As Aspera president and co-founder Michelle Munson explains, broadcasters are being pushed down an evolutionary path by the rapidly changing demands of today's audiences. There are now more TV services than ever before, some operated in a linear fashion in SD or HD and others on demand and via the Web - usually in a lower resolution.

"Whilst good for the consumer, the management of these new platforms and the associated formats puts greater demands on broadcasters as well as posing new challenges to software providers [and vendors]," says Peter Hajitoffi, managing director, Pebble Beach Systems. "It means that content cannot simply be digitised, checked and played out, as the same item may be needed for SD, HD, Mobile and IPTV channels. The volume of media that must be managed has increased dramatically and the processes and workflows have become more complex."

Gone are the days when a broadcaster could broadcast in a single format, to a relatively stable viewership; these days consumer behaviour is an ever-changing landscape that a broadcaster must navigate in order to remain in business. However, Bruce Devlin, CTO, AmberFin highlights the fact that whilst there are many new formats and platforms for consuming the media, the total number of paying consumers is not increasing at the same rate. "Fundamentally, this means that the broadcaster needs to produce each channel on a platform ever more cheaply whilst simultaneously differentiating themselves against their competition. This means keeping both technical and editorial quality high," he says.

**TASK MASTERS.** Adopting new technologies that enable them to deliver media, faster and more efficiently is a large part of this task. The biggest challenge is ensuring that the right material is in the right place at the right time in the right format, says Dave Collins, general manager for systems automation and control at Snell. Broadcasters have to source, manage and track this content throughout a project lifecycle, as well as throughout the process of repurposing data to enable distribution via multiple platforms – be it via the Web or to mobile devices.

"More formats means multiple versions of each media item and this means, more storage, more Quality Control (QC), more channel management, more editing and of course more playout," Hajitoffi explains. This could of course be managed by simply multiplying the effort in the old traditional way, but this requires much more manpower, space and expense he adds.

As Jonathan Try, VP, Technology at Amsterdam's Digital Media Centre (DMC) explains, it is very important to reduce the number of

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# MANAGI

IN THE QUEST TO DELIVER CONTENT TO CONSUMERS 'ANYWHERE, ANYTIME, ON ANY DEVICE', BROADCASTERS FIND THEMSELVES HAVING TO ACCOMMODATE LARGE VOLUMES OF MULTI-FORMAT, MULTI-PLATFORM CONTENT BASED ON CONSUMER DEMAND AND THE NEED TO DELIVER BEYOND CONVENTIONAL DISTRIBUTION. FARAH JIFRI DISCOVERS HOW THE BROADCAST INDUSTRY IS RESPONDING TO THE CHALLENGE

# NG THE BIGGER PICTURE

transcoding and ingest which can be scheduled directly or indirectly, points out Joel Ledlow, CEO, ScheduALL. A scheduling system bridges the gap between automation and content manipulation by inter-operating with both these systems to improve workflow, enabling users to search, source, and allocate resources and tasks before the files are sent back into the automation stack or intelligent DAM/MAM system. "This enables large volumes of data to be effectively shaped and managed enabling rapid movement of data on demand," Ledlow explains.

However as broadcast organisations grow, managing all the different elements of internal workflow from the different systems and depart-

copies of each piece of content. "DMC, for example, has opted for a maximum of two archived versions; the first a high quality copy, with separate essence files from which we can derive almost any format, and secondly in some cases a browse quality copy. This has been coupled with a high degree of flexibility in setting up new workflows to automatically convert content to the required format."

**SHAPING UP.** Storage also has a vital part to play in managing the ever-increasing volume of content and along with DAM/MAM systems is beginning to include a greater degree of intelligence, such as

ments requires the control and transfer of multiple information streams and frame accurate assembly for scheduled playout, Rob Leishman, marketing manager at Abit explains. "This requires significant storage and pre-processing of information. Multiple copies of the same material needs to be processed in differing formats for conventional broadcasting, in addition to Internet streaming and playout on hand held terminals," he says. "To manage large volumes of multi-format, multi-platform content tight integration at database level as well as file level is required to ensure real-time distribution of information."

It's crucial that as the volume of content and formats increases that broadcasters focus on managing it and codifying it as efficiently as possible. "Metadata of the correct depth and richness appropriate to the broadcaster's needs, and effective management of the metadata is essential. Speedy access to exactly what you want means commercial success, anything less is chaos," warns Belle Media CEO Kay Hutchison. "Broadcasters must understand fully how the content will be used so that storage and management of the vast and ever expanding databases can be developed accordingly. Perhaps focus on what is likely to bring the best value - think of your long-term requirements as you will not want to retro-fit new ideas."

**FILE-BASED.** Aspera's Munson adds: "While file-based workflows and digital delivery have been a reality for many years, it's only with the advent of high-performance digital transport technology, coupled with the availability and low cost of high-bandwidth networks, which has enabled their practical and cost-effective end-to-end implementation. Until recently, media companies had to resort to either physically shipping the storage devices or traditional network transfer methods such as FTP or HTTP which often fail to provide the level of performance, reliability and security that media workflows require."

As a result, content creators, aggregators and service providers have forged a complex supply chain in which file-based media is constantly created, repurposed and distributed to global audiences. Munson cites the example of ESPN, which has established twin 10GB per second fibre links between Bristol and Los Angeles to allow the facilities to pass content back and forth seamlessly between Quantel servers, as if they were adjacent edit suites at one location. The broadcaster uses Aspera's file transfer technology to facilitate file transfers in around 15 seconds.

Ultimately, quality content means profitability, says AmberFin's Devlin. The company's iCR technology is one way of achieving this regardless of the final delivery platform. "In today's difficult economic environment, one of the key factors that broadcasters will need to address is the efficiency of their new workflow," he adds.

**OUTSOURCE.** With the complex nature of delivering content to multiple platforms, and the ever-changing landscape of consumer demand, many broadcasters now look towards outsourcing as the answer to their prayers. For one thing, it eliminates the scenario of a complex and cumbersome back office system and delivers all the benefits of the latest technology without the burden of investment.

Outsourcing is a great option for broadcasters who need to benefit from shared resources, this could

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>
> JONATHAN TRY, DMC

use a small automation system that has the capacity to be expanded and provides easy integration with a transmission server," he suggests. "This will provide the flexibility to change the schedule just prior to playout while minimising the number of operational tasks in the transmission suite. Schedule changes can be reflected to all operator positions in real time, so that everyone is aware of the actual scheduled playout regardless of the media platform."

**LEGACY STSTEMS.** If outsourcing is not the option for them, the issue of legacy systems is one that broadcasters will have to deal with as their business model undergoes a radical shift. With vendors increasingly looking to consolidate, and many opting not to continue supporting existing devices, if a broadcaster's workflow – and therefore playout – has been based around specific devices then the broadcaster could well have problems, Leishman says.

Broadcasters in this position will need to adapt to accommodate the increased volume of material in numerous formats and to develop the capability to deliver this material via multiple platforms, according to Snell's Collins. "Detailed planning is crucial to ensure that the upgrade path chosen is cost effective, ensures maximum leverage of existing assets, minimises disruption within the organisation, and is future proof," he says.

A shift in thinking is also the recommendation from ScheduALL's Ledlow. Although there may be short-term pain, in the long run he believes that broadcasters will benefit. "Change – even for the better – is difficult. Despite the challenge inherent in transitioning to forward-looking systems, broadcasters have already started reviewing their legacy systems and workflows before they become limiting factors in their ability to realise a profit," he says. "Given the digital environment, many operations are rethinking their linear processes based on geography to now follow a content management workflow."

**CAVEAT VENDOR.** It's not just the broadcasters and broadcast service providers that need to keep pace with the shifting sands of consumer demand. Manufacturers too find themselves dealing with a much faster pace when it comes to product development. "Many manufacturers are still very focussed on producing and selling hardware, but more and more in our industry can be done in software. Changing an organisation's focus from hardware to software, while maintaining the quality, will be a huge challenge," says GlobeCast's Elvidge.

"Supporting this software as broadcasters and service providers integrate it and use it in mission critical environments will be even harder. The only solution is for manufacturers to embrace and promote standards and invest heavily on testing and quality control while avoiding special customisations for particular problems." The key challenge balancing the requirements of the broadcaster/service provider with the need to develop a system that is flexible enough to handle any future demands and has a low cost of ownership, says Collins. Switching to a more software-centric approach has allowed manufacturers the flexibility to achieve this.

"Manufacturers always have to develop their products to keep up with the demands and needs of their customers. Nowadays, the problem for automation companies is managing assets and dealing with the ever increasing volume of media, multiple formats and playout,

be a twenty-four hour operations team that a service provider can offer but would not be financially viable to have in-house," says Peter Elvidge, GlobeCast development manager. "It could be that a content owner has peaks of demand for transcoding work and a service provider could offer resources to meet this peak but use the resources for others during the quieter times, significantly reducing the cost of the transcoding."

Outsourcing is also effective where broadcasters need to deliver across many different platforms as well as different regions and time zones with content tailored to local tastes and demographics. As Try at the DMC points out, the size of investment necessary to establish archives, conversion, asset management and so on is not something that would appeal to most content rights owners. By combining the linear broadcast outsource with delivery to other platforms, outsourcing becomes very cost effective.

**QoS.** While Belle Media's Hutchison agrees that outsourcing the transmission and management of content is good, she points out that the technology is to a large extent a commodity; suggesting instead that the processes that are used to handle all the data capture are key. So it's vital to pick the right outsourcing partner. "It's quality of service that matters for the client," she contends. "The outsourcing partner must work with the client to fully understand their specific needs now and in future and guide them to the best arrangement. Outsourcing success is more about the management game than the technology game."

This personal touch is coming to the fore much more as economic pressure increases according to Aspera's Munson. "During the downturn broadcasters are looking to consolidate their IT investments and utilise low cost IP networks, which deliver high-resolution media worldwide while maintaining the quality of service. The adoption of high performance digital file transfer also means the need for third party distribution networks, which were once relied upon to deliver content for end users, is declining. The issues of customer loyalty and retention have meant companies are also providing a more personalised service and viewing experience in a bid to retain the providers, which again reduces the need to outsource."

Outsourcing also limits flexibility when it comes to changes to the schedule, future expansion and the broadcasting of a corporate identity, according to Abit's Leishman. "A better solution might be to

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whilst delivering a manageable and efficient workflow," says Hajitoffi. "At the same time, there is a need to reduce costs and to work with tighter budgets. Properly-designed software systems can bring in huge efficiencies that will result in smoother operations and cost savings for the broadcaster."

**PROJECT TIMESCALE.** According to Leishman, manufacturers now need to act as consultants and gain an understanding of the customer requirements quickly and also understand that things will change as a lot of different departments are involved. He adds: "From a systems perspective, the solutions need to evolve and take advantage of the expertise gained by employees to shorten the project time scale and hence the cost."

versions of the same content rather than just technically different versions."

DMC's Jonathan Try believes that it is easy to see that consumers will not be happy with linear channels forever. This doesn't mean that linear channels will go, he says; far from it, but they will have their share of viewers time increasingly competing with more flexible means of viewing offered by multi platform broadcasters.

**SURVEY SAYS.** A recent survey conducted by AmberFin reveals that 70% of the people polled agreed that the industry is failing to capitalise on the new market opportunities offered by the Internet, VoD and mobile as a result of the quality and cost issues associated with repurposing and delivering high volumes of content across multiple viewing devices. Respondents agreed that the current image quality of video content falls short of viewer expectations and needs improvement.

Over 35% of the industry experts surveyed rated image quality of content viewed via PC over broadband connection as being poor, or at best average, while 28% noted a similar disappointing experience via mobile phone or handheld device. The research also showed that industry experts believe better image quality is critical to adoption and linked to the creation of new revenues and services. 33% of respondents said only high quality video would attract viewers to pay or
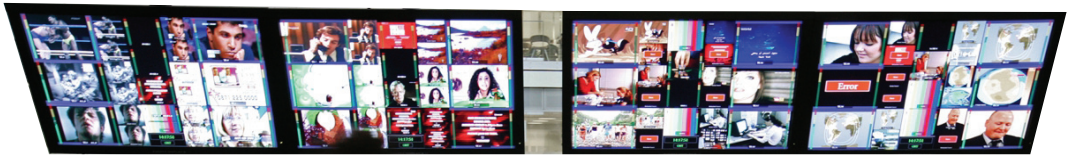


Hutchison believes that the primary challenge that manufacturers face is sustaining product differentiation. "Otherwise, their offerings will be commoditised. The challenge for manufacturers however, is that it is actually in the effective management of the human processes involved in organising data that their customers will help make the differentiation themselves. How manufacturers aid companies in this will be key," she says.

Ledlow also argues that products with the annual minimal enhancement are being re-evaluated for solutions that provide greater visibility and functionality across the enterprise. Broadcasters need tools and systems that are dynamic and flexible to the needs of today, as well as adaptable to the goals of tomorrow, he says. As a result, manufacturers and vendors are being asked to deliver solutions that are more in line with the evolution of the broadcast community. A more modular approach is one that manufacturers such as ScheduALL have increasingly turned to when developing products. Similarly we have seen user interfaces offering a greater degree of customisation to meet end-user needs. Ledlow urges broadcasters/ service providers to turn towards systems that offer this greater level of flexibility and scalability over legacy equipment.

**MULTIPLE CHOICE.** Broadcasters that might have seen mobile and web-delivery as a passing fad have now realised the trend is here to stay. If anything the concept of any content, anytime, anywhere to any device will mean greater diversification in terms of the platforms and formats they need to deal with as consumers' lifestyles continue to change and new delivery platforms are more widely adopted.

As Elvidge points out, once people have something it is virtually impossible to take it away. He adds: "People will naturally become more savvy about what content they want on what device and they will expect it to have been modified for that device. This means broadcasters and content owners need to manage artistically different

subscribe, while 44% believed viewers would consume more content via a mobile phone if picture quality were improved.

"Overall the message is clear: Content is still king. Content to any device is no longer a technical issue, it is a commercial issue of delivering it profitably to the multitude of devices at a price that retains the profitability of the media business," states AmberFin's Devlin.

**TECH SAVVY.** With technology development moving ahead at a pace never seen before, broadcasters have had to become much more nimble, able to keep pace with the changing appetites of a younger more tech savvy audience. Although, as Hutchison points out, in the short term, broadcasters that don't keep pace will not be too adversely impacted, in the medium to longer term, change will become inevitable. "People sometimes get a bit too excited about new services and approaches whilst in reality the majority of end users adopt new approaches rather slowly. Cash-constrained broadcasters might be reluctant - if they do hold back they still need to be across what is happening- watching and learning," she says.

Elvidge contends that the time for sticking to tried and tested methods is long past. "The traditional approach in many cases has already been eroded such that successful broadcasters need a varied approach to get content to their viewers. New technologies and systems are needed, not only to reach new platforms and audiences, but also to reduce operational costs and improve performance of traditional delivery. Assuming the available revenue for broadcasters is finite, now more than ever it's necessary to do more with less, without compromising quality," he explains.

The view is shared by AmberFin's Bruce Devlin: "Those who step up to the challenge and give consumers what they are asking for will create brand loyalty and industry recognition; conversely, for those who fail to do so, there is the risk of being left behind in the rush to embrace this brave new digital world," he concludes.