

# The future of movie distribution...the choices



Protecting Your Digital Assets™

## A history of reliable content distribution



CRU is a well-known name in the world of digital cinema and content distribution and Director of Marketing Chris Kruell explains how the company has played a vital role in the digital cinema industry. Its removable hard disk drive technology has been widely adopted by theater equipment and content distributors alike. CRU

continues to be relied on to support a dependable, cost-effective method for digital content distribution.

As the transition from film to digital accelerated, CRU helped solve the distribution logistics and workflow created by the new cinema format.

The industry clearly had the infrastructure in place to distribute physical media, and because digital versions of films fit nicely on hard drives, it seemed straightforward to exchange shipping hard drives for shipping canisters of film.

Before CRU stepped in, though, early efforts at using hard drives for content distribution proved problematic since the drives were not durable enough to withstand the jostling and other handling issues associated with shipping, not to mention the sometimes ill treatment at the theaters themselves.

Industry suppliers such as Deluxe, Technicolor, Doremi, Dolby and others turned to CRU due to the company's history of

creating rugged and robust removable hard disk drive carriers and receiving frames for a variety of applications used in government, military, educational, and other sectors. Industry conversations led to the development of ingestion platforms for theaters and projection systems that standardized on the CRU DX115 disk carriers and receiving frames, which were themselves developed based on CRU customer feedback and requirements for

- high connectivity speeds
- reliability in receiving movies in time for openings
- cost-effectiveness
- reusability

For a new film release, distributors arrange for thousands of CRU DX115 drive carriers to be shipped from a digital cinema encoding or duplication company to theaters

in time for the release date. The carrier contains an AES-encrypted hard drive with a digital cinema package (DCP) on it; the drive is encrypted with a key only known by the target DCS. When the movie is ingested, the private key is used to decrypt it so the theater can show the movie.

A theater worker puts the DX115 carrier into a digital cinema server (DCS), which has a DX115 receiving frame built into it, designed for tens of thousands of insertions and ejections, providing a long lifespan for the ingestion system and drive carriers. After ingestion, the DX115 carrier is returned to the distributor for reuse.

### Future of distribution

Aside from its cost-effectiveness and reliability, another reason the industry has turned to CRU has been the company's responsiveness to evolving industry requirements. Even as the world is finishing its adaptation to the end of film, digital cinema file sizes are growing as more filmmakers are looking at increasing frame rates and higher resolution displays.

Forays into satellite and internet distribution have not been reliable or cost-effective enough to date; while this picture may be improving, the costs of distributing content via hard drive is not a static target. Not to mention that the hard drive distribution mechanism will always exist as a precaution to failure of satellite or internet delivery since the price for missing a release date is quite high.

One aspect that cinema owners and distributors need to consider is the fact that digital omnipresence means that smaller, niche audiences or even large areas with disparate requirements - multiple languages, asynchronous release dates etc - will continue to rely on the low-cost, proven mechanisms for receiving content.

Progress in the electronics industry means that costs of disk

drives, whether traditional hard disk drives or SSDs, will continue to decrease. A major component of distribution is shipping costs, and with the increased density of smaller drives, there is an opportunity for lowered shipping costs.

Once again, CRU has responded to industry demand in creating the new DCmini drive carrier and shipping case. The DCmini is a carrier for 2.5" hard drives; because it's smaller than existing drive carriers, the DCmini carrier costs less to ship. And to that end, CRU developed a smaller protective shipping case that will fit into a standard European mail slot, meaning that a person does not necessarily need to be present to receive the DCP.

Based on its history with the transition from film distribution to hard drive distribution, the industry has shown a predilection to maintaining existing infrastructure. CRU has created an adapter that allows DCS manufacturers, distributors, and theaters to plug the DCmini cartridge into the DX115 receiving frames that



are already in servers, duplicators and ingestion

racks. The DCmini has been architected so that users can use high-speed SATA connections for minimal content transfer times. However, if the best solution is to use USB serial connectivity, the DCmini will plug into a USB 3.0 or 2.0 port and operate at USB 3.0 or 2.0 speeds.

With the compatible sizes CRU has used in its infrastructure for DC distribution, distributors and theaters have the flexibility to mix and match hard drive carriers and not worry about whether a theater has the appropriate infrastructure since the receiving frames in DCS systems can support both the DX115 carrier and the new DCmini carrier, thus helping keep content distribution costs as low and reliable as possible for now and into the future.

Chris Kruell