

## Control of Data and Video Sources Displayed on a Video Wall

### RGB Spectrum's Hybrid KvM Solution

#### *Integrated Control System in Security Applications*

The need to allow multiple individuals to view data and video spread out over a large array of screens gave rise to what has become known as a video wall. This arrangement of a large-scale viewing surface accessible by a team of security staff and decision-makers facilitates collaborative working and decision-making.

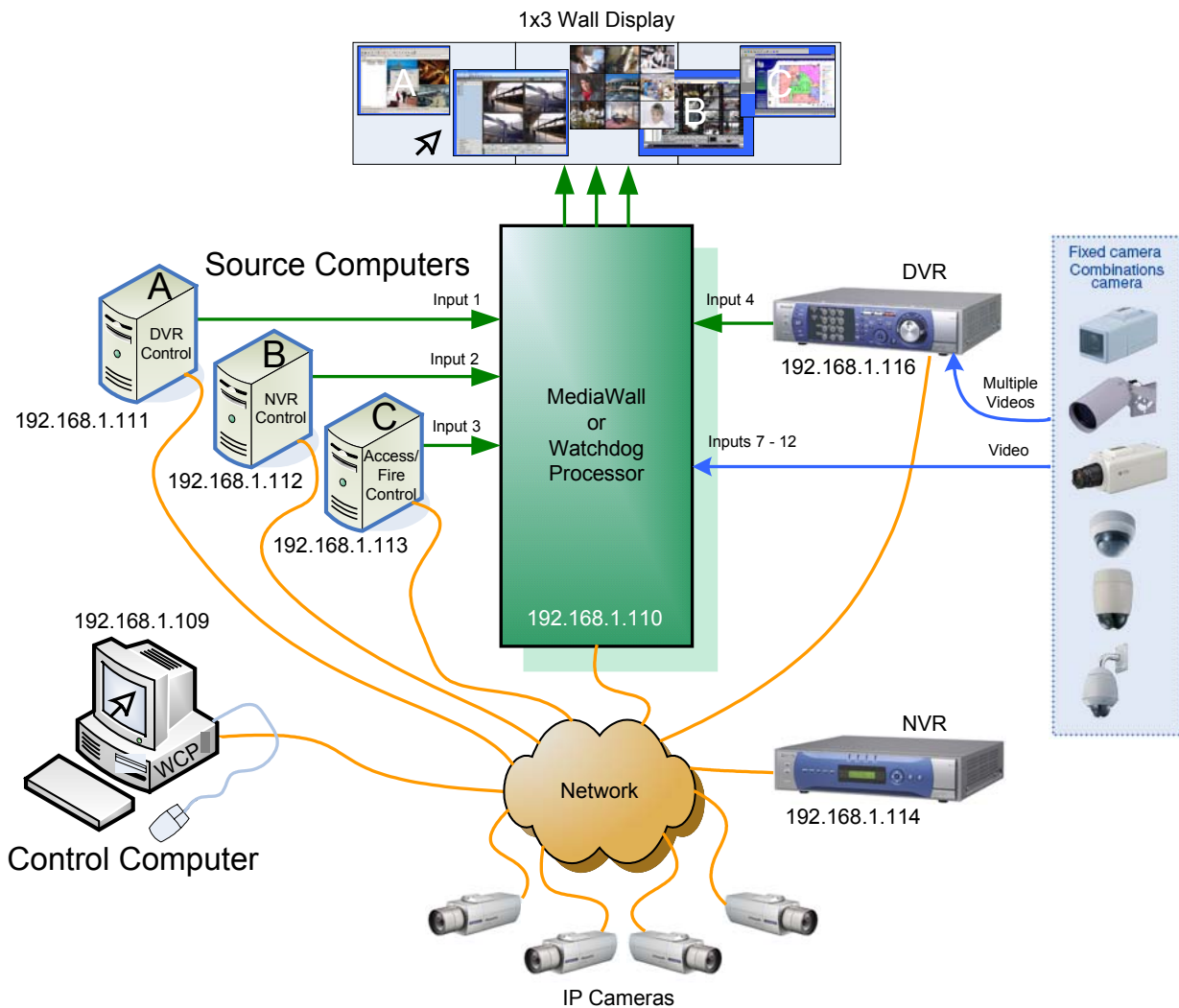
A modern video wall should allow for the display of visuals, computer and video, in windows in the most useful form possible, and on a dynamic basis. For example, the placement of windows to juxtapose related information, the positioning and scaling of windows to emphasize vital information, zooming into areas of interest within a visual, and highlighting particular sources of information with borders and titles. Advances in interfaces have incorporated a cursor into the display space itself, providing on-screen control of the video wall, including window movement, resizing and scaling directly on the display space itself. This also allows the cursor to do duty as a pointer in collaborative situations.

What is needed beyond the above is to integrate the control of the source computers displayed on the wall with the control of the wall itself, creating a giant "Multi-window Desktop." Ideally, it calls for a control system that seamlessly moves between wall control and source computer control. It is desirable to treat the video wall as a single point-of-focus for viewing and interacting with displayed devices and applications such as Security Cameras, DVRs (Digital Video Recorders), NVRs (Network Video Recorders), Fire Control and Access Control.

There are, of course, already hardware and/or software applications that provide control of remote computers. For example, in the hardware category there is KVM (Keyboard-Video-Mouse) over IP as well as KVM over Cat-5. Software applications include *pcAnywhere*<sup>™</sup> and *GoToMyPC*®, which use IP networks to access host PCs, view their video output remotely, plus offer control over keyboard, and mouse functions. However, these applications do not create a unified multi-computer display and control solution. In addition, they require substantial amounts of network bandwidth and cannot support real time video update rates. What is missing is a harmonizing application that blends control of the display space as well as the control of the source computers, seamlessly and in real time.

RGB Spectrum has developed a novel solution for its *MediaWall* display processor which it styles *The Integrated Control System with KvM*, since it provides the ability to display and control source computers from a single point of control, with the keyboard and mouse functions over IP. Unlike traditional KVM over IP or Cat5, RGB offers a hybrid solution, with video provided by direct-connect (DVI or RGB) to the wall controller, guaranteeing real-time performance even up to 100 frames per second there is no strain on the network since bandwidth requirements for keyboard and mouse control are minimal. The result is a unified display space where one or more users can control the video wall as well as the source computers displayed on it with a single mouse and keyboard. The viewer's attention need not leave the video wall because every facet of the Security System is visible in one place.

Consider a configuration consisting of the displayed source computers running applications for DVRs, NVRs, Camera Control, IP camera monitoring, Fire Control, Access Control and any application relevant to security operations. In addition, connections for video cameras are available on the display processor and DVRs. Central to the display system is the video wall processor and a PC designated for control. The computers DVRs, NVRs, IP Cameras and the MediaWall processor, are interconnected over an IP network. A custom keyboard/mouse agent is installed on each of the source computers. At the heart of the solution is RGB' Spectrum's *Web Control Panel* (WCP), the set-up and control application used to configure and operate the *MediaWall* display processor which is delivered to the control PC via a web browser.



### Combined Video Wall and Computer Control

Security is provided within the WCP/Integrated System Control software and the *Remote Desktop Agent* (RDA) application residing on the source computers. Control is only possible where authorized IP addresses on both ends match. An encrypted communications path is standard.

The requirements of the system mandate that a single cursor provides the ability to control both the functions of the wall processor itself (e.g., window sizing and positioning) and control of the source computers displayed. To accomplish this, RGB chose a single-mouse control with two modes of cursor operation – *system mode* for video wall control and *source computer mode* control for control of the remote PCs, both modes accessible without resort to any other device. The user switches between modes by clicking on the mouse. On-screen visual clues - the size and shape of the on-screen cursor - indicate the mode the mouse is in. Once the WCP is launched and connections to the remote source computers are established, the on-screen cursor easily shifts between video wall control and source computer control. The result is a level of responsiveness and functionality heretofore unavailable.

The ICS with KvM system is very quick and intuitive:

- At start-up, the Control PC's cursor is in system mode and capable of performing the following functions –
  - move a window (depress left mouse button with a window and drag)
  - re-scale a window horizontally or vertically (depress left mouse button on the side of a window and drag)
  - re-scale a window horizontally and vertically (depress left mouse button on a corner of the window and drag)
  - increase window priority/visibility (right click within a window)
  - re-scale to fill the entire screen array (double left click within a window)
- To change cursor to source computer control mode, left click within the window of source computer image. The cursor will change size. The mouse and keyboard now control that computer.
- To return the cursor to system mode, click outside of any computer window

Though there are other commands available, that's basically all there is to it - a simple, elegant and effective interface that controls a display wall as well as the computers displayed. *The Integrated Control System with KvM* unites the control and display of computers in one visual field. The user has seamless control and visibility of every active computer on the display wall, accessible through a single mouse and keyboard interface. Best of all, the system does not require extensive training, set-up, maintenance or special skills to use.

It is noteworthy that our KvM system is a hybrid using a combo of direct connection for the video, in order to insure real-time updates, and IP for the keyboard and mouse. No pure IP solution comes close in performance. The popular KVM applications such as *GoToMyPC*® and *pcAnywhere*™ depend on IP networks for transport of the video. These and similar applications used by other display wall manufacturers offer very poor response time. In addition, these applications are designed to control a single computer; they require an instance of the application to run for each computer being controlled, which can be very clumsy.

The RGB solution overcomes these problems. It provides seamless control over multiple computers and the wall display itself. Each source computer's graphics display is directly connected to the MediaWall. Each computer also runs a Remote Desktop Agent application that is available for keyboard/mouse communication over an IP network. Think, "one-to-many" - one user, many source computers. There is complete freedom to hopscotch control from one source computer to the next with a mouse click, and, of course, to control the display wall itself. All with a single keyboard and mouse.

Note: GoToMyPC is a registered trademark of Citrix Systems, Inc.  
PcAnywhere is a registered trademark of Symantec Corporation