

Digital KVM Switches Are Quite Popular – Analog KVM Switches Still Deserve Respect

Which Technology is Best for Your Data Center or Lab?

Introduction

KVM switches allow operators to access multiple computers from one or more consoles, saving a great deal of time, space and power. Because they must be designed to physically connect and logically handle the type of system(s) with which they are used, some KVM switches are limited to single-platforms, whereas others accommodate multiple platforms.

Many KVM switches rely upon analog video circuitry, as they have for almost two decades, and some still use proprietary multicore cables to reach the keyboard, monitor and mouse ports. Medium to large KVM switch systems may be designed to use the same kind of Category 5 or 6 cables used in network data communication; adapters at the computers convert the graphics card analog VGA output, as well as the digital keyboard and mouse outputs, to travel down four twisted pair of wires in the Cat 5 or Cat 6 cable. These so-called Cat 5 KVM switches have become very popular because the cables are inexpensive and readily available in almost any length, and because they are a lot less bulky and easier to install and move.

Because Cat 5 KVM switches accommodate more cables (and computers) per switch chassis than traditional multi-core cabled (or separate K/V/M cabled) switches, they save precious rack space and floor space. Cat 5 KVM switches typically permit up to 1,000 feet (300 m) of cable between computer and user console. Demand for greater distances and outright remote access spawned the (IP-enabled) digital KVM switch wherein a LAN, WAN, or Internet connection (instead of a direct-connected Cat 5 cable) links users to the KVM switch and its connected computers.

Superficially a digital KVM switch may resemble an analog Cat 5 switch in that it may connect to computers with Cat 5 cables, but internally the two are quite different. Digital KVM switches frame-grab and compress analog video images, convert them to digital video, superimpose mouse and keyboard information, and packetize all this for network transmission on a LAN, WAN, or the internet via TCP/IP. So instead of having to run dedicated Cat 5 cabling from the switch to the user console(s), there's one short Cat 5 connection to the network, and a software client or web browser lets digital KVM users access computers to which they have been granted access by the admin... locally or from anywhere in the world.

Digital or analog KVM – which is best for me?

Each technology has its advantages. Here's a brief summary of the benefits:

Digital KVM

- Easy to integrate with existing network infrastructure
- User access without distance limitations
- Multiple users can log in and gain concurrent access to collaborate on the same computer
- Unlimited expandability with a uniform, predictable cost per added switch

Analog KVM

- Ultimate security of isolation from the WAN/Internet
- Does not need any fixed IP addresses or router ports for deployment
- Potential for more users to access different computers on one switch
- Real-time (instantaneous) video and mouse response
- Utmost video quality; faster and better support for high pixel resolutions and color depth
- Lower cost per port (usually)

Who needs an analog KVM switch?

Financial/government applications where extra high security is required – Digital KVMs today offer excellent security with multiple available protection protocols and layers. However, because they can be set up

for user access with direct-wired cables, analog KVM may be the only solution accepted by certain governmental, defense or financial clients.

Network operation centers (NOCs) – Highest video quality plus the ability (with some models) to allow a user at one console to split the signal (driving the local console and the larger, remote video-wall monitor) favors analog KVM for control of a video wall.

Test labs – Test labs benefit from the real-time video and mouse response of the analog KVM switch, and from its higher video resolution, color bit depth and faster refresh rate. If streaming video evaluation is involved, analog KVM is the sensible choice.

Summary

Digital KVM switches can be less costly to deploy as they rely upon existing network infrastructure and don't have the added circuitry for IP network conversion. They make it possible to manage multiple data centers and remote "satellite offices" from a central location, or to use a "follow the sun" approach to cut staffing requirements in global enterprises. They facilitate managing a remote "emergency" data center – or even the main data center in an evacuated or quarantined facility – so long as network access is intact.

Analog switches often cost less per port and are better suited to graphically intense or high-resolution/fine screen detail environments. They can still provide remote access by using an inexpensive IP-KVM adapter for one or more console ports. Because they can operate completely out-of-band (off the network), and may offer a better "non blocking" scenario, analog KVM switches may be favored in some mission critical, crisis response, or high security applications.

Either type switch allows increased computer density because only a relatively few monitors, keyboards and mice are needed and because consoles can be located outside the data center. Because personnel can do most of their work away from noise and cold temperatures, the enterprise benefits from greater productivity and better employee health.

ATEN Analog Matrix KVM Switches

- KM0932 9-Console 32-Port Matrix KVM Switch
- KM0532 5-Console 32-Port Matrix KVM Switch
- KM0032 32-Port Matrix Expansion KVM Switch

About ATEN

ATEN International Co., Ltd. is specialized in connectivity solutions in information technology. Established in 1979, ATEN is today considered the leading manufacturer of KVM Switches worldwide. This prominent position was reached by continuously high investment in research and development, resulting in numerous patents and exemplified by the sophisticated ASIC, developed in the ATEN labs and manufactured by ATEN. The product range today covers hundreds of connectivity products, providing complete KVM solutions from entry level to the enterprise market. Among the customers of ATEN are large companies with global operations, midrange and small businesses, as well as ambitious private users. For further information, please visit <http://www.aten.com>.