Compliance Recording Application Overview

DVSTor uses in-place real-time transcoding of the video down to VHS quality, leaving audio and other data in the transport stream untouched. This allows for maximum compression, thereby reducing the need for costly external storage.

Content is stored in a sliding window fashion. This is in contrast with existing DTL solutions and the incumbent VHS tape stacks. When coupled with a DAS (Direct Attached Storage) option, DVSTor can store media in excess of a year without the need for human intervention.

DVSTor can be set up in N+1 redundant hot-standby mode for maximum reliability. With the DAS option, the dual-redundant DVSTors can access a secure RAID-6 storage solution which is failsafe with hot-swappable spare hard disks and dual-redundant power supplies.

Specifications

**DVSTor 4U System**

- **EPU Platform**
  - Dual Core Pentium processor
  - 1 GB DDR2 RAM

**Auxiliary Interfaces**

- VGA out, 1024 x 768 resolution
- 18/10/100/1000 Base LAN port for remote control
- 1 serial, 1 USB port
- PS/2 keyboard/mouse
- 12V DC COMB drive
- 100-60 - 1.5 T8

**Recording andPlayback Interfaces**

- DVS/AVC Physical Interface
- 7680 Mbits (4) connectors
- 80 Mips Transmit rate
- 80 Mips Receive rate
- 1 Gbps Transmit rate resolution
- 10 ppm transmit rate stability
- 12 ns maximum transmit jitter
- 17 dB input return loss

**Chassis Specifications**

- 19 inch rackmount
- Heavy duty steel chassis
- Dimensions: 444mm(W) x 606mm(H) x 872mm(D)
- Weight: 90 kg

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  - **EPU Platform**
    - Dual Core Pentium processor
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  **Auxiliary Interfaces**

  - VGA out, 1024 x 768 resolution
  - 18/10/100/1000 Base LAN port for remote control
  - 1 serial, 2 parallel, 2 USB ports
  - PS/2 keyboard/mouse
  - 12V DC COMB drive
  - 200-60 - 1.5 T8

  **Recording andPlayback Interfaces**

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**Encoder**

- 4v-inch VHS
- Standard EIA 19 inch EIA (Electronic Industries Association)
- Heavy duty steel chassis
- Dimensions: 12 inches (H) x 4 inches (W) x 11 inches (D)
- Weight: 90 lbs (40 kg)

**Power Supply**

- Dual ATX 1000W redundant power supplies

**Electrical/Environmental**

- 90 - 240 Vac, 47 - 63 Hz
- 5.0 A at 115 Vac, 2.5 A at 230 Vac
- Operating temperature: 0°C to 40°C
- Storage temperature: 0°C to 50°C

**Regulatory**

- CE Mark
- UL Listed
- C1 Mark

Product Structure

- Base DVSTor 1U/4U
- Software Options
  - GCA
  - USB HDD Backup option
  - DAS: 1P Hybrid
- Hardware Options
  - DVD/CD Options
  - IEEE 1394 Firewire option
  - Direct Attached Storage (40 GB)

**DVSTor Key Features**

- AS1 Recording (Manual/Scheduler)
- AS1 Playback (Time/Time/USB HDD)
- TP Playback (Time/Time/USB HDD)
- Transcoding
- P2D Filtering (Recording/Playback)
- Stream-casting of DVSTors
- DAS support

**Overview**

- Broadcasters and content providers across the globe are being required to maintain all content put on-air for a time window ranging from 30 days to one year. The DVSTor does away with banks and banks of VHS tape used during the time of analog broadcast, allowing a seamless solution that does not require human intervention.

- DVSTor records transport streams from AS1 or TP Inputs. The DVSTor optionally transcodes up to three SD services or one SD and one HD service each. With support for MPEG-2 and H.264 in SD or HD formats, transcoding reduces the bit rate being used for the video stream, and hence the storage requirements for the stream.

- DVSTor augments the DVSTor family of preventive monitoring systems by providing long-term, continuous loop recording and playback of MPEG-2 and H.264 transport streams. Ideal for applications needing more than the built-in 96 MB cache buffer available on the DVSTor family, DVSTor provides up to 6 TB of storage — providing almost four and half a day's worth of continuous recording of a typical satellite transponder.
TRANSCRATING SUPPORT

TRANSCRATING support is new standard on both the new DVSstar platforms, 2RU and 4RU, at no extra cost. Transcribing changes the bit rate of the recorded video stream in real-time to a user-configurable value ranging from 250 to 1000 kbps. Up to three SD sources or one SE and HD source each, can be processed simultaneously. Audio streams and metadata are maintained as is.

When transcribing is enabled, the DVSstar 2RU can store up to 31 days with 3.5 TB of storage, and 93 days with 6 TB of storage in a 4RU DVSstar. At typical satellite transmission rates (40 Mbps), the DVSstar 2RU and 4RU platforms can store up to 8 and 12 days respectively.

RUGGED, STABLE AND EASY SET-UP

Built on a dual core Intel® Pentium®-based processing engine, the DVSstar utilizes a Linux based operating platform for maximum stability with a focus on performance. The rugged industrial chassis features two hot swappable power supplies with automatic input voltage selection. RAID-6 is employed on the storage sub-system to ensure maximum redundancy with up to two hot spares available.

The installation and integration of the DVSstar with an existing transmission monitoring system is easy. Simply connect the Ethernet and ASI cables, set the IP address and select a time sync source. That's it! Once operational, the recording and playback control is managed using the HTML interface on the DVSstar.

NULL PACKET REMOVAL

In MPEG transport streams, null packets are inserted to smooth out the bandwidth being used by the channel. The DVSstar removes the presence of null packets in the stream and removes them when recording for efficient storage space. On playback, the null packets are reinserted seamlessly.

SECURE MANAGEMENT INTERFACE

By default, DVSstar constantly records all MPEG-2 transport stream traffic. Additionally, recorded segments or a subset of a recorded segment can be locked out to prevent data being inadvertently overwritten. Unauthorized access is protected by a user-password system.

DVSstar also uses a multi-level authentication system that allows administrator unlimited access and other users to access playback and retrieval functions.

DAS Configuration

DVSstar DAS Configuration

The DVSstar also offers the capability to extend available storage by deactivating or supplementing with an external Direct Attached Storage (DAS) when more than 6 TB is required. DAS can be enabled on both 2RU and 3RU platforms with easy configuration settings. By specifying the recording duration and defining the IP address of the subsequent daisy chained DVSstar, recording is triggered when storage space fills up.

On the 4RU platform, optional DAS modules can be connected through an SCS interface, with support for four modules of up to 15 TB each, for a maximum of 60 TB. With RAID-6 and redundant power supplies, the DVSstar-DAS modules complement the fail-safe architecture of the DVSstar 4RU platform.

SUPPORT FOR EXTENDED STORAGE

REDUNDANT FAIL-OVER OPTION

DVSstars can be installed in redundant fail-over configuration with a one-to-one or n-to-one ratio. One fail-over DVSstar can monitor a number of other DVSstars, and upon failure of any one of the monitored machines, the fail-over machine will take over archvial duty. Steadfast playback of the content is equally seamless, regardless of whether there was a failure in the time segment.

NETWORK TIME SYNCHRONIZATION

DVSstar can be synchronized with Network Time Protocol (NTP) servers in the network to allow for accurate time-stamping. Time synchronization also allows the DVSstar to be controlled by other machines in the network using SNMP or other automation procedures.

SNMP SUPPORT

DVSstar can be monitored using SNMP, with extensive support for SNMP v2. Recording status can be reported with SNMP traps.

DVSTATION INTEGRATION OVERVIEW

The DVSTation monitoring system continuously tracks both errors and performance information of any multitude of signals. Error parameters tracked include signal loss, problems with SDI tables or missing content such as lost subtitles or incorrect language components. Additionally, you can configure the system to periodically log key performance parameters such as picture quality, bandwidth, PCR jitter or even RF signal to noise ratios.

Each log entry has a time stamp identifying the exact time the problem occurred. Furthermore, time synchronization between different DVSTation mainframes, whether separated by a short distance or across the world, is possible through the DVSTation time code receiver. This is achieved by activating the NTP time sync service or using the optional GPS receiver.

DVSstar is further integrated with DVSTation through the DVSTation capture system. Each port on the DVSstar is equipped with a 36 MB capture buffer. Captured transport stream data can be uploaded to the DVSTation file one time or continuous playback.

If more than 34 MB of transport stream is to be captured, then DVSstar can be set up to record in the event of an error. DVSTation can store up to 32 days of content off a satellite transponder, for example.

TRANSPORT STREAM GAP COMPRESSION

Should the input signal be interrupted due to transport stream synch loss or loss of signal, DVSstar automatically suspends recording until normal signal condition is restored. Each recording segment is identified in the user interface by its corresponding start and stop time.

FLEXIBLE PLAYOUT

DVSstar can play out the recorded streams over either ASI or IP.

LIGHTWEIGHT STREAMING SERVER APPLICATION OVERVIEW

DVSstar also makes a lightweight streaming server to troubleshoot video equipment. DVSstar can playback any recorded transport stream. With a loop function, the DVSstar can provide a continuous video source over either ASI or IP.