The Ultimate Video Wall Buyer's Guide

For Control Room and Network Operation Centers
Table of Contents

Introduction: About Userful.............................................................................................................................................. 1
Hardware vs Software Solutions...................................................................................................................................... 2
Source Flexibility.......................................................................................................................................................... 3
Management and Control............................................................................................................................................... 4
Product Comparison Chart........................................................................................................................................... 5
Network Architecture..................................................................................................................................................... 6
Knowledge Panel.......................................................................................................................................................... 7

Introduction: About Userful

Userful is a software-based visual networking platform that enables the central management and configuration of multiple display applications. Leading IT teams in just about every industry have deployed Userful video walls to improve efficiency, and increase revenue.

This guide helps both application leaders and stakeholders on the key application types: hardware and software vendor differentiation, the components that make up a video wall solution, and use of network-based AV-over-IP video walls for centralized control and operations management.

Userful’s software enables control rooms to deploy and centrally manage all of their display applications—including LCD, LED, and projection-based display systems—by leveraging standard infrastructure to connect displays across large factories.

To get help on an upcoming installation, request a free consultation from a Userful expert →

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Hardware and Software Solutions

When choosing mission-critical technology, it is important to understand the difference between hardware-centric and software-centric solutions.

Video-card based video wall controller

Video wall controllers are hardware-centric solutions with a fixed number of inputs and outputs. Controllers typically come with inbuilt software and capture cards to connect AV sources, configure presets, control outputs and manage the overall configuration. Typically video wall controllers scale captured input sources, but some video wall solutions allow you to render content directly on the controllers.

Matrix switcher

Matrix switchers are generally defined by their number of inputs and outputs (both usually HDMI). Because inputs and outputs are fixed, this limits the flexibility when adding new displays. For small, fixed deployments they are a reliable hardware tool but are not recommended for more advanced control rooms which require control and management tools.

Network-based (AV-over-IP) video wall software

Unlike the hardware-centric controllers, video wall software mimics the power of a traditional video wall controller, with the scalability inherent AV-over-IP. A central PC renders, captures and splits the content then sends it out over a standard Ethernet network to the displays.

This offers all the resolution, multi-source and flexibility advantages of hardware video wall controller. All the content management, splitting and delivery is done in real-time, and capture cards and network streaming source offer a wide range of inputs (like HDMI and SDI).

Cost Benefit Analysis

Software vs Hardware Control

Although many integrators offer hardware-based control rooms, proprietary technology often creates vendor lock-in at the buyer’s expense.; with premium costs to scale or customize the setup also increase total-cost-of-ownership (TCO).

On the other hand, a software-centric model, can maximize the buyer’s flexibility if it supports standards-based and commercial off-the-shelf (COTS) hardware components.

When planning a video wall, alongside existing requirements, it’s worth considering maintenance costs and future needs. Software is much better suited to growing businesses that require high return on investments, as it is easier and cheaper to integrate, customize, scale, debug, and update—especially when equipped with expert support.

Userful offers unprecedented TCO by enabling efficient, centralized, and easily integrated AV over IP software management of digital content. Our pricing ensures you only pay for features you need; to get an estimate instantly (online):

Get Userful's Pricing →
Source Flexibility

Depending on the level of control room sophistication, hardware and software-centric provide different levels capture sources through external devices (e.g., laptops, desktops, tablets, smartphones etc.) that stream live video feeds over video walls or displays. Capture sources range from *Hardware Capture, IP Video Streaming, and IP Desktop Capture.*

1. **Hardware Capture:**
   This usually requires the physical installation of the capture cards into the Server/Controller. Hardware capture is best preferred when experiencing latency is not acceptable and network streaming of the external source within the LAN is seen as a security risk. However, only one display or video wall can be mapped to a single hardware capture source, which limits the flexibility for more complex control rooms.

2. **IP Video Streaming:**
   This streaming method allows to play video feeds such as security cameras and video files over a network, using various protocols for delivering audio and video over IP network. However, there is no control over the external cameras which may cause an issue while playing live video feeds.

3. **IP Desktop Capture:**
   This is ideal for control rooms environment for data visualization and collaboration use cases since it can share multiple desktops onto the displays or video walls. This capture method is found in software-centric solutions and allows users to connect to a remote system and share the desktop of a remote system and also control it with a local mouse and keyboard, just like you would do sitting in front of that computer.

**Recommended Resource:**
The Userful Control Center is a browser-based central management of all the capture sources for administering Userful software appliance.

**Go to Control Center Demo** →

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**External Content sources**

- USB Key
- Gaming
- Real Time Camera Feed
- Satellite TV
- Laptop or PC
- DVD
- Live TV
- Network Streaming
- Media Player
- HDMI

**Local Content sources**

- Desktop Applications
- Virtual Desktop
- Virtual Desktop
- Image Slideshow
- CMS Player Software
- Desktop Applications
- Video Playlist
- Interactive Desktop
- Fullscreen Browser

**Recommendations**

For control room operators wanting source flexibility, a software-centric vendor like Userful that provides all three capture source types for complete source management compared to hardware-centric vendors which require you to purchase multiple capture sources for each use case.
Management and Control

Many content management solutions allow you to create and independently address multiple content zones within a single display (e.g. to have tickers across the bottom, etc.). Together these create a literally limitless range of creative possibilities. Management capabilities include: **Zone Layouts, Presets, and Real-time Interaction.**

**Zone Layouts and Presets**

**Zones**
The basic layout functionality, allowing users to use one or multiple displays playing the same content at the same time.

**Multi-window**
Create subdivisions among displays or video walls to show multiple content running simultaneously, in a fixed layout. For example, user can play Signage Player content on one window, Web Browser content on the other window and so on.

**Picture-in-picture**
Play multiple content in inset window(s), while the main content continues to play in the background. Users can decide the size and location of the inset windows while configuring the source.

**Presets**
Presets provide quick manage of multi-source flexibility, easy switching between different source layouts, with one-touch convenience for anyone in the team to call this preset.

Presets can also be auto-triggered by API calls such as when triggered by an emergency situation.

**Real-time Interactivity**

Operators and administrators need to be able to control what gets displayed and where it gets displayed on the video wall at any given time, to keep the most relevant information up for the team to collaborate on in real-time.

There are video wall controllers that simply take HDMI inputs and scale them onto the video wall or a zone within the video wall. When this is the case, it can be difficult to ensure all operators interact with the source.

Recommended Resource:

In a 2018 survey **60% of Userful customers** picked Userful as the easiest solution to manage when compared to other vendors.

**View Command and Control Video →**
Control Room Video Wall - Vendor Comparison

Refer to our product comparison chart to easily compare different control and operations video wall offerings in the market—based on key aspects such as costs, hardware vs software setup and features, and content sourcing capabilities.

Note that the information in this comparison document is based on market data, customer interviews, public information viewed on websites and other marketing materials. If you feel there are any discrepancies or errors in this comparison chart, please contact Userful and let us know so we can correct them. Liability for errors, omissions or consequential loss is expressly disclaimed. Userful is not associated or representative of any of the listed companies or brands in this chart except for Userful. All trademarks and trade names used are acknowledged to be the copyright of their respective owners.

Video Wall Product Comparison →

<table>
<thead>
<tr>
<th></th>
<th>Userful</th>
<th>Hiperwall</th>
<th>Planar Matrix</th>
<th>VoWall</th>
<th>Polywall</th>
<th>Matrox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>$</td>
<td>$S</td>
<td>$$$</td>
<td>$$</td>
<td>$$</td>
<td>$$</td>
</tr>
<tr>
<td>Max Source Resolution</td>
<td>4k</td>
<td>4k</td>
<td>4k</td>
<td>6k</td>
<td>10k</td>
<td>10k</td>
</tr>
<tr>
<td>Built-in Content Player</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<tr>
<td>Multiple Simultaneous Sources</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
</tr>
<tr>
<td>Setup Complexity</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Very-High</td>
</tr>
<tr>
<td>Server Location and Relay</td>
<td>Anywhere within LAN</td>
<td>Anywhere within LAN</td>
<td>Within 330' from Video Wall</td>
<td>Next to Video Wall</td>
<td>Next to Video Wall</td>
<td>Next to Video Wall</td>
</tr>
<tr>
<td>Maximum Number of Displays Supported</td>
<td>100</td>
<td>16</td>
<td>16</td>
<td>Depends on the controller used</td>
<td>Depends on the card series used (DS or 1B)</td>
<td></td>
</tr>
<tr>
<td>Support for Mix of Video and Audio Formats</td>
<td>Yes (proprietary display)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
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<tr>
<td>Full Screen Browser or Fully Conforming Display</td>
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<td>✓</td>
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<td>✓</td>
<td></td>
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<tr>
<td>VMS Capture</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>
Network Architecture

The on-premise Userful server connects over the Local Area Network (LAN) to stateless zero client receivers, each of which then connects via HDMI to a display. A single PC/Server can drive up to 100+ screens while in control from multiple work stations. The Zero Client Receiver does no processing work, it simply receives and outputs pixels. All the content rendering is done on the server. Failover (in red) provides a way for fault tolerance in regards to a network outage. In case of failover, backup host will automatically take over the network zero clients of the primary host and continue playing automatically.

System Security and Reliability

The use of a locked-down Operating System ensures an extraordinary level of security compliance. Standard server and network allows customers to extend their best practices and firewalls for BIOS and network systems to their displays. These software-centric solutions that are 100% browser managed to eliminate vulnerabilities found in third-party apps.

Recommended Resource:

Userful's Security White Paper

Dive deeply into Userful’s security and compares Userful’s approach with other solutions.

Read Userful's security white paper →
Knowledge Panel

Tips to ensure you get what you need:

Q: How can I get live video from a digital video camera to output to the video wall?
Some webcams output RTSP streams and these can be connected via the Network Streamer source. If you need to achieve imperceptible latency, you’ll need a direct connection between your camera and a capture card in the Userful host. We recommend cameras that output via HDMI or SDI streams combined with one of the certified capture cards. Configured correctly this enables you to capture and relay live video to various screens or video walls connected via the network.

Q: Professional video wall mounts are expensive, can I just use ordinary TV mounts?
Though not typically recommended, it is possible on a small video-wall (e.g., a 2x2) to use less expensive TV mounting solutions. Setup will naturally take longer and there may be some imperfections in alignment so the savings may or may not be justified. For larger video walls (3x3 and larger) we strongly recommend using the Chief or an alternative mounting solution designed specifically for video walls. While with a 2x2 you can access each of the 4 TVs from the exposed edges, with a larger video wall it becomes impossible to access individual displays without first removing neighbouring displays which is painfully cumbersome.

Q: Does Userful software appliance support overlapping of video wall zones? What are the rules?
Yes. The rule for overlapping zones is that the most recently played zone will play on top and a zone will continue to play as long as at least one of the display is still available. Some care must be taken while assigning Control Display to the overlapped video wall zones (i.e., Control Displays for the overlapped video wall zones must be different). This is helpful for control room environments and some advertising scenarios.

Download our Pricing Sheet for Control Room Video Walls

In a 2018 survey 87% of Userful customers say Userful was less than other vendors they considered for their project.

- Retail Pricing
- Product Comparison
- Feature Breakdown

Download Userful Pricing Sheet →