Verb: It is used when Packages are deleted from the System at that time it describes the verb="DELETE'
  - Provider Name: Name of provide
  - CreationDate
  - Product Tag

- Title: Under Title tag it has two child tags: AMS and APPData, which contains the information about the billingid and Runtime of movie, preview, Content is HD content or not and HD rights are included or not.

- Movie

  - AMS - Same as package tag
  - AppData - a.FileSize b.FileCheckSum

- Content:Location of the movie.

The main thing is VersionMajor and VersionMinor Version Major means when packages comes from the provider we treat it as version major and put the version major as 1. When second time new content come from the provider then we increment the version major as 2 .

Version Minor means when did internally changes at that time it will treat as version minor like Metadata update,movie update,preview update,reprocess,republish at this time version minor increments.

But constraints are when I did Metadata update at that time only Title and packages' version minor should increase.

When I did movie update ,at that time title ,package and movie tags verion minor should increase.

Once the Validation is completed Package should pick the work flow.

Chapter 9

WorkFlow And Profile

Here we describe the which flow the package should pass through.

a. Criteria: It defines the Source media format Catcher name - for which catcher which work got triggered. Is it active or not ?

b. QA: It is a workstep.QA check the quality analysis of the Media.We use third party system for that.We used following third party system for the same.

   (1) Aurora

   (2) Manzanita

   (3) Cerify

c. Transcode: Here we add the transcoder profiles to the workflow.Following is the profile example for the transcode profile.

   Above Figure9.2 shows the Profile creation and view Window. This has following parameters:

   (1) Profile Name: It is a name of the profile.

   (2) preset-id: It is useful for the Encryption for the assest and transcoding for the channel.

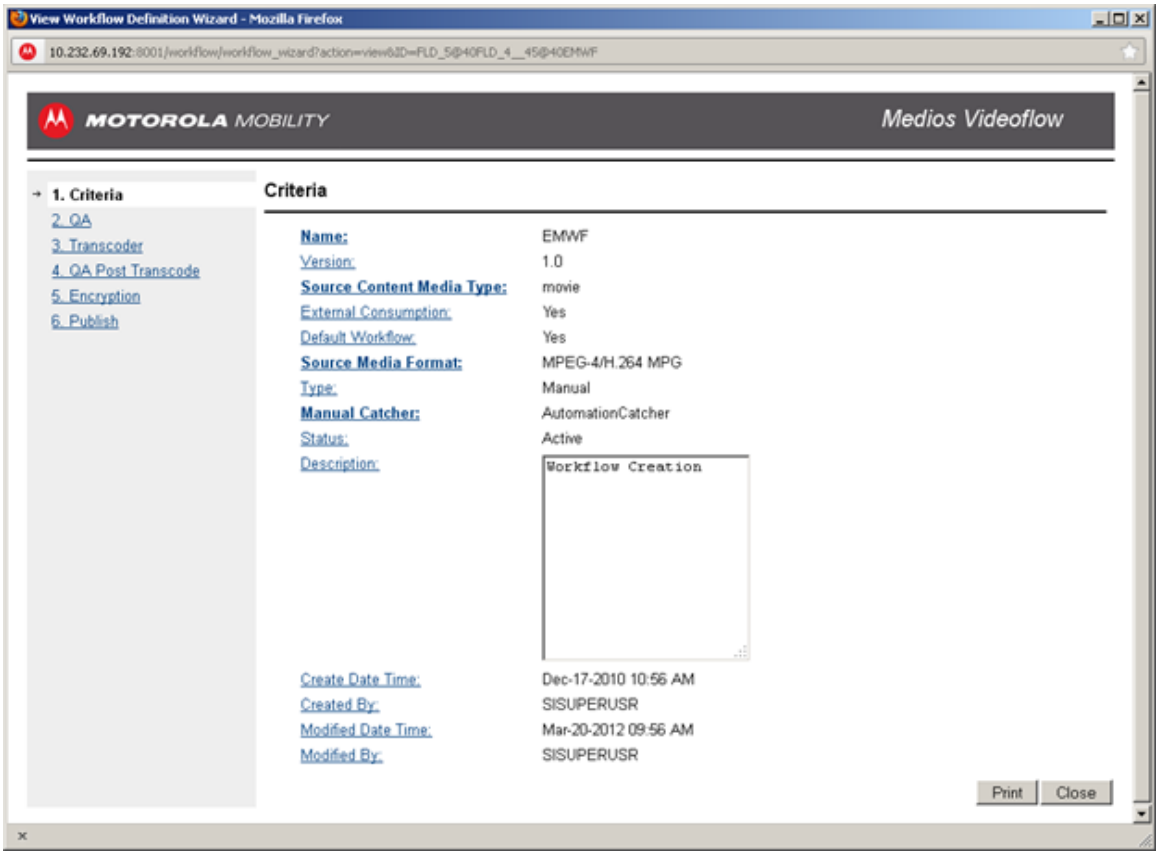

Figure 9.1: WorkFlow

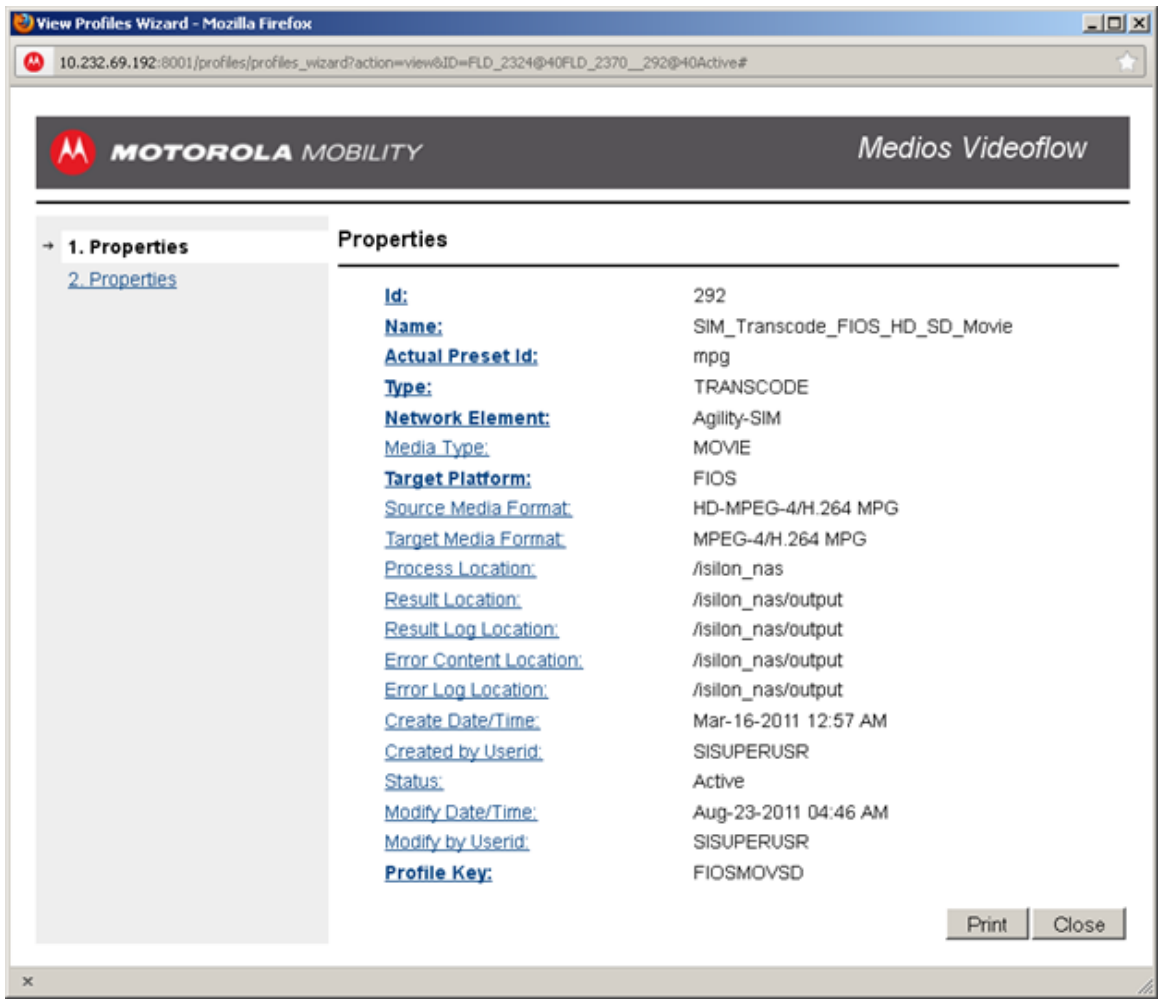

Figure 9.2: Transcode Profile

(3) NetworkElement: It is the Third party System name our profile is sumbit the request to this third party system for the transcoding.

(4) AssetName: It shows for which asset we are creating profile. For movie transcoding for FIOS TV we need to create the profile, for RIM-MOBILE we need to create the profile and needs to give the parameters.

(5) SourceMediaType: It specify the Source Media format for the movie .

(6) TargetMediaType: Movie should be transcoded in this format.

(7) Locations: All others are the locations for assets from which they are able to get the asset and transcoded into the target media format and put it to the NAS location.

(8) ProfileKey: It is useful for the identify for the TargetPlatform uniquely.

d. We can try to use same simulator and networkelement for all the packages and all the content provider.

9.1 Encryption Profile

Encryption profile is used to encrypt transcoded movie. Once movie is transcoded then business processes will put the transcoded packages into the NAS. Encrption process will take the movie and encrypt using the third party system. For encryption, need to add the network elements into the system for calling the third party system. Figure9.3 is shown the network element of the Encryotion profile. Need to give the presetid for particular targetplatform.

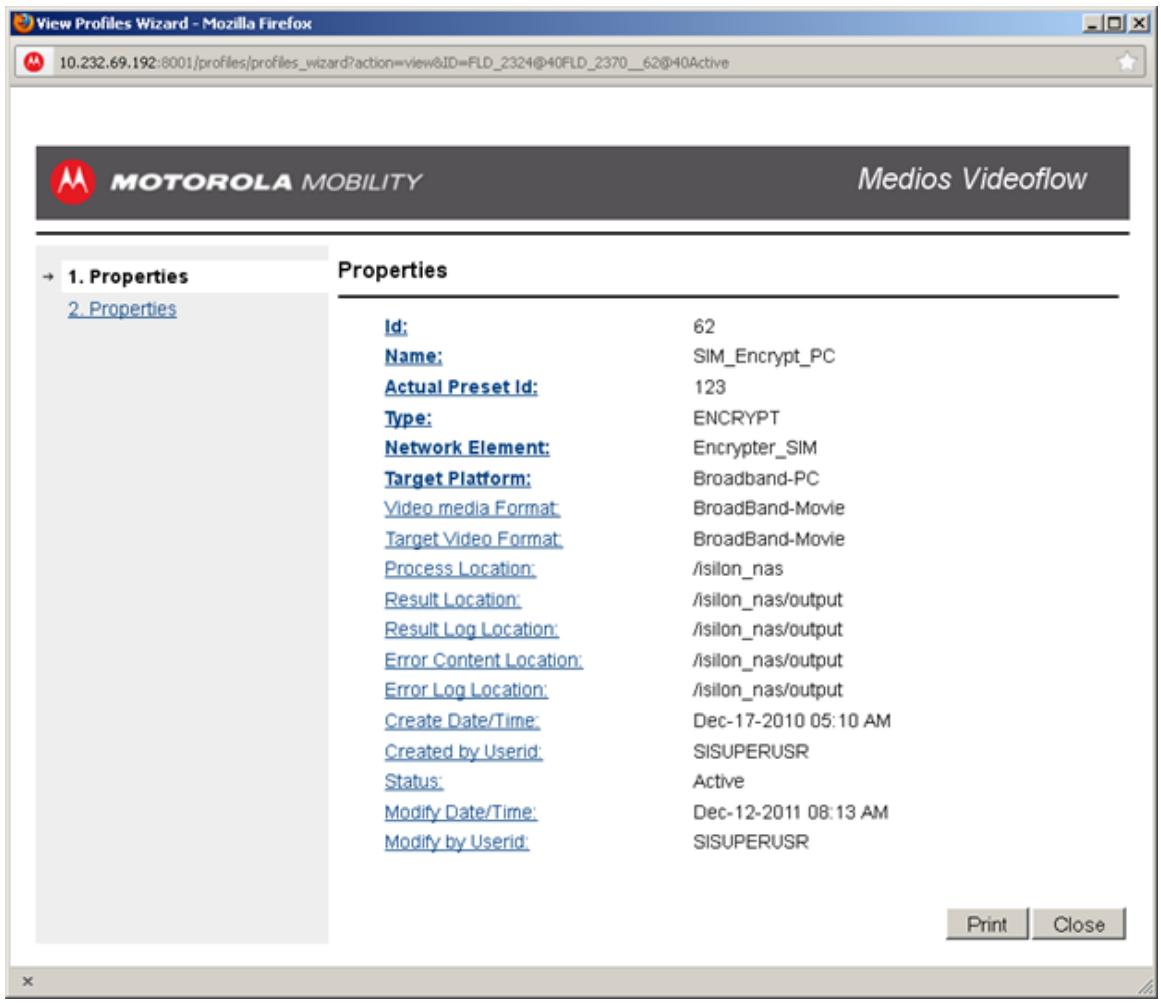

Figure 9.3: EncryptionProfile

Chapter 10

Utilities

This chapter talks about the utilities of CDS for Package Management, WorkItem, Package Monitor.

10.1 Monitors

Figure10.1 is developed for monitors the packages into the Videoflow.

here we are able to see the packages are in different worksteps.

Packages are in

a. Pending State

b. Progress State

c. Error

d. Queue

e. Waiting

10.2 Cancel Monitor Screen

Figure10.2 is the screen for the PackageManagement Screen.

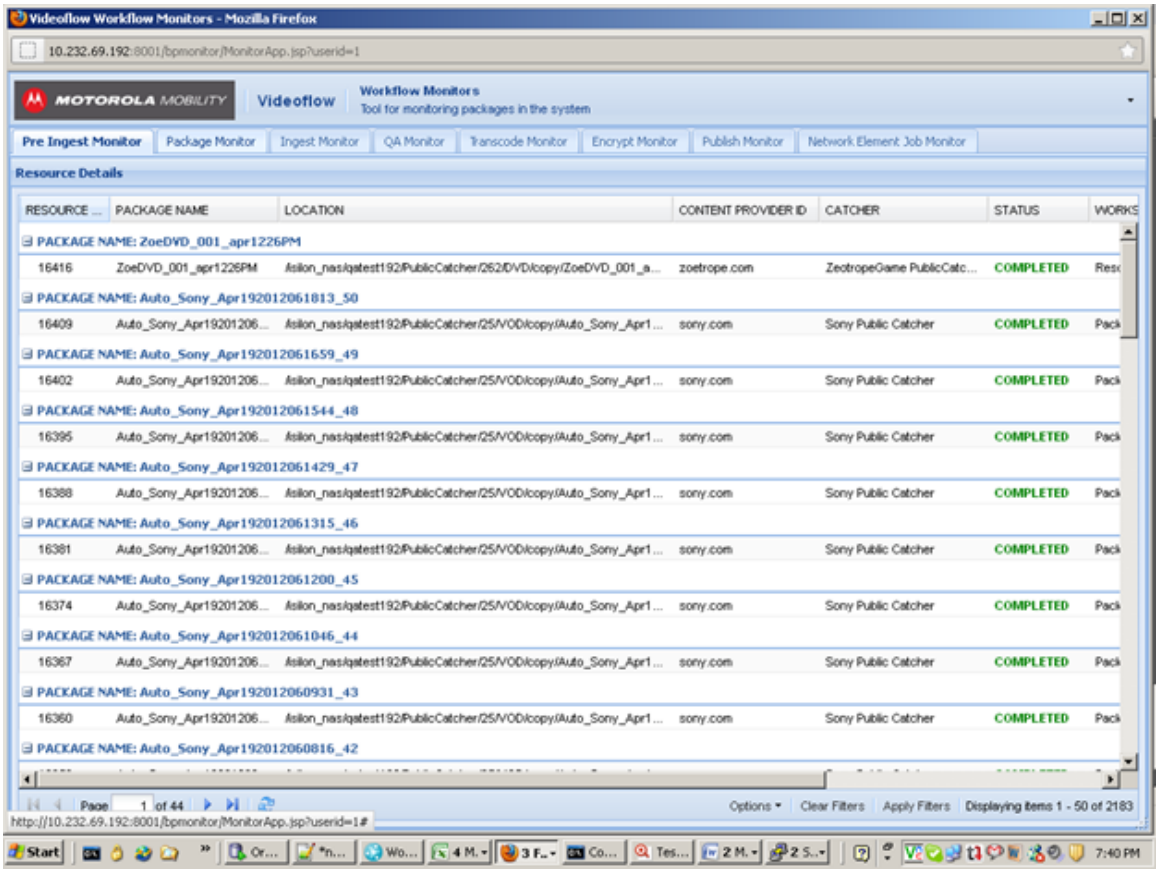

Figure 10.1: Monitors

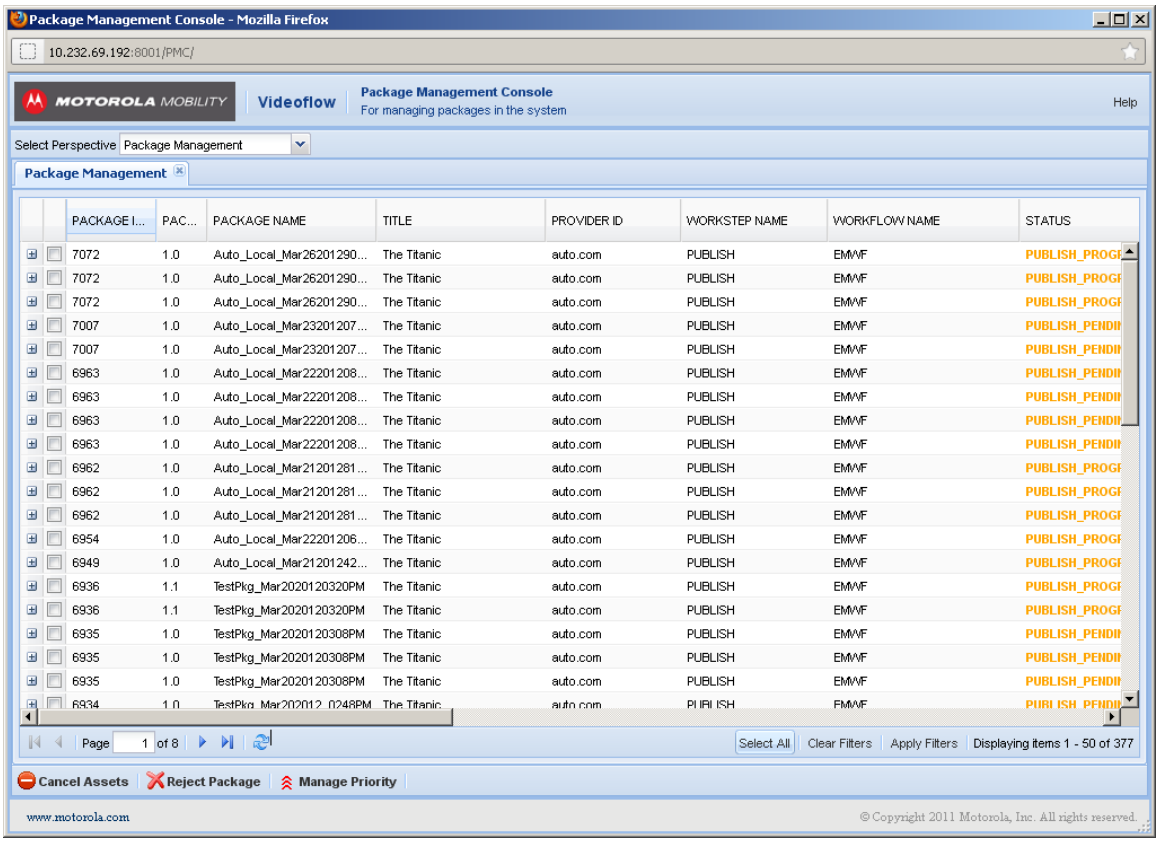

Figure 10.2: CancelJob

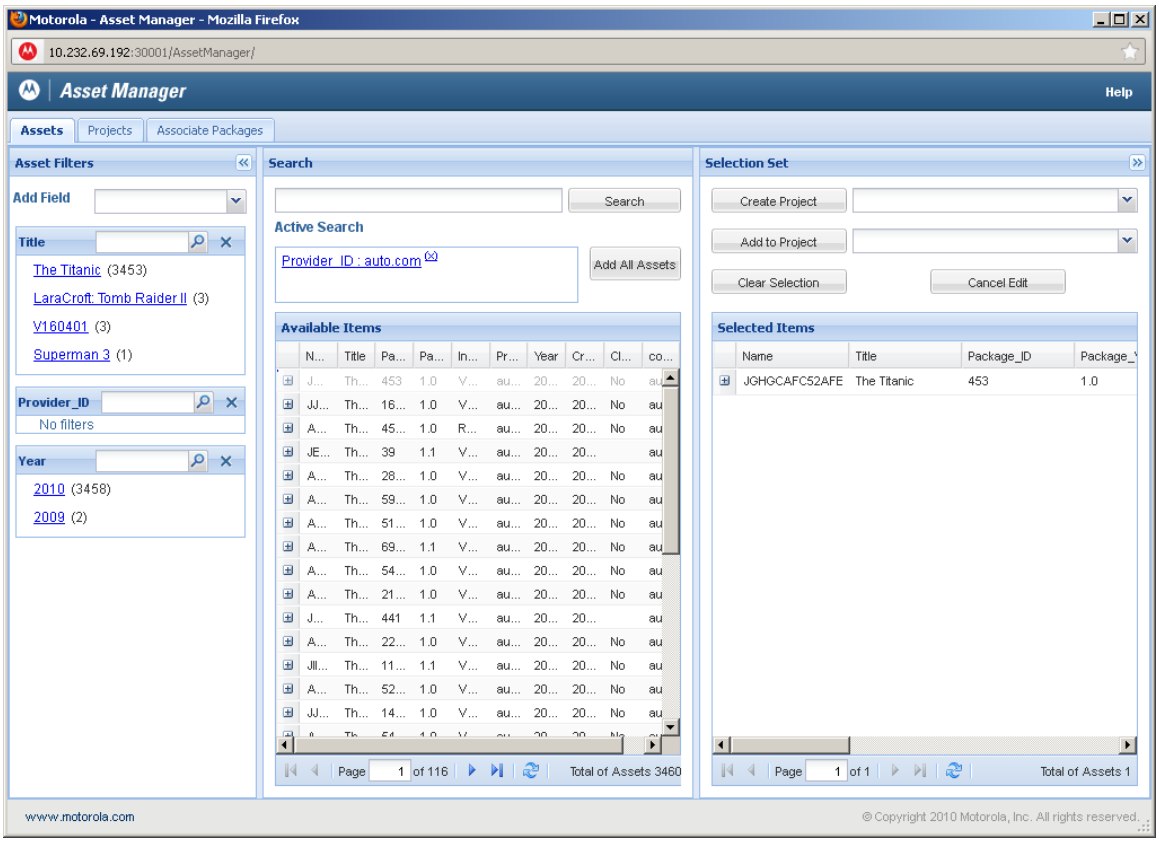

Figure 10.3: assetManager

PackgeManagement Screen is useful for

a. Cancel Asset

b. Reject package

c. manage Priority

10.3 Asset Manager

AssetManager is the utility which is useful for the doing the reprocess, republish ,metadataupdate in bulk.

Need to select the packages second create the project for all the packages and then submit the project.Figure10.3 is screen for Package Management Console.

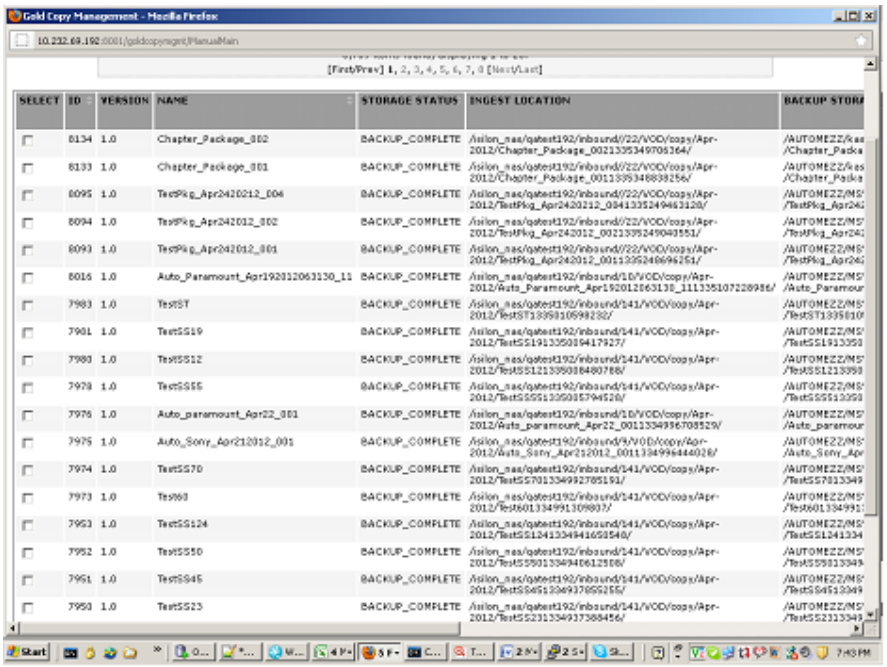

Figure 10.4: GoldCopyManagement

10.4 Gold copy management screen

Gold Copy Management screen is useful for storage.means once the packages are into the system we store it in one working storage. Whenever packages are needed we can use the backup package and do the processing. Above figure10.4 is the screen for GoldCopy Management screen.

10.5 Network Element

Network Element is useful for submbit the request to the thirdParty element. Third party elements useful for creating the simulator for QA,TRANSCODE AND ENCRYPOTION.

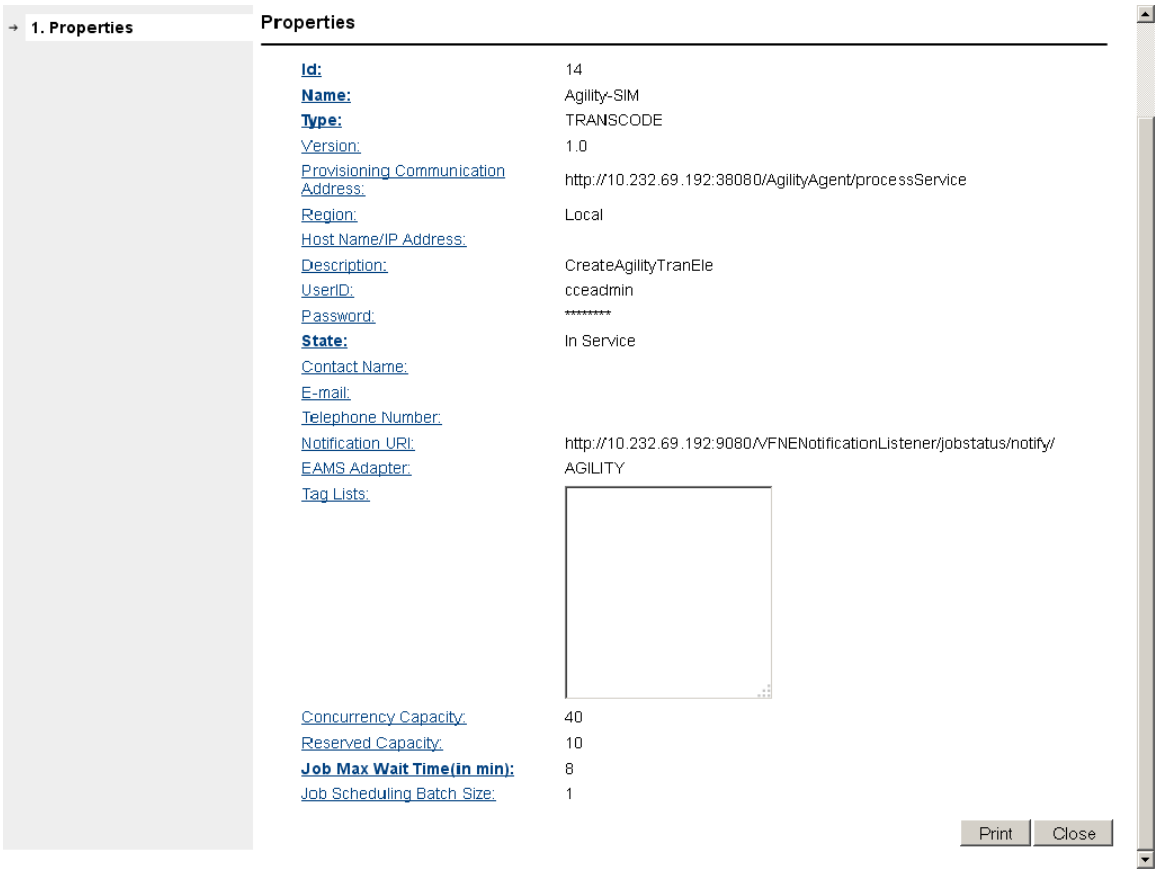

Figure 10.5: TranscodeNetworkelement

Following figure10.5 is the screen for the transcode element.

Chapter 11

Challenges and Future Works

11.1 Future Works

For this project,

a. Cloud Deployments: Rightnow application is able to deploy on HA(High Availability)cluster for capacity of networkelement and third party system. So if it would be deploy on cloud then easily available for all the service provider without the help of dependent servers and infrastructures.

b. Resource Manager: Right now Resource Manager is not efficent, if capacity of the Resource Manager is reach to throshold then other assets needs to wait for their chance to get converted or served.

11.2 Challenges

Following are the challenges ,

a. All layers should not be tightly coupled with eachother.It is not dependable on one another.

b. How to utilize more third party systems for the transcoding purpose

c. Implementing the Encryption for the copyright is the main issue for this project.

d. Designing the different protocol for the FIOS TV and EM(Extended Media like mobile phones,tablets,PC,BROADBANDPC,IPTV)

References

[1] http://compass.Mot-mobility.com/Videoflow

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