
Digital Signage Systems – Choosing the right tool for the right job

By Minson Chen, President & CEO AGNPRO, October 2007

With the market for digital signage starting to gain traction, there are more and more digital signage companies offering a dizzying array of products each purporting to be the best solution for your needs. The truth is, there is no one size fits all digital signage solution. Each initiative has its own unique requirements and it is important to choose the right tool for the right job. For customers it has become an increasingly daunting task to evaluate and select the right system for your deployment; but if you look more carefully at the solutions out there you will find that there are three main categories of solutions:

- Media players
- PC software based systems,
- Dynamic Digital Signage Appliances.

See Appendix A for comparison table

While the actual system you choose will depend on a number of factors e.g. size and scope of deployment, budget, the type of system will largely depend on your content requirements and workflow.

It has often been said that “Content is King” in digital signage. However, what is your content? Is it dynamic or static? You may have digital video, live video, or both. PowerPoint files, JPEG images, Flash animations may or may not be part of your content assets.

These varying content needs will dictate your workflow. You’ve probably taken all content types into consideration, but have you thought about *how* this will be created, *who* will create it and who will be responsible for the daily work involved with the care and feeding of your new digital signage system.

The answers to these questions should largely dictate the type of system you will eventually choose.

The simplest types of digital signage systems are media-player based. Most media player systems do one thing – play digital movies and still images. Media player systems can be simple and reliable if designed properly and sourced from a reputable vendor and can often can be networked and managed remotely. While there are increasingly more choices out there in the vendor marketplace, it is important to select commercial grade media players designed with features specifically designed for digital signage, e.g. industrial grade reliability, tamper proof removable media, VESA compliant mounting, and interfaces to control the device. The software designed to manage and control the device is also critical and often lacking from vendors with primary expertise in hardware rather than software and application development.

However, some digital signage content consists of more than videos and pictures. You may need to incorporate dynamic data, live video or TV, PowerPoint presentations or web pages. In this case you’ll need a system with more capabilities than a media player.

How does content workflow fit into this equation?

If your content is primarily video and your workflow regularly involves video production or graphics and animation that can be encoded as video, a carefully selected media player based system will give you a reliable and quick way to get your messages out to your displays. Players from reputable vendors are usually more cost effective than PC software based system, much easier to deploy and can operate in standalone or networked modes, allowing content to be updated locally or remotely.

One limitation, however, is incorporating rapidly-changing or varied forms of content with these systems. While you can schedule video or images to update content up to the second, most media player systems don’t have the ability to dynamically pull in and integrate live data or render graphics and images in real-time except for basic text messaging. These systems are primarily designed to distribute and playback video,

If your content is a wide variety of existing PC media formats, live data and video sources and dynamic real-time content that you want to directly incorporate onto a large screen for display, proprietary client-server models with separate components for content authoring, distribution, and player software installed on PC hardware and servers, as well as other, more novel approaches, such as all-in-one digital signage appliances which greatly simplify implementation and deployment are choices you should consider. The workflow will vary from system-to-system, so a careful evaluation of the pros and cons of each system is warranted.

Media Players

Media player systems generally consist of playback devices that plug into displays. The devices store media files locally on an onboard storage medium such as a memory card or hard disk. The devices can be standalone or connected to a network. Control of the devices is achieved through a built-in interface and/or a central management system that reaches out to the devices via a network or the internet. The content management workflow consists of scheduling and distributing media files for display on the devices.

The network vs. standalone decision is usually a big factor in the digital signage solution decision. Generally, if your displays are geographically dispersed and your content needs to be updated several times a day, a networked system is a better choice. However, standalone, non-networked systems can provide a reliable and cost-effective solution in many cases. In a standalone workflow model, media files can be distributed to on-site personnel via email or download, where the player units can be quickly and easily updated by inserting a memory card or USB thumb drive. A big advantage to this approach is that the costs and technical challenges inherent to a network infrastructure are minimized. It is important to always choose the right tool for the right job.

Some key characteristics to look for in media player systems are small, solid-state fan-less player devices, which provide long-term reliability. File storage should be via memory cards, to prevent issues with hard disk failures. The ability to generate run-logs for proof of advertising and compliance is also an important feature. Central Management should be over the internet, via a user-friendly browser-based interface, in order to facilitate use by non-technical personnel and avoid the problems inherent with desktop software installations across the enterprise.

PC Software based Digital Signage Systems

To accommodate users' needs to play more dynamic content, a class of systems based on proprietary file formats and network interactions are available. With these systems, proprietary authoring software is used to create content or templates, which is sent out to "player" units connected to each display. Major changes to content must be made in the authoring software, which is licensed on a "per seat" basis and is often expensive. A network manager software component handles the task of organizing and distributing content to a network of player units.

These solutions are capable and come with many robust features needed for large, complex networks. However they can be quite expensive, involving the purchase of software licenses for authoring workstations, player units, and network management units. Software modules to add additional features, such as database integration are available but at additional cost. The systems are largely PC-based, with the purchaser required to supply PC and server hardware to host each of the software components, including players. While PCs can provide a powerful platform for the delivery and playback of complex content, it is important to note that PCs can be expensive to maintain and their physical size and hardware reliability are issues in the field.

Consider these types of systems only if you are planning a large network rollout with dynamic content, and be prepared to devote substantial resources to implement and integrate all the components of the system for deployment. Proprietary authoring tools require training, proprietary dynamic messaging methods involve complex integration with databases or you may need to devote dedicated database systems to the digital signage network. A dedicated network infrastructure is often required as well, to accommodate bandwidth needs and to allay corporate network security concerns. There is overhead associated with these systems. Often, especially for small networks, these systems can be "overkill".

Dynamic Digital Signage Appliances

What if you need the capabilities of dynamic, mixed-media digital signage, but don't have the budget or resources to employ a proprietary system?

An emerging class of digital signage systems is offering simpler, less expensive ways of putting messages into digital signs without sacrificing effectiveness or versatility. This type of digital signage is less complicated to deploy, but not necessarily less sophisticated. New digital signage dynamic messaging appliances can be used for a wide variety of updatable, customizable messages that offer an innovative solution to large-screen digital messaging challenges,

Eschewing the media player and proprietary PC software based system model, the dynamic messaging appliance approaches the task from a different angle. Content can be managed by using a Web browser that provides an interface directly into a single-box system for composing, editing, and scheduling multimedia content. The software is designed so that non-technical personnel can manipulate the messages easily. Think PowerPoint, but with more power and versatility -- such as dividing the screen into six different zones each displaying a different image, with the flexibility of showing everything from static photos to crawling text to full-motion video in each of them.

These systems operate on open standards by making clever use of HTML and web display methods to provide a display technology that allows such versatility and dynamism. The HTML interface provides a straightforward and standards-based way to interface with corporate database systems and internet data sources, such as RSS.

The key to simplicity in these systems is that all the components you need for dynamic messaging is housed a single box, preconfigured and ready to deploy. There is no software to install, no separate authoring and distribution components to install, and generally no need to hire outside parties to help build and deploy these systems.

These systems find their most appropriate application in smaller networks, where non-technical users need to quickly update dynamic content and central management is generally not required.

The digital signage industry is offering a bewildering array of approaches, each one purporting to be the best solution for any need. Consider your options carefully, especially content and workflow considerations, before committing to any approach.

About The Author

Minson Chen (mchen@agnpro.com) is President & CEO of AGN Professional (AGNPRO). For the past 10 years he has been involved in developing and marketing new technologies in the areas of digital signage, display solutions and the Internet. Formerly as a management and IT consultant, he worked with fortune 100 companies with a focus on eBusiness and IT strategy and has a background in global manufacturing and sourcing. Minson graduated from Columbia University with a degree in engineering and earned his MBA from the Stern School of Business at NYU.

Exhibit A

Types of Digital Signage Solutions	Embedded Media Players	Dynamic Messaging Appliances	Proprietary PC software based Systems
Basic Components	Playback software embedded in Media Player hardware Separate Management Server if centrally managed	Content Authoring, Remote Management & Player Display system all-in-one device	Separate software and hardware components for content authoring, management & distribution and playback
Control Interface	Control interface is desktop software or web-based	Control interface is web-based	Control software is generally desktop software based
Ease of Use / Complexity	Simple easy to use web-based interface to distribute and schedule playback	Easy to use but full featured web-based interface	Requires training to learn proprietary authoring and content management & distribution software
Primary Advantages	Ease of use, Reliability, Simplicity, Low cost per node/ location allows scalability for large networks	Full featured with all components in a single box and cost effective for small deployments; support for back-end integration	Full featured enterprise systems with flexibility to support most customer requirements with full support for back-end integration
Primary Disadvantages	Limited features. Only supports playback of video, limited support for zones and dynamic real-time updates to screen	No central management. Devices need to be managed individually	High cost and complexity is not cost effective if not using all the features Requires in-house and third party resources to implemenet and manage
Optimal deployment size	1 - 1000 screens	1 - 50 screens	50 - 500 screens
Level of effort to implement and deploy	Low level of effort to implement and deploy for individually managed devices. Medium level of effort to deploy centrally managed devices over an IP network	Low level of effort to implement and deploy	High complexity and high level of effort to implement and deploy
Content Creation Method	Uses industry standard content creation tools directly with full screen playback and/or simple zone layout features	Uses built-in content authoring tool based on industry standard technologies and formats	Uses content authoring software based on proprietary technologies and formats
Deployment Cost	\$ / simple solid state players are cost effective to deploy	\$\$ / All-in-one design lowers cost to deploy a full featured system	\$\$\$ / Separate software and hardware components create higher costs to deploy and maintain network
Typical Applications	Advertising networks, retail merchandising, public information not frequently updated, kiosk/touchscreen	Staff communication, public messaging that is frequently updated, data-driven content, lobbies/waiting areas with publicly viewed televisions	Large advertising and retail merchandising networks, public messaging and data-driven content that is frequently updated over large networks