Release Notes for Cisco Media Transformer 1.0

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These release notes describe the key features of Cisco Media Transformer (CMT) Release 1.0. They also provide instructions and describe caveats and any issues related to the release.

For a list of known issues that apply to CMT Release 1.0, see Known Issues, page 3.

Contents

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Introduction

The Cisco Media Transformer (CMT) provides the ability to take segmented MPEG DASH ABR content, and stream it as a CBR MPEG2TS-compliant stream to QAM/non-IP STBs.

CMT is inserted between the traditional VOD streamer and an IP-CDN. It has two primary interfaces for transformation of ABR to CBR TS.

- RESTful HTTP API that exposes CMT functionality to the VOD system.
- RESTful HTTP interface to the IP-CDN which allows the retrieval of the ABR MPD file and the ABR segments.

As long as the source ABR MPD and segments remain unchanged, the CBR transport stream that CMT generates is idempotent. Traditional VOD streaming environments are able to cache 80-90% of streamed content, with 10-20% of the content being filled from the content library. Idempotent CBR is required in order to fill these holes in the streamer cache and properly align the data. The content has to be byte-for-byte the same every time it is generated to allow for cache hole filling and seamless playout of the stream.

In order to generate cacheable CBR content, CMT uses the ABR MPD presentation timestamp (PTS) computational approach, which provides consistent real-time translation from ABR to CBR.

Feature Overview

Cisco Media Transformer performs the following general functions:

- Parse and process the media presentation description (MPD) file associated with the ABR content
- Determine the appropriate profile for generating the CBR transport stream
- Determine the minimum constant bitrate that can be supported by the ABR profile
- Generate an frame-indexing file to be used by the traditional streamer
- Fetch the appropriate ABR segments for the selected profile
- Modify the ABR segment source to be MPEG2 TS compliant and CBR
- Deliver the CBR TS to the traditional VOD streamer for caching and delivery to non-IP STB

Hardware Support

Cisco Media Transformer runs as services in virtual machines in a VMWare vSphere Hypervisor 6.0.0 environment. This allows CMT to run on various hardware platforms as long as system requirements are met. System verification and performance testing was performed on the following platform:

- UCS C220 M4
- Dual E-2690 V4 CPUs
- 256 GB memory
- 4 - 10Gb NIC
- Dual 300GB SAS drives

System Requirements

Cisco Media Transformer is deployed as five different virtual machine types in a VMWare vSphere Hypervisor 6.0.0 environment. The minimum required quantity of virtual machines and resources are defined in the table below.

Virtual Machine	Min. Quantity	CPU	Memory	Disk
Master VM	3	4 vCPU	8GB	60GB
Deployer VM	1	4 vCPU	8GB	100GB
Load Balancer VM	2	2 vCPU	4GB	20GB
Infrastructure VM	3	8 vCPU	16GB	60GB
Worker VM	1 (final quantity will be based on required Gbps throughput)	7 vCPU	60GB	60GB

The Worker virtual machines are sized to run four per single UCS c220 chassis. To achieve maximum throughput, a minimum of 4 10-GB NICs are required (one per VM).

For the Worker virtual machine, swap memory must be set to 0 (meaning physical memory only is used) and hyper-threading should be disabled. Hyper-threading introduces some scheduling challenges into the system, so we have found that a more consistent throughput is achieved when using non-virtualized cores.

Installation

For Cisco Media Transformer installation and configuration instructions, see the *Cisco Media Transformer 1.0 Installation Guide*.

Known Issues

The following table lists known issues at the time of the release.

Table 1 Known Issues in CMT Release 1.0

Bug Identifier	Description	Workaround
CSCvh62770	If a network service restart command is issued on the master IPVS infrastructure node, the IPVS VIP is not transitioned to the standby IPVS infrastructure node.	Restart the IPVS master pod via the Openshift GUI or Openshift CLI.
N/A	Using the word "vip" in the API (master) server URL in the `ipvs-service-configuration.json` file causes an IPVS script to misinterpret the virtual IP value.	Do not use "vip" in the master name.

Table 1 Known Issues in CMT Release (continued) 1.0

Bug Identifier	Description	Workaround
N/A	When running all of the CMT pods at DEBUG log level at high loads, the log pusher pod can run out of memory and restart.	Run the CMT pods at the Info log level or only run DEBUG on a few pods or at non-peak times.
N/A	IPVS load balancing service log lines are generated in JSON format, but not every field is identified as an individual key-value pair. A single key is mapping to multiple attribute values. **Example** `{"log":"2018-01-18T20:35:41.690-0000, ipvs, ipvs, INFO, ivpcoe-node1, loc=\"agent.js:221\", msg=\"\u001b[32mStart monitoring pod and node status\u001b[39m\"\n","stream":"stdout","time":"2018-01-18T20:35:41.692063961Z"}`	N/A

N/A	When starting the Logging Services, on occasion a ZooKeeper pod will not start correctly. The pod will show a status of "CrashLoopBackOff" and the number of restarts will be 5.
	
	Output:
	`NAME READY STATUS RESTARTS AGE`
	`po/infra-zookeeper-0 1/1 Running 0 4m`
	`po/infra-zookeeper-1 1/1 Running 0 4m`
	`po/infra-zookeeper-2 0/1 CrashLoopBackOff 5 4m`
	
	Workaround:
	`#>kubectl delete pod infra-zookeeper-0 infra-zookeeper-1 infra-zookeeper-2`
	This causes a restart of the zookeeper pods. The expected results are that all three zookeeper pods will now be in the "Running" state.
		To correct this issue, delete all of the ZooKeeper pods in a single command. See the workaround below for details.

Related Documentation

Refer to the following documents for addition information about Cisco Media Transformer 1.0:

- *Cisco Media Transformer 1.0 Installation Guide*
- *Cisco Media Transformer 1.0 User Guide*
- *Open Source Used in Cisco Media Transformer 1.0*

Documentation for VDS-TV software is available at:

http://www.cisco.com/en/US/products/ps12653/tsd_products_support_series_home.html