

Video Unified Edge (VUE)

Product Overview

The VUE is a suite of modular software functions deployable in the Service Provider's cloud environment that virtualize the legacy video headend network and replace traditional appliance products. The VUE is a key component of the Distributed Access Architecture (DAA) and the Next Generation Ad Insertion (NGI) solution.

In a DAA, the VUE functions as a video auxiliary core and as a SCTE 55-1 "Aloha" auxiliary core for both Remote PHY and Remote MACPHY devices. As a video core, the VUE manages both the video data plane and the video control plane. The VUE builds and sends the video muxes to the RxDs, and the VUE is also responsible for provisioning the RxDs for all video related parameters including the mapping of multicast groups to RF frequencies. This solution enables a SDN (Software Defined Network) that allows MSOs to manage ad zone and/or NC service group changes using software configuration instead of RF plant re-wiring.

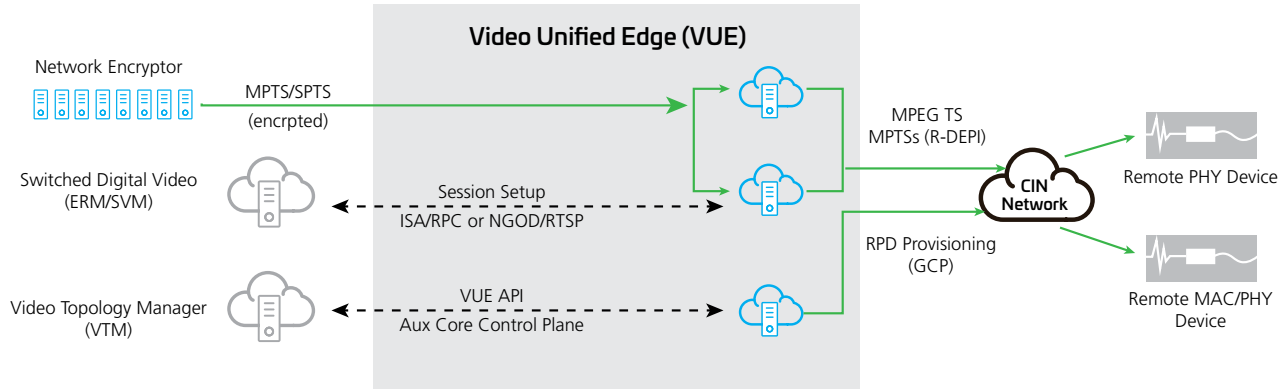
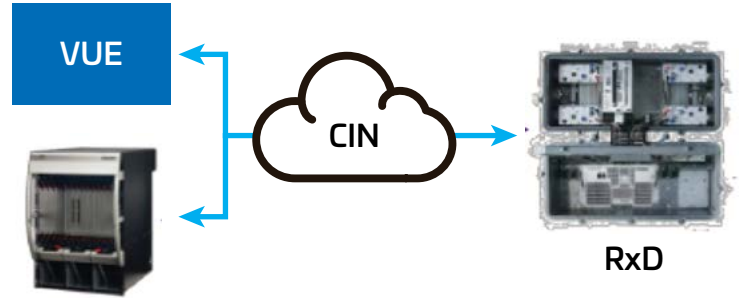
The VUE is also part of the CommScope next generation Ad insertion solution (NGI) that unifies Ad insertion for both STBs and IP clients. The NGI solution includes both the VUE and the MDC (Manifest Delivery Controller) product. The NGI solution eliminates the need to maintain two separate Ad insertion systems that are dedicated for either STBs or IP clients.

- Virtualize the video headend with VUE
- VUE is the Video Core in the DAA architecture for both Remote PHY and Remote MACPHY
- VUE supports Dynamic Ad Insertion (DAI) and conversion of ABR video to MPEG transport for legacy QAM based CPE



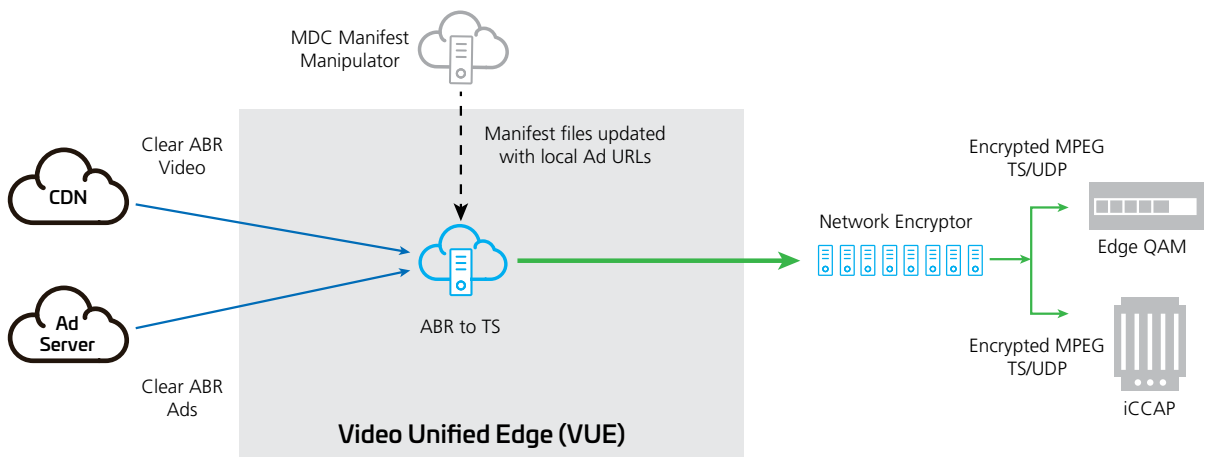
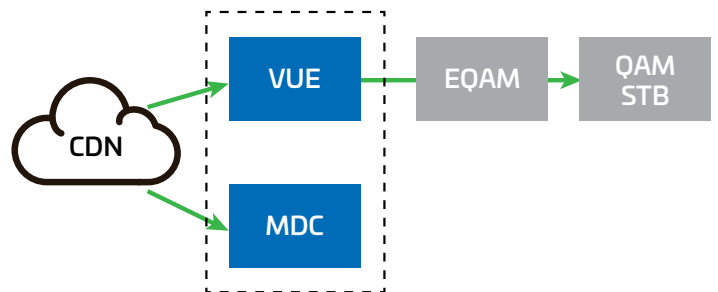
VUE as the video core for DAA

- VUE is the video core (auxiliary core) for RPY and RMD
- VUE provisions RxDs for video and SCTE 55-1 (GCP)
- VUE builds broadcast and narrowcast video muxes and sends them to the RxDs via R-DEPI (IPv6 multicast)
- VUE sends SCTE 55-1 downstreams to the RPDs (via R-DEPI)
- VUE receives SCTE 55-1 upstreams from RPDs (via R-UEPI)



VUE for Next Generation Ad Insertion (NGI)

- The NGI Solution (VUE and MDC) unifies ad insertion and video distribution for IP clients and QAM STBs
- Transition all linear video content and Ads into the CDN as ABR video to serve both IP clients and QAM set tops
- Perform all Ad insertion (for all CPE) using manifest manipulation
- VUE converts ABR streams to MPEG transport post ad insertion to support legacy QAM-based CPE
- Leverage SDV channel change data from QAM STBs to monetize additional channels via ad impressions



VUE software architecture and scaling

VUE is a suite of modular software functions deployed as Docker containers. A VUE deployment (VUE instance) consist of a VUE Manager and multiple associated VUE Application Servers.

VUE Manager consists of two VM instances (VPS1 and VPS2)

- VPS (VUE Platform Services)
- VPS includes VUE controller and logging

VUE Application Server

- VUE App servers handle the video data plane
- VUE App server require "bare metal" (no VM/Hypervisor)

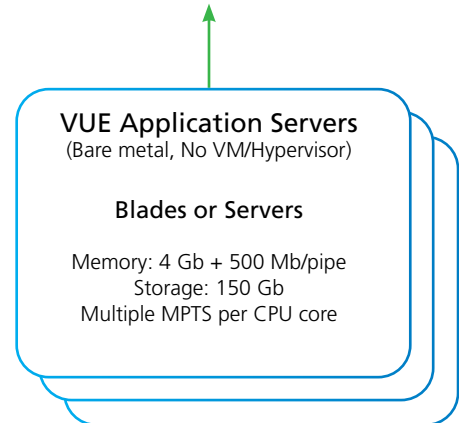
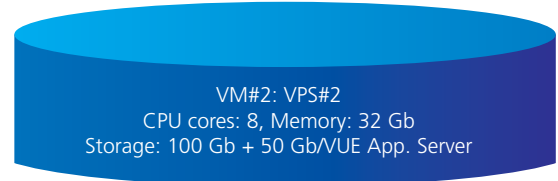
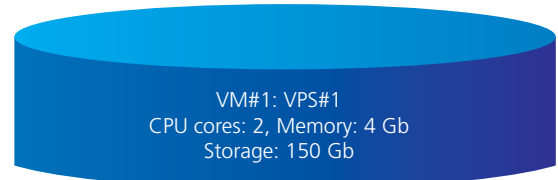
VUE Scaling

- VUE App Server scales with CPU cores
- Maximum RPDs (DAA deployment) per VUE instance: 1000

Application	Annex B (6 MHz)	Annex A (8 MHz)
DAA/LSM	15 MPTS/CPU core	11 MPTS/CPU core
ABR	7 MPTS/CPU core	5 MPTS/CPU core

VUE MANAGER

Blade #1 or Server#1



VUE minimum hardware requirements

VUE Component	CPU	Physical Cores	Memory (Gb)	Storage (Gb)	1 GigE Interface	10 GigE Interface
VPS #1 VM	2.6 GHz Xeon v3 (or newer)	2	4 (DDR4)	150	1	N/A
VPS #1 VM	2.6 GHz Xeon v3 (or newer)	DAA: 8 (7+1 for ACCP) NGI: 7	32 (DDR4)	100 + 50 per VUE App Server	1	DAA: 1 NGI: 0
VUE Application (BM)	2.6 GHz Xeon v3 (or newer)	DAA: 15 (6 MHz) or 11 (8 MHz) MPTS/core NGI: 7 (6MHz) or 5 (8MHz) Pipes/cores	4 Gb (DDR4) base + 500 Mb/Pipe	150	1	DAA: 2 NGI: 1

Product	Part Number	Description
VUE ABR License	612520-001-00	Enables VUE to convert 1 ABR service to MPEG-2 transport
VUE Annex B Broadcast Mux License	612521-001-00	Enable VUE to build 1 broadcast MPTS
VUE Annex B Narrowcast Mux License	612522-001-00	Enables VUE to build 1 narrowcast MPTS
VUE Aux Core License (500)	613678-001-00	VUE Aux Core License (blocks of 500 RPDs)
VUE Aux Core License (50)	613678-002-00	VUE Aux Core License (blocks of 50 RPDs) (requires 2.3 SW)
VUE Server (HP)	613607-001-00	1RU HP DL360 G10, Xeon-G 6142 CPU, 16 core, 2.6 GHz
VUE Annex A Broadcast Mux License	613608-001-00	Enables VUE to build 1 broadcast MPTS
VUE Annex A Narrowcast Mux License	613610-001-00	Enables VUE to build 1 narrowcast MPTS

VUE Part Numbers

VUE customers purchase VUE capacity licenses and use the ULS system for license management
VUE customers can provide their own standard hardware to host the VUE as long as it meets the specified minimum requirements ARRIS offers a standard HP server for sale for customers that want to purchase VUE hardware from ARRIS

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