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Case Studies: DPI Signaling System Monitor

Facility #1 – Automated Playout Content

The Challenge

Facility #1 does not produce any live content and only uses scheduled automated playout for all network content. The client needed to manage 20+ network feeds originating from their facility and distributed over satellite and cable to affiliates for broadcast to the general public.

The Solution

DNF's DPI Signaling System Monitor receives a copy of the daily automation playlist to determine the scheduled time for each DPI signal event.

Throughout the broadcast day, DNF's system checks for the presence of each DPI event at its scheduled time:

- The presence of a DPI event is checked at a predefined point immediately before and after its scheduled time.
- If the DPI event is received after the predefined time, the Operator Viewer GUI monitoring that network is notified of a LATE EVENT error.
- If the DPI event is not received, the Operator is notified of a MISSED EVENT error.
- If a predefined time period elapses with no DPI event received, the Operator is notified of a DPI TIMEOUT error.
- Additionally, if there is an interruption in the Splice Start, Splice Stop, Splice Start, Splice Stop sequence, a DPI SEQUENCE error is reported.

Users employ the Operator Viewer GUI to view the state of DPI Events as they occur as well as to monitor for any errors. Each Operator Viewer is assigned one or more networks to monitor. Some networks are monitored by multiple operators. Operators can view the events for a specific network or across all the networks they're assigned to monitor. DPI Monitor points have been established within the facility at primary and backup signal paths, as well as a satellite downlink location. Additionally, there are five computer workstations running DNF's real-time Operator Viewer GUI application.

When a DPI error occurs, engineers are notified via email so that the problem can be resolved in a timely manner. Error notifications are also used to trigger GPI Outputs and display messages on multi-viewers within the facility.

The DPI Signaling System Monitor logs all DPI Events and errors for every monitored network. Logs files are automatically transferred daily to the customer's archive storage system.

Facility #2 – Live Content Only

The Challenge

Facility #2 produces only live content and does not playout scheduled content from an automation system. As such, commercials and their associated DPI signals do not occur on a fixed schedule. Instead, commercial playout is manually triggered under the direction of production staff.

The client needed to manage 12+ live network feeds originating from their facility and distributed over satellite and cable to affiliates for broadcast to the general public.

The Solution

The facility is using DNF's DPI Signaling System Monitor to notify the Operator Viewer GUI whenever a DPI signal is received. The system identifies the signal type and other relevant metadata:

- In addition to reporting commercial break starts and stops, it reports on when critical signals were not received over a predefined period of time.
- Operators use the Operator Viewer GUI to view the state of critical signals, both as they occur and to monitor for any errors.
- Each Operator Viewer is assigned one or more networks to monitor. Some networks are monitored by multiple operators.
- Operators can view the events for a specific network or across all networks that they are assigned to monitor.

When an error does occur, engineers are notified via email so that the problem can be resolved in a timely manner. Error notifications are also used to trigger GPI Outputs and display messages on multi-viewers within the facility.

The client has established DPI Monitor points within their facility at selected points in the signal path prior to transmission. Multiple computer workstations run the real-time Operator Viewer GUI application.

The DPI Signaling System Monitor logs of all DPI Events and errors for every monitored network. Logs files are automatically transferred daily to the customer's archive storage system.

Facility #3 – Both Automated *and* Live Content

The Challenge

Facility #3 produces a mix of live and automated content, switching between them over the course of a broadcast day. During automated content, commercials are played out on a fixed schedule. During live content, commercials are triggered periodically by production personnel a fixed number of times per hour. The client needed to monitor the insertion of contracted commercial break start and end DPI messages on four originated network feeds. SCTE 35 messages are monitored at selected points in the signal path within the facility and multiple computer workstations run the real-time Operator Viewer GUI application.

The Solution

DNF's DPI Signaling System Monitor receives a copy of the daily automation playlist to determine the exact time of day that pre-scheduled DPI events should occur, as well as when a network will transition between automated and live content:

- During automated content, the DPI Monitoring system checks every received DPI event to confirm that it occurs at the correct time and is of the correct type based on the scheduled automation playlist.
- During live content, the monitor system reports when a commercial break starts or stops.
- In both modes of operation, the system reports an error message if specified DPI signals are not detected during a predefined period of time.

This facility's operators use the Operator Viewer GUI to view the state of DPI Events as they occur as well as to monitor for any errors. Operators can view the events based on a specific network or across all networks that they are assigned to monitor. When an error does occur, engineers are notified via email so that the problem can be resolved in a timely manner. Error notifications also trigger GPI Outputs and display messages on multi-viewers located around the facility.

The DPI Signaling System Monitor logs of all DPI Events and errors for every monitored network. Logs files are automatically transferred daily to the customer's archive storage system.