

Red5 Pro Transcoding on the AWS Cloud

Delivering Streaming Video to Millions in Milliseconds



OVERVIEW

Live streaming is set to pass on-demand video as the largest user of Internet bandwidth by 2026. The explosion of new interactive media experiences is what's driving the growth in low latency live video. This shift from passive to interactive experiences relies upon an end-to-end latency that is often 500ms or less. This is difficult to do reliably and cost-effectively at large scale across the open internet.

Red5 Pro and AMD Xilinx are revolutionizing real time streaming with solutions that deliver content to millions in milliseconds for deployment in the cloud via AWS EC2 VT1 instance. Powered by AMD Xilinx media accelerator technology that delivers high-density video transcoding, the Red5 Pro WebRTC solution intelligently optimizes and offloads compute-intensive video processing for a scalable and cost-effective real-time streaming experience.

HIGHLIGHTS

Low Latency Video Streaming, Powered by AMD Xilinx Technology

- > Delivers 500ms latency for a breadth of real-time use cases
- > Powered by Alveo™ U30 media accelerator

Live Video at Scale

- > Supports millions of concurrent viewers, auto-scale on cloud
- > Auto-scale and deliver via WebRTC

Flexibility for Cloud and Edge Computing

- > Deploy via AWS EC2 VT1 instance with Red5Pro for quick time to market
- > Best-in-Class support from Red5Pro / AMD



USE CASES

- > New Interactive Media Applications
- > Live Sports / eSports & Events
- > Online Live Auctions
- > Live Online Casinos
- > Live Shopping
- > Mission-Critical Command & Control

INDUSTRIES

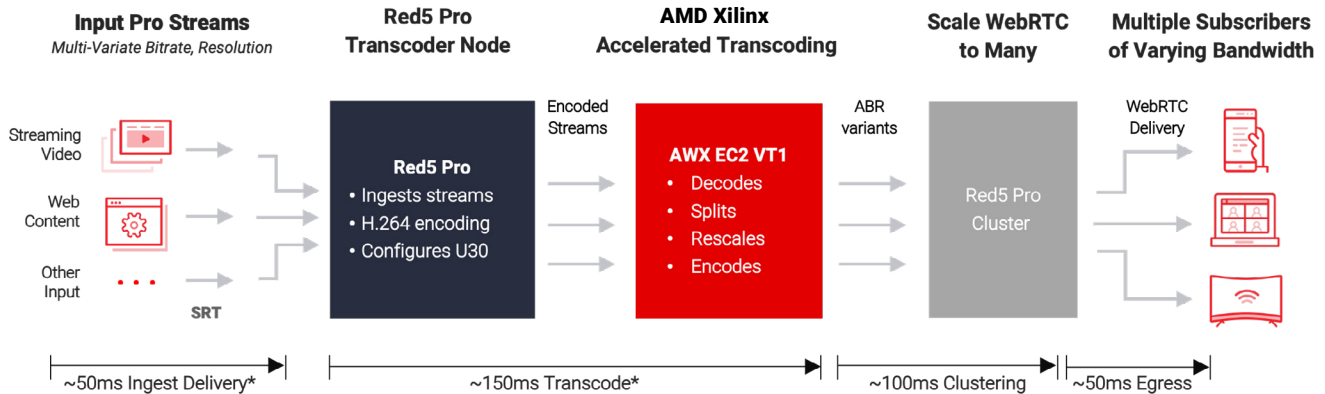
- > Sports, eSports & News Broadcast
- > Social Media
- > eCommerce
- > Live Events & Entertainment
- > Consumer
- > Aerospace & Defense

LOW LATENCY VIDEO TRANSCODING AT SCALE

AMD-Xilinx technology provides low latency, hardware accelerated transcoding to offload Red5 Pro servers, enabling video service and content providers. The architecture executes an integrated video pipeline as follows:

1. Multiple input streams of varying bitrates and/or resolutions are ingested by Red5Pro transcoder node
2. Red5 Pro (module of native code) provides encoded h.264 video packets to AWS EC2 VT1 instance
3. AWS EC2 VT1 decodes streams, feeds to scaler, generates ABR variants, and re-encodes
4. Transcoder publishes to Red5 Pro Cluster as single video stream
5. Red5 Pro cluster scales via WebRTC, delivering best variant per subscriber's bandwidth

Red5 Pro & AMD Xilinx Video Pipeline

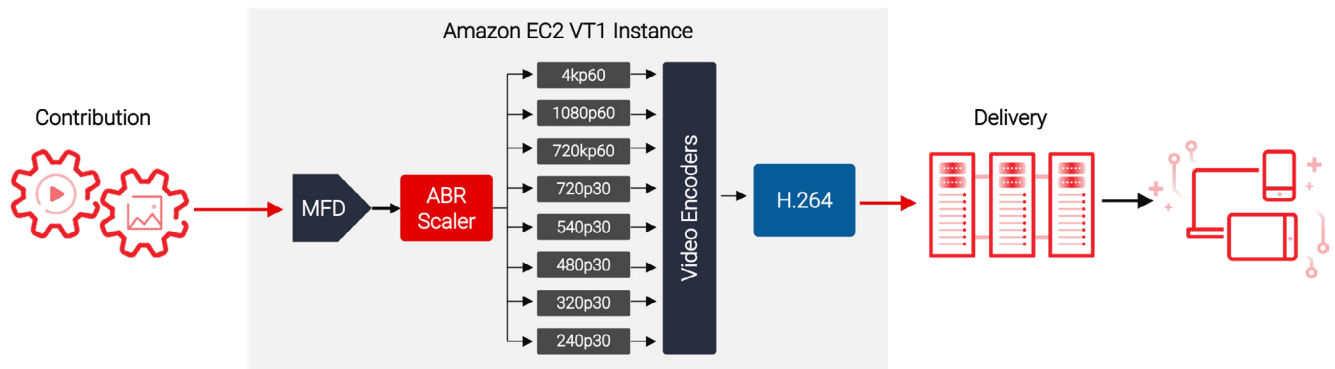


*Assuming 1080p top-level variant, ingest and egress ping times of 50ms, and deployment in a single region

FLEXIBILITY FOR THE AWS CLOUD

Deploy on AWS to support millions of streams under 500 milliseconds of latency. Cloud-based deployments utilize Amazon EC2 VT1 instances, with each instance powered by up to 8 AMD Xilinx Alveo U30 media accelerator cards, delivering up to 64 1080p60 streams that can be subdivided into lower resolutions. The VT1 instance delivers up to 30% lower cost per stream than Amazon EC2 GPU-based instances and up to 60% lower cost per stream than Amazon EC2 CPU-based instances. Read the [case study](#) to learn more.

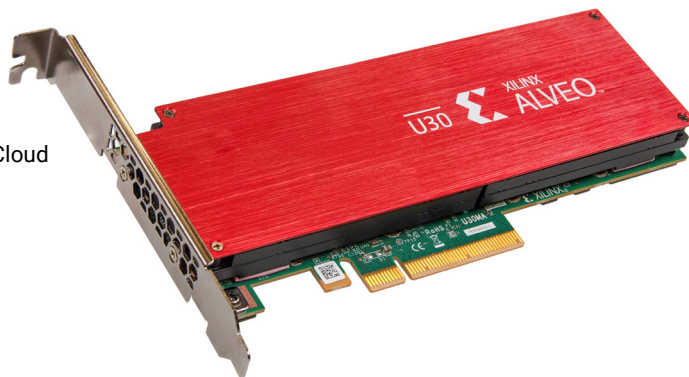
Distribution (AWS Cloud or On-Premise)




SPECIFICATIONS

FEATURES	
Video Format	<ul style="list-style-type: none">> 4k H.264 video transcoding to 8 level bit-rate ladder> Autoscaling to support millions of viewers> Frame Accurate synchronization with metadata> Any 3rd party encoder
Ingest Formats	<ul style="list-style-type: none">> SRT and WebRTC> RTMP, HLS, RTSP, MPEG-TS
EC2 VT1	<ul style="list-style-type: none">> Up to 2x 4Kp60 down to 64x 1080p60 real-time streams simultaneously> Supports H.264 and HEVC standards> 100% offload of ABR scaling (no CPU resources required)> Faster than Real-Time transcoding (FTRT), e.g., 11-minute film can be transcoded in 120 seconds

60%
Less Cost-per-Stream via AWS Cloud
vs. CPU-Based Instances



The image shows a red Xilinx Alveo U30 Media Accelerator Card. The card is a PCIe-based accelerator with a prominent red metal cover. The Xilinx logo and 'ALVEO U30' are printed on the cover. The card has multiple ports on the left side and a PCIe connector on the right.



The AWS logo is shown below the text, consisting of the word 'aws' in a lowercase, sans-serif font with a curved arrow underneath it.

TAKE THE NEXT STEP

Learn more about Red5 Pro at www.red5pro.com

Schedule a real-time demo at <http://www.red5pro.com/schedule-demo>

View subscription pricing at www.red5pro.com/red5-pro-license-pricing/

Learn more about the [Amazon EC2 VT1](#) Instance or read the [case study](#)

Learn more about the Alveo U30 Media Accelerator Card at www.xilinx.com/u30

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