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FJI tours Laika Studios
THE NETWORKED CINEMA

TODAY'S TECHNOLOGY ENABLES HIGHER EFFICIENCY by Mark Mayfield

When we think about digital cinema, we tend to focus on the transformation of film reels and the replacement of film reels with the digital cinema package (DCP). There’s no doubt that digital cinema has dramatically changed the way movies are created, delivered, and shown in the theater. But just as the true potential of personal computers was never realized until they became networked and reliable networks demonstrated the power of “connectedness,” the potential of digital cinema is only now becoming evident, as the fully networked cinema is becoming a reality.

Like nearly every modern workplace in the 21st century, today’s cinema complex is a networked environment. What started years ago with booth technicians learning there are many reasons, but increasingly important are services provided by private and third-party network operations centers (NOCs), which have enabled cinemas to outsource services like booth monitoring and maintenance scheduling. Access to satellite networks is also rapidly gaining popularity as a means of receiving DCPs and advertising content.

The Internet of Everything in the Cinema

Even seating has joined the network. The modern plush recliners that have become so popular can be fitted with sensors that detect when a seat is empty or occupied. Aside from the obvious advantages of tracking box office statistics and verifying ticket sales, this technology could also potentially be tied into other systems in the cinema that adjust for different occupancy.

Atom Tickets’ app

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The IT Infrastructure of Today’s Movie Theatre

Like any commercial building, most newly constructed cinema complexes are pre-wired with unshielded twisted pair (UTP) Ethernet cabling. But they’re not just for computers anymore. Savvy cinema technicians are learning there are many applications for these networks beyond just the transmission of ticketing and POS data or even content delivery. Remote access to projection and sound systems over the network means they can be operated and maintained from virtually anywhere with access to that network.

Beyond the internal LAN, Internet access is critical for the cinema complex, just as it is for any business environment. DCP content and key delivery are two reasons, but increasingly important are services provided by private and third-party network operations centers (NOCs), which have enabled cinemas to outsource services like booth monitoring and maintenance scheduling. Access to satellite networks is also rapidly gaining popularity as a means of receiving DCPs and advertising content.

The Internet of Everything in the Cinema

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The most common example of a WAN is the Internet. WAN—Wide Area Networks can cover nearly unlimited distances, ranging from networks that connect multiple buildings on a corporate or college campus to satellite links connecting offices in different countries. The most common example of a WAN is the Internet.

Network Fundamentals

If you’re a “digital immigrant” and new to the idea of networks, here’s a primer to get you started.

A common framework that defines many types of networks describes them by their size and scope:

There are PANs, LANs, WANs, WLANs and MANs.

PAN—A Personal Area Network is a computer network organized around an individual person within a single building. A good example is a digital music player that sends its signal to a portable loudspeaker via Bluetooth wireless technology. Another common example is the USB (Universal Serial Bus) connection between a PC and peripherals like keyboards and printers.

LAN—Local Area Networks refer to networks within areas such as offices, or even entire office buildings. This is the network that connects devices within the building. A LAN may cover distances of up to about a kilometer.

WLAN—simply a wireless LAN, such as a building’s Wi-Fi network.

MAN—Metropolitan Area Networks usually span several buildings within the same city or town, at distances up to about 10 kilometers.

WAN—Wide Area Networks can cover nearly unlimited distances, ranging from networks that connect multiple buildings on a corporate or college campus to satellite links connecting offices in different countries. The most common example of a WAN is the Internet.

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WORLDWIDE THEATRE NETWORKS

WIDE AREA NETWORK (WAN)

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WIRELESS LOCAL AREA NETWORK (WLAN)

PERSONAL AREA NETWORK (PAN)

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The Importance of Standards

For all of these disparate technologies and devices to work together, it would help if there were a common language. In the audio world, however, the subject of interoperability standards for audio over IP networks is converging on one that has potential for wide acceptance, called AES67. AES67 already provides the means for exchanging audio streams between areas that have different networking solutions or technologies available in place, and is used by a growing list of almost 30 manufacturers to date.

The Human Factor

All of these technologies and tech-related services require new skill sets for the theatre operations. A background in IT and networking is becoming an important part of the new resume of what was once the projectionist. In fact, the traditional projectionist is an anachronism in today’s digital cinema world. Today’s cinema technician is more likely to have Cisco or Microsoft certifications than direct experience with audio or video projection. In a perfect digital cinema world, the onsite cinema technician has both network and AV experience. But convergence is still not complete: Except in a few cases, those two domains are not always considered together.

Beyond the Data

Even as the cinema industry takes on many of the characteristics of IT, it’s important to remember that what brings people to the movies is not the digital content represented by all those 1’s and 0’s; it’s entertainment, and it’s an art form. As IT technicians obsess over network issues like quality of service, bandwidth limitations and cybersecurity, we must never lose sight of the importance of “quality of presentation.” What the image looks like and how the soundtrack “sounds” in the movie theatre are the things that differentiate the cinema from a home theatre. Balancing a passion for presentation quality with the technological innovations afforded by tomorrow’s fully networked cinema will help ensure the future of cinema, as both an art form and as the number-one global entertainment option.

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