# COMPARISON OF POPULAR VIDEO COMPRESSION TECHNIQUES

### H.264 AVC (ADVANCED VIDEO ENCODING)

H.264 is an older codec mainly used for 1080p resolutions. It is less efficient than H.265 but therefore is simpler and require less processing at the expensive of higher latency. H.264 using block-orientated coding which are up to 16x16 pixel macroblocks, to sample and convert each video frame. It then uses information from the current and previous frames to predict the motion of the image. Decoding then takes all this information to reproduce each frame image. Because of its age and simplicity H.264 is still the most popular compression algorithm.

### H.265 HEVC (HIGH EFFICIENCY VIDEO CODING)

H.265 is primarily used for 4K UHD resolution video. It can compress up to 50% more than its predecessor H.264 but requires a more powerful CPU and therefore is more costly. The compression process uses coding tree units (CTUs) which can vary in both shape and size ranging from 4x4 to 64x64 pixels. This process together with enhanced motion compensation and prediction technology provide a much improved video quality at lower bitrates.

### JPEG 2000

JPEG 2000 is a compression system that uses wavelet technology. This system uses progressive decoding, an efficient coding stream that displays a lower grade version for the image initially and progressively improves the image as more data arrives. Significantly the system delivers both a lossless and lossy stream within the same stream. This enables the image to be adapted and modified to the quality and clarity required by each application.

Importantly for networked uses the system can handle colour-space information and metadata interactivity. The format can also change the progression of resolution, quality, colour components and position making JPEG 2000 incredibly flexible and adaptive.

### SVDoE (SOFTWARE DEFINED VIDEO over ETHERNET)

SDVoE is the highpoint of AV distribution offering mathematically lossless 4K/60 4:4:4 and HDR over 10GbE network with genlock together with near zero (<1ms) latency – the compromise is higher bandwidth requiring a 10GbE Network, However, video and audio quality is excellent therefore ideal for Broadcast applications and offers a progressive route to 8K resolution video transmission.