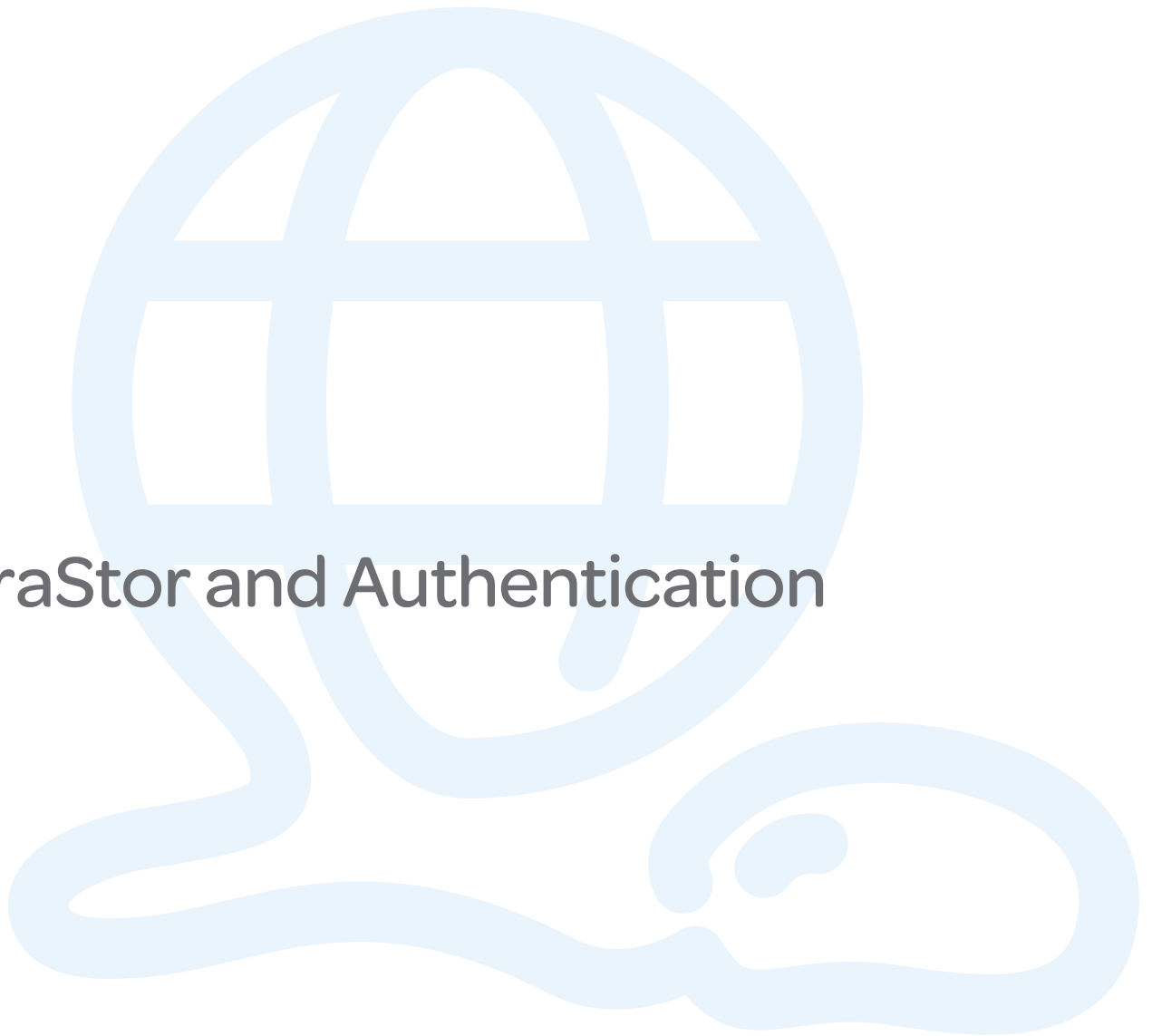




EnduraStor and Authentication



Introduction

An important feature of the Endura network-based video security system from Pelco is EnduraStor™, a storage management application. EnduraStor offers the ability to reduce the frame rate of previously recorded video in an Endura system, after a user-defined period of time. In the Endura system, Pelco has incorporated technology to ensure the authenticity and integrity of digital video streams, from the initial capture to the final output onto media for use in court. This paper explains how Endura authentication works in conjunction with EnduraStor.

Authentication in Endura

In any secure system, it is necessary to verify that data sent from one device in the system to another has not been altered or modified. Endura uses digital signatures to secure both audio/video streams and control messages. Digital signatures are calculated for the video bitstream, the audio bitstream, time stamp information, and motion data, if any. In the video bitstream, specifically, digital signatures are created for each I-frame and P-frame. In all cases – data, video or audio – the digital signature is created and applied to each message by the sending device. In the case of video streams from a camera, for example, the digital signature is created and applied in the Endura video encoder before the stream is stored on the hard disk drives of an Endura NVR or viewed on an Endura viewing station.

EnduraStor

The Endura system records MPEG-4 high quality (4CIF) video streams at up to 30 images per second per stream. Users may wish to maximize their storage capacity by reducing the frame rate of stored video after a predetermined time. To enable this ability, EnduraStor utilizes branching and pruning. Branching refers to the separation of I-frames and P-frames into separate files upon recording, so that P-frames can be removed later. Pruning refers to the actual deletion of Pframes leaving only the I-frames, to convert recorded video to a lower frame rate and free up storage. An Endura system operator uses the “EnduraStor Enabled” setting to enable or disable EnduraStor. Similarly, a system operator uses the “EnduraStor Delay” setting to set the minimum amount of video (in hours) to keep in the original “un-pruned” state. EnduraStor applies only to MPEG-4 video streams; it does not prune audio streams or control messages. This patent pending feature allows users to retain high frame rate video for as long or as short as necessary to meet their specific requirements. Because each P-frame and I-frame is individually signed at the point of creation, the digital signature for each remaining stored video frame remains intact, preserving the authenticity of recorded video in the Endura system



by Schneider Electric

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