Sentinel Recorder

The Sentinel Recorder is designed for high integrity operations, such as Air traffic Control, where image quality and capture speed are key.

The Sentinel system features Truepixel[tm] lossless compression and transmission technology on dual redundant LAN. The video capture system provides non-intrusive, failsafe capture, recording and replay of video data (both Digital and Analogue) of any resolution, either digital or analogue systems

Key Features

- Continuously capture 2k x 2k video sources
- Continuously capture 1k x 1k video sources
- Support single or dual redundant system architectures.
- Provides real time remote viewing of any source.

Safety

- True record of **'What the Controller actually saw'**.
- Fully Independent.
- No common failure modes with system being recorded.
- No impact on system being recorded.

Each Server sub-network provides its user interface as a keyboard, audio, video and mouse data set. The purpose of the data interfacing is to acquire this data and make it available on the appropriate VLAN.

Specification

Data Sources	1 x DVI (Dual link @ 60 Hz). 2 x USB.
Networking	2 x 1000baseT Ethernet. SNMP Management.
Power Supply options Note: Only one is required.	– Power over Ethernet. – Power over USB. – 5V external (only for offline use).
Physical	Case: 12cm x 10.3 cm.
MTBF	125,000 hours (calculated)
Model Types:	– Sentinel Tx HR (DVI dual link sources). – Sentinel Tx LR (DVI I sources analogue or DVI).
Performance	DVI DL up to 30 FPS DVI SLI up to 60 FPS Compression ratio: Up to 300:1

Sentinel Tx enables the real time capture of 2K x 2K video and USB data without any impact on the data sources.

Safety

The Thruput Limited Sentinel Tx, Sentinel Rx, Frame Rate Converters, Videomax[tm], and Truepixel[tm] Switch place safety in operation as the highest design priority. The units use TruePixel[tm] technology that ensures the absolute accuracy of the display. Every pixel from the graphics source is mapped to a physical pixel without any internal firmware manipulation. The data received is exactly the data displayed. The key features are:

- Minimum throughput delay (input to output).
- Lossless compression.
- Lossless data encryption and packetizing for LAN transport.

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Lossless Compression

The Sentinel Tx and Rx systems do not contain processors, but rather are logic devices. By virtue of this the methods used for data compression are extremely fast, highly efficient, logical and clear-cut. Of particular benefit in the construction of a robust safety case for the system are:

- Controllable frame-rate and colour depth.
- All internal processing is conducted per-pixel on a frame-to-frame basis.
- Transmission of differences with controllable i-frame and/or i-line intervals.
- Run-length encoding with parity checking.

The detail steps used are proprietary and will be disclosed for use in the safety case submission under NDA.

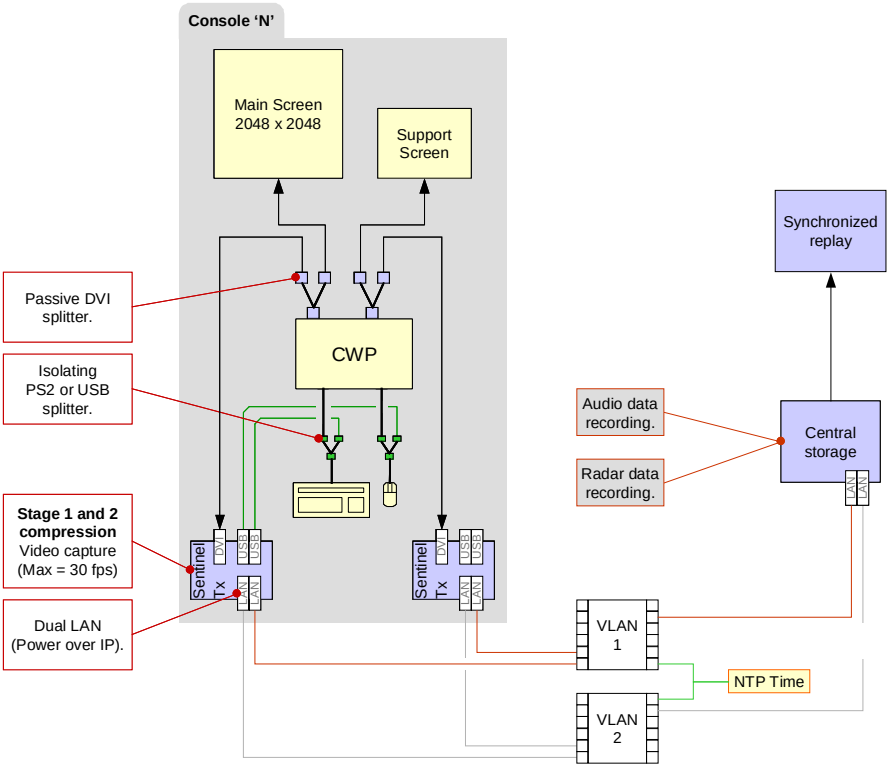
Data Packetizing for LAN transport

The data packetizing for video and serial data streams is independent and all sets of data are available on both LAN.

In addition, a management port is also embedded in each LAN.

Parity Checks

The system utilizes continuous data rate control and parity checks to support the construction of a robust safety case for the system.



A typical ATC application of the Sentinel recorder comprises a main and support screen, each captured with dual redundancy of networks and storage archives.

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