

A guide from DigitalSignageToday.com

Healthcare

Digital Displays in Hospitals, Clinics, Doctors' Offices and Nursing Homes



INSIDE: Digital signage is rapidly infiltrating a host of industries across a range of disciplines. Among them is the healthcare industry. But what can digital displays do for doctors, nurses, hospital staff and, ultimately, patients? The answer is quite a bit. Digital signage can bring the physician and the patient together in a way that other communications tools never could. To find out more, look inside.

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About the sponsors

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NEC Display Solutions innovates, produces and delivers display products and complete digital signage solutions for a wide range of vertical businesses, specialists and lifestyle applications. The company is wholly owned by NEC Corporation, one of the world's leading providers of Internet, broadband-network and enterprise business solutions, employing more than 150,000 people.

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Introduction

A new tool in the bag ...

Stethoscopes. X-ray machines. Tongue depressors. Heart monitors. Treadmills. Cotton balls. Medical gauze. Syringes. Blood pressure monitors.

These are the tools of the healthcare profession. For some, they might inspire feelings of dread — most likely all of us have spent time in the doctor's office or the hospital, and while the staff may have been pleasant and professional, the visit probably didn't nudge being on a Caribbean cruise out of our list of top-10 most pleasurable experiences.

But regardless of the emotional responses these items dredge up, most patients would be comforted to know that their physician is equipped with the latest and greatest in medical technology. Case in point: An EKG machine may cause a shudder in the faint-hearted, but at least it demonstrates that the practice is keeping up with the times.

But digital signage?

You wouldn't expect a doctor to pull an LCD or plasma screen out of his or her bag, but don't be too quick to dismiss the idea — many doctors' offices, hospitals and nursing homes are quickly

discovering that digital signage can revolutionize the way they communicate with their patients. The advantages become clear as soon as you delve into the details: digital signage is visually dynamic and engaging. It's flexible. Content can be changed or updated at a moment's notice. Best of all, it is one of the most effective means of communicating information to the viewer.

But this is a hospital, not a retailer. Hospitals aren't about beaming ads to unsuspecting viewers and trying to sell them products. Healthcare isn't about advertising at all — it's about healing people. And healthcare professionals don't serve consumers. They serve patients.

Right?

Spot on. But digital signage does far more than communicate advertising. It educates. It can tell — or rather, show — the confused patient suffering from supraventricular tachycardia what to expect when he undergoes a heart ablation. It can soothe the nerves of the anxious little girl suffering from tonsillitis



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by providing her with something to look at while she sits in the children's hospital emergency room with her mom (because as most parents know, sometimes that three-month-old copy of Sesame Street magazine doesn't cut it). Touchscreen displays even can be used to help the patient find her way to the maternity floor or to speed up the hospital check-in process.

Digital signage is a relatively new technology, and various industries themselves are still scrambling to discover how it can best be put to use in their communications strategies. The companies and organizations that move first will be the ones on the cutting edge. The healthcare industry is only now discovering the many benefits digital signage has to offer. Demonstrating these benefits is what this guide is about.

We'd like to thank NEC Display Solutions, the sponsor of this guide.

Chapter 1 An overview of digital signage

In a world where sales of flatscreen monitors are quickly beginning to eclipse sales for conventional cathode-ray-tube (CRT) — the de facto standard for visual communication thus far — it can sometimes be difficult to pinpoint the definition of digital signage.

A flatscreen on top of a gas pump running advertisements? Yes.

A flatscreen in a home used to watch television programming? No.

A flatscreen in a hospital waiting room displaying live television? Maybe.

Clearly, the lines are blurred, but this definition seems to encompass the generalities of digital signage: Digital signage is any form of business communication where a dynamic messaging device is used to take the place of or supplement other forms of messaging.

Cost/benefit analysis

Until very recently, the idea of deploying a flatscreen, much less a network of many flatscreens, simply wasn't viable or cost-effective. Screens were too expensive, too big and they wore out too quickly. The meager ROI gained in the venture just wouldn't justify the time and expense.

But the LCD/plasma revolution changed, and is still changing, all of that. Screens are now so affordable they can rival the printing costs of static posters; they are

Digital signage is any form of business communication where a dynamic messaging device is used to take the place of, or supplement, other forms of messaging.

thin and can hang on a wall (which means no more CRT monitors hanging from the ceiling on sketchy mounts); they can communicate with computer networks and fetch new content, eliminating the days of employees trotting from screen to screen with armloads of VCR tapes.

How it affects the business process

Some of the ways digital signage is being used today include:

- In airports and bus stations, keeping travelers up to date on arrival and departure times, while also providing an advertising vehicle for shops and restaurants;
- In retail, communicating with customers about in-store specials, directing customers to other parts of the store, managing traffic and hotspots, and conveying brand messages;
- In banks, displaying interest rates and product information, as well as lifestyle messages and branding;

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- In casinos and entertainment venues, creating a customer experience that is consistent with the ambiance and atmosphere of excitement;
- In doctors' offices and waiting rooms, providing entertainment to patients while giving an ad vehicle to pharmaceutical companies and other providers;
- In schools and on corporate campuses, facilitating a level of communication between parties that would have been unthinkable just a few years ago.

The list goes on and grows every day. Virtually any place where signage is located — bus shelters and payphone booths, shopping malls, the tops of gas pumps — has the potential to improve its worth with an upgrade to digital, dynamic messaging.

Despite all the progress that has been made, digital signage is still a very complex proposition for the company installing it. Mike White, president of systems integration firm Multi-Media Solutions, called digital signage “one of the toughest A/V installs in the world.”

Why is it so challenging?

On the surface, its definition might make digital signage seem like simplicity itself. After all, almost everyone has a television set in his home, and in most cases, that set was installed by the person who



Digital signage is used in retail stores to provide helpful information, communicate with customers about in-store specials and convey brand messages.

bought it. Take it home, plug it in, turn it on — that's all there is to it, right?

In the case of televisions and homes, yes, that usually is all there is to it, although even this is changing as the evolving nature of home theater becomes more complex. But dynamic signage in the business environment is exponentially more complicated, for a number of reasons:

- The content strategy usually needs to be tackled from scratch. Digital signage content has a completely new set of requirements; existing media assets often provide a good

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starting point, but none of them can be reused outright.

- Content needs will vary across the enterprise. In all but the simplest digital signage deployments, multiple screen sizes and orientations are used, and a 32" screen in landscape mode calls for very different content than a 46" screen in portrait. The greater the number of screens in the network, the greater the organizational challenge for content.
- Multiple networks might be involved. The most beneficial digital signage products touch one or more networks. At retail, for instance, the signage network might be designed to communicate with the POS network, to gauge content effectiveness versus sales. But getting any two (or more) networks to communicate is an IT challenge, and it increases with the number of networks and nodes involved.
- Very different business disciplines are at work. Digital signage appears on the surface to be an IT project. And yet it is also a marketing initiative. The rub? It's both, and calls for some real teamwork and sharing of duties.

Content delivery: wired vs. wireless

One of the major decisions that digital signage deployers are faced with has

to do with connectivity. How are all the screens in the network going to be connected?

A popular choice to date has been to use a hard-wired intranet system similar to a local area network (LAN) in an office. All screens are connected using CAT5 Ethernet cables and have access to the Internet. Some screens can also lose the wires and be connected using Wi-Fi wireless connections.

But there is a new movement in this space that may prove especially effective for digital signage deployments in the transportation sector. Cellular digital signage allows screens to be connected to a network, even when placed at long distances. Unlike Wi-Fi, the connection is made through frequencies that cell phones use.

"A cellular-based network provides all of the advantages of Ethernet and Wi-Fi without getting tangled up in complicated infrastructure," said Keith Kelsen, CEO of worldwide marketing for MediaTile Company. "There are no cables. There are no hubs and servers. We not only believe it's the best option — we think that any solution that offers zero in-store or on-site wireless technology is the only option and the real future of connectivity."

For more information on cellular digital signage solutions, see the guide "How to Network Digital Signs with Cellular Technology on DigitalSignageToday.com."

Unique features of digital signage networks

Place is known. Because the location of any display will be known, this information can be used to make the content more appropriate to the place. If a display is located near one particular product, the content on the display can be crafted strategically with this in mind. For example, the content could promote that product, or promote its benefits, or create an appropriate mindset (ambiance, reminder) or to promote a complementary product or service available elsewhere. Another aspect of “place” that is quite relevant is the fact that often a display is near the point of purchase. A great deal of research has shown that advertisements near the point of purchase are far more effective. Although the size of this effect and the explanation for why it happens are both controversial, it is clear that point-of-purchase information has a massive impact on behavior.

Time is known. Because a digital signage network is controlled by a computer system, content is “served” as a function of time of day. For example, content aimed at business travelers might be shown at an airport on Monday mornings and family-aimed content might be shown Friday afternoons.

Events are known. Information related to the fusion of time and place also can be known. For example, current weather conditions can be known. The traffic flow can be known. The specifics of an event can be known (concert, sale, flight delay). Such information – and its use – is limited only by the creativity of the digital signage network designers.

Audience is known. Because time and place are known, audience demographic and psychographic information can be well specified. This allows for highly relevant “narrowcasting” that should speak directly to the audience at that moment.

Content is dynamic. Having dynamic, digital content has numerous advantages over other forms of advertising. Compared to print, the content creation/distribution process is more rapid and less costly. Also, the content can be customized and tailored “on the fly” to each display device separately. Finally, the medium allows for animation and, in the case of kiosks, interactive opportunities.

(Excerpted from “Digital Signage Networks: Theory, Psychology and Strategy” by Pixel Inspiration Ltd., reprinted with kind permission.)

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For the purposes of this guide, the term “healthcare facility” will refer to any facility or office where healthcare diagnosis or treatment is sought, including doctors’ offices, specialists’ offices, hospitals, nursing homes, dental offices and similar establishments.

So why should a doctor, dentist or hospital administrator consider deploying digital signage in his facility? What purposes could the signage serve? How could such signage help the patients? How could it help the healthcare provider? What are the pros and cons?

“Digital signage is considered one of the most effective communications tools due to the dynamic nature of the screen content changing from image to image, versus the use of static signage,” said Mike Zmuda, director of business development for NEC Display Solutions. “Because of these benefits, digital signage can offer healthcare facilities wayfinding information for patients and visitors, patrons of the hospital cafeteria in the form of digital menu boards, or in the hospital retail store, advertising products and services.”

The words “can offer” are key. A facility that deploys a digital signage system that provides no valued service to the viewer won’t be seen as progressive or cutting edge. That form of digital signage is just window dressing. Instead, wise healthcare providers will recognize a specific communications need and

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NEC Display Solutions

determine how digital signage can fill it.

What are the benefits of digital signage to all involved in the healthcare process? To open the discussion, it helps to divide these benefits into two categories: the value proposition for the patient and the value proposition for the healthcare provider.

Value proposition for the patient

Understanding the needs of the patient means understanding who the patient is and what issues the patient is dealing with. In a sense, one has to get inside the patient’s head.

So who is the patient?

Put simply, the patient is someone coming to the healthcare provider because he needs healthcare. There is some sort of ailment — usually physical — that is plaguing him and he generally wants to be diagnosed, treated and cured. A large number of patients might be dealing with anxiety. Many will be worried about their condition. Others will be suffering from

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mild or intense pain. Even patients who have already been diagnosed may still be unclear on the nature of the disease they're suffering from — for as every physician knows, the field of medicine can be confusing to the layman.

On top of all that, the patient is often in an unfamiliar setting. In the case of a hospital, that setting may consist of several floors, each with its own separate departments.

Based on this brief description, we can determine that the patient has three significant needs: 1) to be informed, 2) to be put at ease and 3) the ability to properly navigate the facility.

Digital signage can help with all of these.

The waiting game

Anyone who has ever sat in a doctor's office lobby or hospital emergency room knows that time slows down when one is waiting for an appointment or an update on a loved one.

"Healthcare is notorious for having you sit in different waiting rooms and look at six-month-old magazines," explains Ryan Cahoy, vice president of sales and marketing for Shawnee, Kan.-based Rise Vision. "Digital signage can provide something that will help alleviate that perceived wait time. While you're sitting there, you can see the latest news, weather and sports scores."

Industry experts see that sort of entertaining content as a means of soothing the patients in the lobby. Instead of leaving them alone with their fears, the digital sign acts as a sort of companion, helping them to think of more light-hearted subjects, such as the latest football scores, celebrity gossip or this morning's space-shuttle launch.

"The advantage of being able to use a digital signage system is that you can still show entertainment content," says Bill Gerba, CEO of Fort Lauderdale, Fla.-based Wirespring Technologies Inc. "You can even show regular television if you want to. So you're giving the patient



Waiting to see the doctor can feel tedious, but digital signage can make it more entertaining.

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something to take their attention away from what's going on. But at the same time, you have a lot more control than you do if you just put a TV on. You can plan what content you want to show, far in advance. You can decide if you want to alternate between CNN news during times when there are a lot of adults around or automatically changing the channel to PBS or Sesame Street or Nickelodeon when kids are there.”

A fountain of information

But digital signage is more than just an attractive outlet for entertaining programming. In some circumstances, it can help to pass the time by informing patients about important new medicines or procedures. This can have a dual benefit to both the patient and the provider. On one hand, the patient's perceived wait time is again shortened.

“For example, if you are in the waiting area of a dermatology clinic, you can show information about a lot of the more popular procedures that people might not know about, both as a way of keeping them busy and entertained while they're waiting around but also as a way of promoting the actual products that the hospital is selling,” Gerba explains. “It can be things like cosmetic surgery, it can be things like vision correction or laser hair removal. They get into all sorts of elective procedures and alternative procedures for common things that are sometimes hard to advertise because

you don't know when you have the right audience sitting in front of you. That's not really a problem when you're in a healthcare facility.”

Even more important for patients, digital signage can help educate them about a specific condition. This can be done in the lobby — or in a more private location, if desired — through a series of interactive touchscreens.

“There is a lot of angst about physical conditions such as heart disease. So if you can put some educational materials there to help explain procedures and different things they're going to see, it can go a very long way,” said Scott Koller, executive vice president of sales and marketing for Minneapolis, Minn.-based Wireless Ronin Technologies Inc. “You can alleviate some of the anxiety they might have about undergoing a procedure such as a CAT scan or an MRI.”

A window to the operating room

The Cincinnati Children's Hospital Medical Center, a long-time client of NEC Display Solutions, has found a way to use digital signage to keep families of surgery patients up to date on their conditions.

Scott Gueterman, an applications specialist for the center, says in order to respect the patient's privacy, the screens do not list names, but assign codes to identify each individual child.

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“They [parents] can watch the status of the progress that’s being made as [the child] is brought into the preoperative area and then into the operating room, and then when they’re done, in post-op,” Gueterman said. “It will let them know the progress of the surgery. So they’ll know — in the waiting room — when the patient has been moved out of the operating room and into recovery.”

Gueterman says it’s comforting for families to be able to receive that continuous update.

“The whole idea is that it improves the healthcare services being provided to the patient and the families,” he said.

Wayfinding

Digital touchscreen displays can play another vital role in healthcare facilities: that of the interactive map, helping confused patients get from point A to point B quickly.

“You look at these healthcare buildings — these hospitals — and they’re huge,” Cahoy said. “They’re a big maze of hallways. So someone can walk up to [a digital display], touch it and say ‘I’m here. Get me from point A to point B.’ That’s a really valuable asset, versus having them try to track down somebody who’s at an information desk or at another job to get directions from where they are to where they need to be.”

Speeding up the check-in process

If there’s one thing to count on — other than death and taxes — it’s that there will be paperwork to fill out when receiving any form of medical treatment.

The whole process can be a pain if the patient is working with a paper and pencil. That’s where digital signage can come into play. Digital technology — combined with interactive self-service kiosk technology — can be used to automate the check-in process.

The system would work something like this: A patient arrives at the hospital and makes his way to a check-in kiosk in the lobby. Using the interactive touchscreen on the digital display (or alternatively, a keyboard located on the front of the kiosk) he types in his name, address



Digital technology, combined with interactive self-service technology, can be used to automate and streamline the check-in process at a medical facility.

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and other relevant information, using the display as an interface to review the data. At the end of the process, the kiosk prints out a hospital ID bracelet.

“Checking in like that would serve two purposes,” said Gerba. “One, it would cut down on the amount of paper that’s flying around and potentially reduce the chance for error since you’re not re-entering every piece of information every time. But also it would get you into the system — some kind of computerized system that would be able to track how long you’ve been waiting there and at what stage of the process you’re at.”

Gerba also pointed out that an automated check-in procedure would benefit not only the patients, but the hospital as well.

“With HIPAA requirements and everything, a lot of hospitals are digitizing all of their records anyway,” he said.

“Digital signage setup in the patient check-in area can inform those waiting to have specific paperwork, identification and insurance cards ready for check-in,” Zmuda added. “At the same time, through a multiple-zone template, entertainment programming can run to help reduce perceived wait times, leading to a more positive experience.”

The value proposition for the provider

It’s clear by now that there are a host



Using digital rather than paper files in a medical office cuts down on the amount of paper that must be stored and reduces the potential for error.

of applications for digital signage in a healthcare setting, and that the presence of such technology is beneficial for patients in many respects. It can decrease their perceived wait time, speed up the check-in process, educate them about their condition, entertain them and make their stay at the facility more enjoyable overall.

But what of the staff of the facility itself? What are the advantages for them?

It is difficult to come up with a psychological profile of who the provider is (and consequently, what his needs are),

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because the provider can come in so many different forms. He may be a family physician operating a modest private practice out of a small suburban office, or he may be part of a major regional health network including 71 healthcare facilities with more than 1,900 licensed beds, more than 42,000 discharges and almost 100,000 emergency room visits annually.

The specific needs in both situations would be different, to be sure. But there are three things that every healthcare provider needs to have at his disposal: the ability to communicate with his staff, the ability to communicate with his patients and good branding.

All of these are areas in which digital signage excels.

Communication with staff

Communication with staff may not be a major issue for a dentist operating a tiny practice with only three assistants and a receptionist, but consider the example of the major healthcare network cited above. With thousands of employees spread across 71 healthcare facilities in the region, things can be complicated if the CEO wants to instantly get a message to all of his staff.

This is a core strength of digital signage. By deploying hundreds of integrated displays throughout all 71 facilities, a web of communication can effectively be

cast that will not only catch the eye of employees, but also can send content at a moment's notice. That content may be as simple as a brief series of PowerPoint slides or a real-time feed of the CEO's morning address, but as long as the displays are integrated on a powerful digital signage network, the message can be broadcast quickly and easily.

Gueterman says digital signage is extremely helpful in his medical center's operating room, where signage displays a continuously updated schedule matching times with room numbers, patient names and surgeon names.

"It updates like a flight schedule would update at an airport," he said. "As new information is input, it displays the latest status of what's going on. That got implemented and spread out through various parts of the hospital."

That information used to be kept on whiteboards, Gueterman says, but personnel were quick to see the benefits of replacing the whiteboards with digital displays.

"It used to be done manually," he said. "Nurses would have to come up and literally erase information and write it with a marker when new information was updated. So that's all been changed electronically. Now it can be done in one place and it updates and refreshes throughout the entire campus."

Anyone who has worked in a large cor-

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poration can easily see the benefits of such a powerful communication tool.

“You’ve got all these doctors and nurses and healthcare providers that aren’t sitting in front of a computer all day watching their e-mail or don’t have the ability to browse the internal site for news,” Cahoy said. “They’re constantly up. They’re moving. You can put digital signage up in the cafeterias, the break rooms, the high-visibility areas — as you’re passing elevators and that type of thing — to put out the latest announcement.”

The communications web can be used to educate employees — particularly new employees — on information that would play a significant role in their jobs, such as changes in corporate policies, new pharmaceuticals or the latest pronouncements from the Food and Drug Administration.

“I think that’s a good way of reinforcing the educational messages that you need to get across — especially if it’s something that the hospital wants to get across to all of its staff at the same time,” explains Tim Buchholz, senior vice president of corporate communications for Washington-based POPAI, The Global Association of Marketing at Retail. “Digital signage is good for that.”

Communication with patients

We’ve already seen how communication can benefit the patient by shortening per-



Digital signage can replace white boards to show scheduling information and keep physicians up to date on patient conditions.

ceived wait times and answering lingering questions that might have been causing undue anxiety. But how can the healthcare provider take advantage of this interaction with his valued clients? Is there anything he can gain from having a visually dynamic, real-time communication channel leading straight to his patients?

The answer is a resounding “Yes!” and it’s all because of two key words: advertising and branding.

Patients sitting in lobbies and waiting rooms are, by nature, a captive audience. They’re looking for something to entertain or inform them and will welcome it when they see it. Digital signage can be used to describe a new treatment, medication or hospital offering.

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A network of hospitals doesn't necessarily have to advertise only its own products and services. With digital displays strategically positioned at the point-of-service, hospitals have the opportunity to sell advertising space to outside vendors.

"If I'm in a thousand different hospitals, I have a very attractive network where I can go to pharmaceutical companies and say 'How would you like to advertise your new product in a thousand hospitals?'" Koller adds.

The brand's the thing

Branding is closely associated with advertising, but as any skilled marketer will tell you, they are not the same thing. Branding refers to the customer's (or in the case of the healthcare industry, the patient's) overall perception of the healthcare facility, practice or network. What does he think of when he sees a brand's logo? What does it stand for in his mind? Does he recognize it on sight? Does it bring back memories of smiling faces, pleasant interaction and great services or does the mere mention of the hospital's name dredge up a customer-service nightmare he's been trying to black out for years?

Good branding can be the highway to success, while a lousy brand perception can bury a brand. It's not always true that no press is bad press, as any medical supply distributor who has been sued for selling faulty products can attest. Players in the healthcare industry must strive to ensure that they maintain the highest brand perception possible.

So what does an up-to-date digital signage system say to a patient when he steps through the doors of a hospital?

"In my view, it says that this place is more technologically advanced and that they're on the leading edge of things, versus a place that may not have that kind of equipment," Fasick said. "You can maybe extrapolate it out to the point that this place probably has better equipment and more up-to-date doctors and people that are better trained."

The truth is, digital signage provides a wealth of opportunities for the creative marketer to get branding messages across to the patient. As Zmuda explains, the customizable nature of digital signage makes this easy.

"Digital signage systems typically include

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content-management software,” Zmuda said. “Content-management software allows one to set zones on the screen to serve up different types of content. For instance, one can set up a screen to have 2 to 3 zones by creating templates in the content-management software. Once completed, each zone can display different types of content, such as live television in zone 1; advertisements in zone 2; and news, weather and sports in zone 3. The size of the zones can vary in size. Through this common approach, one could schedule advertising and/or branding in zone 2.”

Cahoy said that might be as simple as placing a company logo in front of the patient in an almost subliminal fashion.

“Branding is all about keeping your name in front of your clientele,” Cahoy said. “If you’ve got an old TV there and it’s tuned to CNN, that does nothing for your brand. But if you’ve got a digital sign there, then maybe you can take that [feed] and put it in a window but you’ve got something as simple as your colors and your logo [surrounding it]. That would help to brand that identity into that consumer’s mind.”

He added that, with the increasing prevalence of so-called walk-in medical clinics where the patient is sometimes in and out in a matter of minutes, keeping your name in front of the patient (and therefore reinforcing the brand perception) becomes even more critical.

Gerba noted that some hospitals find ways to beam their brand perception straight into the patient’s hospital room via custom programming on the bedside televisions.

“You can turn on the TV at your bed and it will go to the hospital’s channel first,” Gerba explained. “Increasingly, those are taking on a digital signage-like aspect where instead of being a cheap-looking, text-only channel with the hospital’s hours and phone numbers or whatever, companies are going in and volunteering to put in digital signage equipment...that will drive a custom channel with content and with advertising for that specific hospital or a group of hospitals.”

Case study: Calgary Health Region makes room for NEC medical displays

Using medical displays that are both reliable and consistent is a necessity for healthcare professionals as they deal with serious conditions requiring detailed images every day. Calgary Health Region, one of the largest fully integrated, publicly-funded healthcare systems in Canada, serves a population of more than 1.2 million people and is home to some of the fastest-growing communities in the country. It reaches both urban and rural areas surrounding Calgary. Due to its increasing traffic thanks to the region's continued growth, Calgary Health needed medical displays its doctors could count on.

Calgary Health's four acute care facilities, which required new medical displays to replace aging ones, combine education and training with health services. Its 120 radiologists provide daily diagnostic examinations using a total of 75 workstations — each containing two side-by-side medical displays.

Calgary Health employs a total of 29,000 workers, including 2,300 physicians that provide services in more than 100 locations, involving 12 hospitals, four comprehensive health

centers, 41 care centers and a variety of community and continuing care sites.

The challenge

After dealing with aging medical displays and a variety of different models, Jack Berry, Diagnostic Imaging Technical Director at Calgary Health Region, decided to head up a quality control evaluation of the facilities' technology and standardize the displays being used. Berry created a blind test for the radiologists using a variety of manufacturers' displays side by side, demonstrating a replica of the workstation Calgary Health needed.

Going into the test, the radiologists knew they were looking for the display with superior image quality, enabling clear diagnostic viewing and consistency across the screen. Additionally, Berry needed a manufacturer that provided local support and servicing, and more specifically, a warranty that would allow units to be interchangeable and calibrated as individual units, rather than as the pair they would be at the workstations. After the radiologists' evaluation

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period, NEC's 21.3" MD21GS-3MP-CB2 medical display came out on top as their first pick.

The solution

Because NEC works closely with Calgary-area support center Acrodex, Berry was confident Calgary Health would receive total display maintenance care and ongoing support for the new displays. As is common for medical workstations, Calgary Health installed 150 monitors side by side, creating 75 workstations throughout the acute care facilities. The new monitors were intended solely for radiologists' diagnostic viewing and Picture Archiving and Communication System (PACS) since Calgary Health already had installed NEC desktop and large-format displays for other areas of its facilities, including its employee/student training rooms and patient emergency rooms.

"Since NEC was already incredibly prominent throughout our buildings, I knew their medical displays would be a good choice for our diagnostic professionals, especially after they picked NEC themselves during the blind testing," said Berry. "My primary requirements for the new medical displays included maintaining quality control, the ability for remote calibra-

tion allowing for easy accessibility and a display that would lower our total cost of ownership."

Berry successfully found a manufacturer who would cater to all necessary groups in direct contact with the displays: radiologists, who can confirm a display's advanced technologies and consistent image quality; the IT department, who can give credit to the system's ease of monitoring and the display's video cards; and finally PACS administrators, who can attest to the display's serviceability. Berry also knew the 3-megapixel displays were a perfect fit because of NEC's standard 3-year limited warranty on medical monitors, which includes Advanced Overnight Exchange for replacing a defective unit within one business day.

"We found everything we were searching for when we discovered NEC," said Berry. "Everyone who is involved with the updated workstations appreciates their ease of use and exceedingly advanced technologies. Based on our blind testing and the outcome of the installations, I can verify that the clarity found in these displays is superior. We certainly made the right decision in continuing the NEC trend by adding their displays to our medical workstations."

Chapter 3

The rules of good content

As any industry expert will tell you, a digital signage system — one that's properly configured — will always be designed in such a way that the message is the focal point. The signage is not there to wow the viewer with cutting edge technology. In fact, if the viewer walks away remembering the brilliant colors and sharp picture quality of the display instead of your message, you've failed.

“Simply put, good digital signage content is relevant for the audience and the environment and offers context based on what is going on at that particular time, in that particular city, in that particular healthcare facility,” said Mike Zmuda, director of business development, NEC Display Solutions.

Ryan Cahoy, vice president of sales and marketing for Shawnee, Kan.-based Rise Vision Inc., agreed.

“Everybody gets tied up in flexibility and whether they can do this or that,” Cahoy said. “As you're brainstorming and while you're purchasing, you always have the concern about getting too locked into something. But by the same token, if you get off into too many different tangents, you've now watered your system down from what your initial intent was. We spend a lot of time trying to help our clients keep it simple. Just because you can do many things with digital signage doesn't mean that you should do them or you need to do them. A lot of the most effective

“Good digital signage content is relevant for the audience and the environment and offers context.”

— Mike Zmuda, director of business development,
NEC Display Solutions

digital signage we've deployed is really simple with a very poignant message.”

“Feeding the beast”

One of the key advantages of digital signage over traditional print media is the fact that it is dynamic. Content can be changed at a moment's notice. Whereas banners and posters have a tendency to hang ineffectively for days or even weeks after their content has expired, digital signage can be updated quickly and remotely — at the click of a mouse.

Content can take many forms. It may appear as a series of PowerPoint slides that list upcoming events over the next few weeks. It may be a two-minute video explaining the symptoms of acid reflux disease and how to seek treatment. It can be a crawl of the latest headlines, a live feed from ESPN, a Flash animation, a series of still images or a combination of these. The visually dynamic nature of digital signage means that the possibilities for content are limitless.

With that in mind, it's somewhat surprising for industry experts like Scott Koller, executive vice president of sales and marketing for Minneapolis, Minn.-based

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Wireless Ronin Technologies Inc., when he sees digital displays that are still running outdated material.

“All they’ve done is turn the display into a digital poster,” Koller said, referring to the signage deployers. “To coin a phrase in the industry, they don’t feed the beast as often as they can — as often as they should.”

What “the beast” wants is fresh and up-to-date content. Why he doesn’t get it is anyone’s guess, according to Koller. And it’s not just static content that needs a reboot every now and then. Koller said the onus is on the deployer to also replace any full-motion video that might have gotten stale.

“It becomes wallpaper just like the posters do,” he says. “If I sit in the waiting room and come back six months later and the same ad is playing, you haven’t done anything to motivate me. It’s just like if you put your Web site out there and you don’t update it for a year. Sooner or later people stop coming to it because it’s not a benefit or informational enough.”

Set aside resources

One of the first things digital signage deployers need to understand is that good content requires a commitment.

“They’ve never thought about that,” said Jimmy Dun, vice president of business

development for Fremont, Calif.-based Dynasign Corp. “They’re very excited to put the screen there. Now after three months, what do they do? They’ve never thought of allocating a resource to plan the content. But it’s an ongoing proposition. You don’t do it on a one-shot deal — it’s a daily, weekly, monthly, yearly planning.”

There will also likely be an ongoing monetary investment involved. While some forms of content can be expensive, finding content that is both reliable and cost-effective shouldn’t be a difficulty.

“Sometimes when they go to their ad firm, the ad firm is charging as much as they would to create a TV spot to make these little 15-second ads to go on it,” Koller said. “It doesn’t have to be that complicated.”

What options are available? Obviously deployers can’t go to the “good content tree” and pluck a digital ad from its branches. So where does good content come from? There are a number of alternatives. Some healthcare providers (like hospitals) can hire an internal IT staff to create the content. If the notion of additional staff doesn’t appeal to the hospital administrator, then he or she may want to turn to an outside PR or marketing firm.

But a family physician who operates a small private practice may not like either of those options.

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“If you put five screens in one small medical office, and they’ve got to create the content, then they’ve got to hire five or six people, and this industry is never going to take off,” Dun said. “Managing the content, creating the content and planning the content is the most costly, resource-intensive [aspect] of maintaining a digital signage network.”

In this case, the physician may want to turn to the third option: hiring a digital-signage-solutions company. A digital-signage-solutions company is one that specializes in developing and providing regular digital signage content that is both compelling and cost-effective.

A wealth of content

A digital signage deployer must provide guidance for those creating the content for his deployment. What message or messages does he want to convey to patients? What does he want them to remember when they walk away from his displays? Who is he as a healthcare provider?

There’s nothing that tells this story better than the marketing materials a deployer already has in his possession. Logos, product sheets, brochures — any kind of advertising literature in his arsenal — will all be invaluable to the content developer who is attempting to get a feel for his business.

“We try to use a lot of their same creative

assets,” Cahoy said, speaking of his clients. “We start out with their branding guides: their colors, their logos, their fonts. From there, what do they have? What kind of videos for commercials? What kind of brochures? What kind of marketing images and files? We want to take them and adapt them for digital signage. In many cases, an ad that’s run in a newspaper isn’t conducive to digital signage, so it will need a bit of rework. But overall, it comes back to the key message health care providers want to promote, and what assets they have. If



Most healthcare entities already have a wealth of good content available to them in the form of marketing materials. The challenge is formatting it for the digital signage medium.

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they don't have them, how do they want to create them? Is it important that it's a video? Can it be just a simple Flash animation or is it something as simple as a static JPEG image they can create quickly? That all goes hand in hand with how often they're updating this and in what kind of environment. Is it a daily update or is it something that will be updated quarterly?"

As Zmuda explains, today's marketer is relatively savvy when it comes to finding good digital content.

"The great news about content is that most content developers have been schooled in the use of industry-standard applications," Zmuda said. "In addition, the leading content-management applications in the market support file formats from these industry-standard applications. Because of the industry standards between content-development apps and content-management software, one can typically use internal resources or find several creative agencies that can develop great content for one's needs."

No one wants to willingly sit down in front of a television set and subject his mind to hundreds of preprogrammed marketing messages, all aimed at his wallet. That's why television networks provide entertainment programming. If weren't for smash hits like "American Idol," "Lost," "Grey's Anatomy" and "C.S.I.," there wouldn't be an audience to see that ad for laser hair removal.

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The moral of the story? You have to give something to get something. If people are going to watch advertisements, the advertiser has to provide them with something valuable in return.

It may sound like a simple concept, but many digital signage deployers think they can set up displays that show nothing but advertisements and commercials and audiences will flock to their screens. The truth is, viewers will quickly tire of the message if it always involves a move toward their pocketbooks.

That's where the art of entertainment comes in.

"I think it [entertainment] is a big deal," Koller said. "We get so much information shoved at us. If entertainment wasn't important, then every commercial would just say 'Here's my product and here's what it does.' None of them do that. Every commercial you see — every spot you see — tries to entertain you in such a way that you walk away remembering

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that brand in a favorable light. So I think entertainment is very important and I think it helps with retention and I think it helps with associated brand.”

“I know that if a commercial is funny, I’m more likely to have retention of that product than I would otherwise,” he added.

“Even if you’ve got a digital display that is animated, if it’s still 100-percent marketing, people will start to ignore it,” Cahoy said. “But if you’ve got something that engages them, then now you should be able to attract their eyeballs every time they pass by. One of the things I look at from an entertainment side is making the display a destination. You can always do a full-screen video or a full-screen ad, but how many times will that consumer walk by and always look at it if they know it’s nothing but ads?”

It’s not hard to entertain the patient. You don’t have to produce your own dramatic television show or hold your own reality TV musical-talent competition. Sometimes all you have to do is put up a live news or weather feed.

“If you make the display a destination by simply putting up the time, the weather, maybe the latest headline news so that it’s engaging and entertaining, then when people come into the bank or retail outlet — whatever it is — they want to look at the display,” Cahoy said. “Now that display is engaging. It’s a destination and any other marketing information

that’s next to it has more appeal because more people will see it.”

“We created some content for a golf store,” Koller said. “We made sure we advertised the TaylorMade driver ... but in between, we did famous quotes from golfers and from entertainers on golfers. Or you can put a music video in there from time to time. It really doesn’t matter. It really comes down to what you’re trying to accomplish.”

“But I think it still has to be relevant,” he added. “I don’t think you just want to randomly start putting things together to keep them entertained.”

Frequency matters

It’s clear that the beast needs to be fed, but how much does he eat? How much content do you need to create, and how often should that content be updated?

The answer is: it depends.



Good digital content will not waste the viewer’s time, but will provide them with valuable information that is relevant to their current situation.

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It depends on how often an individual patient is going to see the content — and for how long. Content on a digital display in the waiting room at a family doctor’s private practice probably needn’t be updated every week, as most patients only visit their family doctor once or twice a year. On the other hand, content in the lunch room of a hospital may need to be updated more regularly, since patients sometimes stay at a hospital for weeks at a time.

Deployers also must pay careful consideration to the length of the content, and to the frequency with which an individual ad or message plays.

“It all depends on the area it’s going into,” Koller said. “If you know the aver-

age wait time in a waiting room is 30 minutes and you want to get that message across three times ... you’ve got to find a balance. Each area is different. In a hall, I can probably rotate three 15-second ads repeatedly and I’m not going to offend anybody because people are walking by at 10 seconds at a time. But if I rotate three 15-second ads for 30 minutes in a waiting room, I’m going to hypnotize them, probably.”

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Once a deployer has decided upon the type of content he will be running, he can delve into the various hardware and software options available. There are all types of questions that have to be answered. What kind of digital displays should he purchase: LCDs or plasma screens? How many displays will he need? What size should they be? Will a 32" LCD be sufficient or should he go with a 60" display?

Then there's the issue of software. What are the various types of software programs that are available to the deployer? What options do they come with? Should he purchase the software together with the hardware in a so-called "bundled solution" or should he buy them separately?

Last but not least, he has to consider whether his displays will be integrated onto a digital signage network. Having them integrated onto a special network brings its own advantages. Remote management is possible, enabling content changes at the click of a mouse. The network can also provide instant notification of display malfunctions.

But most importantly, deployers must design a system that keeps their message front and center. What are the displays going to communicate? Who is the audience? What are the short-term communications needs and the long-term goals?

This means finding software and hardware vendors that are willing to sit down

Most importantly, deployers must design a system that keeps their message front and center. What are the displays going to communicate? Who is the audience? What are the short-term communications needs and the long-term goals?

with the healthcare facility and try to comprehend its mission.

"From a digital signage consultative perspective, the selling party needs to conduct extensive discovery meetings with the healthcare provider to fully understand what their objectives are, and then translate the objectives into tangible hardware/software architecture," said Mike Zmuda, director of business development at NEC Solutions.

There are a lot of issues to consider. For the purposes of this guide, it helps to go through each topic on by one.

Deciding on the hardware

There are a number of factors that play into a deployer's choice of display type, not the least of which is the style of content. Will the displays show a full-motion video, or will they mostly show static content, such as event listings, news crawls, financial tickers and company logos?

Why does it matter?

Plasma screens and LCDs handle the

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effects of static content differently. One of the perceived weaknesses of plasma screens is that they are subject to an effect known as “burn-in.”

Burn-in (also referred to as “image retention,” “ghosting” and “image shadowing”) is the dreaded phrase that no digital signage operator wants to hear. It usually occurs on displays that continuously run static content, like logos, banners, crawling text and similar graphics that remain on the screen for long periods of time. When the picture changes and the static content is removed, a faint “ghost” or “shadow” of the content may remain. Anyone who has used a desktop computer is probably familiar with screensavers. Shortly after desktop computers became popular, screensavers were developed as an effort to curb the effects of burn-in by directing the computer to replace static content with animated moving content when a monitor had been idle for a pre-specified period of time.

Plasma screens are much more likely to suffer burn-in than LCDs are.

On the other hand, plasma screens have their own advantages — particularly when it comes to the brilliance, contrast and color depth of full-motion video.

“The primary difference is that plasma is what is called an ‘emissive display,’” explains Bill Gerba, CEO of Fort Lauderdale, Fla.-based WireSpring Technologies Inc. “Every pixel makes its own



There are limitless digital signage hardware, software and content-creation solutions on the market today. How can the deployer choose the right ones?

light and is sending its own light out. As a consequence, the colors are very vibrant. If a pixel is black, there’s no light coming out of it, so it’s a true black. With LCD, on the other hand, there’s a film that basically makes the different colors, but there’s a backlight behind it. To make black, for example, the pixel gets filled in so that it doesn’t let the light from the backlight pass through. Consequently, the big shortcoming of the LCD is that blacks aren’t as black — colors aren’t as vibrant — as they are on plasmas.”

Additionally, plasma screens generally have a higher refresh rate, meaning that they are able to handle fast-moving video better than LCDs. That, plus the added vibrancy and color depth of a plasma screen, generally make it the top choice of consumers who want to use it simply for in-home entertainment

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purposes.

“For home theater, many prefer plasma screens,” says Bob House, COO at Tempe, Ariz.-based NORVISION Inc. “The picture is a little better than on LCDs and fast motion, such as a baseball flying at 100 mph, is clearer. However, LCD technology is catching up fast.”

Not only is the plasma screen the display of choice for full-motion video content, but it also has a strong foothold when it comes to screen sizes. Plasma screens generally hold a monopoly on the market when it comes to screen sizes of 50 inches or greater.

“The plasma guys are trying to go bigger because they still have an edge on the very large displays,” says Sean Moran, president of the Out-of-Home Media Networks business unit in the Technicolor services division of Paris-based Thomson.

But the plasma screen monopoly may not last forever. Moran says he is witnessing a gradual increase in LCD screen sizes and adds that he recently attended a conference where a 100" LCD was showcased.

“Of course these are in small quantities, but if they’re going there, I think they’re probably going to take this market away,” Moran says. “So that’s had a real negative impact on the plasma program.”

Built to last

Healthcare providers must be concerned with more than just image retention and video quality. When it comes to choosing the right hardware, there are other factors to consider. Among them are environmental factors. Can the displays survive a rugged healthcare environment?

“Things are constantly being cleaned and sprayed down with disinfectant,” Gerba said. “There are all sorts of particulate matter in the air, so you need to make sure that your screens and the computers that are playing the content are rugged enough to handle the environment.”

“From a hardware perspective, I think it’s environmental,” said Ryan Cahoy, vice president of sales and marketing at Shawnee, Kan.-based Rise Vision Inc. “Is it the right size? Is it readable? Does it have the longevity? It’s back to that plasma vs. LCD conversation. Am I looking at investing in something for 18

Healthcare providers must be concerned with more than just image retention and video quality. When it comes to choosing the right hardware, there are other factors to consider. Among them are environmental factors. Can the displays survive a rugged healthcare environment?

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months to two years or am I looking at something I want to last for five years?”

Jimmy Dun, vice president of business development for Fremont, Calif.-based Dynasign Corp., advised digital signage deployers against buying cheap displays in order to save on cost.

“What they need to do is to make sure they stay with the mainstream and don’t just go out and try to save \$2.00 or \$5.00 and buy their LCD panels from some small unknown brand name,” Dun said. “Go with the mainstream ... it does cost you 20-percent more to buy the equipment, but in the long term you’ll save a lot of money by doing that.”

Tim Buchholz, the senior vice president of corporate communications for Washington-based POPAI, the Global Association for Marketing at Retail, said it’s commendable that some deployers strive to obtain the latest and greatest equipment. He pointed out, however, that there is a danger in being the first one to deploy a brand-new technology. In some cases, he said, it’s advantageous to go with the tried and true.

“Definitely look at not only the cutting edge equipment coming out — the latest and greatest — but also take a step back and look at something established and proven,” Buchholz said. “You need to look at projecting the lifecycle of that proven piece of equipment and making

sure that it’s not going to be obsolete too quick. But you have to juxtapose that against going with the cutting edge stuff where you may have to pay with things not necessarily working 100 percent.”

“Often with technology, when you’re on the cutting edge, you may be in the market faster, but you also generally handle a little bit of pain that comes with that,” he added.

Software that works

The software is the next critical component of a digital signage system. Think of the software as the mind behind the system. It holds the message content. It tells the display what to show on the screen and when to show it. It communicates with the outside world via the signage network. It can even perform



Think of the software as the mind behind your digital signage system. It holds your message content, tells your display what to show on the screen and when to show it and communicates with the outside world via your signage network.

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diagnostics on the display and let the deployer know if something is malfunctioning.

Without software, your digital signage is brain-dead.

So what kind of software should a deployer purchase?

“Obviously you need to make sure that the software is able to do what you want,” Gerba added. “If you have a very elaborate plan for sending all sorts of content around and scheduling advertising, you need to make sure that the software is capable of doing that. If you’re running one hospital versus a group of 10 hospitals in the same area, you need to make sure that your system is capable of handling that. If you’re planning on running only one channel of content inside of the hospital, versus maybe different channels in different areas, you need to make sure that you’re capable of handling that.”

One option may be to purchase the displays and the software together in “bundled solutions.” There are advantages and disadvantages to this arrangement. In some situations, bundled solutions are a liability because they box the deployer into using a particular brand of software. Thus, it becomes difficult to customize the digital signage system for the deployer’s individual situation. On the other hand, a bundled solution means the deployer has only one customer service depart-

ment to go to if something malfunctions. If the hardware and software are from separate companies, they might play the blame game if a system goes down.

Philip Luzbetak, president of New Lenox, Ill.-based Pallyn International Inc., says that, like anything else, the choice between purchasing separate or bundled solutions should be filtered through the prism of what a deployer hopes to accomplish with his signage.

“Usually it depends on what you’re doing,” Luzbetak said. “I’ve done both. Basically, it depends on the whole overall network and what you need.”

Integration anyone?

One issue that will be of major importance when considering a software package is whether or not the digital signage displays should be integrated onto a network.

When thinking of a digital signage system’s network, think of power. Power to communicate with every digital screen in the country — or on the planet — that operates within the network. It’s the sort of power that provides a deployer with the ability to change the content, perform diagnostics and repair malfunctions on a display in California ... all from a laptop in an office in Alaska.

“A network, in layman’s terms, is a sort of communication grid that enables you to

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connect all of your digital displays back to a central control location,” Luzbetak explained. “In general, this is done through an open Internet or private intranet connection.”

The method of connectivity may vary. A digital display may link to the network via a landline, Wi-Fi, cellular or satellite connection. At the time of this writing, cellular- and satellite-based data transmissions are opening up a host of remote and previously untapped markets for digital signage deployment. Integrated digital signage no longer has to be located near landline infrastructure.

There are some issues that a healthcare provider should consider when deploying digital displays on a network, however. Probably the most important ones center on data security.

“You need to make sure that, no matter what system you pick, it integrates nicely and doesn’t cause you to fall out of compliance with HIPAA regulations,” Gerba said.

If digital displays are integrated on the same network where patient information is kept, then it’s conceivable that malevolent hackers could use the signage as a back door to access that private information. For that reason, many healthcare providers choose to create an entirely separate network that is solely dedicated to digital signage.

“It all comes back with how you design the system,” Cahoy said. “With all the healthcare providers we’ve been involved with, it hasn’t been an issue. You can either isolate the digital signage to a network that is not shared with your clients’ records. It can be as simple as putting it on its own dedicated DSL line if you want, or the digital signage can have its own computer and you can really lock down that box that’s behind that screen.”

Maintenance and upkeep

The last thing to consider when deploying digital signage is routine maintenance and upkeep. In this stage of the



Digital signage systems should be monitored on a daily basis, if possible. Some deployers may choose to invest in extended warranties on all their equipment to make sure it remains in top-notch condition.

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project, monitoring is key.

“First and foremost, digital signage systems need to be monitored on a daily basis, if possible,” said Zmuda. “This can be done through one’s content-management application, in addition to other third-party applications. The monitoring frequency should be based on the size and scope of the network.”

What kind of warranty should a deployer purchase? Who will be in charge of servicing the software and the displays if something malfunctions?

Some deployers may choose to invest in extended warranties on all their equipment.

“A warranty is basically a gamble,” Gerba said. “You’re trying to assume whether it’s going to be needed or not. Again, that’s going to be something that the IT

personnel are probably going to have a good idea about. If they find that they go through computers a lot more frequently than they might think initially, then a warranty would make a good idea. Most plasma and LCD screens will come with a three-year warranty, but you can get that upgraded to a five- or even a seven-year warranty. The screen, most likely, is not going to suffer a problem unless the environment basically causes a problem.”

Zmuda said that, at the end of the day, it is the responsibility of the deployer to make sure that all of their digital signage equipment stays in top-notch condition.

“Preventative maintenance should be scheduled on a frequent basis,” Zmuda added. “This could vary from once a month to once every six months, and should focus on dust removal on or in all electrical devices, to cable connection assurance.”