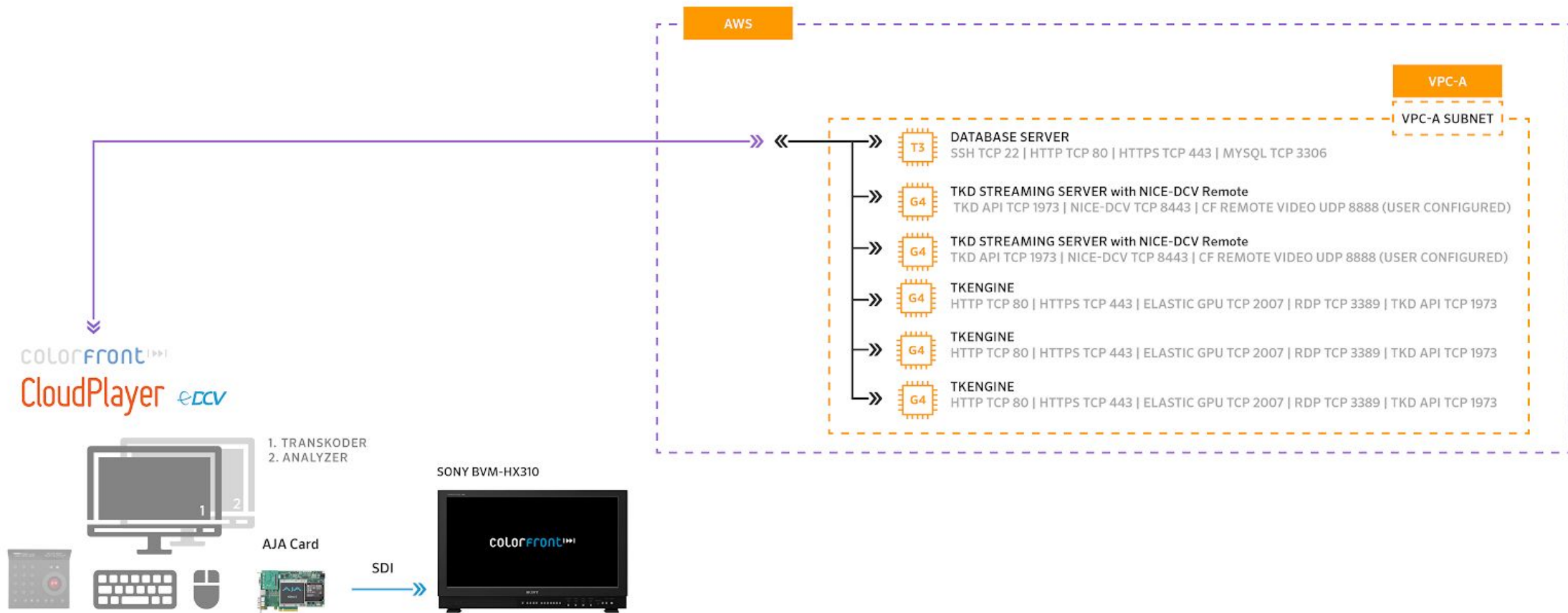


colorfront 

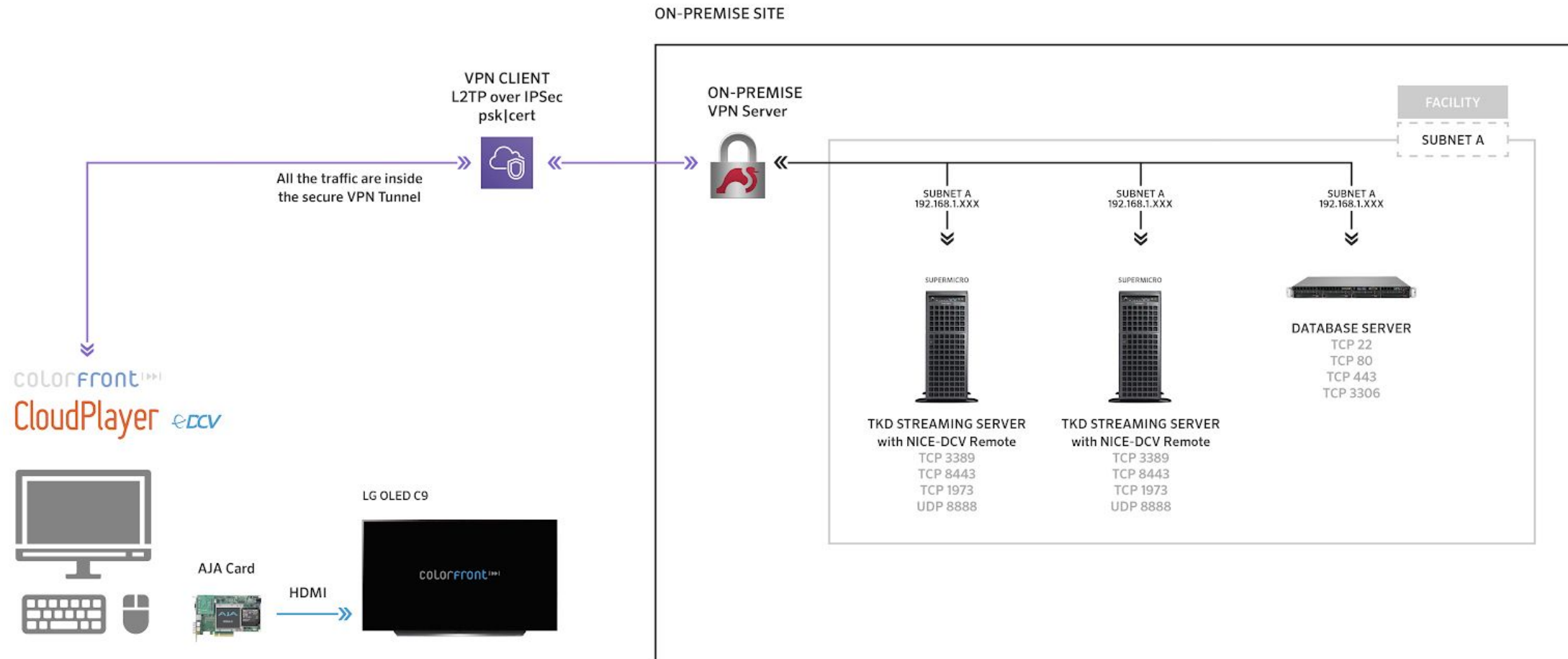
## CLOUD PLAYER - REMOTE VIDEO STREAMING

- high performance interactive Transcoder/QC Player running in AWS or Azure
- Real-time playback of footage directly from S3 cloud storage  
Supporting IMF, DCP, ProRes, OpenEXR, DPX, OCN: R3D, Sony Venice, ARRIRAW ARX
- professional quality secure virtual remote video output  
reference quality, color accurate 10-bit 444 UHD HDR video & multi-channel audio  
AJA and Blackmagic professional video card output via SDI / HDMI

## Connect to AWS Instance for streaming from AWS to remote location



## VPN Client connect to the ON-PREMISE site for streaming remote location



## REMOTE DESKTOP

- NICE DCV is a high-performance remote display protocol that provides customers with a secure way to deliver remote desktops and application streaming from any cloud or data center to any device, over varying network conditions.
- There is no additional charge to use NICE DCV on Amazon EC2.
- <https://aws.amazon.com/hpc/dcv/>

## STREAM TRANSMISSION



**SRT Unicast - Secure Reliable Transport Protocol**

Secure	Encrypts video streams
Reliable	Recovers from severe packet loss
Transport	Dynamically adapts to changing network conditions

Secure Reliable Transport(SRT) is an open source transport technology that optimizes streaming performance across unpredictable networks, such as the Internet

## ENCRYPTION & WATERMARKING

- end-to-end [HaiCrypt](#) 128/256 bit AES encryption
- Visible and NexGuard forensic watermarking

## CODEC

- **Video:** HEVC/H.265 4:4:4 10bit
  - Resolution: HD/2K or UHD/4K (upto 4K 4096x2160)
- **Audio:** AAC, 48kHz 16bit, up to 7.1 channels

## DATA RATE

- 10+ Mbps recommended for HD@24 4:4:4 10-bit
- 30+ Mbps recommended for UHD@24 4:4:4 10-bit
- Upto to 200 Mbps

## IN DEVELOPMENT

- Mac OS X client, multiple destinations, 16-channels of audio, stereo 3D

## System Requirements

### SERVER (STREAMING SOURCE) SIDE

**Transkoder in AWS** is provided as an **AMI**, runs in the customer's VPC.

EC2 instances running Windows with appropriate NVidia GPUs.

The recommended instance is the **g4dn.12xlarge** <https://aws.amazon.com/ec2/instance-types/g4/>

Hardware is charged typically **\$6.12** on-demand by the hour directly by AWS. Spot Price **\$3.62** per hour.

- **CPU:** 48 vCPUs (24 cores)
- **Memory:** 192 GiB RAM
- **GPUs:** 4x Nvidia T4 Tensor Core GPUs each with 2,560 CUDA cores
- **SSD:** 900GB of NVMe SSD local storage

## CLIENT (STREAMING PLAYER) SIDE

### Example Windows PC configuration

- **HP Z2 Tower** <https://www8.hp.com/us/en/workstations/z2-tower.html>
- **CPU:** intel i9-9900 <https://ark.intel.com/content/www/us/en/ark/products/191789/intel-core-i9-9900-processor-16m-cache-up-to-5-00-ghz.html>
- **Memory:** 2x8GB (minimum, 2x16GB Recommended)
- **Storage:** 256GB SSD
- **GPU:** Nvidia Quadro RTX 4000, driver version 442.50
- **SDI/HDMI:** AJA Kona5 and BMD DeckLink Mini Monitor 4K
- **Monitor:** A screen resolution of at least 1920x1080. 2560 or 3840 recommended, dual monitors supported

### Example 1RU Rack Mount Chassis Configuration

- **Chassis:** <https://www.supermicro.com/en/products/chassis/1U/514/SC514-R407W>
- **Motherboard:** <https://www.supermicro.com/en/products/motherboard/X11SPW-TF>
- **CPU:** intel Xeon Silver 4210R <https://ark.intel.com/content/www/us/en/ark/products/197098/intel-xeon-silver-4210r-processor-13-75m-cache-2-40-ghz.html>
- **Memory:** 2x8GB (minimum, 2x16GB Recommended)
- **GPU:** Nvidia Quadro RTX4000, driver version 442.50
- **SDI:** AJA Kona5 and BMD DeckLink Mini Monitor 4K
- **Monitor:** A screen resolution of at least 1920x1080. 2560 or 3840 recommended, dual monitors supported

### Example Laptop Configuration

- **HP ZBook 15 G6 Mobile Workstation** with Windows 10 Pro  
<https://store.hp.com/us/en/pdp/hp-zbook-15-g6-mobile-workstation-customizable-6cj04av-mb>
- **CPU:** Intel® Core™ i9-9880H vPro™ processor (2.3 GHz, up to 4.8 GHz with Turbo Boost, 16 MB cache, 8 core)  
<https://ark.intel.com/content/www/us/en/ark/products/192987/intel-core-i9-9880h-processor-16m-cache-up-to-4-80-ghz.html>
- **Memory:** 32 GB (4x8 GB) DDR4 2666
- **GPU:** NVIDIA® Quadro® T1000 (4 GB GDDR5 dedicated)
- **SDI:** AJA Io4K+ or Blackmagic UltraStudio 4K Mini
- **Display:** 15.6" diagonal UHD B-LED UWVA Anti-Glare DreamColor slim (3840x2160)(600nits)