

BLACK BOX[®]

ENTERPRISE CLASS KVM SOLUTIONS FOR MEDIA & ENTERTAINMENT

SCALABLE ENTERPRISE KVM SOLUTIONS
FOR INSTANTANEOUS ACCESS AND REAL-TIME CONTROL

1.877.877.2269 (BBOX)



[BLACKBOX.COM/BROADCAST](https://www.blackbox.com/broadcast)

KVM SOLUTIONS ENABLING EFFICIENCY FOR PRODUCTION AND CREATIVE TEAMS

SCALABLE ENTERPRISE KVM SOLUTIONS FOR INSTANTANEOUS ACCESS AND REAL-TIME CONTROL

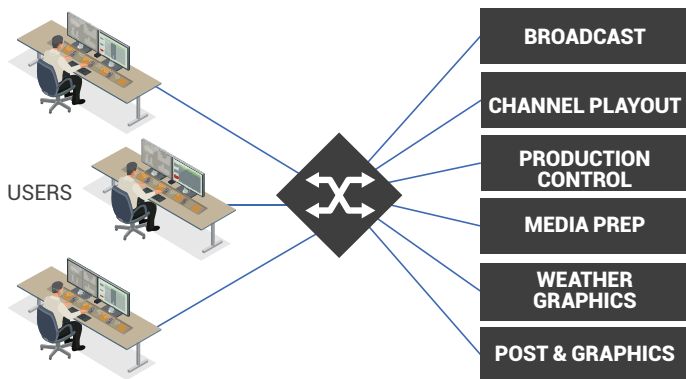
Benefits of Enterprise Class KVM

- Flexibility – Access systems from any location
- Scalability – Add servers and user stations as demand increases
- Efficiency – Improved modes of operation, providing efficient operational workflows
- Speed – Real-time instant switching of video, keyboard, mouse, and other peripheral devices
- Redundancy – Ability to build in redundancy and resiliency

BROADCASTING

KVM systems have long been one of the hidden foundations of a broadcast facility. They have evolved from being an occasional use tool for setup and troubleshooting into one of those infrastructure items that are used every moment of the day. Today's KVM system is one of those unseen elements that support the entire system. Black Box KVM solutions deliver:

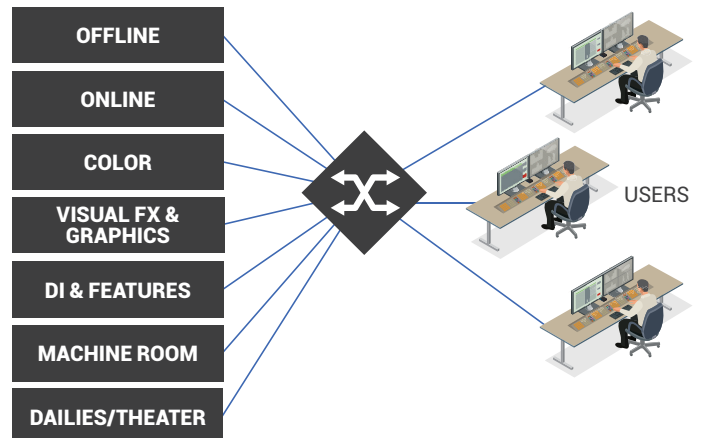
- Improved operational workflow
- Real-time access to any server from any user station



POST PRODUCTION

Post-production environments must be comfortable and quiet with talent, artists, and editors able to access the variety of hardware and software required from a single or multiple workstations. Today's High-Performance Fiber KVM solutions allow users to have access to 4K resolution, 10-Bit Color Depth and a variety of peripheral equipment connected by USB throughout the facility from servers located in a central machine room. Black Box KVM solutions enable:

- Shared content across editing, dubbing, and presentation suites
- Use of advanced control surfaces for faster editing





STADIUMS & ARENAS

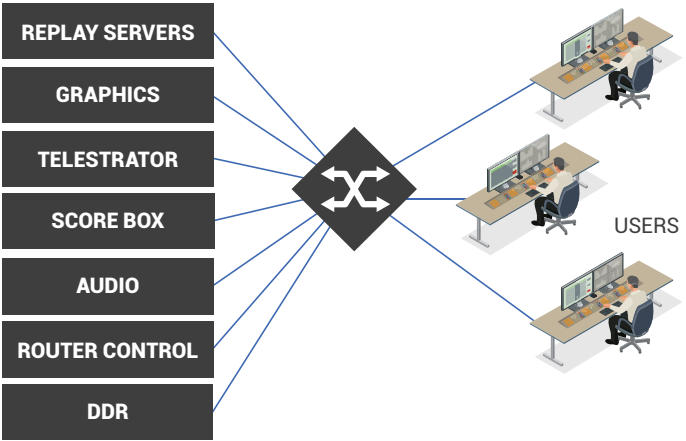
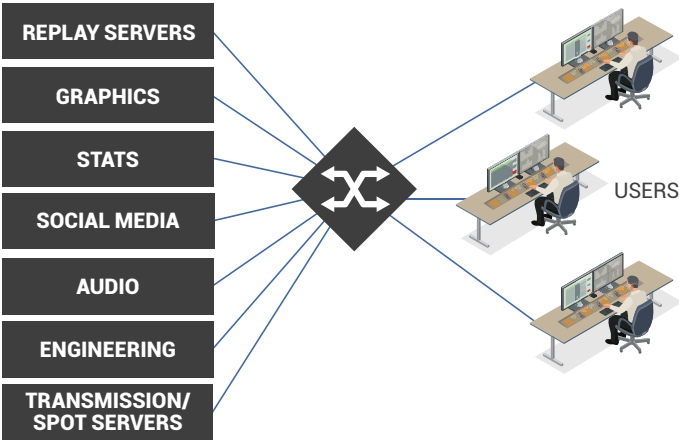
Large digital screens that were once considered extravagant, are now becoming a necessity. The demand for dramatic camera angles, slow motion replays and dynamic graphic and stats are at an all-time high. Fans want to have the same experience at the venue that they have while watching from home. Fast-paced cuts, replays with zoom-in/zoom-out capabilities and graphics need to be seamlessly integrated for a smooth yet fast-paced experience. Black Box KVM solutions deliver:

- Instantaneous switching between systems for real-time workflow
- Content sharing and workflow collaboration throughout the venue

OUTSIDE BROADCASTING VEHICLE

Much like the KVM systems used in other areas of live production, the broadcast control room or stadium control room mobile operators are looking for flexibility and fast setup times. They have evolved from being an occasional use tool for setup and troubleshooting into one of those infrastructure items that are used every moment of the day. Black Box KVM solutions deliver:

- Easy reconfiguration for each event and production team
- Any seat configured for any production role



HIGH-PERFORMANCE KVM

DIRECT CONNECT KVM MATRIX – DKM

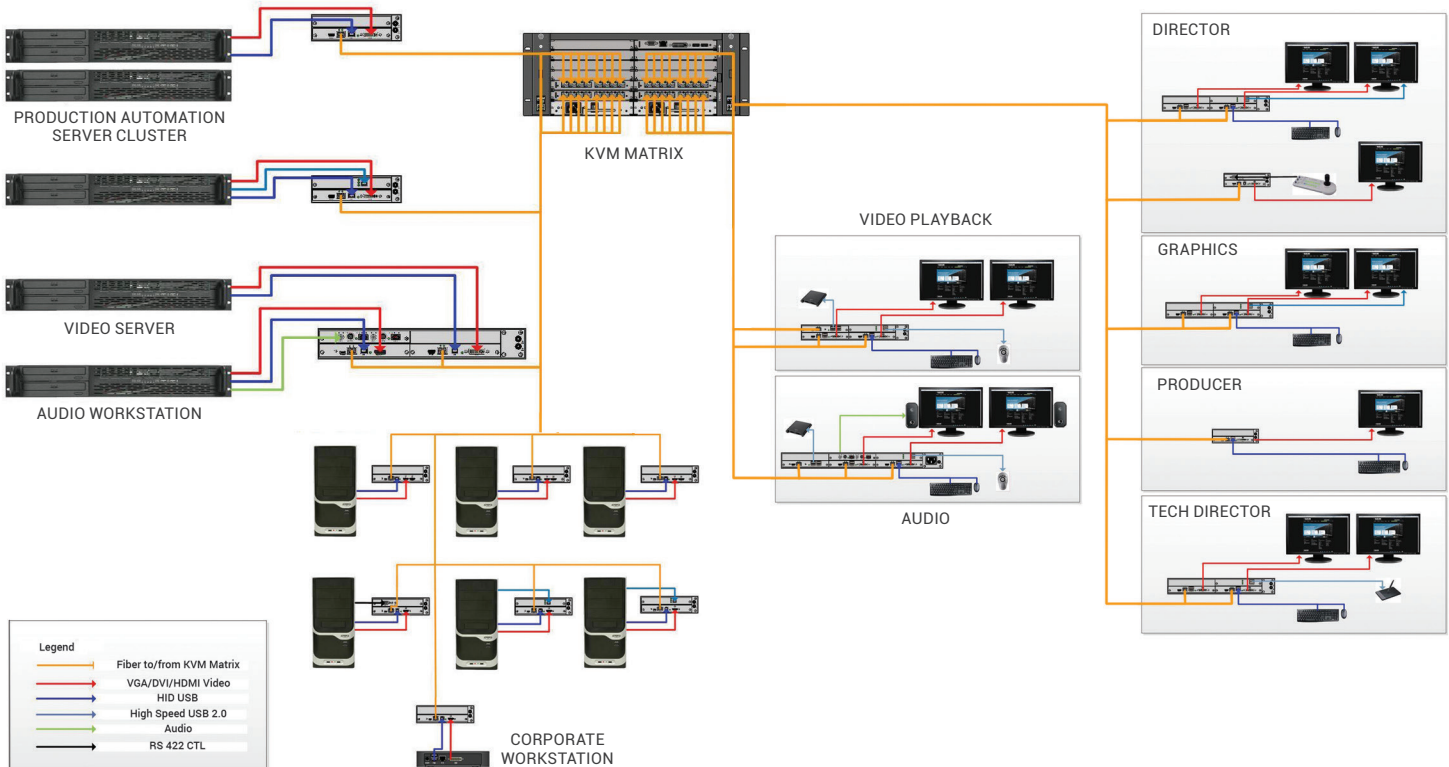
KVM matrix technology enables multiple users to connect to and switch between multiple, remote servers. The connectivity between the user and servers can include all video, keyboard, mice, and other peripheral signals and devices, enabling the users to have full access and capabilities of the remote server at their desktop. Physical connectivity is supported by dedicated CATx or fiber cables that are routed to the central switching chassis from both the servers and user console. This type of matrix connectivity is also referred to as "direct connect".

Black Box provides a hybrid (copper and fiber) matrix switching solution for multiple signal types in an innovative product system, the DKM KVM Matrix Switching system. The DKM platform replaces multiple devices with one hybrid solution by supporting routing, switching, and multi-point distribution of HD-SDI, HDMI, and DisplayPort,

as well as state-of-the-art KVM functionality. This solution replaces up to four single-purpose devices with one robust solution, thereby saving customers time, money, complexity, and potential integration hassles.

- Support widest range of video and peripherals
- Up to UHD (3840 x 2160 @ 60Hz) and DCI (4096 x 2160 @ 60 Hz)
- USB 2.0 and USB 3.0 at full data rates
- Digital and analog audio and serial control
- Baseband SDI and HDMI support
- Central matrix system
 - Scalable from 8 to 576 ports
 - Fixed and modular chassis
 - Interconnect for larger systems

PRODUCTION CONTROL KVM SYSTEM



WHY BLACK BOX

- FINANCIAL STRENGTH – Over \$1billion annual revenue, publically traded (NASDAQ: BBOX)
- EXPERTISE – More than 600 global KVM projects annually
- BREADTH OF PLATFORMS – Direct connect, IP, hybrid and virtualized KVM solutions



HIGH-PERFORMANCE KVM

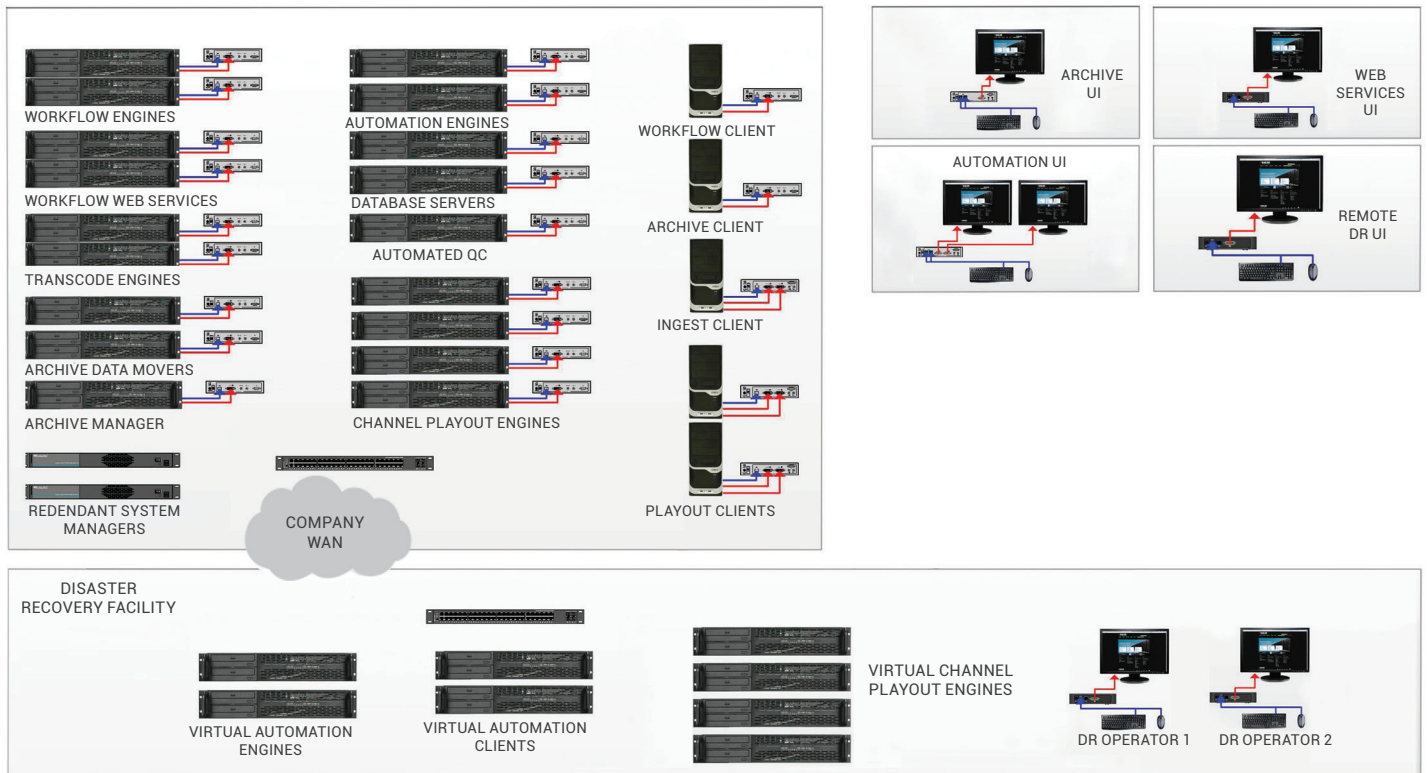
IP-BASED KVM – AGILITY

IP-based systems offer even more flexibility in terms of system architecture. There is no theoretical limit to the number of end points that can be added to an IP-based KVM system. The only practical limitation is that the bandwidth of the user-supplied network that supports the system. IP-based systems are considered the best choice for very large systems, although it is recommended to examine the load that the KVM system may impose upon the network, and consider dedicated network infrastructure for the KVM system to ensure performance.

Black Box Agility is a scalable system for sending KVM, audio, and serial signals to user stations or video monitors as far as your Ethernet network goes. The flexible topology of Agility gives you extension option applications beyond traditional keyboard-video-mouse. Get KVM switching, server sharing, video extension with full HD 60 fps, and multi-casting.

- Scalable system that will grow with your network as needed.
- Flexible topology for HD video, audio, USB, and KVM extension and switching.
- No-loss compression minimizes bandwidth use while maximizing the user experience.
- Configure your network to suit your needs: point-to-point extension, KVM switching, single-target sharing, or multicasting.
- Features keyboard/mouse emulation and virtual transparency for other standard human interface devices (HIDs), such as touchscreens or flash drives.

CONTENT ACQUISITION AND MASTER CONTROL



WHY BLACK BOX

SUPPORT – Multi-tiered support including 24/7 Tier-1 dedicated support
DESIGN AND DEPLOYMENT – Turnkey servers may include design, pre-configuration, commissioning, and training
WARRANTIES – Multi-year with multi-year extension, advanced replacement and large inventories

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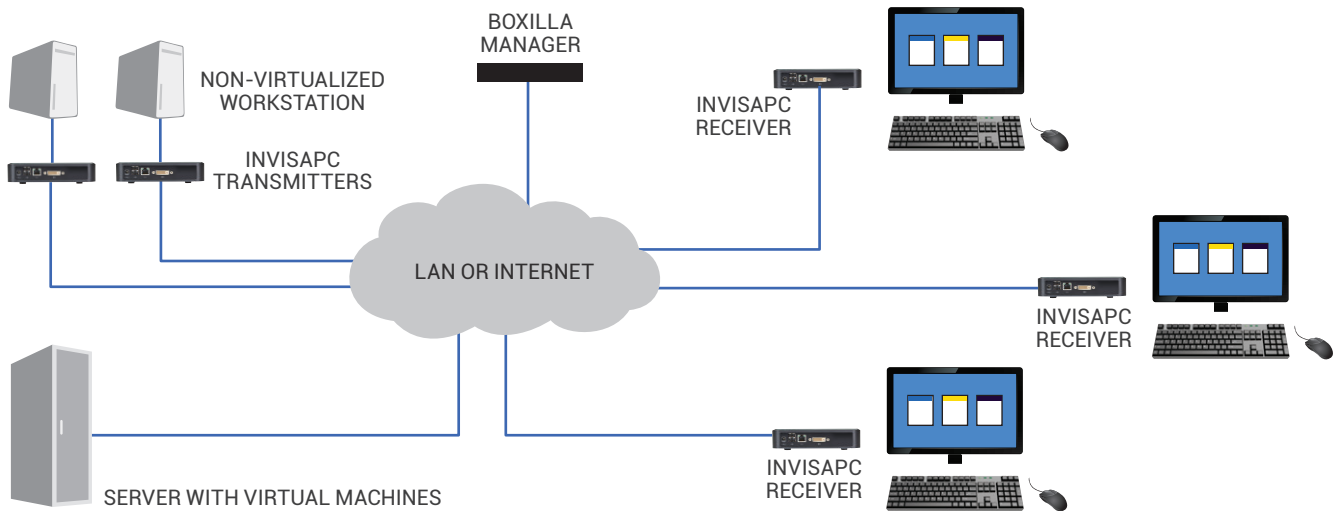


VIRTUALIZED KVM (INVISAPC)

The InvisaPC IP-based KVM system connects users to remote servers over IP networks and provides both point-to-point extension and network-based switching for physical and virtualized servers. The system supports real-time KVM response and scales to support thousands of endpoints.

InvisaPC supports server migration from local to remote data centers, and from physical to virtualized servers, including hybrid solutions to enable cloud connectivity from local KVM systems.

- Access systems over WAN and Internet
- Enterprise-level advanced centric AV/IT management
- Simple deployment monitoring and management of large-scale systems
- Point-to-point secure extension over IP networks
- Low bandwidth and requirement for full motion video
- Virtualization support
 - Enabled Hybrid KVM networks
 - Supports transition to cloud-based operations



LEARNING RESOURCES

CHICAGO BROADCASTING STUDIO STAYS FLEXIBLE WITH BLACK BOX KVM SOLUTION

Black Box's provides a flexible IP-based switching and extension solution to help a Chicago broadcasting studio remain competitive.

A Chicago affiliate of a big three network needed 40 media professionals, who were responsible for producing live broadcasts, to have seamless real-time access to more than 60 resources from any workstation at any time. Because they had an existing relationship with Black Box, they trusted our engineers to recommend a flexible, scalable, and extremely reliable solution to replace their troublesome outdated system. After thorough assessment and evaluation, they selected the Black Box Agility IP-based KVM platform consisting of transmitters and receivers that extend DVI, USB, and audio over the LAN. Agility transmitters were installed

at each server, computer, video source, and camera feed while receivers were connected to each user station. The entire Black Box Agility system provided a single point of management and control over the network from the server room.

The chief engineer continues to expand his broadcast configuration, adding equipment and users as required. BlackBox.com/BroadcastingStudio.

TECHNOLOGY BRIEF

KVM TECHNOLOGY FOR BROADCASTING
BLACKBOX.COM/KVMWHITEPAPER

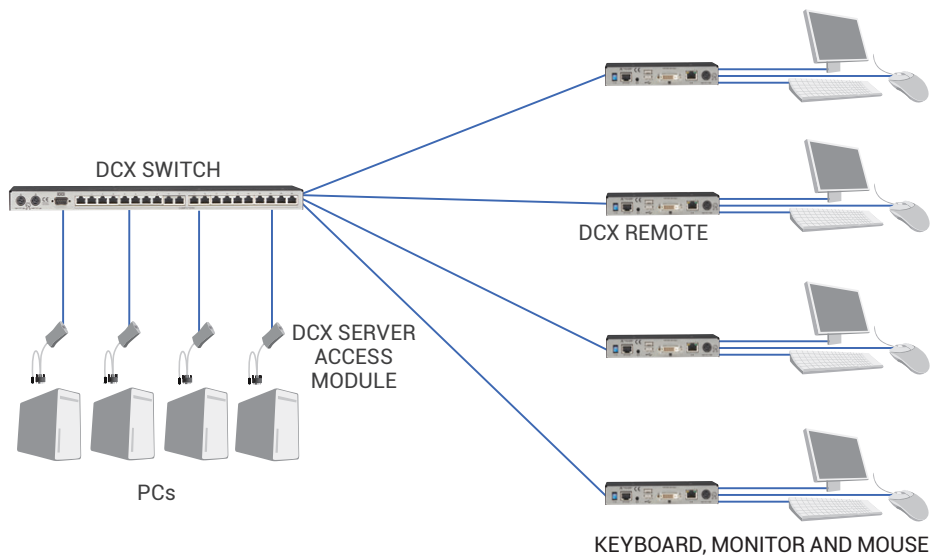
ON-DEMAND WEBINAR

Enterprise KVM for Content Creation, Production & Delivery
BLACKBOX.COM/ENTERPRISEKVMWEBINAR



MULTI-VIEW KVM MATRIX (DCX)

- Multi-view display of sources
 - Use as confidence monitor
- Full-Screen with High-Quality Video
 - Uncompressed
- Mixed Mode sources
 - DisplayPort, DVI, VGA



CONNECTS UP TO 23 TARGET COMPUTERS OVER DISTANCES UP TO 50 METRES FROM THE SWITCH

MULTI-PC EXTENDED DESKTOP (FREEDOM)



- Control multiple PCs
- Any mix of operating systems
- Share keyboard and mouse
- Zero switching delay
- Supports non-linear screen layouts
- Works with local and remote systems

MULTI-VIEW KVM (4-SITE)

- 4 video displays on one monitor, touch screen compatible
- Shared keyboard and mouse
- User configuration of screen layout
- Flexible, four display modes, in real-time



QUAD MODE



PIP MODE



WINDOWS MODE

LARGE SCALE HIGH-PERFORMANCE KVM CLIENTS:

11 RTL	FOX CAROLINA	RTL
ABC	FOX NE&O	SCRIPPS NETWORKS INTERACTIVE
ARIZONA CARDINALS	GOOGLE	STUDIO MITTE (GERMANY)
BR (GERMANY)	HBO	SWR (GERMANY)
CBS	HOCKEY CLUB LUGANO	TFI (FRANCE)
CHAINSAW / SIM GROUP	HSN	TURNER
CNN	MOBILE TV GROUP	UTAH CHANNEL 4 (ABC)
COMCAST	MY FOX HOUSTON	WDR 1 (GERMANY)
DAYTON DRAGONS	NBC UNIVERSAL	WGBH
DEUTSCHE WELLE	NDR (GERMANY)	WJBK
DIGITA (FINLAND)	NEON	WMAQ
DIRECTV	PROSIEBEN SAT1 (GERMANY)	WPXI
DIVERSIFIED	PULS (GERMANY)	WWE
FACEBOOK	QVC	ZDF (GERMANY)

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