Synamedia Video Network Service Manager Overview

The Video Network Service Manager is the Management solution, enveloping a powerful set of tools for configuring, monitoring and managing Synamedia’s Video Network Solutions for Service and Media Provider’s Streaming, Satellite, Cable and Telco distribution video and audio systems.

The Video Network Service Manager deploys, configures and monitors unified processing workflows for the Synamedia Video Network Products and Applications.

The product supports a diverse range of applications that allow operators and engineers with a service-oriented workflow management front end to operate and manage video signals in today’s digital video processing headend applications.

Video Network Service Management for deploying, configuring and monitoring unified media workflows.
Service-Oriented Management for Synamedia Video Network Devices, Appliances and Applications

The Synamedia Video Network Service Manager integrates the Synamedia Video Network range of Application for Video Distribution and Processing providing user-friendly and uniform support for configuration, resiliency management and monitoring. The Video Network Service Manager supports the applications for Encoding, Transcoding, Multiplexing, Scrambling, Packaging, exposing a system-oriented view on managing the individual instances of Synamedia Digital Content Manager (DCM), Virtual Digital Content Manager (vDCM), Encoder D9036 and PowerVu Professional Receiver (D9800) series. Video Network Service Manager also control third-party baseband video routers and switches, and a variety of other video network devices. Video Network Service Manager allows operators and engineers to easily control and monitor the Workflows of the streams and channels through the devices and applications in Synamedia Video Network Solutions, such as:

- Live Linear Streaming Pipeline\(^2\), consisting of vDCM xCoding, vDCM Packaging, DRM and Origin for ABR live streaming delivery
- Broadcast\(^1\) Statmux for Cable, DTH and Terrestrial delivery
- Broadcast\(^1\) CBR for IPTV delivery
- Broadcast\(^1\) Linear TS processing, where MUXing, FEC, CA, Source Protection, DPI, LSS are key use cases processed by DCM and vDCM.

Available for both traditional hardware-based infrastructures, virtualized and container type environments.

Video Network Service Manager allows users to easily modify and deploy new channel lineups on the fly with minimal disruption.

Reconfiguration, adding or removing services is fast, easy and error-free. Templating, wizards, consolidated data views and powerful copy-and-paste operations are available in the Video Network Service Manager User Interface.

Video Network Service Manager is designed for 24x7 management of Synamedia Video Network for Distribution and Processing use cases for encoding, transcoding, TS processing.

Main Features

- Service-oriented to work the way operators work
- "Input to output" User Interface and REST API
- Template and wizard-based system setup

\(^1\) Contact your local Synamedia account representative or distribution partner for details.

\(^2\) Managed using the Video Network Service Manager Web UI

\(^3\) Managed using the Video Network Service Manager RCP Client
• Scalable and High Available
• Manages traditional hardware-based, virtualized and containerized video processing deployments
• Centralized management of geographically distributed systems
• Flexible redundancy schemes by VSM Pool Resource Management
• Easy lineup changes
• User administration/security
• Advanced scheduling engine
• Channel Status Monitoring

Video Network Service Manager System Description

The Video Network Service Manager system allows you to easily map all monitored appliances or software instances of for instance DCM, vDCM, etc. into the Video Network Service Manager topology views. This provides a clear, easy-to-use, and intuitive user interface. The Video Network Service Manager Topology Manager allows graphical creation and setup of the equipment topology, providing an easy interface for selecting devices from the inventory. The Topology Manager provides an immediate overview of the device alarms present on the topology, allowing the user to visually correlate alarms on channels that are present on the platform.

Service configuration and lineup management applications are used by service providers and operators that manage linear-live content that must be processed to fit into the appropriate delivery network. Through lifetime management of the content, operators perform frequent configurations and reconfigurations of multiple devices throughout their video distribution and processing platforms.

The Video Network Service Manager Lineup Configuration Manager and Bandwidth Manager are tools that help solve issues of engineering and operational complexity. These tools help operators to perform quick service changes and modification, and automate changes through scheduling. The tools also provide the ability to prepare service configurations offline, without accessing each individual device GUI, eliminating the need for additional training.

Video Network Service Manager provides premium support for Synamedia reference architectures (blueprint designs), such as the vDCM Live Linear Streaming Pipeline, Broadcast Statmux, Broadcast CBR and various other use cases around Broadcast Linear TS processing where video compression (encoding, transcoding), statmux, and other key (v)DCM Video Processing use cases.

Video Network Service Manager pool resource application provides a flexible way to manage resiliency and resource allocation.

Video Network Service Manager Scrambling Configuration and EIS (Event Information Scheduler) performs conditional access (CA) criteria provisioning on the (v)DCM Digital Video Broadcasting (DVB) Simulcrypt-compliant scrambler. Conditional access criteria management is part of the Video Network Service Manager Lineup.
Configuration management, allowing the engineer to manage conditional access configurations in a service-oriented context.

Event (or session) management is an application typically used by operators to manage live content transported from one location to another or to other multiple locations. Managing this type of application, also called contribution management, allows operators and engineers to focus on service definitions, rather than opening each individual device user interface.

**Key Highlights**

The Video Network Service Manager offers:

- Centralized Management
- Service Oriented Operations
- Manages and Controls both appliance (hardware), virtual and container video infrastructures
- Rich API to integrate with other system
- Powerful Resiliency and Redundancy control
- System Oriented User Interfaces
- Templates for Encoding, Transcoding, Packaging, DRM and Service Protection
- Internal Advanced Scheduler allows for dynamic configuration changes
- Wizard type Workflow User Interface offering easy way to configure complete flow over the solution

**Features**

**Video Network Service Manager Web UI**

- Since introduction of VSM 9.2, a Web Based User Interface has been introduced.
- The Web Based User Interface focusses in the Configuration and Management of the ABR type applications of the Synamedia Video Network solutions for Live Linear Streaming Pipeline.
- The User Interface allows the Video Network Service Manager user and operators to
  - Create Configurations over the Lineups Control
  - Create Workflows for Live Linear xCode and xCode-Packaging and DRM
  - Add Source (inputs) inventory of channels
  - Create and Assign Templates to Live Linear Workflows

*Figure 1: Video Network Service Manager Workflow View*
Video Network Service Manager Topology Manager

- Video Network Service Manager Topology Manager supports creation of a network topology by entering devices from the inventory and assigning the interconnection between the devices.
- It exposes to the operator a consistent overview of alarm status, mirror, and redundancy state.
- The user can create and model a headend topology where devices are interconnected through links connected to the individual device ports.
- It provides hierarchical grouping of devices in locations and sublocations.
- Multiple views can be open at the same time.
- Views are updated across multiple clients.
- The user can add background images.

Lineup Configuration Management

- Video Network Service Manager Lineup Configuration Management is typically used to manage a group of Broadcast Live Linear channels in distribution networks such as Cable, Satellite or Terrestrial. A lineup is used to keep an overview of services at system level.
- Service configurations are listed in the Lineup Configurations View.
- The Lineup Configuration Management GUI allows the operator to perform various configuration actions in or over lineups:
  - Activating and scheduling configurations
  - Duplicating lineups and configurations

Table 1. Synamedia Video Network Service Manager Feature Summary

<table>
<thead>
<tr>
<th>Feature Summary</th>
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</thead>
<tbody>
<tr>
<td>- Service Configuration Management for DCM, vDCM, D9036 systems</td>
</tr>
<tr>
<td>- Central Alarm Collection</td>
</tr>
<tr>
<td>- Flexible Redundancy Control (1:1, N:M)</td>
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<tr>
<td>- Template Management for xCode, Packaging, DRM configuration</td>
</tr>
<tr>
<td>- Template Management for Channel Protection / Redundancy</td>
</tr>
<tr>
<td>- Bandwidth Management</td>
</tr>
<tr>
<td>- Resource Allocation by Video Network Service Manager Pools</td>
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<tr>
<td>- CAS – EIS</td>
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</tbody>
</table>

Figure 2: Video Network Service Manager Topology View

Figure 3: Video Network Service Manager Lineup Configuration
## Automation
- Built-in Scheduler for Configuration and CA
- Event Management for Contribution Use Cases
- Operational Ease-of-Use
- Mirrored Configurations for Main/Backup Sync
- Offline Preparation of target config – prepare before apply

## Monitoring and Alarming
- Built-in alarm collection and representation
- Service Status representation
- Integration into ELK stack
- Integration with InfluxDB and Grafana dashboards

## Video Processing Systems Support
- Live Linear Streaming – xCode / Packaging / DRM
- Broadcast Statmux
- Broadcast TS processing
- Satellite
- Cable
- Telco
- Mobile
- Bare Metal, Virtual or Container System

## API and Interfaces
- REST API for configuration, alarm forwarding, inventory population
- SNMP for event and alarms forwarding

## System
- Linux or Windows OS
- Standalone or High Availability Deployment
- Deployable in OpenShift or K8s Cluster as Containerized Application

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### Video Network Service Manager - Deployment

Standalone (Windows and Linux) or as High Availability Cluster (Linux only).

Video Network Service Manager can be co-deployed with ROSA NMS. In this option, customers can benefit from binding units from ROSA NMS to Video Network Service Manager to collects status and alarms.

### Video Network Service Manager - Redundancy

The Video Network Service Manager High Availability Cluster provides a full-automatic resilient system.

### Video Network Service Manager - Client PC Application

The remote client user interface allows access to all the broadcast type applications.

It can be launched on any PC running Windows 7, Windows 10 or running Windows Server environment. The VSM Client can be launched from a VSM client launch page or can run natively on the desktop PC.
Video Network Service Manager - Web User Interface:

For the Video Network Live Streaming ABR Use Cases, the Video Network Service Manager provides a Web User Interface.

Video Network Service Manager - Server-Side Software and Requirements

Table 2 and 3 summarize the recommended server and client host and Operating System requirements for Video Network Service Manager Server

### Table 2. Video Network Service Manager Server Host System Requirements

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Host Requirements</td>
<td>4 vCPU, 8 GB RAM, 10 GB of available hard disk space, 10/100 Ethernet Network Adapter</td>
</tr>
<tr>
<td>Recommended Host Requirements</td>
<td>8 vCPU, 16 GB RAM, 40 GB of available hard disk space, 10/100/1000 Ethernet Network Adapter</td>
</tr>
</tbody>
</table>

### Table 3. Video Network Service Manager Server System Software Requirements

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linux Operating system (OS)</td>
<td>Minimum CentOS 7.2-1511, recommended CentOS 7.5</td>
</tr>
<tr>
<td>Microsoft Windows Operating system (OS)</td>
<td>● Microsoft Windows Server 2008 R2 Standard Edition</td>
</tr>
<tr>
<td></td>
<td>● Microsoft Windows Server 2012 Standard Edition</td>
</tr>
<tr>
<td></td>
<td>● Microsoft Windows Server 2012 R2 Standard Edition</td>
</tr>
</tbody>
</table>

Ordering Information

To place an order or download software, visit the Synamedia Ordering Portal Home Page

### Table 4. Synamedia Ordering Information

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSM Software Suite, Licenses and Upgrades</td>
<td>VSM-LICENCES</td>
</tr>
<tr>
<td>VSM Features Pack License Options</td>
<td></td>
</tr>
<tr>
<td>● VSM Standard Feature Package (Incl. 250 Monitoring Points)</td>
<td>L-VSM-STD</td>
</tr>
<tr>
<td>● VSM License Upgrade: from Standard to Advanced Package</td>
<td>L-VSM-STD2ADV</td>
</tr>
<tr>
<td>● VSM License Upgrade: from Advanced to Enterprise Package</td>
<td>L-VSM-ADV2ENT</td>
</tr>
</tbody>
</table>

4 For VM (Virtual Machine) type deployments.
### VSM High-Availability Deployment Option Licenses

- VSM High Availability System (HA)  
  - L-VSM-LHA

### VSM Device Class License Options

- **VSM Device Lic. Pack: current Video Network Adapters (count)**  
  - L-VSM-ADP
- **VSM Device Driver Pack: Video Standards Convertors (count)**  
  - L-VSM-CONV
- **VSM Device Driver Pack: Multichannel Encoders (count)**  
  - L-VSM-ENCM
- **VSM Device Driver Pack: Single Channel Encoders (count)**  
  - L-VSM-ENCS
- **VSM Device Driver Pack: eQAM Devices (count)**  
  - L-VSM-EQAM
- **VSM Device Driver Pack: IP Routers & Switches (count)**  
  - L-VSM-IP
- **VSM Device Driver Pack: Receivers and Decoders (IRD) (count)**  
  - L-VSM-IRD
- **VSM Device Driver Pack: Multifunct Main Devices (count = 1)**  
  - L-VSM-MFIE
- **VSM Device Driver Pack: Multifunct Main Devices (count = 10)**  
  - L-VSM-MFIE-10
- **VSM Device Driver Pack: Multifunct Main Devices (count = 50)**  
  - L-VSM-MFIE-50
- **VSM Device Driver Pack: Satellite Modulator (count)**  
  - L-VSM-MOD
- **VSM Device Driver Pack: Mux/Scrambler Devices (count)**  
  - L-VSM-MUX/SCR
- **VSM Device Driver Pack: Probing Devices (count)**  
  - L-VSM-PROBE
- **VSM Device Driver Pack: Protect. Switch Devices (count)**  
  - L-VSM-PROT
- **VSM Device Driver Pack: Video Routers (count)**  
  - L-VSM-VRT

### VSM MPEG TS Channel Count License

- **VSM MPEG TS Active Services Lic. : Amount of Channels (1)**  
  - L-VSM-TS-S1
- **VSM MPEG TS Active Services Lic. : Amount of Channels (10)**  
  - L-VSM-TS-S10
- **VSM MPEG TS Active Services Lic. : Amount of Channels (50)**  
  - L-VSM-TS-S50
- **VSM MPEG TS Active Services Lic. : Amount of Channels (200)**  
  - L-VSM-TS-S200
- **VSM MPEG TS Active Services Lic. : Amount of Channels (250)**  
  - L-VSM-TS-S250
- **VSM MPEG TS Active Services Lic. : Amount of Channels (500)**  
  - L-VSM-TS-S500
- **VSM MPEG TS Active Services Lic. : Amount of Channels (1000)**  
  - L-VSM-TS-S1000
- **VSM MPEG TS Active Services Lic. : Amount of Channels (2500)**  
  - L-VSM-TS-S2500
- **VSM MPEG TS Active Services Lic. : Amount of Channels (5000)**  
  - L-VSM-TS-S5000

### VSM ATS Channel Count Licenses

- **VSM Adaptive TS Channel Lic. : Amount of Profiles (1)**  
  - L-VSM-ABR-S1
- **VSM Adaptive TS Channel Lic. : Amount of Profiles (10)**  
  - L-VSM-ABR-S10
- **VSM Adaptive TS Channel Lic. : Amount of Profiles (50)**  
  - L-VSM-ABR-S50
- **VSM Adaptive TS Channel Lic. : Amount of Profiles (100)**  
  - L-VSM-ABR-S100
- **VSM Adaptive TS Channel Lic. : Amount of Profiles (250)**  
  - L-VSM-ABR-S250
- **VSM Adaptive TS Channel Lic. : Amount of Profiles (500)**  
  - L-VSM-ABR-S500

### VSM Event Count License Options
Performance Specifications

Tables 5 and 6 list performance specifications for Synamedia Video Network Service Manager

Table 5. Performance Specification: Running a Video Network Service Manager Server as defined in Table 2

<table>
<thead>
<tr>
<th>Specification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of devices supported</td>
<td>1000</td>
</tr>
<tr>
<td>Maximum number of ports (over all devices)</td>
<td>20000</td>
</tr>
<tr>
<td>Maximum number of locations supported</td>
<td>50</td>
</tr>
<tr>
<td>Maximum number of events supported</td>
<td>5000</td>
</tr>
<tr>
<td>Maximum number of devices used in an event</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 6. Performance Specification: Running a VSM Server as defined in Table 2

<table>
<thead>
<tr>
<th>Specification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum number of connected Video Network Service Manager clients</td>
<td>20</td>
</tr>
<tr>
<td>Minimum required bandwidth between client and server</td>
<td>1 Mbps</td>
</tr>
</tbody>
</table>

For more information

For more information about Synamedia video solutions, visit: www.synamedia.com.