

Digital Signage for Education

Deliver real-time communications,
including emergency messaging,
to students, faculty, and staff.



Planning It

Shopping for It

Implementing It

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Introduction

The video gaming and IT-literate generation has come of age, and this is particularly relevant to education. Going digital is a necessary transition for today's K–12 schools, colleges, and universities.

With a majority of our children having grown up playing computer games, using camera phones, watching music videos, and viewing YouTube® clips, students have become accustomed to interacting with technology on a day-to-day basis. Video and images are increasingly their medium of choice for communication. Therefore, it only makes sense that incorporating these media into their school experience will enable educators and administrators to better engage them in the classroom and help them progress in their studies.



The way information is consumed continues to change. The newsletter e-mail is no longer as effective; 75% are deleted without being opened, according to one survey. More is communicated on the fly instead of at scheduled times, whether it's through e-mail, smartphones, Twitter, Facebook, and other social media applications.

Following this trend, digital signage is also becoming ubiquitous. Today's media-savvy youth respond well to a medium where the message is projected and amplified on a larger scale. So using digital signage as a colorful message board in the educational environment is a bit of a no-brainer. Educational institutions can choose to adopt it and use it effectively to improve and enhance their students' learning experiences. Those who choose to be less innovative may well get left behind and will have less to offer the individuals they teach.

The adoption of digital signage as an important education and communications tool is not just happening in the U.S. There's considerable investment among institutions in the U.K., which is enjoying huge investment with increased government funding for technology, as well as Australia and New Zealand where economies are robust. There's less investment in Germany or France, but this is expected to change. Like many English-speaking countries, they're seeing that digital signage can be a very effective—and affordable—communications medium.

This is true if you're charged with implementing technology to enable better campus- and building-wide communications or part of a team tasked with ensuring the safety of students and staff. Digital signage can play an important role in the mission of K–12 institutions: to educate, inform, notify, and alert.

Why schools and universities need digital signage

The simple answer is that we're all bombarded with information, and schools and universities need to compete for a share of the attention. Up against iPod®, Twitter, text messages, and the barrage of other messages hitting students every minute, getting through with important education-related information can be a challenge. And then there's the matter of perception with their intended audience; these institutions want to be seen as stimulating, exciting places of learning. Just as the blackboard gave way to the interactive whiteboard as technology developed, the bulletin board and campus information kiosk are being replaced by a more contemporary technology. This is where digital signage comes in.

A digital signage solution for education replaces static text, photos, and graphical images with displays that incorporate moving images, video, TV feeds, scrolling text, and other dynamic media to create an impact. By doing this, schools are effectively creating a school or campus-wide TV system, one that's much more advanced than the existing, analog cable TV systems on many campuses (the types that typically originate from broadcast studios of the audiovisual department). Most digital signage systems support multiple screens, so they're great for broadcasting information to different areas of your building or campus. Plus, because the digital signage management platform can be installed on a network, you can control multiple screens from a central PC.

This control can be in real time and include instant-messaging capability. Some systems also give the administrator the ability to turn the screens on and off. In addition, screens can also be controlled remotely with a browser and an IP address for additional flexibility for the administrator who has to be away from his or her command station throughout the day.

Case Study #1

University of Sheffield

Project: Digital signage for student center

Background

The University of Sheffield was opening a brand-new, state-of-the-art building called the Information Commons (IC). The IC is a meeting and communications hub for students that has more than 1300 study spaces, 500 fully networked PCs, and a library with more than 100,000 volumes of reference and short-loan books, including the most popular and heavily used undergraduate texts. The IC also includes the CILASS, two fixed-space “collaboratories,” specifically built for inquiry-based learning.

Because the IC was designed to make the most of the latest technologies and be a cutting-edge building, the internal signage was a crucial element of the design. The university wanted to use digital signage to deliver both media-rich content and general information to everyone using the building. In fact, the university decided it didn’t want to add traditional signage until after the building had been open for some time.

The solution

University of Sheffield AV manager Ian Knowles reviewed the range of potential solutions and knew he wanted a digital signage installation to target all users of the building—staff, students, and visitors. Flash animation would be used to create dynamic, eye-catching displays.

Because the IC encompasses six floors, the system selected had to be flexible and robust. The digital signage would need to display multiple channels of content with both local and remote control capability.

Plus, he determined that authorized staff on terminals throughout the six floors of the IC would need to make local browser-based text updates.

In addition, all the new AV equipment needed to be successfully networked with existing infrastructure and previous installations.

Mr. Knowles chose a system comprised of (18) iCOMPEL™ units from Black Box Network Services, combined with (18) Samsung LCD panels to provide a network of remote—and locally—controlled display sources.

The result

The installation was completed in three working days, and all the digital displays were showing content shortly after. The project has given the IC a unique method of communicating with staff, students, and visitors. The dynamic display system with multiple channel applications carries the relevant messages very effectively and does so 24/7, providing the university with a 21st-century facility.

“Digital signage targets all users of the building—staff, student or visitor—equally, with relevant information for all.”

*Ian Knowles, AV Manager,
University of Sheffield*



Why is digital signage so useful to schools and universities?

The education sector is increasingly introducing technology at all levels. With digital signage, the means of presenting information is very varied and can include video, Flash animation, moving text, alternating images, RSS feeds, live TV, and other media.

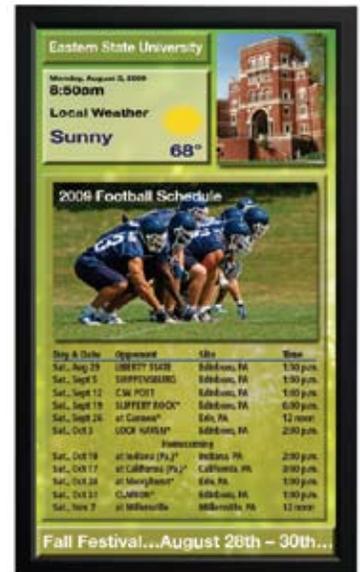
The same message can be introduced at multiple screen locations, whether in different buildings, including ones located miles apart within a college town, and even at different campuses around a state—with the message distributed from a remote central point. In addition, information can be easily disseminated in several languages: in today's diverse, multi-ethnic schools and colleges this can be invaluable.



There are a number of ways digital signage can be deployed in your school. You can use it to:

- **Promote events in your school.** Install large screens around buildings to get the word out about upcoming concerts, sporting events, college fairs, and the like. Mount screens anywhere students frequent. In high schools, this can be cafeterias, gyms, and auditorium lobbies, outside a main office, and so on. On college campuses, you can place digital signs in dining halls, student unions and hubs, in academic hall and dorm lobbies, in libraries, and other common areas. More eye-catching—and less wasteful—than repeatedly creating and taping posters to walls, digital signage enables you and your staff to promote an event or academic program without it getting lost in the flurry of flyers tacked on bulletin boards or information kiosks.
- **Disseminate important up-to-date information.** School districts and colleges spend a lot of money printing class guides and other time-sensitive publications, only to deal with mass confusion when the information included in those printed materials changes. Keeping students informed through the school's Web site and e-mail notification has helped alleviate the headaches. But digital message boards, updated in real-time, help reach students who aren't near their computer or don't take the time to check their e-mail. It's also helpful to staff, too. Signage in the faculty lounge and departmental offices can keep them informed of the day's events and changes, professional development opportunities, HR-related information, and more.
- **Broadcast emergency alerts and instructions.** Emergency messaging systems are essential in educational institutions. The same digital signage you use to broadcast everyday info can also be used to alert students and staff to inclement weather, emergencies, lockdowns, and evacuations. Sending prerecorded evacuation instructions or other messages to digital signs buildingwide and campuswide can even be a virtually automated procedure, activated by the entering of a code into a cell phone by school security or other authorized personnel. This way, there's no scrambling to get instructions on the air when panic ensues.
- **Aid your instructional efforts.** Large, hi-def panels communicate concepts to students in larger classrooms more clearly than blackboards and older, projector-based solutions. They also serve video-extension and distance-learning setups well. Broadcast a lesson or lecture held in one classroom to a large screen in another room—all while using a building's existing copper cabling. Or set up an IP-based digital signage system to stream a staff training seminar at a high school to teachers in distant elementary schools, or to reach college students in a distant campus or annex. Before a class begins, the screens used for instructional or distance-learning purposes can revert to showing campus-related information to reach the "captive audience" of early arrivals to class.
- **Enhance recruitment, as well as alumni and public relations.** You want your school to look good. In an increasingly competitive environment where differentiation is critical for a college to stand out from other schools, digital signage projects the image of innovation. Not only does it visually inform prospective students and parents of your institution's range of offerings, but it also shows you're using the latest communications technologies. It also speaks loudly to visiting alumni, who want to see just how far their old school has come before supporting new initiatives. What's more, it's just what you need to guide visitors around your campus or high school. Digital wayfinding signs help get people where they need to go better than paper maps and traditional signage and can be updated on the fly to aid specific groups (i.e., parents attending departmental graduations and open houses, and members of the public attending sporting events, seminars, speaking engagements, and fund-raising events).

- **Promote desired behaviors.** Whether they are standing in line or sitting down to eat, students want to be entertained. Standard TV broadcasts serve this purpose, but why not use the opportunity to also communicate helpful info to them directly? Within the same screen showing entertaining content, you can devote a colorful zone to promoting healthy eating, immunization clinics, the availability of counselors and campus mental health professionals, and other services. Use the digital space also to encourage community service and safe behavior, discourage alcohol and drug use, and remind students of school rules, ethical behavior, and expected conduct, and aid them in their career paths. Much of this content can be sourced from existing campus sources, including the student health services and student affairs offices, as well as state and federal agencies that have ample public service-related resources.
- **Target student populations with “hyperlocal” content.** Digital signage can not only be used for school-wide communications, but also to target specific groups by their location in your buildings. Freshmen, many of whom are away from home for the first time, require different content than upperclassmen. Tailor messaging to them with signage in class registration queues and in freshmen dorms or school corridors so they know you’re sensitive to their needs. Content can be segmented by academic interests, too. Separate digital screens administered at the departmental level can be programmed to provide information of interest to that department’s majors (available internships, career opportunities, staff office hours, etc.).
- **Centralize the distribution and production of content.** School districts and universities painstakingly enact policies to ensure an accurate and consistent presentation of information to both internal and external audiences. With a digital signage system administered from a single console, you can effectively become a clearinghouse and the *gatekeeper* for all multimedia content in your district or on your campus. If you want to stream media stored on multiple servers, use a digital signage system that integrates easily with an existing LAN. Some digital signage players do this particularly well, and even come bundled with templates and other design tools, so you can create professional-looking presentations without the need for dedicated designers.
- **Gain easy advertising revenue.** It’s no secret that your students are a key advertising demographic. Digital signage can be a tool for you to subsidize academic and operational expenses just by allowing advertisers to stream content on your screens. Mix paid content with your own on digital signage in student hubs, bookstores, and on-campus eateries, as well as stadiums and other sporting venues. In some cases, advertisers are even willing to underwrite the cost of the digital signage equipment itself.



Case Study #2 Swanmore College of Technology

Project: Signage for the college and its feeder schools

Background

Swanmore College of Technology, an English public secondary school serving 1300 students in the U.K.'s Southampton, Hampshire region, sought a suitable medium for communicating valuable information. The college, as the central school in a network that includes separate feeder schools (much like a vocational/polytechnic school in the U.S.), wanted a solution that was modern, efficient, cost effective, and manageable both locally within the individual schools and centrally.

Specifically, the school wanted:

- Screens at the central site and within each of nine feeder schools.
- Network connectivity between the main college location and the feeder schools, including FTP and proxy server access.
- The ability to control and create layouts for the feeder schools from a central location.

The solution

The school chose the system that is marketed and sold in the U.S. and elsewhere as the Black Box iCOMPEL™. Primarily, it was selected because it supports the ability to set up different zones with different content types. The system comes with a number of screen layouts that contain multiple zones for adding media. Users can manipulate zones however they want, put them wherever they want, put zones on top of zones, and more.

The system was also chosen for its stability: The digital signage players are Linux® based and, therefore, more stable than Windows® based systems. With the system, Swanmore

College of Technology publishes content to 10 different channels. Nine player units each subscribe to the appropriate channel and are located in the nine feeder schools within a 10-mile radius. The school also installed an additional player in its college library.

Each screen displays a basic layout designed by the college. The layout contains two zones that the feeder schools can update locally, depending on what message they want to communicate to their particular students "ad hoc." In all, the layouts consist of a media zone, a text zone for school notices, an RSS feed containing BBCNewsround bulletins, the weather, the time and date, and the school name and logo.

The result

This solution not only met the school's expectations but exceeded them. The flexible display and simple-to-use integrated software means content can be updated regularly without an excessive investment of time.

"We have found (it to be) a flexible and comprehensive system which allows ad-hoc users to quickly and easily update the screen whilst allowing us to make more complex changes where necessary."

Helen Woodland, Community IT Technician, Swanmore College of Technology



Addressing common concerns

With all technologies new to a specific market sector, there are often concerns surrounding adoption. Digital signage is no exception. Let's discuss a few common concerns and whether each one is legitimate or not.

- **It's too expensive.**

This is no longer the case. Screen and computing costs have fallen dramatically over the last five years. As more suppliers enter the marketplace, equipment prices drop. Plus there are fewer barriers to entry. With more small- and mid-sized institutions wanting digital signage, vendors have complied by developing solutions at price points specifically for them.

- **It's too difficult to set up and/or use.**

No longer. A good digital signage solution should be easy to use by even non-technical users, with very little work being required of the school staff. The ease of use will encourage buy-in of both staff and students to the new system. It's considerably easier than it used to be to dynamically change the content with non-technical staff, and customize different screens in different locations. As is often said, "content is king" with digital signage. The quality of your content will dictate the amount of attention it receives from a targeted audience. Fresh and regularly updated content is essential to maximize the value of a digital signage system. As a result, more digital signage systems have become more intuitive to use for real-time content updating and scheduling.

- **Only a few trained individuals will be able to use it.**

To be adopted successfully by all, your digital signage system has to have a simple, easily accessible Web-based interface so anyone with appropriate permission can upload new content with minimal training. Available today are content-management tools with ready-made templates that give even noncreative people the power to develop impressive-looking presentations. The latest tools also make integrating broadcast TV and Internet feeds into your signage a simple task—no fiddling with video codecs or writing complex Javascript. Updating Web-sourced content can even be automated with RSS aggregation. Even better, there's no longer a steep learning curve to overcome for non-technical staff. User-friendly editing tools and menu-based GUIs give everyday staff the ability to update content with little training.

- **If it's so easy to set up, why not let our technicians do it themselves (DIY)?**

There are several reasons. It can become a project for an already overstretched IT department—even if taken on during the summer months. They'd prefer to focus on other issues. Ongoing support and maintenance will be a problem, too. What's more, the time cost will be greater than the result. Just putting a slick Powerpoint® presentation up on screens isn't good enough in this day and age. The quality will be lower. But by going with an off-the-shelf, fully preconfigured and tested solution, it'll be much easier to get the presentation quality that'll make your school administrators proud.

- **Won't I just be asking for security problems?**

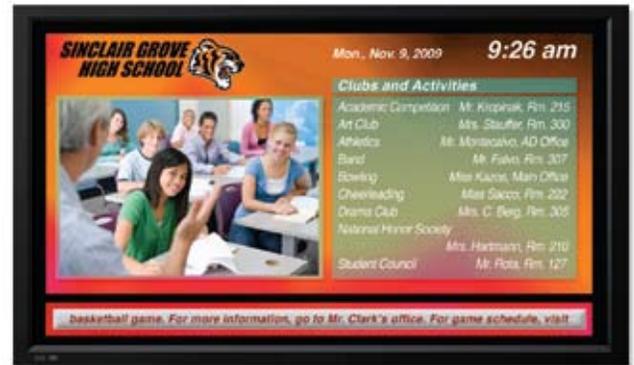
You may wonder if such a system will be open to abuse (for example, students gaining access and posting unsuitable content that will embarrass you and your institution). Any good digital signage system should have sufficient password protection and encryption techniques for preventing access by unauthorized users. These safeguards keep students and others from tampering with content or the system in any way. Some systems even have built-in firewalls.



Different types of implementations

In the context of a school or college environment, a digital signage system at its simplest can be one or more display screens linked to one or more media players. In practice, it is likely to include a network of digital signage players linked to multiple display devices. The complexity of the system will be driven by the size of the school or university; how many student dining and recreation facilities, athletic buildings, academic buildings, and common areas you have; the requirements of your activities and instructional staff; and, of course, your current and future budgets.

As requirements will change over time, it is important to choose a flexible content delivery platform that allows for growth at a low cost.



Standalone implementations

If you only intend to have one or more independently managed screens, you will most likely want to set up one or more standalone systems. In this case, the considerations include:

- Will user access be direct via a directly wired cable connection or via a network?
- Will the player be located at the screen or remotely?
- Where will the screens and players be located, how will cables be run, and is there adequate ventilation?

Local area network (LAN) implementations

For a multiscreen network, one with one or more channels of content, you'll likely require a network-based setup. Typically, this will mean implementing a store-and-forward type of digital signage system. This means that content is created by a central designer or system administrator, and published to the network for your remote players to then collect, store, and play out. All administration is via a Web user interface (HTTP/HTTPS), and FTP access is required for subscriber to publisher units to access content. In this scenario, the considerations include:

- How will content be managed?
- Over what type of network will content be distributed?
- Will TV and video content be streamed? If so, the network will need to be multicast and the players will need to support streaming.

Wide area network (WAN) implementations.

This implement is the same as a LAN implementation except the players may be at remote locations and hidden behind local firewalls. This shouldn't be a problem as long as your IT architecture follows a "pull" model. This means that content is not being pushed down to the player; rather the player downloads. The player will only download content that has been changed. This method maintains network security.

How to plan it

Considering the many available digital signage solutions might seem like an overwhelming task. But taking some time to research and understand your options will be well worth the investment for your institution. Follow these key steps:

- 1. Define your goals and objectives:** What do you want to achieve? Also, think about scalability, i.e. how well you want the system to serve you long term. Putting up a screen in your school's cafeteria certainly constitutes a big step in improving communications in your institution. But how will that hardware expenditure work when you want to expand? Approaching digital signage deployment in piecemeal fashion can be fiscally problematic.
- 2. Clearly define the content:** The success of any digital signage system starts, of course, with the content. It must look fresh, exciting, and professional. Who will create it and how will it be presented? Do you have internal resources and expertise, or will you need to outsource content creation? A good source of creative and editorial help can be found in aspiring graphic designers culled from the student ranks, in addition to your school's art department, yearbook and newspaper staffs, and TV studio (if you have one).
- 3. Invest the time to understand your options:** Once you've decided on content, you need to consider the infrastructure that will deliver it and study your display options: LCD vs. plasma? RSS feeds? Live video? Remote management? Playback verification? The options will seem limitless, so taking time to sort through them is imperative.
- 4. Involve all the appropriate stakeholders:** The communications/information department should be involved at the start, considering that your digital signage will likely be used for external community relations. If it's a K-12 application, you'll need to include not only your district's superintendent, principals, purchasing personnel, and IT staff, but also quite possibly instructional technology and AV staff, as well as maintenance, curriculum, athletic, and cafeteria directors.
- 5. Figure out how you're going to pay for it:** Digital signage is often viewed by some as a luxury item — particularly in the face of shrinking school budgets. But because it can also be used as a tool for emergency communications and notification, administrators can easily make the case that digital signage is a must-have component of any crisis plan — especially in this day and age when school violence incidents capture news headlines. Consider government sources of funding for your digital notification system (federal funds are available from the U.S. Department of Homeland Security for pre-disaster mitigation and preparedness, as well as the U.S. Department of Justice, for instance). Whether it's earmarked entirely as an IT expenditure or apportioned across multiple departments in your budget, you need a spending roadmap in addition to a developmental one. The hardest part with this may be determining the total cost of ownership over the life of the system, including any nickling-and-diming with ongoing licenses and upgrades. College administrators, however, can easily make the case from a cost-savings perspective. Having to constantly update traditional signage across a campus can be quite costly. Paper signage is expensive to print and replace regularly. With digital signage, no printed material is necessary, so both time and cost savings can be made, and the environmental impact is minimized.
- 6. Decide how to implement the solution:** Based on your deployment size and scope, decide if you can implement it in-house or if you need the help of a professional integrator. A number of "out-of-the box" systems can be set up with relative ease. But the more dynamic and complex the system, the more complicated the implementation and ongoing management — and the more likely you'll need outside help.

Other considerations in planning

Before beginning any digital signage project, assess your site and your resources by:

Surveying the site where the digital screens will be placed.

Ensure that you can adequately mount, power, and have room to troubleshoot the installed LCD, plasma, or other screen. Be sure to have a technician and/or electrician verify the power levels for every location, so that it's clear of line noise and has consistent power, and that you're not creating any safety hazards for students. Plus, ensure there's enough airflow. Excessive heat can cause sensitive electronics to perform inadequately or even fail. And what about lighting? If the signage is in areas with a lot of sunlight, such as school lobbies, you may need panels with suitable coatings, the kind that reduce the amount of reflective light. And along with the ambient light, determine how much ambient noise is present if you want audio. You may have to use larger speakers, at different angles. Don't forget to take into account the size of your audience. Plasma screens with wider viewing angles may serve you better than LCDs in certain spaces. Examining traffic patterns in corridors and campus thoroughfares at different times of the day will also help you determine optimal screen placement.

Ensuring that you have the necessary connections.

Extension technologies enable you to use existing non-network copper infrastructure, LAN cabling, and RF coax runs to distribute your digital signage video and audio, which can be a cost- and time-saver for all involved. These are very helpful for school buildings where adding wiring isn't feasible. If you plan to use a VPN over broadband link, verify that your ISP can support your needs. Many providers limit the amount of bandwidth that customers can use. If this happens, your Web-routed content may be unable to stream content to digital signage nodes at the edge of your applications. Even if you don't use the Internet, keep in mind that the larger the files, the more bandwidth you'll need. Large files can cause bottlenecks on a school's network and if not provisioned for appropriately, can lead to downtime or slow-loading education-related applications.

Evaluating and planning content.

When it comes to content creation, you can create the content internally using your own resources and staff, outsource the content creation to an agency skilled in creating displays for educators, or do some of both. You need to consider a number of factors to determine the best approach for your needs, goals, and budget. The good news is that many of today's digital signage players come with a wide selection of templates and user-friendly design tools that make in-house content creation a viable, affordable option.

The first step in planning content is to outline what you want to display, how you want to display it, and how often you want to change it. Do you want to show live streaming video, along with RSS news feeds? Do you want to deliver messages according to a playlist? With digital signage almost anything is possible. You have a number of options and nearly endless presentation opportunities, including HTML and Flash animation. You can display the same content at multiple screens or you can display unique content at each individual screen. You can even schedule the content to change at regular intervals based on your desired messaging or campus audiences. You can also incorporate multiple messages on the same screen. Some zones can change while others remain fixed. One zone might show streaming video while another shows the local weather update. Still another area might show a changing school menu, list of athletic events, or schedule of club meetings. It's up to you.

The roadmap to digital signage

Begin by asking seven basic questions (in box at right) that will quickly help you identify the right system and infrastructure for your needs.

Question 4 is an important one if your school is experiencing shrinking enrollment, which may necessitate staff cuts later. Administrators often expect internal staff to manage the content, so the system has to offer relative ease of use and shouldn't necessitate repeated calls for outside help. Simultaneously, you might want a player system that gives staff the ability to customize screens to their specific departments. But with their heavier workloads, will they have the time or inclination to take on this extra responsibility and keep up with it?

After considering the basic questions, see our more advanced checklist of questions in the chart below. It cross-references the questions in detail and suggests the appropriate digital signage system based on your answers. Once you have determined a system that you believe will work well, check out our detailed descriptions of each system, along with commentaries from Black Box digital signage experts beginning on page 13.

Identify the right system for your needs

1. What type of content do you want to display (e.g., static images, video, RSS feeds, live TV, etc.)?
2. How many locations and displays do you want to run the content on?
3. Will the content be the same on each screen or do you want to show different content on different screens?
4. How do you want to manage content and be able to update it? Centrally? Locally (ad-hoc) at the screen? Which department will be responsible for the sourcing of content and the actual uploads?
5. Do you want to remotely control the on/off and volume functionality of the screen or confirm when content is played?
6. Based on display locations, will you have potential security issues? (Can someone simply turn off the display, change channels, or even tamper with or remove the player?)
7. Do you have the network bandwidth that can support the added traffic for digital signage multimedia?

Questions to consider when choosing a digital signage system

	Ultra-Affordable \$	Moderate \$\$	Moderate (w/TV capability) \$\$\$	Advanced \$\$\$\$
What do you want to display?				
Static content?	•	•	•	•
Static content with a couple of photos?	•	•	•	•
Static content and streaming video?		•	•	•
Static content, streaming video, and an RSS feed?		•	•	•
School-wide info, static content, streaming video, and an RSS feed?		•	•	•
School-wide info, static content, streaming video, video (TV), and an RSS feed?			•	•
Control your screens from a remote player?		•	•	•
How many locations and displays do you want the content to run on?				
Content on one screen?	•	•	•	•
Content on multiple screens at one location?		•	•	•
Content on multiple screens at multiple locations at one site?		•	•	•
Content on multiple screens at multiple locations at more than one site?				•
Play different content at multiple locations?				•
How do you want to manage your content?				
Real-time remote player static check?		•	•	•
System log and content reporting?		•	•	•
Remote-control features to poll the detailed player status, screen controls, volume controls, reboot players, and software upgrades?				•
Real-time alerts?				•
Do you want to confirm what content is played?				
Will you need a reporting matrix?				•

Know your options

When it comes to deploying digital signage, schools have an almost unlimited amount of options. We've organized them into four major categories to help you select the most appropriate system to support your objectives, application, and budget:

- **Ultra-affordable:** Single-screen/single-zone/single-room display
- **Moderate:** Multiple-screen/multiple-zone/multiple-room display—same content on all screens
- **Moderate with TV capability:** Multiple-screen/multiple-zone/multiple-room display with live TV—same content on all screens
- **Advanced:** Multiple-screen/multiple-zone/multiple-room display with extensive functionality, such as individual screen messaging (may or may not include live TV tuner capability)

The solutions

NOTE: Estimated prices for solutions include a 42-inch LCD screen, player, and digital signage software. Prices can vary depending on a number of factors.

Ultra-affordable (\$3500 to \$5000) — \$

Single-screen/single-zone/single-room display

This category represents the “down-and-dirty” solution — one screen, one media player, and one USB or flash drive. This type of solution is not networked; instead, staff members in a particular building or classroom transfer new content to screens by inserting USB or flash drives into media players on-site.

“This type of solution is ideal for a lobby, behind the desk in the main office, or outside a gym or auditorium. It’s a relatively low-cost method of creating and displaying messaging,” says Brian Kutchma, Black Box Director of Marketing. “It’s a great way for smaller schools with a limited budget to capitalize on some of the benefits of digital signage. With a plug-and-play AC power outlet media player, an LCD or a plasma screen, and a little effort to learn some out-of-the-box software, you can easily implement digital signage.”

There are no instant-messaging capabilities, and the screen must be turned on and off manually. This system provides a single-zone (PowerPoint® like) presentation with looped content. On more advanced systems, you can display one message or incorporate multiple messages on the same screen. Typically, that’s not the case with these entry-level type players.

But the single zone look may actually work to your advantage if the signage is an area with a lot of foot traffic—an area where people are unlikely to stop and take the time to peruse a screen streaming a mix of content fields. If there’s one message you want to get out at any given time—“Wear your school colors today!” “Track meet is cancelled,” “Fraternity meetings tomorrow” —then the single-image screen approach may be best.

Kutchma recommends coming up with a content strategy early in the process. “The most challenging part of any signage system is the content. It’s critical that anyone considering signage has a plan in mind and the resources in place to create and manage the content.”

School districts and colleges using ultra-affordable solutions like this one usually have a one-screen deployment, so changing content and turning the screen on and off manually isn’t an issue. Also, users usually like the plug-and-play ease of this kind of system.

Best areas for use: High school and departmental offices, lobbies, cafeteria food-service lines, libraries, faculty break areas.

Content-delivery method: Removable storage devices: USB drives, compact flash, SD memory cards.

Pros: Low-cost, easy-to-manage solution for one-screen deployments and single locations; plug-and-play operation.

Cons: Low flexibility. Content must be manually changed through removable storage devices. Content is displayed in a single-zone, looped play with no instant-messaging capability. Screens must be manually turned on and off. Lack of scalability.



The solutions (continued)

Moderate (\$4500 to \$7000) — \$\$

Multiple-screen/multiple-zone/multiple-room display—same content on all screens

The biggest differences between the moderate and ultra-affordable systems are that with moderate systems, you can display more than one area (zone) of content within a presentation and the same content can be seen on multiple screens in multiple rooms at a single site. What's more, the players are often network enabled and support streaming of video (not just from a file loaded onto a storage device). Plus, you typically have the ability to stream live Web feeds as a standard feature.

A zone is an on-screen area (measured by pixels or as a percentage of entire screen) that shows content from its own playlist. Because moderate-priced systems support multizone presentations, you can play different media in different screen areas. Some zones can change while other areas remain fixed. The zones may or may not be resized or moved to a different location on the screen. In most cases, each zone can be managed individually so you can dynamically change the content as needed. One zone might show video, while another shows the local weather forecast. Still another area might show a changing menu or schedule. It's all up to you.

Because this type of system also supports multiple screens, it's great for broadcasting information to different areas of your building or campus. Plus, because it can be installed on a network, you can control multiple screens from a central PC. This control can be in real time and include instant-messaging capability. Some systems also give the administrator the ability to turn the screens on and off. In addition, screens can also be controlled remotely with a browser and an IP address for additional flexibility for the administrator who has to be away from his or her command station throughout the day.

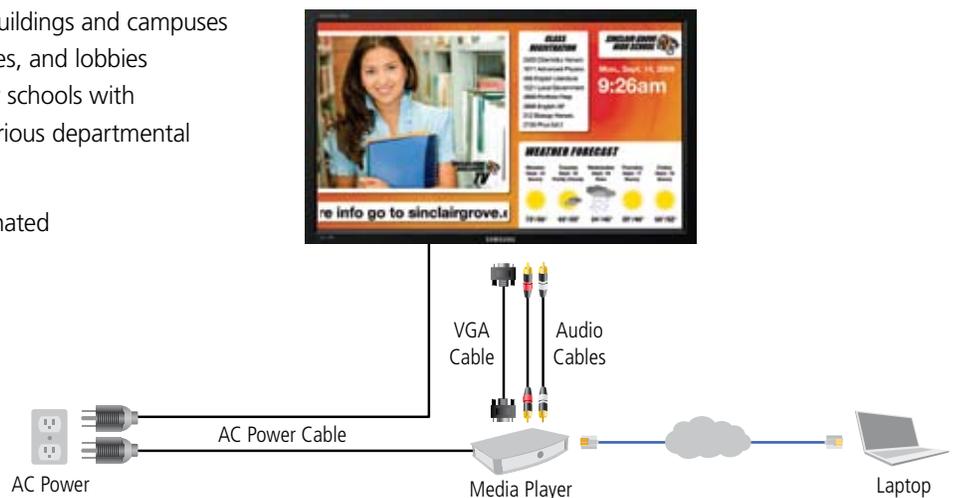
These systems frequently include a tool for aggregating RSS feeds, so you can automate the distribution of Web-based info, such as live CNN news or weather service bulletins, as video crawls. This is a time-saver because the administrator no longer has to constantly gather Web content, worry as much about inappropriate subject matter streaming accidentally, or write any extra code. These feeds can also be from internally created Web sites, from teacher blogs and departmental sites, for instance. Still, because it requires an Internet connection, you have to have adequate bandwidth, and initial and ongoing IT support, as well as deal with permissions, access, and admin rights.

Best areas for use: Small to midsize school buildings and campuses with multiple entrance points, food-service lines, and lobbies where students and the public gather; also for schools with a building-wide network infrastructure and various departmental Web sites.

Content-delivery method: Existing or designated network infrastructure.

Pros: Multiple screens can be controlled via the network connection; content and screen operations can be updated remotely from a central PC; enables RSS feeds and other real-time content from the Internet, including streaming video.

Cons: Adding an IP connection means IT involvement; advanced software may require additional training; potential bandwidth and network maintenance issues, as well as the increased content "gatekeeper" role of the administrator.



The solutions (continued)

Moderate with TV capability (\$5500 to \$8000) — \$\$\$

Multiple-screen/multiple-zone/multiple-room display with live TV capabilities—same content on all screens

This system is very similar to the moderate system, except it gives users the ability to integrate live TV into the digital signage content. This is done via a TV tuner or capture card on the player. It picks up signals much like the tuners on newer HDTVs. This is useful if you don't readily have the ability to update content. In lieu of this content, displays can show programming from acceptable sources—local community channels or a university's TV channel, for example. It's also nice for situations when you need up-to-the-minute information, like updates from the Weather Channel or bulletins from the Emergency Alert System (EAS).

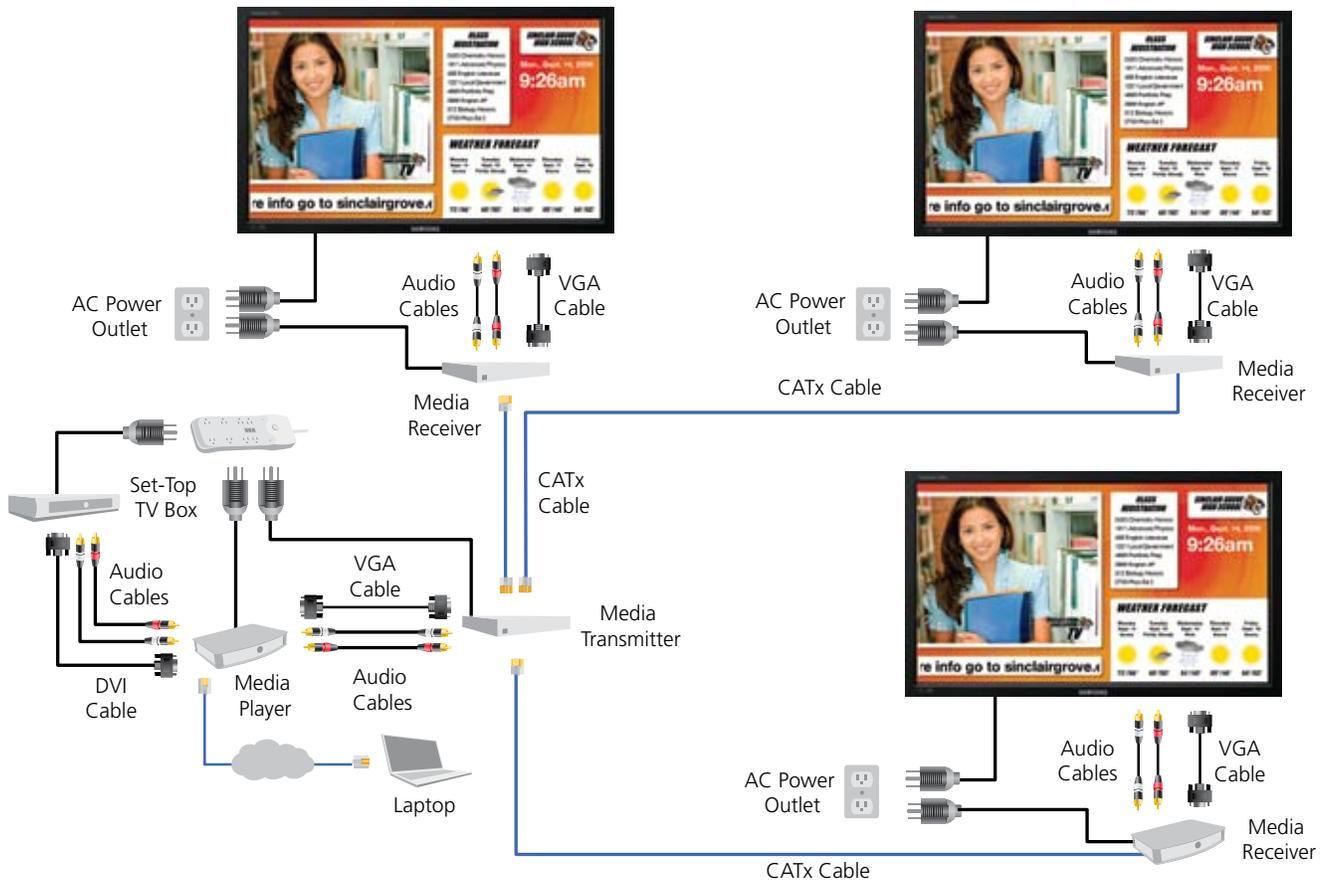
Typically, when reaching the moderate and TV-tuner level, you use a higher level of digital signage software. Higher-end software not only enables you to create multiple content zones on the screen, but to also easily schedule content for each zone (so you can schedule content for the day, week, or month by zone) and better control elements on the TV feed, as well as content override features for interrupting routine content streaming with emergency alerts programmed from a remote location.

Best areas for use: Same as areas listed on previous page; but because of TV input, can be useful in school cafeterias or any room for extracurricular events, faculty break rooms, and school TV studios and media production departments.

Content-delivery method: Network infrastructure, satellite feeds, cable television.

Pros: Provides live TV feeds to complement on-screen content; can provide instant messaging and emergency notification; usually includes more content-management capabilities and functionality.

Cons: Maintenance of a satellite or TV feed and IP connection; more advanced software training required; potential bandwidth and network maintenance issues; additional ongoing maintenance and software licensing costs.



The solutions (continued)

Advanced (\$8000 and up) — \$\$\$\$

Multiple-screen/multiple-zone/multiple-room display with extensive functionality, such as individual screen messaging

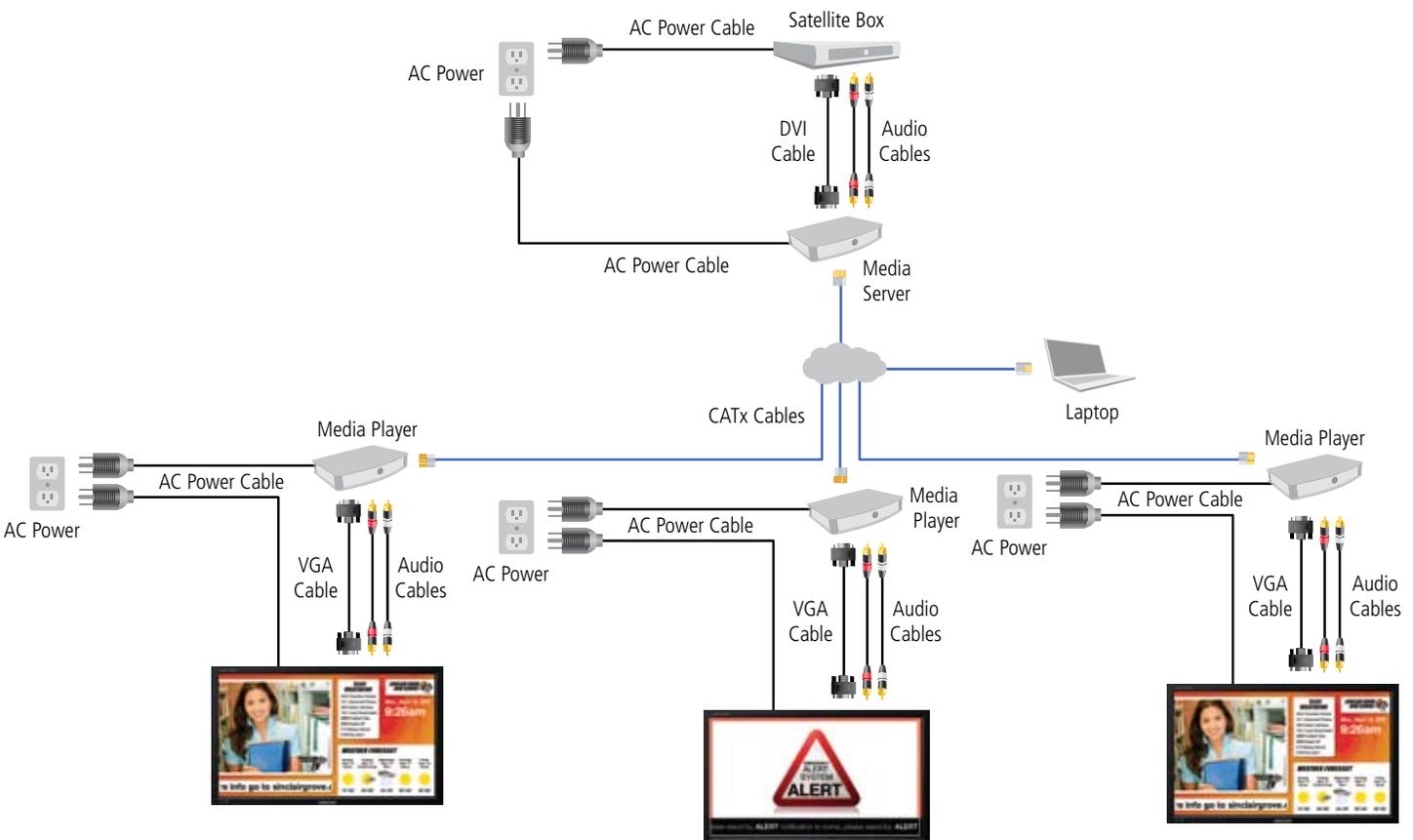
Advanced digital signage systems can deliver the ultimate in management, control, and functionality for K–12 and higher-ed institutions. These state-of-the-art systems feature heavy-duty processors for playing bulky media files and streaming seamless video in higher resolutions. They're fully networked, large-scale solutions that are designed for scalable, multiscreen, and even multilocation deployments.

These types of systems are well-suited for large school districts and colleges with many buildings in different locations, specifically institutions that need to be able to display a wide range of bandwidth-heavy media and stream (or narrowcast) unique content to the individual screens based on location and time of day, *and* be able to verify layout on those screens.

"This stage adds a video server residing on the network, which means you can add live video through the use of connected cameras as well as streaming and stored video capability," says Keith Kazmer, Black Box Multimedia Products Manager.

The price of these systems is really infinite, as you have the ability to add as many screens as possible. But once you go into multiple locations, you want immediate central management capabilities.

"Once you get into more sophisticated systems, you want play logs for advertising, etc., but most of all, you want the remote-management capabilities to know if screens are on, if the media delivery system is working, and if the content is being displayed," Kutchma said. "You also want the full capability of making real-time changes to react to last-minute district-wide decisions, athletic event cancellations, changes in bus schedules, or other events. Literally within seconds, changes can be made, deployed, and seen in one location or over the entire network in many locations."



The solutions (continued)

Advanced (\$8000 and up) — \$\$\$\$ (continued)

Many school campuses have implemented digital signage as part of their emergency-notification system with override messaging that can be activated remotely if there's a school crisis. If a crisis occurs, administrators or security personnel can issue evacuation notices or lockdown alerts in real time from wherever they are using a browser-enabled smartphone or cellular paging.

Some top-of-the-line systems can even be integrated into larger digital media systems, including those used for classroom desktop video, interactive whiteboarding, and campus broadcast TV production, as well as CCTV video surveillance platforms.

Obviously, the more complex the network, the higher the initial and ongoing cost of ownership. You will also need to consider ongoing costs, such as licensing fees, maintenance fees, software upgrade fees, and additional system training. The actual cost per screen and total cost of ownership can vary greatly, but the general rule of thumb is that cost per screen decreases as the number of screens increases. The good news is: As more suppliers enter the market, equipment costs are coming down.

"Today, just about anything is possible with digital signage. It really comes down to what you want to do today, what your school's vision is for the future, and the investment you are prepared to make," Kutchma said.

Best areas for use: Anywhere students, staff, and visitors congregate; entrance points, stadiums, and parking lots where directional guidance (wayfinding) can be helpful for getting from one place to another; well-suited for larger school districts, colleges, and universities with widely distributed buildings, including those where separate channels of content (logos and information specific to school and grade level) are managed by personnel in different locations.

Content-delivery method: Network infrastructure, satellite, cable, cellular.

Pros: Highly scalable—network has the potential to grow as big as it needs to be; can provide extensive features, including live videoconferencing, dynamic content delivery, extensive management, monitoring and control; most systems include extensive and customizable reporting.

Cons: High startup costs; ongoing licensing, training, and upgrades; usually will require dedicated personnel; generating content and keeping it current may require a heavy buy-in from different departments; may require coordination from staff not accustomed to receiving creative and editorial contributions from others; if content originates from various sources, quality control and accountability can be challenges, too.

Conclusion

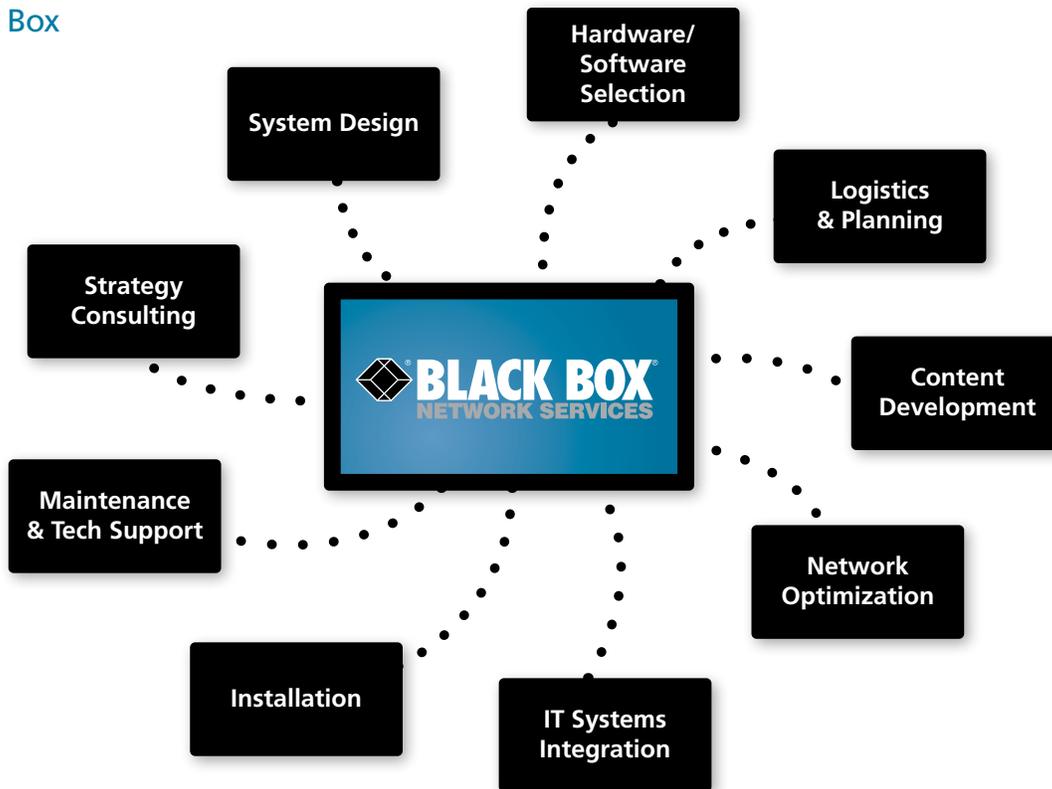
If you are considering digital signage, start by developing a plan like the ones outlined here. For small-scale deployments, consider an out-of-the-box solution. For a relatively small investment, you can implement a very good system.

If you're considering a larger deployment with a fully integrated network solution, enlist the help of a seasoned digital signage professional. Extensive negotiations, including a number of RFPs and RFQs, may be necessary to specify and negotiate the price of the system for your needs. Pay attention to any Software as a Service (SaaS) fees outside of hardware and labor expenses.

Plus, be sure it's adaptable for the future. You don't want to have to go before your administrator or school board several years from now and tell them that the technology you recommended earlier is obsolete or can't be scaled to meet future needs. Similarly, you and others in your school will want to extensively test drive the system or sit in on in-depth product demos before negotiating price.

Also nail down support costs and the availability of technical support after hours, and make sure the vendor's business is stable enough to support you long term—and not be limited to the AV type components. New companies have entered the burgeoning digital signage marketplace. Many have a lot of experience installing audio and video system components—they know the electronics and how to wire them for optimum viewing—but they're not IT or data networking pros. Providing a totally integrated solution and supporting that system over the long haul may be beyond their technical expertise. Check their credentials and involve your IT department in the system-evaluation process.

About Black Box



No one is better suited to bring you the Total Digital Signage Solution than Black Box Network Services.

Your total provider no matter:

- » Where you are at in the deployment cycle.
- » What your level of technical or creative expertise is.
- » The size of your school district or college — and your budget.

Black Box Network Services is a leading digital signage and multimedia solutions provider, serving 175,000 clients in 141 countries with 194 offices throughout the world. The Black Box catalog and Web site offer more than 118,000 products including digital signage platforms for plug-and-play implementation of high-impact digital signage in large or small education applications.

The company's premier digital signage offering, iCOMPEL™, is an all-in-one, integrated hardware/software solution that gives schools and government institutions an affordable, easy way to set up high-impact digital signage without any ongoing licenses or fees. More information is available at <http://www.blackbox.com/go/iCOMPEL>.

Black Box also offers LCD and plasma screens, assorted audio and video extenders, splitters, switches, and converters, as well as cabinets, racks, cables, connectors, and other video, audio, and data infrastructure products. To view Black Box's comprehensive digital signage offering, view our interactive e-catalog at <http://blackbox.movadamedia.com/digitalsignage/page.aspx?id=1>

Black Box is also known as the world's largest technical services company dedicated to designing, building, and maintaining today's complicated data and voice infrastructure systems.