MANAGING TECHNOLOGY ON BOARD

Along with the technology comes knowing how to use AV and IT onboard systems.

By Jenny Sniffen

Above: the cinema-styled entertainment room on board *Lady Candy*. Right: the Creston AV control system

When the entertainment system on board doesn't work properly, not only can it be a nightmare for crew, it also can lead to an unhappy owner and guests. Whether it's setting the mood through music, streaming a 4K video through the TV, or being able to stay connected over the Internet during their trip, the AV/IT system plays a crucial role in overall guest experience. Because these systems most often are interconnected with a lot going on behind the scenes, it's important to carefully evaluate both the owner's needs prior to installing or changing onboard entertainment systems.

WITH TECHNOLOGY COMES COMPLEXITY

In our current age where technology is constantly evolving, the entertainment systems can be quite complex. This can be attributed to the fact that "owner and guest expectations can be so high, often demanding the best and newest technology around," says Sjoerd Appelboom of Next Level Programming. "Plus, the systems must also be large and scalable enough to keep up with future demand."

It's also complex "in the sense that you have so many sources, three [types] of satellite TV providers, Kaleidescape, Airplay, NAS, iPods, HDMI, etc., and you are distributing all of those around the boat to TV screens of different sizes, resolutions, and speaker arrangements," explains ETO Justin Prosser. It goes without saying that "the bigger the boat and the development on automation makes the systems more and more complex," says ETO Carlos Francisco Morales Donis. And "the hard part is making all that complexity appear super simple and unseen to the guests," adds Prosser.

DON'T OVERCOMPLICATE THE SYSTEM

One of the most common issues regarding entertainment systems "comes from crew and guests' lack of understanding on how to actually use the entertainment system," says Prosser. "These systems are designed in a way to put a serious amount of automation into an all-in-one remote like an iPad. [People] are used to having ten different remotes, and they see an iPad as a controller and suddenly think it is extremely complex and too difficult to use, when in fact, it was set up to make everything easier to use."

Part of the problem can be resolved by training crew on the remotes. "We set up the crew areas to be exact duplicates of the guest areas as far as iPad control is concerned," says Prosser. This allows crew to be knowledgeable about the user interface.

But, when it comes to owners and guests, it's important not to make the user interface or iPad screen too complicated. "The average person has about a seven- to eight-second attention span. Now take wealthy owners or charter guests who are probably down in that three- to four-second range because they are just used to getting things quickly provided to them. If they cannot navigate through that [user interface] in a very short period of time, that beautiful iPad becomes a Frisbee

The media room on M/Y *Celestial Hope* (left); MTN connectivity on board (below); Gulfcraft's Majesty 155 (next page)

across the water," says Michael Blake, president of Palladium Technologies, Inc. "We have to look at it and say, 'either a person who is eight years old or eighty years old has to be able to use the system in that seven-second timeframe and be able to navigate it without an instruction manual.'"

HAVE A GOOD IT BACKBONE

While the IT requirements will be different based on the size and needs of each vessel, a strong IT system and Wi-Fi are crucial to the operation of many systems on board. Most, if not all, AV and IT devices communicate over the Wi-Fi system. "The core system in yachts today is a solid IT system," says Blake. "Not only entertainment, but also security, lighting, and monitoring control; all use that core system, so it has to be substantial to support all of them."

Designing the network to handle the bandwidth required by all the devices will prevent problems. "A lot of installations seem to forget that without a solid IT base, the AV will just not function. The IT network is like the central nervous system of the boat and if it's slow, unresponsive, cannot reach every area, or old and outdated, then nothing will work as expected," emphasizes Prosser. Without proper quality of service protocols in place reserving appropriate bandwidth for devices, issues such as guest media dropping connection may occur.

For instance, "When the Crestron system is streaming high-definition or 4K video, it is consuming a very large bandwidth," says Blake. "You have to design the system properly, otherwise the video will be choppy or have broken striations." Additionally, you have to plan for systems like Apple TVs that "are designed to have its devices communicate back to Apple to constantly authenticate its devices. This means there's a lot of outbound and inbound traffic that is not used by guests or crew, but is used by devices," explains Engineer Ricther Terblanche. "This, in turn, puts a bottleneck in your bandwidth or your allotted data."

"The vast majority of yachts are not managing their bandwidth as well as they could be," says Scott Molloy, managing director of Just ETOs. "Many think more bandwidth is the answer to connectivity issues when in fact it is often the case that better bandwidth control is required." However, it's still important to note that "with satellite Internet packages being so expensive, a lot of boats choose the smaller packages with less bandwidth," adds Terblanche.

When it comes to your wireless infrastructure, it also needs to be very dense – things like redundancy in your Wi-Fi can ensure continuous operation of systems. This will prevent issues such as iPad controls dropping out or completely losing Internet connectivity. "A clever firewall can switch connections when one goes down," says ETO Daniel McConnell. "Having a flexible system will allow you to work around problems, and guests will not notice anything is wrong." Blake adds, "When we design the Wi-Fi, we design it for the signals to overlap the other wireless access points so that if one fails, the other one picks up and takes over."

ASSESS YOUR NEEDS

When you're upgrading your entertainment systems on board, going through a refit, or starting with a new build, thoroughly assess your needs

and seek advice. Remember that just because there's new technology out there doesn't mean it's the most reliable. "You want quality and reliability," says Blake. "The success of a system is based on design and implementation. Spend the time to do the design correctly and select the right group that is capable of doing the implementation." Because programming is part of that implementation, it's imperative that that you select a software company that is not going to overcomplicate the user interface.

Some systems may not be appropriate or necessary based on the size of the vessel, budget, needs, or uses on board. "For example, we may not be doing extensive routing and programming on a smaller vessel as compared to a larger vessel, so some of that expense, for say a Cisco system, may be wasted when it's not necessarily needed," explains Blake.

Don't overcomplicate the systems solely because it falls within the budget. On 40-meter boats and smaller, "the most common IT issue involves overcomplication," says one engineer. "When people look at their budget and what they are willing to spend, they opt more for overkill than practicality. At times, people take their budget and buy more than what's needed instead of using a good piece of equipment and multitask[ing] it."

When refits are involved, there also are special considerations, such as how convenient it is to run wires. As Blake explains, you need to look at what currently exists on the boat, what can be used from the existing cabling, whether extra cabling is needed, how easy it is to open the headliners, and where new equipment can be placed. Boats with "older systems are mostly built on analog coax audio/video hardware and cabling. Changing these involves a complete refit of such infrastructure," says Appelboom. Older boats were not built on the assumption that technology cabinets would continue to grow. Accordingly, if non-traditional places need to be used for electronics, additional people may be required to address potential ventilation issues so that devices do not burn up and fail.

TROUBLESHOOTING MADE EASY

Use available drawings and diagrams when available. "Depending on what the issues are, it can be a nightmare to pin [them] down because equipment is often spread around the boat using different types of distribution," says ETO Prosser. McConnell adds, "Documentation and drawings are a lifesaver when a component fails or you need to get assistance and there are nice clear labels." However, as one ETO comments, "In most cases, a properly labeled wiring diagram provided by the installer does not exist."

When it comes to the user interface, such as an iPad, "it is pretty easy for

guests to delete the Crestron app and install their own accounts, which can make things tricky," says McConnell. The "good practice here is for the ETO to have a master iPad [that] can control each area and can be used as a backup if need be."

To avoid those last-minute AV or IT surprises before a charter, it's important to have pre-trip testing schedules, providing enough time to discover and troubleshoot issues before guests come on board. "I always encourage the crew to use the AV systems when they are doing their jobs off charter. That way we know everything is working," says McConnell. Molloy suggests, "Regular and thorough checking is essential [as well as] a well thought out automatic monitoring system, such as Solarwinds or PRTG." By having an automatic monitoring system in place, Molloy adds, "Failures are flagged immediately, rather than the outage being reported by the end user."

PROPER KNOWLEDGE AND TRAINING

Because yacht entertainment systems are so complex, it's crucial to have accessible and knowledgeable support on hand. "The expectations of an expensive system on board a yacht is very high, yet with a large and complex system, there is more to go wrong," says Malloy. "Meeting those expectations can be challenging [and] up skilling crew goes a long way." While 24/7 service and support is helpful, Appelboom admits, "It is challenging to assist some vessels remotely when the crew on board have little or no knowledge of the systems."

Despite entertainment systems being such an integral part of a guest's overall experience and the fact that yacht's systems are continuing to get

> "...Without a solid IT base, the AV will just not function."

larger, "There remains a skills shortage amongst crew who operate and maintain these systems," says Molloy. To address this gap in in the yachting industry, there are companies like JustETOs, that offer training for electronics engineers centered around the most common AV and control components on a yacht, including market leaders like Creston, Kaleidescape, and BSS Soundweb.

"By training crew, system uptime is improved [and] response time for issues is reduced, as there is less dependency on external support for simple issues," emphasizes Molloy. Additionally, not only do "crew also become better communicators between the systems on board and a support company ashore, but [also] when external support is required, that process is streamlined, too." ⓓ