VIVOTEK
BUILT WITH RELIABILITY

The Next **Generation Video Codec**

SVC **Scalable Video Coding**

VIVOTEK is proud to be the world's first and foremost in IP surveillance industry to unveil Scalable Video Coding (SVC), the next-generation video codec. In the near future, all VIVOTEK products will support SVC.

What is SVC?

Scalable Video Coding (SVC) is a video standard based on H.264 that allows video data to be divided into multiple layers with different resolutions, picture sizes, and frame rates. This allows the video to be played back on different devices, or streamed over networks with varying bandwidths, while delivering the best possible results.

Why is SVC needed?

As the resolution of network cameras increases, processing and displaying video streams is placing heavier demands on hardware. Handling multiple channels of streaming video is especially challenging. SVC provides the flexibility to optimize such video to account for limited network bandwidth, available processing capacity, and varied display devices.

The Evolution of Video Codecs

- SVC
- H.264
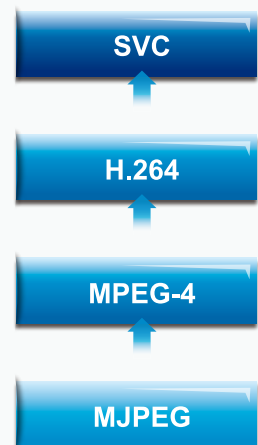- MPEG-4
- MJPEG

How does SVC work?

SVC turns a single video stream into multiple layers by selectively discarding some data to create independent layers. Clients with limited resources, such as lower display resolutions, processing power, or battery levels can use the layer that best suits their capabilities. VIVOTEK currently supports SVC-T for layers with variable frame rates, while the SVC versions for multiple resolutions and for different picture sizes are under development.

What are some applications for SVC?
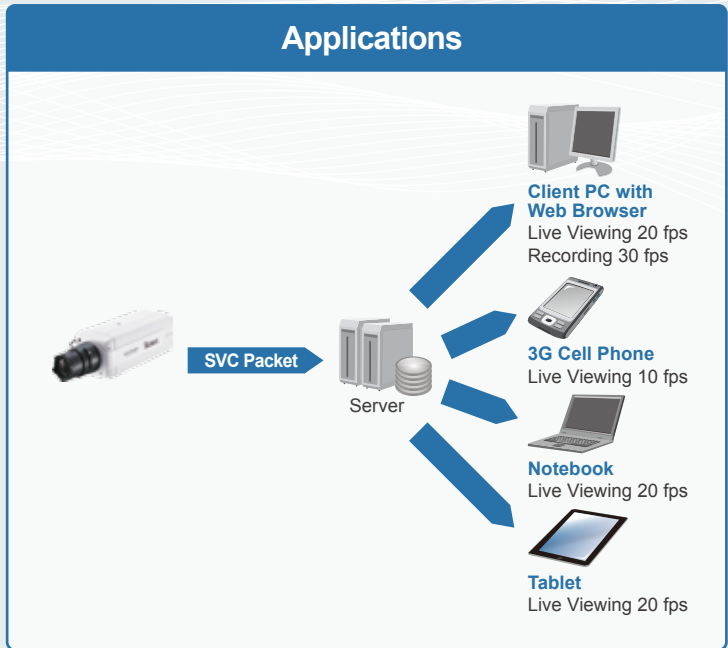
Eco-monitoring

Eco-monitoring uses SVC to provide the best experience when simultaneously viewing video from multiple sources. The monitoring program selects the layer that provides the best picture quality without overtaxing the system's CPU, while recording all layers of video so all detail is retained should they be required at a later time. For example, clients—particularly handhelds and other devices with limited capabilities—can make use of a low frame rate layer, while the recording server accepts the full frame rate layer. The monitoring station can even dynamically adjust the layers transmitted from the camera.
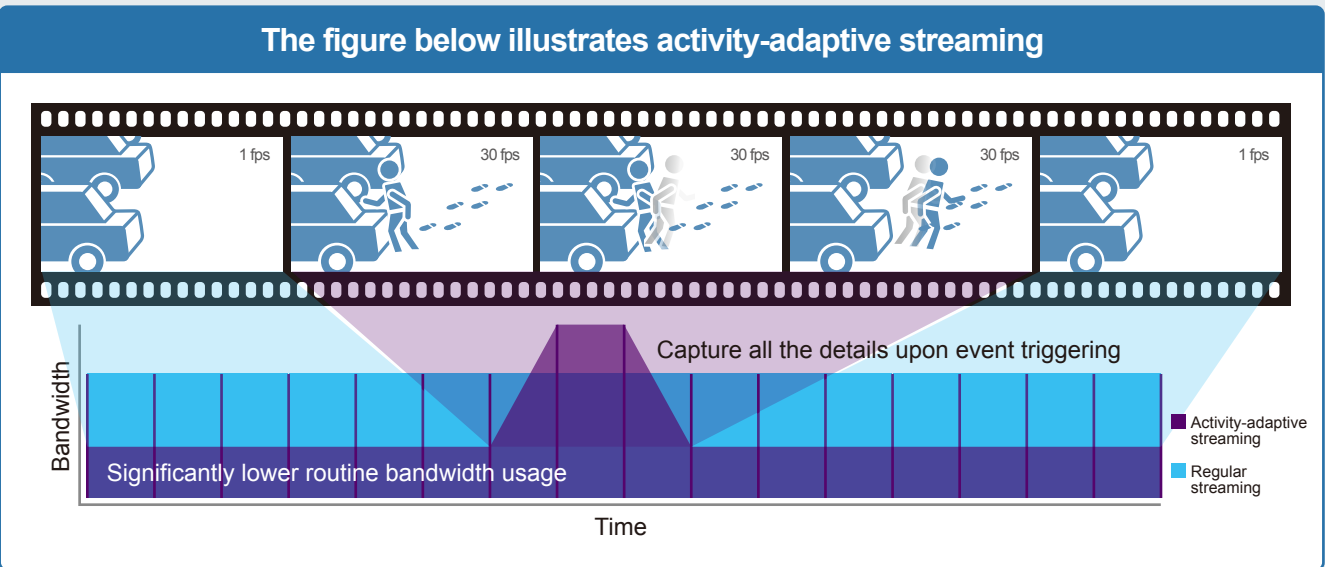
Activity Adaptive Streaming/Recording

Activity-adaptive streaming enables a camera to adjust frame rates dynamically based on the particular scenario—for example, a low frame rate for normal monitoring and a high frame rate for event-triggered recording. Activity-adaptive streaming can thus optimize network bandwidth usage when monitoring, while ensuring superior picture quality when recording. In addition, VIVOTEK cameras' time-shift streaming feature allows frame rate increases to be applied both in response to a trigger and even retroactively, so full detail is captured throughout the time interval of interest. When activity-adaptive recording is in effect, the camera captures only one frame per second pre-event, but with SVC-T support, this rate can be increased by an additional frame per second—without requiring additional bandwidth or storage.

Applications

SVC Packet → Server

Client PC with Web Browser
Live Viewing 20 fps
Recording 30 fps

3G Cell Phone
Live Viewing 10 fps

Notebook
Live Viewing 20 fps

Tablet
Live Viewing 20 fps

Benefits of VIVOTEK SVC

- Up to **70%** Savings in Storage and Bandwidth
- Lower CPU Loading of the CMS Server
- Instantly Adjustable Frame Rate to Match Device Capabilities
- Seamlessly Integrate with Available Network Devices

The figure below illustrates activity-adaptive streaming

1 fps | 30 fps | 30 fps | 30 fps | 1 fps

Capture all the details upon event triggering

Bandwidth

Significantly lower routine bandwidth usage

Time

■ Activity-adaptive streaming
■ Regular streaming