

# A better way to get visual information where you need it.



# Meet PixelNet<sup>®</sup>.

## The Distributed Display Wall System

PixelNet is a revolutionary new way to capture, distribute, control and display video and audio sources, both analog and digital, for audiovisual applications. Based on high bandwidth networking technology previously used for data communications networks, PixelNet adopts Gigabit Ethernet and Ethernet switches for use with high resolution, real time video. Using packet-switching technology, any information source can be shown on any display, as a window on a single display, or as a window spanning multiple display devices in a display wall.

PixelNet is what the video switch and display wall processor would be if they were invented today. Combining the features of both, and applying the power of networked systems, PixelNet does all switching in the digital domain to preserve signal integrity. Switching is done on a pixel-by-pixel basis with built-in upscaling and downscaling, so any rectangle of pixels from any source can be sent to any destination on any display device. Multicasting of sources and multiple walls are supported. And since PixelNet is a network of nodes, not a single-box processor, the signals do not compete for limited bandwidth on a common bus. High frame rates at high resolution are the hallmarks of a PixelNet installation.

We've heard you: "My customers want a visual information system that is modular, self configuring, easy to manage, seriously flexible and expandable. It's just not possible."

**It's possible now.**

## A Modular System

PixelNet is simplicity itself. A PixelNet network is comprised of input nodes to capture various types of video signals, output nodes to drive display or audio devices, StreamCenters to decode and display streaming IP sources, and switches to interconnect them. Add inputs, displays, powered speakers, and standard network cabling. That's about it.

Input and output signals can be either digital or analog to meet the interface requirements of the attached devices. But remember, inside the PixelNet domain signals are always digital and can be transmitted long distances without degradation. All video processing is done in the digital domain including cropping, scaling, de-interlacing and noise reduction.

## An Easy to Manage System

All of this power and flexibility is managed by Jupiter's PixelNet Domain Control™ software, which provides an intuitive, object-oriented, drag-and-drop interface to control and manage multiple inputs, outputs and display walls.

Applications that would traditionally require many separate vendors and a heterogeneous solution can be addressed with a single system of interconnected PixelNet nodes controlled through the PixelNet Domain Control software. Third party applications and control systems are supported with the included API and network control protocol.

## A Self Configuring Network

PixelNet networks are automatically self-organizing, there is no need for complicated setup. Every node, both input and output, is identified and available for use the moment the node is plugged into a PixelNet installation. All sources can be displayed on any of the output devices. Add an input node, swap for another type of input node, or remove an input node and the system reconfigures the topology.



PixelNet Domain Control™



## The PixelNet Difference

PixelNet is a high-bandwidth, non-blocking switched network. Data transmission from one PixelNet node to another is completely independent of other communicating nodes. PixelNet networks are self-organizing, and PixelNet nodes exchange visual data in a common, digital format. PixelNet nodes have a very long MTBF, but even if a node does fail it will not disrupt the operation of the other nodes in the network, and a failed node can easily be replaced while leaving the rest of the network running. For the ultimate in reliability, PixelNet now supports fully redundant servers. Add a second PixelNet Domain Control server to automatically take over if the primary server should ever fail.

All connection between nodes and switches is accomplished using common CAT6 cables up to 100 meters in length. PixelNet is completely digital in nature, and with input sources such as a DVI computer source or SDI video, the network can be digital end-to-end, resulting in the best possible visual performance. Video signals are enhanced through the use of superior video processing technology for de-interlacing, anti-aliasing and inverse telecine, resulting in broadcast-quality display. Any application will benefit from the simple installation and superb visual performance of a PixelNet network.



## Outstanding Visual Quality

PixelNet captures video signals at full resolution, frame rate, and color depth assuring exceptional visual performance.

Format conversion, de-interlacing, scaling, noise-reduction and color-space conversion are all performed automatically for the user within PixelNet – resulting in perfect representation regardless of input signal or display device.

PixelNet's output node, TeamMate, can display a single or multiple sources in freely scalable windows, or multiple TeamMate nodes can be combined together to create a display wall of virtually any size with source windows being able to span one or all displays. All TeamMate nodes connected to PixelNet have access to all connected inputs.

If front or rear projectors are used, the PixelNet Warp/Blend Node handles all edge-blending requirements.

## A Seriously Flexible and Expandable System

PixelNet is all about scalability. The same component parts can scale from a single input distributed to a single output to literally hundreds of inputs and outputs. Outputs can be defined as a single display or logically grouped together to create one or more display walls.

Sources can be multicast to create copies without requiring additional hardware. In addition, PixelNet provides enhanced flexibility to display multicast windows within displays or across displays, on a single wall or on multiple walls.

Need to add another input? Add another PixelNet input node. Want to add more streaming IP sources? Add another StreamCenter. Expanding the display wall? Add PixelNet output nodes for the new displays.

- PixelNet input nodes are small, silent and use very little power;
- Input and output nodes are easily added or replaced, and since PixelNet is based on Ethernet technology, the entire system is inherently fault-tolerant.

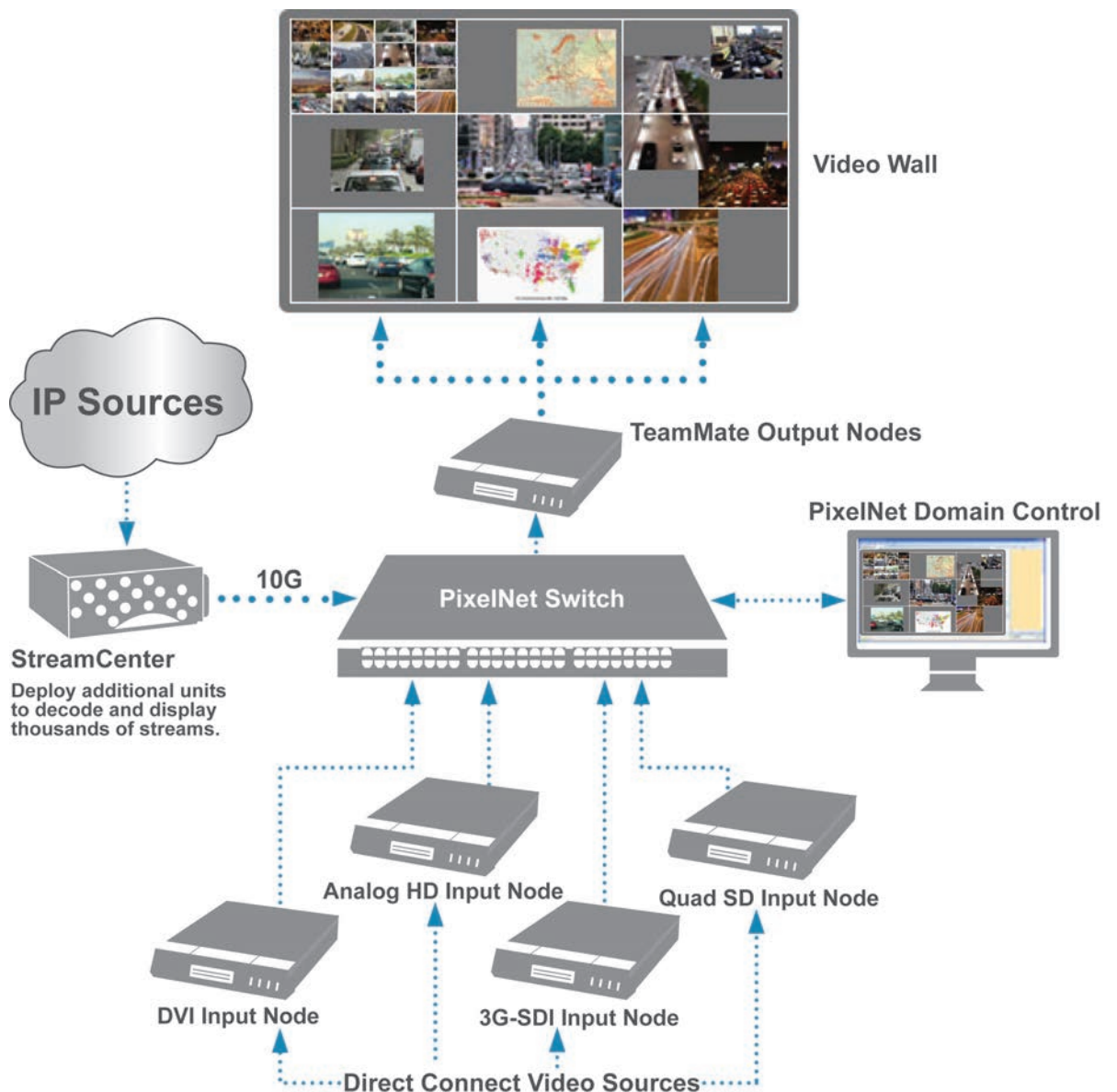
# Building a PixelNet System

**Step One** Match the input sources with an appropriate input node. The PixelNet product line serves many common input requirements with the PixelNet DVI, PixelNet Analog HD, PixelNet 3G-SDI and PixelNet Quad SD input nodes, as well as Jupiter's StreamCenter™ multistream video decoder allowing thousands of streams to be managed and monitored.

**Step Two** Attach a PixelNet TeamMate output node to each display. Sources can be displayed on DVI/RGB outputs with true flexibility: The PixelNet TeamMate output node can drive a single window on a single screen, multiple windows on a single screen, or an entire display wall. If audio is desired, attach a PixelNet Audio output node—it will find and play any audio signal presented by a source connected to an audio-capable PixelNet input node.

**Step Three** Connect the input and output nodes through a PixelNet Switch. Next, connect StreamCenters to decode and display streaming IP sources—each one can handle 32 streams. Add more to handle thousands of streams. Switches can be stacked for larger installations, augmented by a 10G backbone switch where needed. All connections between nodes and switches are accomplished using inexpensive CAT6 cables up to 100 meters in length. If longer distances are required, fiber solutions can extend PixelNet transmission distances to miles.

**Step Four** Manage it all with Jupiter's PixelNet Domain Control (PDC) software running on a server connected to the PixelNet Switch. A second server running PDC can be added for full, automatic redundancy.



# Powerful, Modular.



## PixelNet DVI Input Node DVI and Analog RGB Input Node for PixelNet®

- Captures signals up to 2048x1200 resolution and up to 165 MHz
- Captures analog or digital progressive scan RGB signals
- Provides analog-to-analog and digital-to-digital loop-through
- Choice of external (loop-through) or internal EDID
- Automatic format detection for Plug-and-Play simplicity
- Dual Gigabit PixelNet ports
- Supports two PixelNet windows
- Optional rack mount tray



## PixelNet Analog HD Input Node Analog High Definition Video Capture for PixelNet®

- Analog component inputs (YPbPb)
- Handles all standard and high definition video formats, 480i to 1080p
- Automatic format detection for Plug-and-Play simplicity
- Advanced video de-interlacing, scaling, and noise reduction
- Dual Gigabit PixelNet ports
- Captures stereo and 5.1 audio
- Supports two PixelNet windows
- Optional rack mount tray



## PixelNet 3G-SDI Input Node Serial Digital Video Input Node for PixelNet®

- Supports 3G-SDI, HD-SDI, and SD-SDI
- Handles SMPTE 259M, SMPTE 292M, and SMPTE 424M signals
- Automatic format detection for Plug-and-Play simplicity
- Reclocked loop-through output
- Dual Gigabit PixelNet ports
- Captures stereo and 5.1 audio
- Supports two PixelNet windows
- Optional rack mount tray



## Quad SD Input Node Quad Standard Definition Video Input for PixelNet®

- Handles composite and S-Video standard definition video via CVBS-Y/C
- Supports PAL and NTSC encoding formats
- Four BNC inputs, configurable as 4 composite or two S-video
- Supports up to eight PixelNet windows
- Dual Gigabit PixelNet Ports
- Optional rack mount tray



## PixelNet Audio Output Node Superb Audio From PixelNet® SDI and Analog HD Nodes

- Output either digital or analog signals
- TosLINK port (S/PDIF), BNC connector (S/PDIF or AES3id), and two analog TRS 1/4" jacks
- Frequency Response: 4Hz - 22KHz (48 KHz sampling), 4 Hz - 44 KHz (96 KHz sampling)
- Signal-to-Noise Ratio: -100dB
- Dynamic Range: 110dB
- Total Harmonic Distortion: 0.003%
- Optional rack mount tray



## PixelNet TeamMate™ Output Node Flexible Display Node for PixelNet®

- Output both analog (RGB) and digital (DVI) signals
- Supports output resolutions up to 2048x1200 pixels and up to 165 MHz pixel rate
- Displays up to 64 PixelNet sources in freely scalable windows
- Can be a discrete output or part of a display wall
- Frame-sync for perfect visualization in large walls
- Dual Gigabit PixelNet ports
- Optional rack mount tray
- Add Warp/Blend Nodes if using projectors



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