REDUCING THE "TCO" OF DIGITAL SIGNAGE

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Background

Digital Signage, or Digital out-of-Home ("DooH") screens are appearing everywhere. More and more retail, entertainment, health care, shopping mall and other locations are equipped with screens that allow customers to find what they are looking for, while allowing location and media owners to inform and advertise and aim all this at a narrow audience. These networks can be advertising-based (third party advertisers bear the cost) or "operational" (the location owner bears the cost), or can be a combination – but *someone* has to bear the cost.

And while the benefits are great, that cost can be significant.

So when does a Digital Signage network pay off? This of course depends on both the benefit and the cost: when benefit outweighs cost, a network is successful. But benefit can be hard to measure (sales uplift is easy, but how do you measure "happy customers"?), and cost can come in different areas than at first anticipated.

In fact, the operating cost of a network is a major determinant of the total cost of ownership – the "TCO". It is not hard to see why that is the case. If a player and screen cost $1,000, say, then if you need to visit the site twice a year to troubleshoot or to apply software patches, that alone may well double the cost of implementation over a three-year period. Ask yourself this: how many computers have you ever had that do not require at least some yearly technical assistance?

The good news: Digital Signage vendors have come up with many proven strategies to minimize that operation cost, and this paper outlines some of these lessons learned and enables you to minimize the cost of your own networks, and hence, make them pay off sooner.

Illustration 1: Digital Signage in practice

What constitutes cost?

The TCO of a connected Digital Signage network consists of more than just "hardware plus installation plus networking cost". In fact, the *total* lifetime cost of such a network consists of:

- Cost of the Media Player hardware plus the display. These are usually a capital expense, although they can often be financed, making them into an operational cost.
- Cost of any additional Local Area Networking infrastructure (like extra routers, switches, or cabling).
- Cost of any adaptations needed to your network environment.
- Project management, installation and logistics cost.
- The License cost for the software on your Media Player.

- The service cost (if you use a Software As A Service/"SaaS" supplier), or Enterprise Software and installation and running cost (if you run your own).
- Bandwidth used to distribute media (and with today's large media files and long and complex play lists, that can be a significant cost).
- Network monitoring (A dead player is not doing anything for you: are you really confident that everything is working?)
- Network and content troubleshooting (something appears not to work – find out if that is the case and if so, what the problem is). This is both a technology and a staff cost: people are expensive.
- Media cost – instead of re-used TV ads or clumsy PowerPoint presentations, Digital Signage is more effective when it uses suitable-to-the-platform media.
- Operation cost (who uploads the content, creates the playlists, defines the interactivity, etc?)
- Site visits: the great bugbear of technical networks. As Digital Signage rollouts get larger, this becomes ore of an issue. An engineer visit to a remote store can cost more than that store contributes that year.
- Finally, the opportunity cost of media not showing when a player is not working.

Fortunately, designers of Digital Signage have, over the past decade, come up with excellent ways to predict, manage and greatly reduce these costs. At least in part, it is this that has made Internet-connected Digital Signage practical today.

Cost minimisation

So what do you need to reduce the cost of implementing your network to a minimum? Let's look at this from the ground up: starting with the stuff you should never have to worry about (but frequently do), like hardware and networking.

Media Player and screen hardware:

- Use Reliable hardware. That means industrial players if you have the option, but at least hardware that is intended for constant 24/7 use for years on end, and that can monitor its health via temperature sensors and hardware watchdogs. Fans and hard drives are fine today, but only if they are reliable and are designed for 30,000 hours or more constant operation (you may have heard a noisy fan when turning on a PC: in the field, this should not be tolerated). If you do use less reliable hardware, make sure you add the cost of replacements and site visits to your calculations at the start.
- Use small dedicated-to-the-task hardware. Usually, smaller is better, since it can be mounted closer to the screen in an out-of-the-way area, and any costs of replacing, shipping, and so on can be smaller.
- Be future-proof. For instance, if you think you may switch to high-definition a few years from now, do not use a component video interface today. Think 3-5 years ahead.
- Never, ever use hardware that needs any local intervention ("shop staff need to turn the unit on every morning and press ctrl-alt-delete when the screen turns blue").
- Avoid using consumer-level network routers and wireless access points. These tend to hang up regularly, leading to service interruption.

- Use your hardware wisely. Do not, for instance, mount a screen in portrait mode if it was designed to be used only in landscape mode. You may *want* to, but wishes do not pay repair bills caused by an overheated monitor.

Once you have the hardware under control, you can move on to the software that makes your hardware into an out-of-home media player, not just a PC.

The Media Player software:

Since your media player is the key, it is no surprise that your network cost is proportional to your player maintenance cost. Here are the most important recommendations that all come from lessons learned in the industry:

- Use a reliable Operating System. This ensures that your players are reliable; a key point since a player that needs to be rebooted once a week is not going to make you happy in the long run.
- Buy an "Appliance", not "a PC plus software". An appliance is an integrated "plug and play" device that you do not need to install, maintain, or update. Like your TV Cable box, it just works, and if it does not, it is not your responsibility to troubleshoot. Do not be tempted to "combine apps": you will end up with no-one having final responsibility for the player's correct performance.
- Monitor the display screen, too. Your player should monitor whether the display is on or off, because playing to a powered-down screen is no better than not playing at all.
- Minimise the effect on your user's Local Area Network. Your players should be non-invasive and should "behave well"; should be able to be used behind a firewall; should use DHCP; and you should be able to determine when it does and does not go online, and be able to "throttle" the bandwidth a player uses, so that it does not interfere with your other network applications, such as EPOS.
- Remotely settable. You should be able to adjust detailed network settings, look and feel, timing, and protocols used remotely. This way, you can fit your equipment into a heterogeneous environment without expensive site visits.
- Remotely upgradeable. Over the course of a project, you will want to occasionally upgrade your player to new software, perhaps to add functionality that did not even exist when you installed. Count on at least one such upgrade a year. If such upgrades require a site visit to each player, you will add significantly to your network cost.
- Select a vendor who can project manage. The hardware and software is not your entire project – it is just where it starts. Installation, commissioning, layout, measurement: if your strength does not lie in project managing large installations, a turnkey vendor can reduce your total cost significantly – both by efficiently managing the project and by reducing your time to market.
- Use a hosted service. A signage vendor who offers a hosted service is an expert, and has made the service efficient over the years. Also, by spreading cost over multiple clients, such a vendor reduces your cost even further. You should therefore start with such a hosted service. Later, you may want to investigate running your own Enterprise server – the switch should be possible – but until that time, benefit from these advantages.

So let's look at that service and its requirements. Again, these come from many years' industry experience, and have been well proven in practice.

The service:

- Good software is written “from the ground up”. First, it should provide reliable network management. This cuts out much of the network management cost. Then, it should be scalable to not just 10 or 100 players, but to thousands or tens of thousands and beyond. You may never get to these numbers, but systems that run out of steam when stressed will cost you more money than intended.
- To provide this type of reliability and scalability, good systems provide real-time or near real-time network monitoring. If you can remotely see what a player has been doing, and if you are warned “by exception” of any errors, you will significantly reduce your network management cost.
- Robust software, that does not assume that things work, can further reduce the cost. Do not just “test in the lab”. Ensure that your software is deployed today in distant countries – if so, it will certainly work for you.
- The operating software, that you use to upload and manage content and monitor and manage the network, is preferably web-based. That way, you do not have to install software on your PC, and you are platform-independent (PC, Mac, even UNIX/Linux PC). Also, you have no work – meaning no cost - maintaining or upgrading the software.
- Ensure that you have options to minimise traffic. If you send a file to 300 media players, does it need to be uploaded more than once? And can you download from a central location close to the players?
- Make sure that your system provides real-time reports and affidavits – these are the “proof of the pudding”. They should include “technical” reports as well as, more importantly, reliable play affidavits. Your system should monitor in time, not as a snapshot. Players that reconnect after a disconnection should have stored their play history.

Time has shown that reliable implementations are very possible. You can obtain the minimum operating cost through a combination of wise choices, good preparation, and a very small investment in time. DooH is no longer experimental: it has been widely proven in practice, and you can benefit from this experience.

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