Photos courtesy Peerless-AV

Choosing the Right Systems

By Brian McClimans

Understanding a client's goals will help determine which products are right for the setting.

Digital signage is growing in tandem with technological advances and changes in communication styles and processes. For those new to the medium, however, decision-making can prove quite overwhelming.

Upon the advent of colour photography and films, the public quickly preferred, gave more attention to and came to expect signage in vibrant colours, leaving black-and-white messaging behind. The same holds true with regard to digital signage; people want to see messages conveyed in a medium they know and expect. In this day and age, that expectation is for fresh, updated information.

Digital signage can meet this expectation, whereas static signs may appear out-of-date. This is one reason many companies and other types of organizations have turned to digital signage to get their messages across.

Indeed, the main purpose of digital signage in any setting is communication. In corporate settings, for example, it may be placed outside the front of a building to welcome employees, clients, customers and guests. Other corporations use it inside their buildings to share company-wide news in lunchrooms, cafeterias, lobbies and production rooms.

It is crucial for sign shops and audiovisual (AV) integrators to understand their clients' needs in terms of how they will use digital signage. What will the content communicate, to whom and where?

Understanding a client's goals will help determine which digital signage products and systems are right for the situation.

A plethora of options are available for implementing digital signage, including liquid crystal displays (LCDs), light-emitting diode (LED) arrays and projectors; wall mounts, kiosks, desktop mounts and outdoor-durable cabinets; and audio components.

There are a variety of considerations that need to be taken with regard to the setting for digital signage. After determining a project's communication goals, for example, one of the most crucial distinctions is whether the signage will be displayed indoors or outdoors.

Indoor digital signage

Not all indoor environments are the same when it comes to digital signage installations. Office buildings are usually better-equipped than factories, by way of example, for fully wired technologies.

That said, adding AV systems to any facility that is not a new build can prove troublesome. Wire concealment, in particular, is a fine art among professional installers who are often limited by a system's wiring integration challenges. Multi-room, multi-device installations are especially tricky. Traditional cable runs can be almost impossible in situations where sealed walls cannot be opened up, *e.g.* to run cables that distribute sound.

In such scenarios, going wireless is the ideal solution, but this has presented a multitude of challenges to custom AV integrators. For one thing, robust wireless signals are often hard to obtain. For another, wireless transmission is intrinsically less reliable than copper wire for audio signals, especially when spanning multiple zones across both concrete and metal construction.

To determine the right wireless networking configuration, the integrator must consider system range, scalability, audio quality and installation ease. The following are some of the factors that come into play:

- A system that allows (a) the digital signage transmitter or media player to be mounted on a rack and (b) the amplifier (if audio is part of the system) and wiring to be hidden in a wall cavity will help keep clutter down to a minimum.
- A combination of multiple inputs, including mono channels and stereo pairs, can help the network support multiple uses in the future, such as additional zones and surround sound.
- To ensure reliability is as consistent as possible with a wired system, setting up an independent wireless network is the best option, as it will help reduce interference from other existing networks and provide a secure channel for streaming content to multiple zones.

Office buildings are usually well-equipped for fully wired digital signage installations.

- Two-way communications between the transmitter and the receiver can offer 'forward error correction,' ensuring there are no crackles or pops if the signal weakens. In addition, there should be low to zero latency—*i.e.* delay between cause and effect—from one component to another.
- A high-quality audio system should be able to reproduce sound at 16-bit depth and a 44.1-kH sampling rate.
- Industry codes and ratings for commercial applications can help give an integrator peace of mind when selecting and installing wires, tie wraps and other components of the digital signage network.

By taking the above factors into consideration, AV integrators have shown wireless networking can be both reliable and customizable for digital signage systems in the current market. It is also important to consider total cost of ownership (TCO); while a wireless network may be more expensive upfront than a wired one, it may be less expensive in the long run, given the costs of installing and servicing wired network infrastructure, *e.g.* when walls need to be taken down for access.

Speaking of which, walls also need to be considered with regard to the digital signs themselves. When installing a display on an uneven wall or in a recessed area, a micro-adjustable mount with quick-release functionality may be necessary, allowing the display to be hung with precision and, when needed, tilted for ease of cabling and service. In busy and/or hard-to-reach places, especially, such access is crucial for keeping the network up and running smoothly, without any gaps in functionality.

Another choice is whether to hang a display from the wall or instead enclose it in a kiosk. This is partly a question of practicality and function, such as the incorporation of touch-interactive capabilities, but also a question of accessibility, serviceability and safety. If a display offers touch capabilities, after all, it must be safely reachable. Slim displays and mounts, meanwhile, help prevent hardware from becoming an obstruction to the visually impaired.

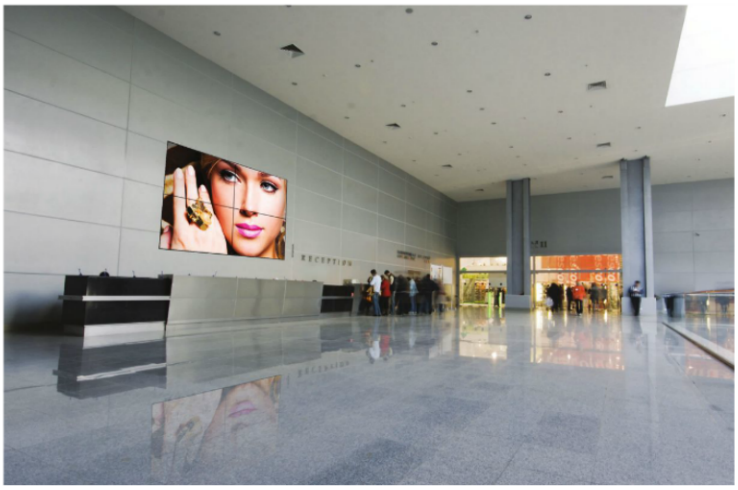
Finally, network integrators may be tempted to support the highest screen resolutions available, but it is important to consider content, much of which is not yet available in an ultra-high-definition (UHD) '4K' format anyway.

A plethora of hardware options are available for implementing digital signage.

Outdoor digital signage

There are many more considerations that come into play when selecting digital signage components for outdoor networks, where environmental elements can more easily have a negative impact.

The advent of fully sealed digital displays has certainly expanded the range of suitable options. With a 100 per cent sealed display, even cable



Ultra-slim and smooth bezels help a video wall appear to display a single, seamless image.

entry has been engineered to endure the outdoor elements through all seasons.

Built-in thermal systems protect display components by warming them in severe cold climates and cooling them in severe heat. They also reduce electricity costs.

The International Electrotechnical Commission's (IEC's) Ingress Protection (IP) Marking Standard 60529 rates a display's degree of protection against intrusion by water, dust and other irritants. Signmakers should look for displays with an IP68 rating, which indicates tolerance against dirt, ice formation and temporary submersion in water, as well as the ability to operate in extreme temperatures from to -40 to 60 C (-40 F to 140 F).

Shatterproof, impact-resistant glass is also a must for outdoor displays, especially in settings where a piece of machinery could inadvertently hit the display. (For this same reason, ruggedized outdoor displays are suitable options for factories' indoor digital signage networks.)

Indeed, the most important factors for outdoor digital signs—upon which their lifespan and performance depend—are how well they can repel dirt, water and bugs and endure extreme temperatures. At the end of the day, it does not matter how bright a display is if it cannot handle the elements. If the display cannot function, nobody's goals are accomplished.

Micro-adjustable mounts are helpful when installing digital signs on uneven walls or in recessed areas.

Further advantages extend into maintenance. The use of fully sealed outdoor displays and kiosk enclosures negates the need to rely on vents, filters and fans, thus eliminating the maintenance need to regularly change out filters as they fill with debris. For that matter, rugged digital signage can reduce operational costs compared to static signage, which needs to be continually printed, laminated, securely mounted and removed if it is to be updated time and again.

Of course, beyond weatherproofing concerns, outdoor digital signage needs to communicate effectively, in a visually pleasing manner. Ultra-slim and smooth bezels, for example, enable multiple screens to be joined to build an outdoor video wall that can be clearly viewed from typical distances, appearing to display a single, seamless image.

Optically bonded screens reduce glare, prevent damage from solar loading and are stronger than their non-bonded counterparts. Polarization is also important; without it, displays may appear blacked out and unreadable to anyone wearing polarized lenses. And an ambient light sensor can help ensure content is always legible in terms of its brightness at different times of day.

Technology solutions

The opportunities for digital signage functionality are limitless. The medium can be used to generate revenue through advertising, provide wayfinding and personalized guest service, provide corporate information for employees and more. A constant stream of fresh content can achieve high-quality communications.

To avoid being overwhelmed by all of the associated decisions, it is important first to determine what needs to be communicated, to whom and where. As these questions are answered and educated recommendations are made to customers, it is not digital signage, but rather sign shops, that become the technology solution.

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