The best IT investment in a troubled economy -

KN4140v KVM Over the NET™

A year after the global financial crisis, though government officials and economists around the world all believe that the worst is over, there is still no sign of any actual economy recovery in sight. The continued economic downturn has resulted in a major shift in business focus as well.

Cost-cutting now the most important issue for IT departments

In a survey conducted in November 2008 by Keyman, a popular IT administrator community website in Japan, the top issues were found to be "increasing security" (25.7%) and "cutting costs" (20.4%). Just a few months later, Keyman's January 2009 survey found that "cutting costs" (46.7%) was now well ahead of "increasing security" (14.1%) and had become the most pressing issue facing IT departments in a difficult economy.

When it comes to cutting costs, the strategy now attracting the most attention is server consolidation and virtualization. Major improvements in processing performance means multiple virtual servers can now be installed on a single physical server. These can execute different tasks simultaneously and offer a very effective way of cutting costs.

There is nothing magical about virtual servers however, and ultimately they must be installed on a physical server. While server performance has improved greatly, constraints still remain. This means even with server virtualization technology as a company's demand for IT services grows, the actual number of servers will continue to grow.

All these servers tend to be from different brands with different hardware specifications and operating systems. They may even be located in several different server rooms. Such a setup incurs huge administrative costs that are often overlooked. Server consolidation should be the first step to effectively cutting administrative costs. In the past, conventional KVM (keyboard, video, and mouse) switches allow one set of keyboard, mouse and monitor to manage dozens of servers in the racks or the server room. The ever-increasing amount of business information that needs to be processed

means conventional analog KVM switches are no longer up sufficient for IT departments looking to centrally manage their servers or allow multiple users to manage multiple servers at once.

Solution: Digital KVM Switch

The problem of server consolidation actually has a simple solution. IT personnel can simply introduce digital KVM switch technology to boost efficiency and productivity.

Unlike conventional analog KVM switches, digital KVM switches have no distance restrictions. The user can remotely access all connected servers by simply connecting to the digital KVM switch over a TCP/IP network. In other words, the IT administrator does not have be physically on-site. They can now sit at their desk and manage servers spread throughout different locations with ease.

The digital KVM switch offers business many benefits:

- The most obvious is the savings in travel expenses and time.

- Administration is simplified as different software/hardware (cross-platform) can all be controlled.

- Realize an unmanned server-room for better sever room security.

- Reduce downtime from crashes, boosting the accessibility and reliability of IT services.

- Boost the productivity of IT personnel and help rationalize IT manpower allocation.

For most people, when remote administration is mentioned they probably think of remote

administration software (such as PC Anywhere) first rather than digital KVM switches.

*What advantages does the digital KVM switch offer over remote administration software?*

- The digital KVM switch can be used with different server platforms while remote administration software can only be installed on operating systems they support.

- The digital KVM switch does not require any software to be installed on the server first unlike remote administration software.

- The digital KVM switch does not take up any processor resources unlike remote administration software.

- The digital KVM switch can control the server's BIOS so even BIOS setting errors can be corrected. Remote administration software can only be used when the server hardware power, operating system and application itself all runs normally. In other words, the user cannot do anything if the remote administration software is busy and does not respond.

- The digital KVM allows all connected servers to be centrally managed. Remote administration software is usually designed for controlling one machine remotely, making centralized management difficult.

Powerful next-generation digital KVM switch

ATEN, the world's top-selling KVM maker, has long been involved with server infrastructure management. Apart from digital KVM switches, ATEN also offers digital serial device management, digital power supply management and digital centralized management software. ATEN's total solutions enable the IT administrator to centrally manage all equipment inside the server room including servers, serial devices and power supplies. This allows them to meet the goal of reducing IT administration costs.

In 2009, ATEN launched the new ALTUSEN KN4140v digital KVM switch. The new product takes the level of integration, accessibility and security in the digital KVM switch to a whole new level while offering a range of unique and practical functions as well:
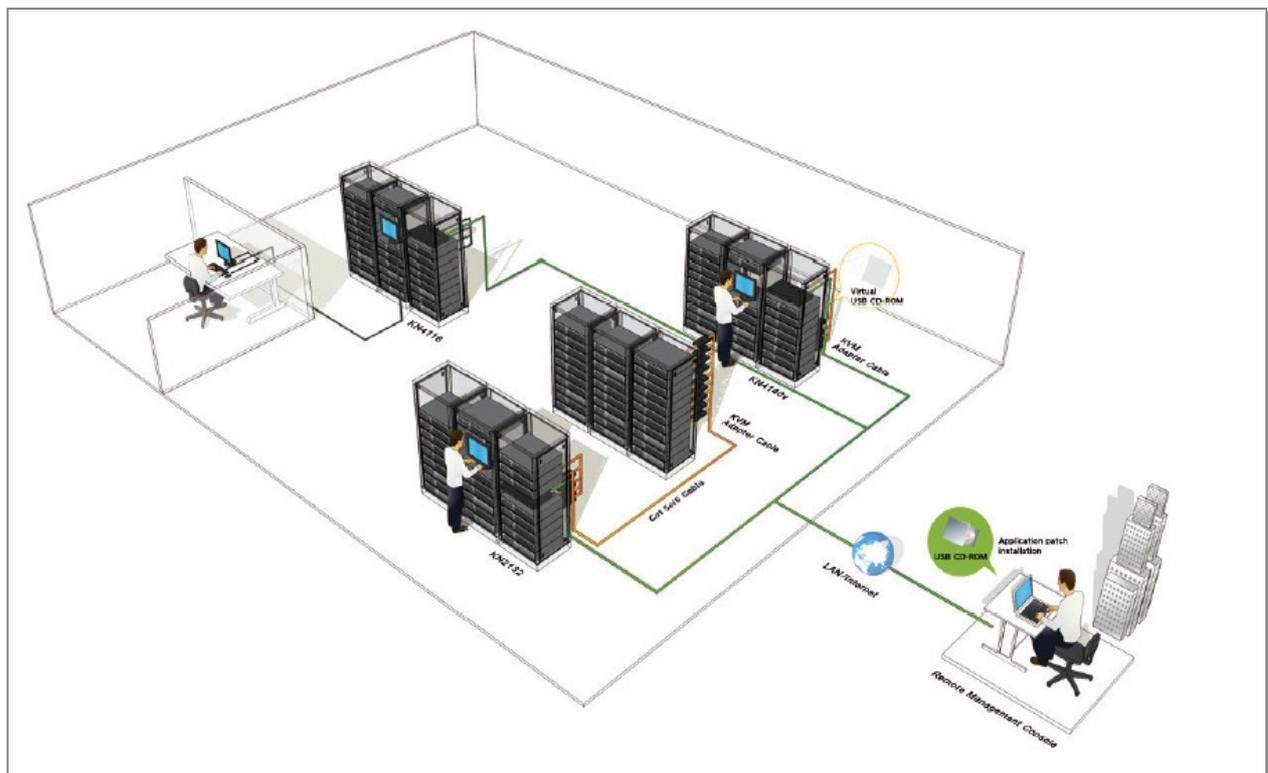
High level of integration

◆ **High density**

Unlike conventional KVM switches with separate keyboard, mouse and video ports or a special port that combines all three, the KN4140v uses a compact RJ-45 port so 40 connector ports can be fitted into a 1U chassis. This means the KN4140v fits into a standard rack and can be connected to up to 40 servers, making it more than adequate for managing small and medium-sided server rooms. The high density of KN4140v's 40 ports reduces the cost of acquisition and significantly boosts return on investment.

◆ **Multi-Channel**

Up to 4 users can simultaneously access 4 different servers connected to the KN4140v over the TCP/IP network. 32 users can be logged in at any time as well; as the KN4140v supports Intelligent Bus Assignment, each user is assigned to a different channel upon login. When the user switches to a port that is already in use, they are also automatically assigned to the appropriate channel without affecting the existing user. As the KNV4140V supports up to 32 simultaneous logins and can switch between four different channels, multiple users can share access to one server. This feature can be used for joint troubleshooting or sharing video outputs for a great boost to system efficiency.

◆ **Cross-Platform**

The KN4140V can be equipped with different client modules to support different server hardware platforms such as PS/2, USB, SUN or even RS232 serial devices. Also worth mentioning is KN4140v's use of light and compact Cat 5e/6 cables for connecting the client modules. With ATEN's proprietary image processing technology, the video quality remains good even at distances of up to 50M between the client module and the

KVM cable

switch. The use of Cat 5e/6 cabling also allows for more flexible server room layouts without having to deal with troublesome KVM cables. As the client module also supports keyboard and mouse emulation, the server will continue to run normally even if the user unplugs the cable from the KVM or changes it to another port. The client module's Adapter ID feature stores all the information about the connected server including OS, keyboard language and operating status. This means that even if the administrator connects the client module to a different port, there is no need to re-configure the client module or change the connection port permissions on the KVM switch itself. All these features make server room arrangement and maintenance all the more convenient.

◆ **Dedicated power supply management port**

Server power supply management is now a trend in IT administration and a requisite for unmanned server rooms. The KN4140V has a dedicated power supply management port that can be connected to ATEN's PN0108 power control unit. A graphical user interface (GUI) then becomes available that allows the user to turn server power supplies on and off with the click of a mouse button without having to memorize complicated commands.

◆ **Remote centralized management**

Apart from the PN0108 external power control unit, the KN4140v be integrated with the ALTUSEN CC2000 management software. The highly integrated CC2000 allows IT personnel to access all connected equipment via Single Portal, Single Sign-on and single IP secure access. The servers' KVM connection ports and power supply ports are all shown on a single webpage as well, allowing IT personnel to manage everything on a server from one interface rather than multiple user interfaces. The result is simpler system administration and better efficiency.

High Usability

♦ **Dual network card**

The KN4140v has two internal Gigabit Ethernet network cards. Apart from providing backup capacity, they can also be used simultaneously and set to two separate IPs for redundancy. In backup mode, if there is a problem with the primary link that stops the switch from working normally, the secondary link automatically comes online to ensure that user operations are not interrupted. In redundancy mode, the KN4140v's network ports can be connected to two separate physical networks. The user can access the switch using either IP; when one network is disconnected, the user can continue to access the switch through the other IP. This ensures continuity of access and greatly boosts the system's reliability.

♦ **Dual power supply**

The KN4140v has two power supplies that can be connected to two power circuits. This ensures that a power failure on one circuit does not put the switch out of service. The KN4140v also has four temperature sensors and six fans. The six fans are controlled by the four sensors, speeding up when the temperature heats up and slowing down when the temperature drops. This not only improves the efficiency of the power supply but also extends the service life of the KVM switch and fans.

♦ **Dedicated modem port**

In addition to the dual network cards, the KN4140v also offers a dedicated modem port that can be connected to a separate modem. In the event of a total failure on the TCP/IP network (e.g. router malfunction), IT personnel can still connect to the KN4140v over a telephone line so the switch continues to remain available.
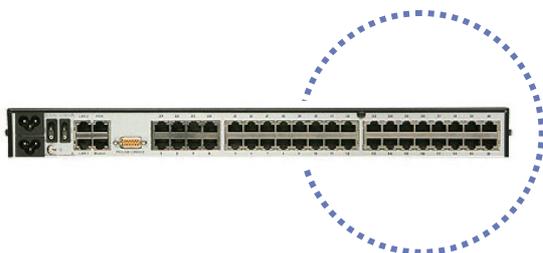
Highly secure

♦ **Strong data encryption**

The KN4140v uses 1024-bit RSA, 56-bit DES, 256-bit AES and 128-bit SSL encryption technologies. These are not only used when logging into the switch but the user can also specify separate data encryption methods for the keyboard, mouse, video and virtual media data transfers. These can be set to 56-bit DES, 168-bit 3DES, 256-bit AES or 128-bit RC 4, or chosen at random. The user can not only specify the encryption method appropriate to the sensitivity of the data, but can also use random encryption methods each time to reduce risk and boost security.

♦ **Customize strength of user account password**

The administrator can customize the settings for minimum account and password length, case sensitivity and alphanumeric combinations. The longer the password length is, or the more complicated the alphanumeric combinations are, the more secure the account and passwords.

♦ **Customize user account and password expiry date**

The administrator can specify when accounts and passwords will expire to force the user to change their password. Regularly changing the password reduces the risk of a password being compromised.

♦ **Support for multiple types of third-party authentication**

The KN4140v supports commonly used third-party authentication protocols such as RADIUS, LDAP, LDAPS and Active Directory so it can be easily integrated into the company's centralized management system. As companies usually have their own authentication system, support for third-party authentication means the KN4140v can be integrated into the company's existing authentication and permissions management system. IT administrators can therefore easily manage the KN4140v's authentication and permissions using the existing authentication system.

- **Exit Macro**

  The KN4140v allows an exit macro to be configured for each connected server. When the user ends their connection from the server, the KN4140v can automatically run a macro that orders the OS to logout the user. Such a feature ensures that users with higher access do not disconnect without logging out of the system. This prevents user with a lower level of access from accidentally accessing servers with the wrong permissions. It also ensures that every user logs into each server with their own account and password.

Apart from the above features, the KN4140v also offers a variety of unique and practical functions:

- **Virtual Media**

  The virtual media function of the KN4140v allows the remote user to virtually "connect" a remote media device (FDD, HDD, CD, USB Flash, ISO image files etc.) to the local server for software installation and OS patching. Once a user connects a USB media device to a computer, it can then connect to the server via the KN4140V interface and be added as a new media device. This allows the user to easily transfer file, install programs and more from a remote location, greatly shortening troubleshooting time and reduces administrative costs.

- **Audio support**

  With server modules that include Audio support, the KN4140v allows the remote user to "hear" warnings from the server and take action quickly. The local console not only supports audio output but can also hear audio signals from the server. Audio input is also supported and the microphone can be used to send audio signals back to the server.
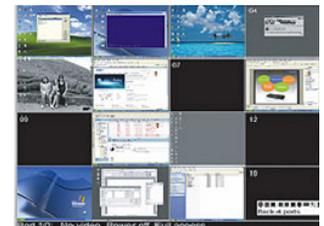
- **High Color Depth and High Resolution Video**

  ATEN's proprietary image processing technology allows the KN4140v to provide 24-bit color support (highest in the industry and video resolutions of up to 1600x1200 at the best quality. As the KN4140v is a digital KVM switch, the video signal must be converted to digital packets for transmission. The transmission environment will therefore affect the image quality so ATEN's proprietary image compression technology ensures optimal video signal transmission no matter the bandwidth. Using this feature, IT administrators can adjust the size of the data flow to suit the network traffic. For high-speed LAN, more video data can be sent to deliver high quality video. If the bandwidth is limited, the network settings can be changed to effectively reduce network latency. The KN4140v also offers Motion Detection so only data for parts of the display that change are sent. This not only reduces bandwidth for data transmissions but also ensures good quality video. Mouse response is improved as well.

- **Panel Array Mode**

  The KN4140v can scan through connected servers one by one or simultaneously display the screens from 1, 4, 9, 16, 25, 36 or 42 servers on screen as a panel array. Each server screen is periodically refreshed as well to let the administrator monitor the status on all servers. When the administrator moves the mouse cursor over the panel for one port, port details such as port name, connection status, access status and resolution are shown. If the administrator wishes to control one port directly, he simply clicks on the panel for that port to access the connected server.

- **Mouse DynaSync™**

  Before digital KVM switches were introduced, it was once necessary to manually adjust the mouse settings on all connected servers to ensure that the mouse stays in sync. If the USB server connection module is used however, ATEN's latest "Mouse DynaSync™" technology allows the KN4140v to automatically synchronize the remote mouse with the server mouse

without having to change any settings. This speeds up system installations and provides the administrator with a good operating environment.

◆ **Message Board**

Up to 32 users can connect to the KN4140v at the same time and access up to 4 servers. This can be used for multi-user joint diagnosis, troubleshooting, video sharing or distance education. Users logged into the same server can open the Message Board and communicate with each other via text. This boosts work efficiency. The message board function also supports Occupy/Release for keyboard/video/mouse (KVM). When the user chooses to occupy the KVM, other users are blocked from viewing the server display. The keyboard and mouse inputs will be disabled as well. If only the K/M is occupied, other users can view the video output remotely but cannot use the keyboard and mouse inputs. The user can also refer to the user list of the message board to determine which user is currently in Occupy mode.

◆ **Cross-Platform Client Support**

The KN4140v has standard web browser interface support. The user can remotely access the KN4140v web interface without installing JAVA. Automatic browser detection can also be set up to automatically run the ActiveX Viewer or Java Viewer when accessing a server, or just use the Java Viewer by default. Java Runtime Environment (JRE) is not required for the user to use the browser interface. The browser can also be used to open multiple windows and access multiple servers. A Windows Client and Java Client is also available for users wishing to run a software client inside to support different operating systems. For Windows environments were Java cannot be installed, users can still access servers through the Windows Client.

◆ **Virtual Remote Desktop**

When the user accesses a server through the KN4140V, the server desktop can be shown in full-screen mode or a resizable window on the user screen. Combined with advanced features such as Message Board, Mouse DynaSync™, Virtual Media and Keyboard Pass Through, this creates a virtual remote desktop for the user that makes it seem as if they are actually at the remote server. The user can also use the browser interface to open multiple windows to multiple computers. With the virtual remote desktop's display resizing function, the user can tile multiple server windows so that while working on one server, he can keep an eye on all the others. This improves efficiency and ensures that the administrator can respond quickly to any situation that develops on any of the servers.

The ALTUSEN KN4140v digital KVM switch from ATEN provides an easy to use interface, comprehensive management functions and an extensive range of server administration tools to help IT departments realize unmanned server rooms and server consolidation. By helping IT personnel boost productivity and cut IT administration costs, it can be considered the most cost-effective IT investment in a troubled economy.