

# Hiperwall Architectural Advantages

Hiperwall eliminates the cost, complexity and limitations of legacy hardware-based video wall systems, making video walls a practical solution for organizations of any size. Hiperwall accomplishes this by virtue of its innovative software architecture that is completely hardware agnostic, avoiding the downfalls of relying on specialized, low-volume, high-priced, sole-sourced, complex servers, matrix switches and distribution amplifiers.

## A Software Solution

Hiperwall technology is a pure software solution. This means it can be delivered electronically, installed on almost any commodity hardware and operated by anyone who can use a PC. The system consists of 4 distinct modules, each of which plays a different role in the operation of the system.

**The Display Node** software is installed on the PCs controlling each of the monitors in the display wall. This software displays the content on each of the control nodes, ensuring that the independent physical monitors behave like one, very large, very high resolution display.

**The Control Node** allows a user to control what content is displayed on the wall and to change the size, location, rotation, transparency and coloring of each piece of content. The control node also provides the ability to save wall layouts and to pre-program content sequences.

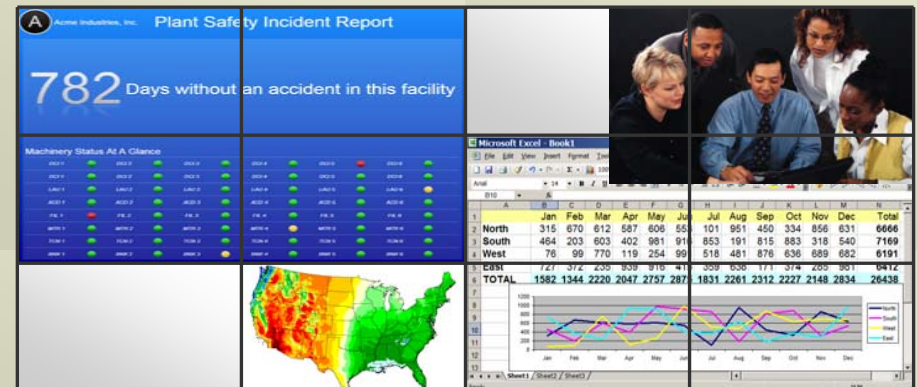
**The Sender Node** replicates the screen display of almost any PC application on the wall. Install the Sender Node software on a PC that is already running the desired application (or even multiple applications). Anything that the application(s) displays on the screen of the PC will then be replicated as an object on the wall.

**The Streamer Node** sends live video feeds to the display wall. The video can originate from an external hardware device like a camera, DVD player, cable box or VCR. The streamer software sends the video over the network in real time to be displayed as an object on the wall. Each streamer node can support multiple simultaneous streams.

Hiperwall supplies an automated installer for each node type. Most installations take about 2 minutes, minimizing configuration time and simplifying overall setup.

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**The Display Nodes** displays all content as directed by the Controller, including Screen Senders, Streamers and content stored on the wall in advance.



**The Sender Nodes** are ordinary PCs that "send" constantly updated copies of their screen images to the wall.

**The Control Node** manages how all content is displayed on the wall. It enables the operator to control the size and location of each object as easily as moving and resizing windows on a PC desktop.



**The Streamer Nodes** feed live video to the wall from cameras, DVD players and other video sources.

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## Ethernet is the Infrastructure

From a network point of view, the Hiperwall system is just a bunch of peer-to-peer networked PCs. All of the nodes are connected to an ordinary gigabit Ethernet switch by ordinary Ethernet cabling.

The size of the total installation is only limited by the number of ports in the gigabit switch. If the system outgrows the numbers of ports it is easy to replace the switch with a larger switch or add another switch that is connected to the original switch by an ordinary Inter-Switch Link.

This Ethernet network is the only infrastructure that Hiperwall needs. All content is delivered to the wall via Ethernet, as is all command and control messaging. This is a significant advance over legacy video wall systems that typically require some combination of complex servers, matrix switches and distribution amplifiers to get all of the content delivered to all of the nodes in the video wall. By eliminating this equipment the Hiperwall system significantly reduces total cost, required floor space, power consumption and cable clutter.

## Hardware Agnostic

As a software solution, Hiperwall is almost completely hardware agnostic. This gives the user the flexibility to select any hardware that best satisfies the specific application requirements and budgetary restrictions.

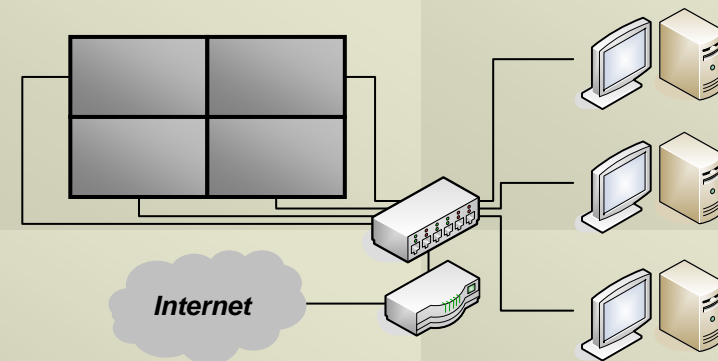
The hardware agnostic nature of Hiperwall starts with the displays used in the video wall. Hiperwall can use monitors of almost any size, resolution and display technology (LCD, Plasma, CRT, Projection, etc.)

The software is also agnostic with respect to the PCs that are used throughout the Hiperwall system. The requirements, which vary slightly by node type, are for a Windows (XP or Vista) PC with a dual core CPU, gigabit Ethernet port, 1GB of memory (2 for Vista) and a graphics chip with at least 256MB of RAM.

Finally, the software is agnostic with respect to the network. Each node needs a gigabit Ethernet port. In addition, the switch should be a layer 2 design that supports IGMP, enabling the Hiperwall network to perform efficiently even when running multiple live video streams across the network.

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All Hiperwall nodes are connected by an ordinary layer 2 gigabit Ethernet switch, which serves as the entire infrastructure for the Hiperwall system

## Distributed Architecture

The Hiperwall software is based on a distributed computing architecture. Each node in the Hiperwall network contributes to the overall processing of the visual information. Every time that a new display, sender or streamer node is added to the Hiperwall network, it not only adds a new content source or destination, but it also adds more processing power. As a result, the total processing power of the system automatically increases as the number of nodes increases. This helps ensure that large walls don't outgrow the processing capabilities of the complete Hiperwall system.