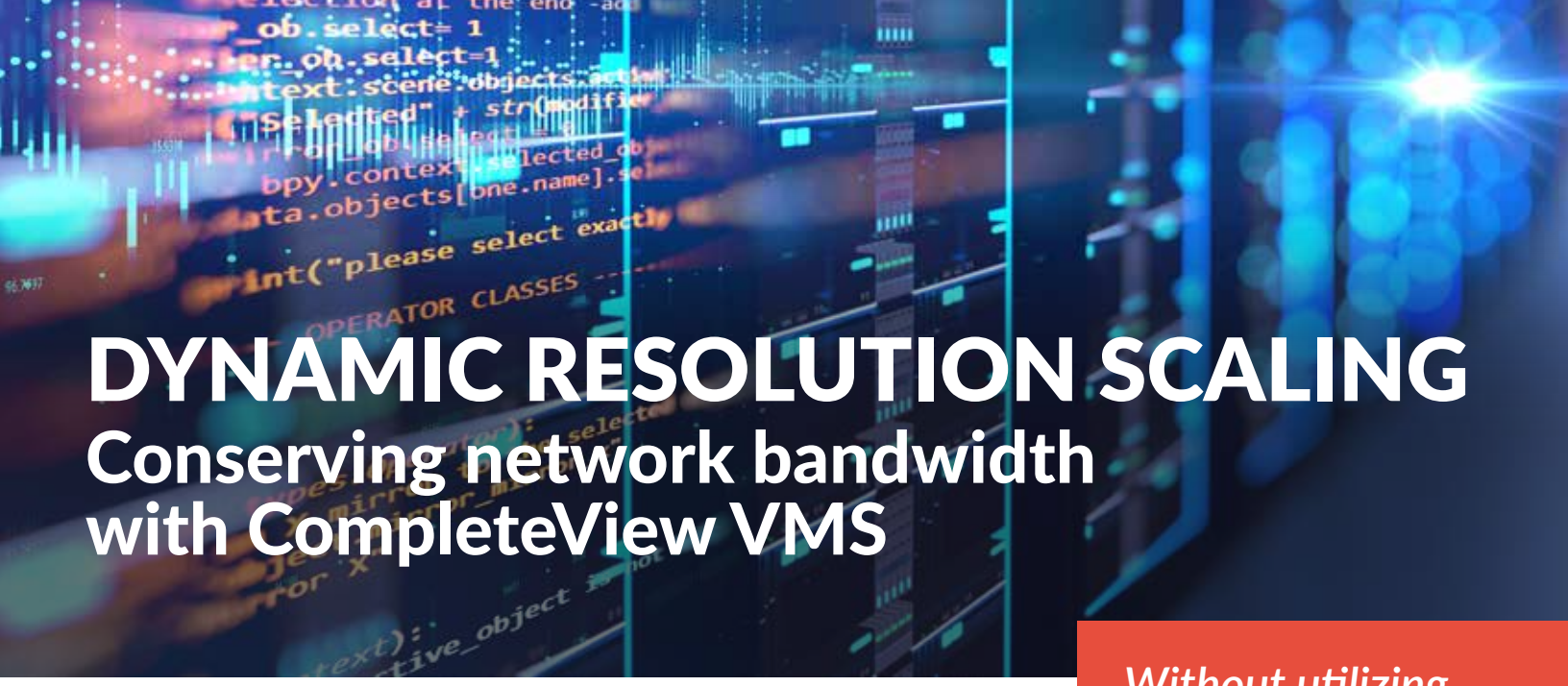

DYNAMIC RESOLUTION SCALING

Conserving network bandwidth with CompleteView VMS

Without utilizing DRS, 90% or more of an image's transmitted data may be wasted network bandwidth.

Dynamic Resolution Scaling is a defining feature of CompleteView, designed to conserve network bandwidth by dynamically delivering live video appropriate to the monitoring environment. Regardless of the size of the data stream coming from the video source into the Recording Server, DRS delivers only the video resolution necessary to the Desktop Client requesting the live video. Video resolution is automatically optimized based on the display size of the viewing window in the Desktop Client application.

The CompleteView Recording Server continues to record any resolution the camera is capable of displaying, as configured. If the configured recording resolution is high, such as from a 12 megapixel camera, it would likely be a waste of bandwidth to transmit the full stream from the Recording Server to the Desktop Client for Live View. This is because the video is typically displayed within a small viewing pane in the client application. If the viewing pane within the client is only CIF sized (352x288) but megapixel video is being transmitted to fill it, 90% or more of the transmitted image will never be displayed and is simply wasting network bandwidth.

Utilizing DRS, a 12 megapixel camera set to 10 frames per second may see a 95% decrease in bandwidth usage from the Recording Server to the Desktop Client.

Dynamic Resolution Scaling automatically and dynamically resizes the video resolution at the Recording Server before transmission to the client application for viewing. This processing occurs in the background without user intervention and without affecting the originally recorded video. Video is still stored on the Recording Server at the originally configured resolution.

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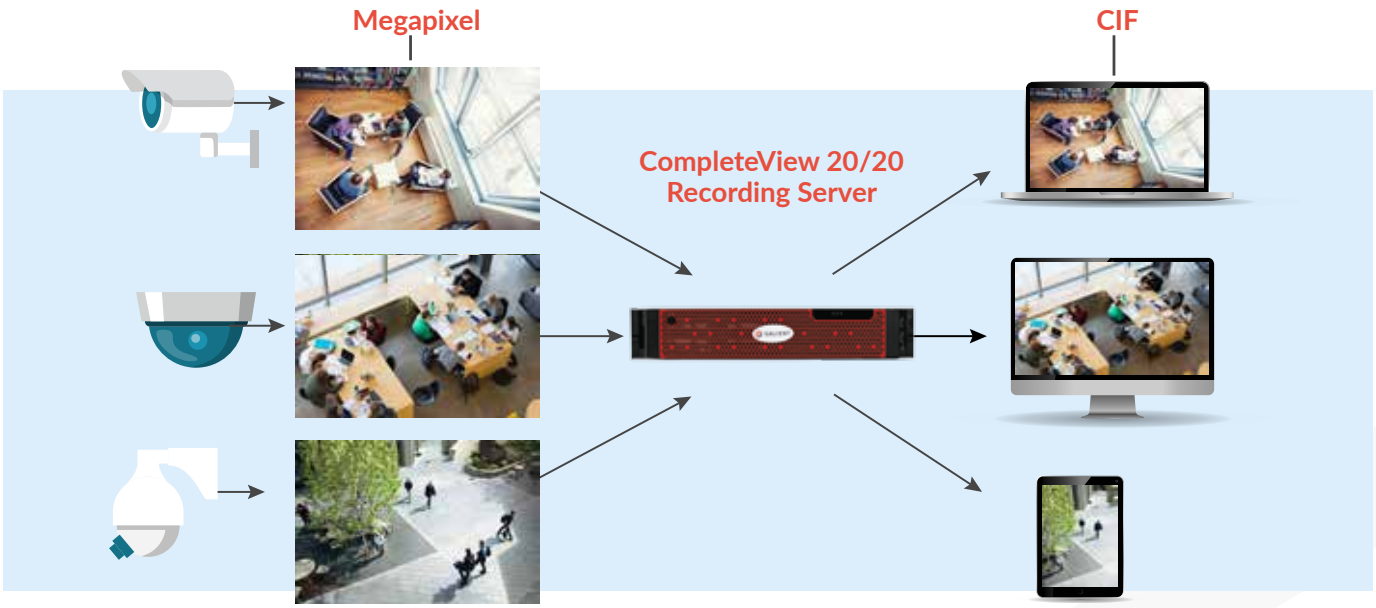
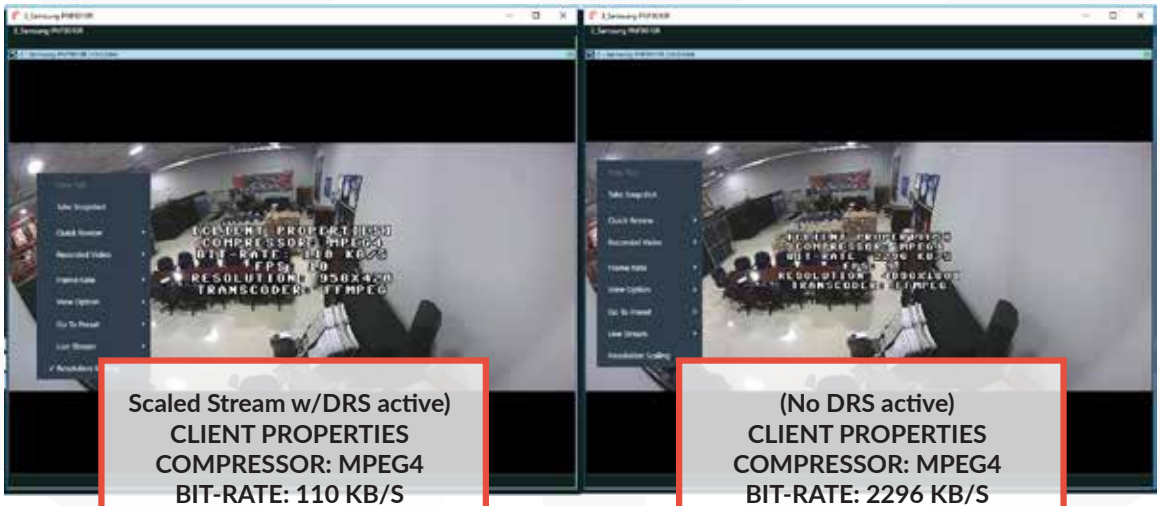


As the user resizes the viewing pane, the server automatically streams a higher or lower resolution to provide the most appropriate quality level for the size of viewing pane without any wasted bandwidth.

WHAT CONVERTING NETWORK BANDWIDTH LOOKS LIKE

The example below utilizes a 12 megapixel camera set to 10 frames per second (FPS) streaming H.264 video to the CompleteView Recording Server. The Recording Server is streaming MPEG4 video into a display window of 958x420 within the Desktop Client. Utilizing DRS, the bitrate going over the network from the Recording Server to the Desktop Client hovers around 110 kilobits per second (KB/S), fluctuating somewhat depending on motion in the scene.

Turning off DRS with all else being equal, the bitrate spikes to 2296 KB/S, representing a 1987.27%, or more than a 20-fold, increase in bandwidth usage.



Scaled Stream w/DRS active)
CLIENT PROPERTIES
COMPRESSOR: MPEG4
BIT-RATE: 110 KB/S
RESOLUTION: 958X420
TRANSCODER: FFMPEG

(No DRS active)
CLIENT PROPERTIES
COMPRESSOR: MPEG4
BIT-RATE: 2296 KB/S
RESOLUTION: 4096X1800
TRANSCODER: FFMPEG