EXAMPLE 1:

Abstract

In any mission critical-broadcasting application, reliable synchronization is mandatory. For traditional black burst or tri-level-based synchronization, redundant sync signal generators are used, whose quality is monitored together with their respective switch-over units. To make the best use of a single shared communication medium within an all-IP studio, synchronization is accomplished using the IEEE 1588 Precision Time Protocol (PTP). Although multiple sync sources are deployed for redundancy purposes, the monitoring of their availability and precision is not sufficient to guarantee the defined level of accuracy. Additional data must be gathered and analyzed by every node prior to deployment and as part of its ongoing operation. After briefly describing the main effects influencing PTP accuracy, several monitoring methods using both in-band and out-of-band are described, including how this benefits operations in the broadcast plant. Finally, we verify their respective merits through a series of measurements in a data-center class multihop network architecture.

Keywords

IEEE 1588, monitoring, Precision Time Protocol (PTP), redundancy, ST 2059-2, time and sync

EXAMPLE 2:

Abstract

Quality is easy to recognize by the eye. Quantifying it can be more problematic. For high dynamic range (HDR), it is even harder because convenient methods, such as peak signal-to-noise ratio and structural similarity metric, do not work well. Some newer HDR-aware metrics are now available; how-ever, they can be slow and computationally cumbersome, therefore discouraging use in real-time monitoring. This paper introduces an alternative, simpler technique that could be used in post-production and real-time monitoring during distribution. Specifically, this paper presents a biologically inspired method of creating a “spatial detail” representation that can be used instead of the original HDR image as a basis for quantifying video distortions and artifacts. Simple correlation analysis of the luma spatial detail signal yields an intuitive and sensitive metric of distortion in HDR video. As an added benefit, the spatial detail signal provides a guide that enables distortions in HDR highlights to be evaluated separately from the remain-der of the video.

Keywords

High dynamic range (HDR), spatial detail, ultrahigh dynamic (UHD), video distortion, video quality, wide color gamut (WCG)