

Journey to the New World – Part 1

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In the first of two articles, Tom Swan, Sales and Marketing Director of leading systems integrator dB Broadcast considers the challenges of the transition to a digital, data-driven world and reflects on how ready the industry is to embrace it.

dB Broadcast identified changes afoot in the broadcast market place several years ago, and formulated a five year strategic plan to focus on the new technologies now emerging.

First came a restructuring of the Engineering Department with the focus in two key areas: i) traditional elements of the business (broadcast systems engineering/wiring); and ii) new technologies (including IP based infrastructures, the Cloud, Channel in a box playout solutions and non-linear delivery).

Staff development has been at the forefront of the company's strategic plan. They have invested heavily in training – both engineers in the new technology and wiring personnel on IT/data type techniques (including fibre termination and Cat 6) – and they remain committed to continue this investment, ensuring that staff continue to offer clients informed technical solutions.

The Challenges Ahead

Within their long-term strategic plan in place, dB have identified many emerging trends in the industry. These include: less bespoke traditional wiring; utilising the building wide IT/Data infrastructure (structured cabling); more configuration-type skillsets to provide operational staff with an easy to understand dashboard/user interface; more management of software touch points such as development of APIs and testing - all the way through to user acceptance testing and into real operational use.

The challenges associated with moving from specialised, dedicated hardware platforms to software based, (potentially) virtualised applications running on IP-connected infrastructure are substantial.

The need for change is driven by the need for cost savings and to deliver infrastructure that doesn't have to be rebuilt as business needs change. IT infrastructure is relatively inexpensive, and benefits from the economies of scale of the larger market.

Modern broadcast facilities now contain extensive network infrastructure which carries much control, monitoring, metadata and A/V data. Given the demands on

the industry, extending such infrastructure to support live production is a logical next step.

Today, whilst underlying IT technology may have reached sufficient maturity to support IP production, dB Broadcast believes that the broadcast industry has some way to go to develop the products, standards and skills necessary to realise this vision fully.

Back to Basics

At the most basic level, a typical live production will generate multiple synchronous audio, video and metadata sources which must be aggregated, processed and redistributed in different ways. To coordinate a production process, many control flows are also necessary between processing elements.

To facilitate the exchange of these data types, traditional broadcast hardware typically exposes an array of different connector types (BNC, D-type, RJ45, RCA, XLR, etc.), operating to many and various standards and protocols.

The world of IP production sees the basic data exchange mechanisms being replaced with the IP protocol stack, which in turn is overlaid with various other protocols and standards necessary to meet demanding broadcast standards. A plethora of interconnects are replaced with one or more common Ethernet/Fibre connectors (e.g. RJ45, LC, etc.). An aspiration for open standards exists, though this has by no means been achieved at industry level.

Emerging Standards

IP production has become a real talking point in the past couple of years, heightened by trade events/exhibitions such as IBC, BVE and IP Connect. There are arguments for a full IP studio production or a hybrid mix of SDI and IP, both of which provoke much debate and deliberation.

Broadcast vendors are still in the early stages of development of IP-based production technology. Product interoperability is a major problem and the suite of standards necessary to make this achievable is emerging and evolving.

Some broadcast companies view the Audio Video Bridging (AVB) suite of standards as the basis of the future IP-based broadcast facility. Any such standard requires the buy-in of major network hardware vendors, and the roadmap for this integration is not clear. The professional broadcast production sector is tiny on a global scale, and vendors may be more concerned about the damage which Software Defined Networking (SDN) technologies may do to their traditional business than generating a handful of sales via AVB support.

In the second part of this article, dB Broadcast looks at specific issues in video and audio standards in the transition to the IP world.

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About dB Broadcast

dB Broadcast (dB) is one of the UK's largest and most successful independent systems integrators. dB is expert in broadcast system design and installation from studio through to transmission. With purpose-built headquarters in Cambridgeshire, UK, dB has 22,000 square feet of space for prefabrication and test of customer systems.

dB also designs and manufactures products for the broadcast industry including: Hawkeye for switching and monitoring all types of broadcast signals, MERlin DVB-T2 and DVB-T monitoring receivers, Showman multi-standard analogue TV receiver/demodulator and the Cardinal range of mains distribution units (MDUs).

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