Broadcast Control Room and Post-Production Solutions
Broadcasting and Post-Production Solutions

In the last several years, the broadcast industry has begun making the rapid transition of collapsing multiple functions that previously required dedicated hardware into a software-centric and IT infrastructure both for new facilities as well as upgrades of old facilities. The convergence of IT-based infrastructure within the broadcast facility and upcoming demand for higher resolution image delivery demand the need to design must-have efficient collaborative workflows.

Black Box provides cost-effective solutions that dramatically improve collaborative workflows providing many users at once, in real time, video resolutions including 1080p and 4K, and audio, serial, and USB peripherals.

Black Box Solutions
- KVM and hybrid KVM peripheral switching platforms
- HD video extension, including DVI, SDI, HD-SDI, 3G, and DisplayPort
- Signal conversion and signal distribution
- Support for high-definition resolutions including 1080p and 4K
- Multiscreen viewing, instantaneous switching, multiple monitor viewing
- Video delivery via IP multicast

Applications
- Master control rooms
- Post-production suites and service bureaus
- Encoder and transcoder farms
- Trucks and mobile broadcasting vans
- Equipment rooms
- Display and signage

Benefits
- Collaboration is supported between broadcast personnel and studio teams without a major redeployment of equipment for infrastructure redesign, saving time and money.
- Editors, directors, live production, post-production, and broadcast engineers have full access to all equipment allocated to them via KVM peripheral matrix switching.
- Desktop peripherals function with no latency, and desktop users have access to dual-screen and dual-link capable equipment.
- Extend and distribute completely lossless, pristine video quality regardless of format: DVI, SDI and HD SDI, 3G, HDMI, and more.
- Transparent, effective collaboration for media professionals.
- Control and monitoring of mission-critical workflow.
- Flexible control of visual tools and peripheral elements
- Real-time instant switching and display of HD video and peripherals.
The challenge: A public television station in Southern Germany was planning the construction of its broadcasting center. The station wanted to expand existing capacity by replacing old hardware. Servers and KVM systems were to be upgraded to DVI video and USB interfaces for extension and switching.

The solution: The broadcast station required switching and extension flexibility, the ability for multiple users to collaborate in real time, instantaneous switching of HD video, and a workflow that would not be interrupted. The broadcast company chose the Black Box DKM FX platform to implement the requirements, with the 288-port matrix switch controlling the signals required by the application. Within the 288 ports, the matrix switch features freely scalable inputs and outputs, plus the ability to mix copper and fiber cabling.

Using DKM FX extenders, users’ consoles, including multiple monitors and USB peripherals, are smoothly integrated into the KVM peripheral matrix switch system, which requires little space. The connections of the consoles and servers are, depending on the distance requirement by the building structure, transmitted via CATx or fiber, which has no effect on the signal quality, maintaining the same high level of resolution whatever distances or media are used. The final application includes 150 to 160 servers and 120 to 130 user consoles being freely connected and switched over the DKM FX platform.

The compilation of the servers for the individual directing rooms is nearly the same. This simplifies disaster recovery in an emergency. With assistance of the DKM FX and an external controller, all servers can be switched altogether to another directing room, where users can then take over active control with no hesitation. Even directors don’t experience any problems, as their front-end remains unchanged. Thus the automated studio operation is ensured with the greatest individual flexibility.

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High-Performance KVM: Leading-edge technologies that deliver unparalleled performance.

DKM FX KVM Matrix Switching Platform

Black Box provides a hybrid matrix switching solution for multiple signal types in an innovative product system, the DKM FX HD Video and Peripheral Matrix Switching system. The DKM FX 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 product replaces up to four single-purpose devices with one robust solution, thereby saving customers time, money, complexity, and potential integration hassles.

DKM FX Matrix Switches

- A scalable, highly reliable video and peripheral matrix switching and routing system supporting high-resolution HD-SDI, HDMI, and KVM in one flexible, scalable product.
- Supports high-quality, full frame digital video. Digital resolutions including 2560 x 1600 and all the way up to 4K, are supported.
- Modular platform with up to 288 bidirectional ports per chassis makes moves, adds, and changes quick and easy. Scales up to 4000 ports.
- Choose from CATx and single-mode fiber SFP modular card interfaces. Single-mode fiber interface cards also work over multimode fiber.
- Supports CATx or fiber interfaces.
- Switches in less than one frame. Hot-key switching enables user to bypass the standard on-screen display for truly instant access to critical systems.

DKM FX Compact Matrix Switches

- Use the DKM FX Compact switches to establish connections from consoles (monitor, keyboard, mouse, and other peripheral devices) to various sources, such as computers and CPUs.
- Ports can be input or output.
- Series supports from 8 to 48 ports in a 1U chassis for easy mounting in server cabinets.
- Supports CATx cabling or fiber interfaces.
- Redundant power supplies included.

DKM FX Modular Housing and Interface Cards

- Choose 2-, 4-, 6-, or 21-slot housing for modular interface cards to extend HD video, USB, audio, and serial signals.
- DisplayPort interface cards support 4K resolutions at 60 Hz. Interface card video standards also include DVI-D up to 2560 x 1600; HDMI up to 2560 x 1440.
- Supports CATx cabling or fiber interfaces.
- Can be used with chassis-based and compact matrix switches.

DKM FX Compact Extenders

- Transmit a mix of signals over CATx or fiber cabling.
- Expand signal extension options in the DKM FX matrix switching system.
- These compact extenders can also be used as point-to-point video and KVM extenders. Signal types supported included DVI, HDMI, SDI, DisplayPort, USB HID, USB 2.0, serial, and audio.
- Learn more at blackbox.com/DKM-FX.
Broadcast Engineering
Downtime is reduced because engineers can access sources from any equipment with a system receiver. Engineers will have the ability to troubleshoot, switch operators, and change sources quickly and easily.

Editing Suites
Video sources are accessible to multiple users in various locations, shortening the editing cycles by making distance irrelevant.

Studios
Equipment is controlled and managed via a central matrix controller unit. USB peripherals enable control and management of signal distribution as well.

Source Library
Broadcast feeds, images, and video can be accessed by multiple users, converted, scaled, and corrected; then distributed via fiber to multiple editors in various locations.

Machine Room
Computer assets are backracked in a climate-controlled, secure area.

Post-Production Digital Video Editing
Server cabinets for video source and data feed transmitters.
IP-based matrix switching providing loss-less extension of DVI, USB, and audio over a LAN.

**Agility IP-Based KVM Switch**

- Pure digital media extension and matrix switching over IP.
- Supports multiple application architecture: point-to-point extension, KVM switching, single-target sharing, or multicasting.
- Features keyboard/mouse emulation and emulation for other standard human interface devices (HIDs), such as touchscreens or flash drives.
- Learn more at blackbox.com/Agility.

**Broadcasting**

Media post-production suites become collaborative with Agility. Machine rooms store the media assets and hardware, and can distribute them throughout a post-production facility. Editors, producers, and directors can instantly communicate with animators and colorists.

**Control Rooms**

In command and control room setups, multicast video and data to receiver units between LCD display walls. Users can interact with any of the computers using separate keyboard, mice, and DVI displays.

**Multiple User Remote Access and Content Sharing**
Fluid video performance in a multiscreen viewer with KVM and video processors for monitoring and control.

4Site Flex

- Simultaneously manage up to four CPUs and video windows on a single monitor.
- 4-to-1 KVM switching with smooth, real-time image processing: DVI, VGA, HDMI, HDCP support.
- Ensures short reaction times in mission-critical applications.
- Learn more at blackbox.com/4Site.

Zero-touch, fast, reliable switching between computer systems simply by moving a mouse from screen to screen.

Freedom II KVM Switch

- A single user can easily access information and control operations across four computer systems and monitors.
- Configure the screen layout for the attached PCs and switching between them is as simple as moving your mouse from screen to screen.
- Also access the connected peripherals including USB 2.0 devices.
- Simplifies USB keyboard/mouse access across multiple computers.
- Learn more at blackbox.com/go/Freedom.
Control, Convenience, and Total Cost Savings

KVM switches and extenders give users access to a variety of target devices, such as CPUs, servers, and other signal or data sources. Users can monitor workflow and gain flexible control of visual and peripheral elements. Switching and extension provide effective management of technology elements within the collaborative environments of the entire broadcast facility.

About Black Box

Black Box is a provider of high-end, broadcast-ready products to help clients in the media and broadcasting industries design, build, deploy, and upgrade mission-critical monitoring and control solutions. The company has been a leading technology partner since 1976. Black Box is a public company (NASDAQ:BBOX) with nearly $1 billion in revenue annually. The Black Box Quality Management System is ISO 9001:2008 Certified. Black Box services more than 175,000 clients in approximately 150 countries with approximately 200 offices throughout the world.

Available | Optional Services

- System engineering and design assistance
- System pre-configuration and labeling
- System commissioning
- System training
- Optional Tier 2 and 3 technical support
- Extended warranties

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