



# MultiPoint KvM

## The Real-Time High Resolution Decision Support System



MultiPoint KvM™ is designed for control rooms requiring exceptionally high resolution video or graphics, multi-display support and operator collaboration. The solution is intended for industry, security, military and government applications.

### The High-Definition Video Control Room

MultiPoint KvM allows the transport and display of video without processing delays (real-time). Far exceeding the capabilities of video-over-IP implementations, it is capable of supporting video and graphics at full resolution, frame rate, color sampling rate and color depth, up to 1920 x 1200 pixels, 60 frames per second, 4:4:4 color sampling and 10 bit color.

### Multi-Display Support

MultiPoint KvM supports simultaneous viewing of multiple computer and other image sources in flexible configurations, from simple desktop displays to multiviewers (multiple video signals on one screen) and video walls (multiple video signals across multiple screens).

### Collaboration

Ease of collaboration between operators facilitates a control room's effectiveness. MultiPoint KvM's collaboration feature set allows operators to easily transfer access to source computers.

### Applications

- Network operations centers (NOCs)
- Tactical operations centers (TOCs)
- Emergency operations centers (EOCs)

### Markets

- Oil & gas
- Utilities
- Security / surveillance
- Government & military
- Broadcast / production

## System Architecture

MultiPoint KvM is a hybrid DVI/IP solution. Video is distributed over DVI, while KVM control signals are sent over an IP/Ethernet infrastructure. As a result, images can be displayed in native resolution and frame rates, with negligible impact on the IP/Ethernet infrastructure. The MultiPoint KvM solution is comprised of the following key components:

### Standard components:

- MultiPoint CSC (MultiPoint Control station computer) running MultiPoint CSA (Control Station Agent)
- Source computers running MultiPoint RDA (MultiPoint Remote Desktop Agent)
- MultiPoint KNP (MultiPoint KVM Network Processor)
- Linx DVI/RGB switcher

### Optional components:

- MediaWall and View display processors
- XtendView® FiberDVI cable extenders
- MultiPoint EDA (External Desktop Agent) – alternative to MultiPoint RDA

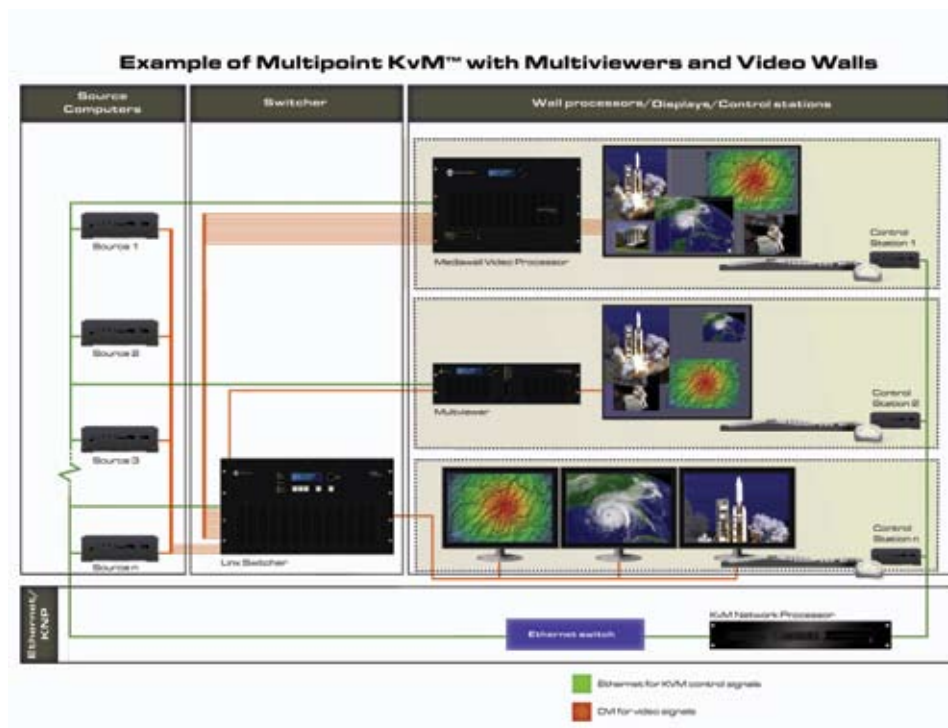


Illustration 1:  
MultiPoint KvM system  
architecture

Control station computers allow the administrator or operator to monitor, control and troubleshoot assigned source computers. Each station comprises a control computer and one or multiple screens connected to the video switcher. For security and management purposes, two levels of access privileges are defined, administrator and user. The Control Station Agent (CSA) software is compatible with PCs running Microsoft Windows or Linux in combination with Java 6.0. RGB Spectrum offers a mini control station computer with pre-installed CSA software as an alternative.

Source computers are devices that operators control via KVM. A remote desktop agent (RDA), a computer program for KVM control signal emulation, runs on each source computer. The RDA is compatible with any source computer running Linux or Windows, provided that Java 6.0 is supported. RGB Spectrum also offers the External Desktop Agent (EDA), an external device running the RDA. It is designed for customers preferring not to load RDA software on their source computers.

The KVM Network Processor (KNP) software serves as the central point of communication for control stations and source computers. It is provided on a custom-configured, rack mountable server running Linux Redhat 5.5. The KNP implements the various MultiPoint KvM utility functions, such as User Manager, Device Manager, and Event Manager. It also enables KlickSimple mouse navigation, collaboration and routing.

RGB Spectrum's MultiPoint KvM solution uses the Linx™ family of high-performance video switchers, which support switching and routing of both DVI and RGB signals. Linx switchers provide the bit rate equivalent of 5 Gbps per video signal, up to 160 Gbps for a 32 port switcher, which is many times the bandwidth available on a video-over-IP implementation. Up to 32 x 32 inputs and outputs are supported. Linx switchers feature a high-performance, non-blocking switch matrix and robust construction for mission-critical applications. They support resolutions of up to 1920 x 1200 and 1200 x 1152 pixels, suited for high-quality graphics, digital cinema or HD video.

Providing additional display possibilities, MultiPoint KvM is integrated with RGB Spectrum's multiviewers and video wall processors. Each display processor can be configured as a control station driving user displays, or as manned or unmanned central displays.

For distances up to 2000 feet, RGB Spectrum offers the XtendView® FiberDVI cable extender, a compact single-fiber DVI cabling solution consisting of transmit and receive plug-in modules, with industry-standard SC jacks for easy connection. This "headshell" solution uses miniaturized electronics that fit entirely within the DVI connector housing, eliminating the need for external boxes and simplifying installation.

The MultiPoint EDA functions as a KVM emulator, obviating the need for KVM client software on controlled computers. It is built with the stringent security requirements of government and military organizations in mind, and is also suitable for commercial use. The device converts KVM control signals sent via Ethernet to simulated keyboard and mouse events over a computer's PS/2 or USB ports. It is a compact plug-and-play device, designed to be connected in-line at the back of the computer.



**Illustration 2:**  
KlickSimple navigation  
on the desktop

## Operator and Administrator Experience

MultiPoint KvM provides a set of sophisticated software tools for the administrator and the operator. User tools are easy and fast to use, allowing the operator to focus on the tasks at hand. Administrator software provides a comprehensive set of tools for system installation, management and control.

### **Operator Interaction**

KlickSimple™ navigation supports the seamless, intuitive and simultaneous control of multiple computers with a single keyboard and mouse. It allows the operator to take control of each computer simply by moving the mouse cursor into the associated screen. It operates much like the Extended Windows Desktop, but manages multiple computers rather than multiple applications on a single computer.

KlickSimple navigation includes the routing agent navigation panel, which allows operators to switch source computers to any screen at their station. The routing panel can be displayed on any switched screen or on a dedicated monitor. For ease of navigation, the routing panel mirrors the arrangement of the display space, for instance a 1 x 3 desktop monitor configuration would appear as three side-by-side boxes on the navigation panel.



**Illustration 3:**  
Example of the routing panel with system status

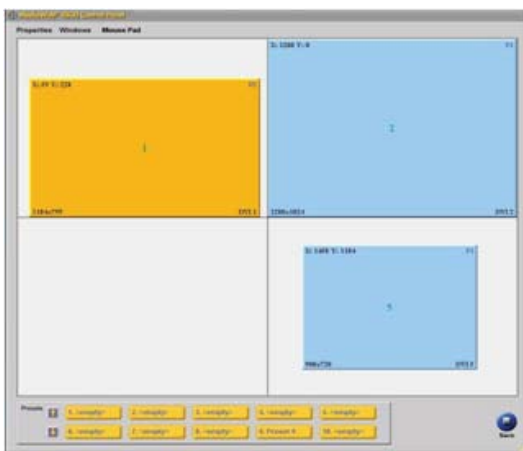
Operators may be assigned access to computers, no access or view-only privileges. Access privileges are managed by the Administrator and are also important in the context of collaboration, discussed below.



**Illustration 4:**  
Detail of the routing panel with display alternatives

**Green = active control/option to release control**  
**Red = in use/option to request control**  
**Blue = system is processing**  
**Amber = available/option to activate control**  
**Gray = viewing privileges only**

MultiPoint KvM enables inter-operator collaboration. In the context of MultiPoint KvM, collaboration refers to the explicit grant and release of control over source computers. Operators can request control or relinquish control within seconds. Collaboration also includes forced control based on user priorities, and allows senior operators to take immediate control of a computer. The control interface is integrated with the navigation panel. Color coded buttons are positioned next to the routing buttons, indicating a computer's status. They are also used to request and relinquish control.



**Illustration 5:** WCP for control of multiviewers and video walls

If using optional display processors such as multiviewers and video walls, operators have access to RGB Spectrum's Web Control Panel (WCP) software to manage their viewing space. WCP allows operators to resize and reposition windows, zoom, arrange presets, and configure labels and borders, among other functions. The WCP is integrated with the MultiPoint KvM navigation panel.

## Administrator Control

The administrator has a suite of tools consisting of the User Manager, Device Manager, and Event Manager.

The User Manager is an administrative tool to manage user privileges and to monitor select system activity. This includes configuring user name and password, establishing user priority, and specifying computer access privileges.

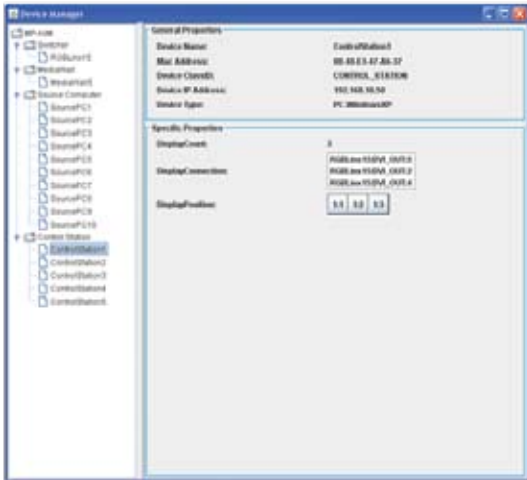


Illustration 6: Device Manager

The Device Manager is used to manage and configure all KVM devices, including switcher, display processors, source computers and control stations. Devices are arranged in a tree structure, making them easily accessible. Device specific data is grouped by general and specific properties. To add a control station, the administrator simply right-clicks on the control station entry and an installation wizard guides the administrator through the necessary steps.

The Event Manager is used for diagnostics and recordkeeping. It contains a central log of all system activity, including a time stamp. It categorizes logged items by type, i.e., critical alerts, failures, warnings, and informational messages, in order of severity. It also provides search functions for easy access to information.

## Technical Specifications

### MultiPoint KvM V1.0 (720 10090 - 720 10093)<sup>1</sup>

- Up to 32 controlled computers (switcher inputs)
- Up to 32 individually switchable monitors or windows on a display processor (switcher outputs)
- Up to 32 control stations
- Up to 100 unique users
- KlickSimple technology with seamless, multi-screen navigation
- Real-time mouse movement response ( $\leq 5\text{ms}$ )<sup>2</sup>
- Collaboration
- AES 128 encryption
- Quick routing of inputs ( $\leq 200\text{ms}$ )<sup>2</sup>
- Control panel for intuitive navigation and display of pertinent information (integrated or dedicated)
- Advanced user management, including access rights and default settings
- Device Manager
- Event log
- Mouse and keyboard emulation via RDA software or External Desktop Agent (EDA)
- Windows (XP, Windows 7) and Linux support

### KVM Network Processor (KNP) V1.0 (included with MultiPoint KvM V1.0)

- Custom configured Dell PowerEdge R210 or similar
- KNP Software package (pre installed)
- Linux Redhat V5.5 (pre installed)

### Linux Switcher Support (See RGB Spectrum price list for part numbers and configuration options)

#### ***The following Linux switcher models are supported:***

- Linx 8x8: up to 8 inputs x 8 outputs (DVI)
- Linx 800: up to 8 inputs by 8 outputs (DVI)
- Linx 1600: up to 16 inputs by 16 outputs (DVI)
- Linx 3200: up to 32 inputs by 32 outputs (DVI)
- Linx 900: up to 8 inputs by 8 outputs (DVI/RGB)
- Linx 1700: up to 16 inputs by 16 outputs (DVI/RGB)
- Linx 3300: up to 32 inputs by 32 outputs (DVI/RGB)
- Linx 1000: up to 8 inputs by 8 outputs (DVI/RGB/HD-SDI)
- Linx 1800: up to 16 inputs by 16 outputs (DVI/RGB/HD-SDI)
- Linx 3400: up to 32 inputs by 32 outputs (DVI/RGB/HD-SDI)

#### ***Linux Switcher feature and performance overview:***

- DVI, RGB, HD-SDI inputs, DVI outputs
- Switching of uncompressed video and graphics
- Resolutions up to 2048 x 1200 (single link)
- Frame rate: up to 60 fps
- Color sampling: 4:4:4
- Color depth: 8 bit
- Processing delay: <50 ms
- Non-blocking architecture
- No dropped frames

#### ***Total EDID Manager™:***

- Eliminates system rebooting when changing displays, simplifies setup and provides priority arbitration between displays
- Full pixel reclocking for optimal signal quality
- Robust 24/7 operation

**XtendView FiberDVI** (See RGB Spectrum price list for part numbers)

Up to 2000 ft (600m)  
Mounts directly to chassis  
Video and EDID on single fiber

**Monitors, VideoWalls and Multiviewers Supported** (See RGB Spectrum price list for part numbers and configuration options)

DVI Monitors: 640 x 480 to 2048 x 1200  
Multiviewers: SuperView 5000, QuadView HDx  
Video Walls: MediaWall 4500, MediaWall 4200  
Resolution: up to 2048 x 1200  
Frame rate: up to 60 fps  
Color sampling: 4:4:4  
Color depth: 8 bit  
Processing delay: <150 ms (Combined delay Linx and MultiView or MediaWall)

**External Desktop Agent** (EDA 100)

Linux OS  
Powered via PS/2 or USB  
Dimensions: 3.22 x 1.663 x 0.866 (L x W x H)  
2 PS/2 ports  
1 USB port (via PS/2 to USB adapter)

**Control Station Computer** (850 10256)

Linux Ubuntu 10.0.4  
MultiPoint KvM Control Station Client Software  
Ruggedized for industrial applications  
Small footprint (8.1"W x 1.3"H x 7.3"D)

<sup>1</sup> Includes rack-mountable KNP server and backup CD. The CD includes MultiPointKvM V1.0 (Linux Redhat 5.5), MultiPoint RDA (Linux Ubuntu 10.0.4, and Windows versions), MultiPoint CSA (Linux Ubuntu 10.0.4, and Windows versions)

<sup>2</sup> Actual performance may vary depending on the characteristics of a customer's network.



Specifications subject to  
change without notice  
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