A Better Alternative to HDMI Over IP Sytems

By AVProConnect

A BETTER ALTERNATIVE TO HDMI OVER IP SYSTEMS

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A/V over IP is a widely available networking technology devised for the purpose of distributing video and audio signals through an "off-the-shelf" managed IP switch. The managed IP switch was originally crafted to move email and business data through a network; NOT video and audio data. Forcing an existing data standard to work outside of its own confines and blend with a different standard is problematic. It creates headaches when it comes to system integration and function. The drawbacks are many fold, and include highly complex setup and configuration tasks, multiple points of system failure, and multiple brand management and integration issues. Until recently, there were almost no satisfactory alternatives. But not any more! Introducing the AVProConnect CLOUD 9. Our technology development team has been working overtime to produce a much needed alternative to the options available. The CLOUD 9 is a cutting edge, rock solid HDBaseT solution allowing you to utilize nine sources and distribute all of them to an unlimited amount of displays. HDBaseT is a highly reliable standard created specifically for distributing audio and video data. Cloud 9 is our unique solution which further pushes the HDBaseT technology envelope; taking full advantage of the standard's capabilities and performance.

CLOUD 9: 9 INPUTS X UNLIMITED OUTPUTS
A SEAMLESS SWITCHING MATRIX WITH 3X3 OR 2X2 MULTIVEIW

A/V OVER IP IS THE GO-TO CHOICE FOR MANY INTEGRATORS WHEN PUTTING TOGETHER A SYSTEM FOR A BAR, RESTAURANT, RETAIL STORE, OR A MULTITUDE OF OTHER APPLICATIONS. WE UNDERSTAND WHY, IT'S NOT REASONABLE TO PAY $30,000 FOR A HUGE 32X32 MATRIX JUST BECAUSE YOU HAVE SPORTS BAR WITH 25 DISPLAYS

With AV over IP you can just buy the transmitter & receiver and you have picture. While simple, it also comes with new headaches; a network switch, a picture that isn't on par with that 32x32 matrix, and you are using a technology that was invented for office computer files, not large video content. At AVProConnect we have been looking for that solution, and have finally found one. We spoke with hundreds of integrators and concluded that rarely does an AV over IP system need more than nine sources (inputs). However, almost always there are more than nine displays. With this feedback in mind, we developed the Cloud 9, but before we get ahead of ourselves, let's talk a little more about AV over IP (also known as HD over IP, HDMI over IP, Video over IP, HDIP, etc..)

AV OVER IP REFRESHER
(I've never met a Video over IP system that I loved)

Our history has taken us through about 5 years of HD over IP products in our search for the ultimate solution for driving several A/V zones from an iPad or other simple control system. We learned intimately how these products work and their inherent weaknesses. Let's start with why "**IN THEORY**" this is such an attractive technology:

Concept & Scalability - It is a great concept – buy only the number of boxes you need for each source and each TV – add a simple off-the-shelf switch and VOILA! You have an effective solution for sports bars and bowling alleys everywhere.

Low Cost - Since you only need to buy exactly what is called for, the cost is lower than say buying a 32x32 traditional matrix switch and only using 8 input sources to 25 displays (that's a lot of IN/OUTs not being used).

Widely Used - A lot of companies make similar Video over IP products, so they must work.....right?

Audio Routing - Most include some from of de-embedding or down-mixing, but not many allow full routing options.

Multiview & Video Wall Options - These are low-resolution options, unless you want to add more components (receivers) to increase overall resolution (if you don't do this, the resolution is simply split between the displays thus creating a video wall with four 480i displays). Plus, in almost every install where video walls or displays were deployed a fair amount of tearing adjustment is required just to make the picture watchable.

THE ACTUALITY OF HD OVER IP

Concept vs. Reality - In practice HDIP systems are like fitting a round peg in a square hole. These "off-the-shelf" switches are not all the same. Configuration is required; with some level of knowledge on how to transform a switch designed for email and web browsing into a switch for transporting extremely large files containing movies or TV shows. Every HDIP example on the market requires some knowledge of networking and system structure. Furthermore, none of these systems are designed to run over an existing IT infrastructure. We have recently learned that some late-comers to the HDIP market are also requiring their re-sellers to have Cisco/IT certified personnel on staff to even sell the solution – this alone spells long term support – make sure you charge for it.

Compression & More Compression - Broadcasters spend a fortune encoding movies and TV shows for transport so that data is not lost in the process. HDIP products use extremely low cost variants of MPEG encoders to compress the movies and TV shows at about 100-200:1. This means that they can be sent over CAT5e cables – and at the other end they decompress the signal for viewing on the TV. In decoding, there is always loss of picture or artifacts. These switches are designed for email and web browsing – not movies or TV shows on 65" screens. MPEG enabled the invention of, and is best deployed in smart phones.

Latency - This is an inherent issue with IP based networks. Latency is a by-product of encoding and decoding the signal and will vary by manufacturer. This causes issues especially in live venues – lip sync comes to mind.

PoE (Power Over Ethernet) - PoE is optional. When working with certain manufacturers, we were told to add power back (plug them into an AC outlet) because the switch wasn't producing enough power to run the system.

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ADDITIONAL DOWNSIDES OF USING VIDEO OVER IP OPTIONS ON THE MARKET:

Image Preview - Some systems offer this feature and it is nice. The problem is it also zaps system resources and is the first thing to go once the system begins to bog down.

Constant Reboots - Most of these systems require reboots at regular intervals to keep them running.

Hardware Failures - Higher data rates cause components to heat up and fail often. Based on the number of replacements we still send out to customers for existing systems, we know this to be true.

Switch Problems - A main problem with working with network switches is that when problems arise, there is no support because the manufacturers did not design the product for AV systems. This limits what a network switch manufacturer is willing to do to help.

A NEW ALTERNATIVE: CLOUD 9

When we started to design Cloud 9, it was due to the sheer number of support calls and major issues with hardware failure we had experienced over the past five years (using almost all the HDIP solutions on the market). Cloud 9 has been under a veil of secrecy for the past year and has been our biggest programming challenge yet (multiple MCUs and FPGAs). Cloud 9 has been tested by select HDIP integrators with stunning results – 100% of our testers will never install HDIP solutions again – here's why:

HDBaseT – This technology was designed for the A/V market. It was built for extending full bandwidth HD signals to any location over about 10 meters. HDbaseT is a fantastic, reliable and perfect technology for Cloud 9 outputs. HDBaseT was designed for point-to-point communication between HDMI enabled devices and was specifically designed for 5-PLAY – Audio, Video, Control, Ethernet and Power. IP was developed to support IT networks, essentially, to move data to the correct destination.... eventually.

Actual Instant Matrix Switching - AIMS is truly instant switching, sources switch immediately when you push the button.

PoE - PoE gives the option to provide power to your receivers (TV location) from the main switch.

No Latency - Near zero latency, built for live video.

IR - Four input IR routing is included for control downstream components.

Audio Routing - A complete audio matrix is built-in – route audio from any source to any output zone/display.

Multiview - Both 2x2 and 3x3 is built-in and available to any output. In 2x2 mode you can matrix each quadrant independently.

Video Wall - The addition of our DigiBird Advanced Video Wall Processor, will allow you put up as many video walls that are required for your job.

RS-232 - Bi-directional, you can control the switch and remote devices. Broadcast and routable RS-232 available.

Control - RS-232 & IP Drivers for Control4, RTI, ELAN, OnControls and Crestron (Savant & URC coming soon).
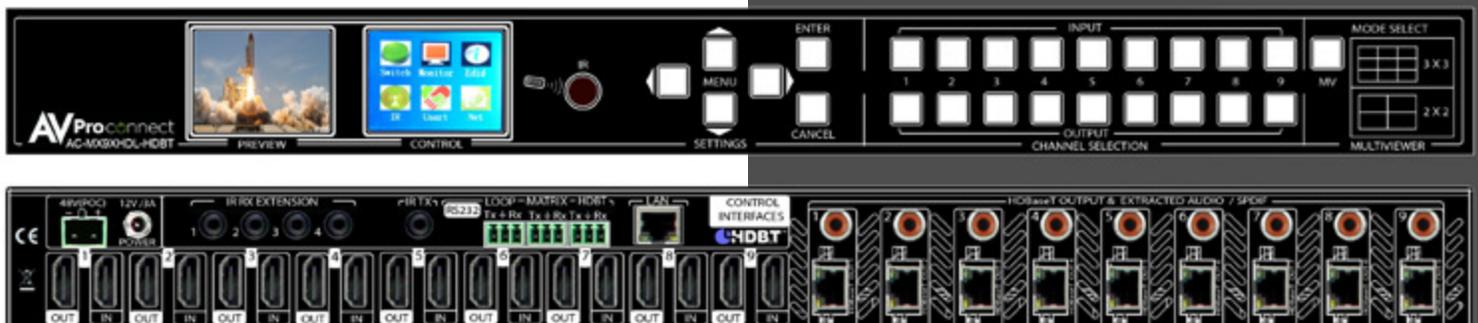
CLOUD 9: THE 9 X UNLIMITED HDBASET MATRIX
CUSTOM CONTROL SYSTEM

CLOUD 9 BOILED DOWN

Cloud 9 in plain and simple terms is a nine HDMI input, nine HDBaseT output matrix switch, unlike other matrices this was built for cascading in a new and clever way. For each HDMI input, there is an additional HDMI looping output designed to feed the next unit. This way your original nine sources can be distributed to as many additional units as you need. Every time you cascade to an additional unit, you are giving yourself nine additional displays that have all the benefits we have already discussed like instant switching and 2x2 or 3x3 multiview.

There are three FPGA chips in each unit. Those chips coupled with our proprietary engineering and programing technology makes this a unique and extremely robust matrix.

One additional benefit we haven't discussed is the ease at which you can control a Cloud 9 system. It does come with drivers for all the big control systems (ie Crestron, Control4, RTI, ELAN and others). So it's not a problem if you have someone in house to program those controls. These drivers are available through our website or just give AVProConnect a call and we can get them to you. If you don't have someone to program a custom switch, or you're paying a 3rd party to do it, then we have the ideal solution for you. The Cloud 9 Custom Control System: A turn key, user friendly control system custom built for any Cloud 9 project and completely run from an iPad.

CLOUD 9 VS VIDEO OVER IP PRICE COMPARISON

Next time you put together a video over IP system, do a comparision with Cloud 9. In almost every situation you will find that you are going to save thousands of dollars by going with AVProConnect products. Remember when installing the cloud 9, you don't have to have a beefy network switcher control hardware, it can all be done over the cloud. More importantly you will save thousands in TIME, because after installation you will have a solid infrastructure that you won't have to come back to later when something happens to the degrading picture or network switch. Have an upcoming job, give us a call and we can get you a no-hassle, free quote.

A Truly Professional Control System that we set up for you.

Cloud 9 Custom Control System: A turn key, user friendly control system custom built for any project. Completely cloud based and run from an iPad. AVProConnect brings you the first Professional A/V Control System that is an out-of-the-box, turn key solution; plus it's fully customizable.

This is how it works in three easy steps:
1) Install any number of Cloud 9 switches into your system. **2)** You will have a consultation with one of our Control Specialists to find out exactly what your video and audio distribution project will look like. **3)** We will then do everything else for you and program a complete control system.

You can then access the control by using an app on any iPad, NO CONTROL HARDWARE OR CPU's NECESSARY. That iPad becomes your complete remote control, and all you had to do was answer a few questions about your sources and displays. Also with added features such as year long support, you won't have to worry if something needs to be renamed, changed or moved through out the year. This eliminates you having to worry about control hardware, drivers, programmers, custom commands and everything thing else that goes with putting together a professional A/V control system.

Our control systems start at $2500, and you don't have to buy any hardware.