

VBrick and H.264

Appliances and Shelves

For more than a decade, VBrick Systems has been delivering world-class video networking products and technology. VBrick invented the Video Network Appliance in 1997, delivered the first MPEG-1 product in 1998, MPEG-2 in 2000, the world's first MPEG-4 appliance in 2003, and unique appliance based Windows Media and Reflector technology in 2005. Indeed, VBrick has a long and proud history of innovation, not just in video compression and delivery, but also in system solutions that helps make the technology invisible. H.264 technology joins the VBrick family in 2008, but it joins the family in a new and exciting industry-leading open architecture.

Why H.264?

H.264, also known as MPEG-4 Part 10, is a video compression standard that can provide roughly a 2X improvement over previous standards. That is, a broadcast quality video that required 3 Mbps may now require only 1.5 Mbps to achieve the same quality. Moreover, H.264 is a highly flexible technology that scales to high definition and beyond.

However, to take advantage of what H264 has to offer, you must implement several features that require very high processing loads. After all, H.264 is a "Moore's Law" algorithm, designed to operate on tomorrow's processors better than today's (see "H.264" at <http://vbrick.net/whitepapers/VBrickAndH264.pdf>)

Standards and Competition

The advantage of standards is that rather than one vendor having to do all the work, a community of scientists and engineers collaborate to produce a standard. Then vendors compete to produce the best implementation of that standard.

VBrick has produced the best possible implementation of H.264 video compression using Patented-Pending techniques. The research and development of this technology, funded in part by the U.S. National Science Foundation, makes it possible to dramatically lower the processing

required to produce compressed video, resulting in a lower product cost, lower heat, and higher reliability.

But H.264 by itself is not enough. Other “ecosystem” standards must be embraced to make the video compressions useful. Standards for audio compression, audio/video synchronization, transport, and the hundreds of IP/Internet and management standards have to be embraced and implemented. It’s been said, “The nice thing about standards is there are so many to choose from”. It takes a great deal of experience to know which standards are important and how to implement them in a video appliance context to produce a well-orchestrated result.

H.264 vs. Windows Media vs. MPEG-2

The Society of Motion Picture and Television Engineers (SMPTE) know Windows Media as VC-1, a standard. Both technologies use similar compression techniques (Microsoft even chaired the H264 technical committee at one point), and both produce an excellent video image at similar bit rates for file encoding. Windows Media enjoys an installed base of Windows Media Player and Silverlight. H.264 enjoys compatibility with QuickTime player, widely deployed on most desktops already, and a VBrick plug-in will empower Windows Media Player to display H.264 audio/video. Adobe Flash currently does not support standard live H.264 streaming (although you can stream files). MPEG-2 enjoys a huge installed base of players and set top boxes and is a very mature technology. It is likely to be with us for many years to come, but H.264 is poised to replace it. Your selection of which technology you deploy will depend on the problem you are trying to solve.

The Problem You Are Trying To Solve

Whether you use video in an enterprise as a key element of corporate communications, commercial television distribution, employee alignment, training, institutional education, government or commercial security and monitoring, or entertainment, virtually everyone seeks the same goal: deliver stunning high quality live video using as little network bandwidth as possible. The people behind the camera and the people viewing want the highest quality, while the IT staff wants the lowest bandwidth usage. As discussed, H.264 may be your best choice to make both the network staff and the end viewer very happy.

The next consideration may be physical. The VBrick solution is both an appliance and a high-density shelf. The appliance is the perfect solution for network end points, such as the President's office, conference and boardrooms, training rooms, and remote locations.

The shelf is the perfect solution where you need multiple channels, such as a campus "head end" to deliver many channels of commercial television or to support many cameras in a venue.

Introducing A New Platform

The wildly popular VBrick 6000 series appliance has been joined with a new family that provides next-generation power and flexibility, the VBrick 7000 and 8000.

Like previous VBrick platforms, the 7000/8000 is based on multiple processors to provide the best possible real time performance. It remains a fully embedded system, not based on a multipurpose Operating System, but uses embedded technology and advanced Digital Signal Processors.



VB8000 – High Definition

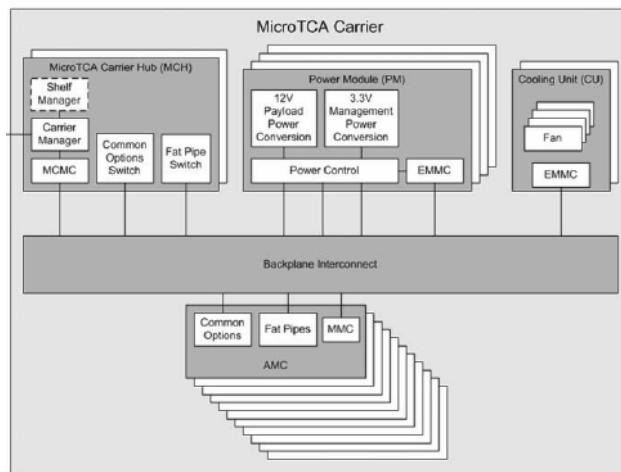
The first expression of the new platform is H.264 encoding, but the platform is software/firmware defined, and other video technologies will be available, including Windows Media / VC-1.

In addition, the platform has a flexible Input/Output design, enabling support for composite, S-Video, SDI, HD-SDI, HDMI, mono/stereo audio, and other I/O arrangements.

Micro-TCA Shelf – A New Standard

One of the most important (and under-reported) developments in the electronic packaging industry is the development and release of the Micro-TCA standard. This standard, now being adopted by many vendors, will enable multiple vendors' modules to share a common shelf.

The shelf has standardized power, management, and redundancy scheme, and is available from multiple suppliers. The standard has its roots in the telecom carrier industry and defines the modules that plug into the shelf as "Advanced Mezzanine Card" or "AMC".

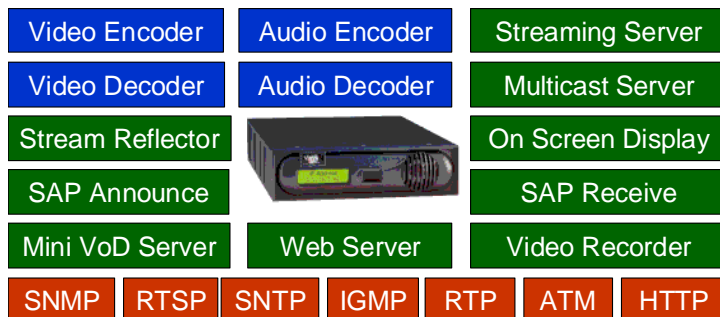


VBrick's new platform is an "AMC" and is Micro-TCA compatible. You may install one module or as many as the shelf will hold (e.g. ten). The VBrick module has all I/O on its front panel (along with a small status LCD display). Thus, in addition to a high-density video encoding solution, you have a multi-vendor platform where you can ultimately mix and match web server modules, streaming server modules, and more.



It's not an Encoder, it's a VBrick

VBrick appliances, including the 7000/8000 series, are not just "an encoder". Certainly, this is the main event but it is insufficient to describe the functionality required to produce a network-friendly live, low-delay audio/video stream. In addition of a very flexible series of encoder settings (resolution, bit rate, frame rate, audio sample rate, widescreen settings), a VBrick provides live serving directly from its built-in streaming server, automatic Program Announcements making VBricks self-aware, robust and advanced multicast support including IGMP v3, and more.



High Definition

VBrick supports true High Definition, 720p and 1080i live video over IP. For the first time, you can display your live HD sources on an unlimited number of desktops in an enterprise network. Because of the granular frame rate and output resolution control, you can make necessary compromises to stream HD video at reasonable rates via the public Internet too. And VBrick's that support HD also support Standard Definition. That means you can be "HD Ready".

Ecosystem

Thanks to commitment to standards, VBrick products are easily integrated into any standards-based system. Whether you wish to manage and control the appliance or shelf via SNMP, its internal web server, telnet, or API's, VBrick makes it easy. Compatibility with both VBrick players and Set Top Boxes as well as with 3rd parties, combined with VBrick's reputation, financial health, and market leadership position, makes VBrick a safe choice.

For enterprises wishing to deploy a full system, including conditional access, streaming servers, portals, "Set Top Box" decoders, and customized solutions, H.264 and the VB7000/8000 series are interoperable with the VBrick EtherneTV® System.