The Service Oriented Architecture

A tool for building interoperable media services

The AMWA and the European Broadcasting Union (EBU) have a task force developing a Framework for Interoperable Media Services (FIMS). The aim is to seek out a common approach to the integration of software components in modern media production facilities is believed to be a fundamental need of the entire media industry. The Service Oriented Architecture (SOA) is key to FIMS.

Broadcasters are subject to more and more pressures to improve their operational efficiencies in order to control cost. Broadcasters must deliver more channels and serve more distribution channels to meet increasing competition. Global media companies and the Internet provide competition for viewers that challenge the national media landscape that has evolved during the last half of the twentieth century.

To survive there is no option but to adapt to the changing media environment. Broadcast engineers can point to the efficiencies they have achieved in the migration from videotape operations to file-based workflows. But what is the next step?

A look around a typical broadcast facility will reveal a system that has grown organically purchase-by-purchase, and through the occasional large project like a new studio or newsroom.

Tens of software systems are linked in a complex web supported by many manual operations. Sure it works, it was designed that way, but when the time comes to replace a component part—say the playout automation—the inflexibility of the system rapidly comes apparent. The parts of the system are linked by a web of custom APIs, often restricted to a specific release of a specific software application. It is just not possible to swap out the automation for the latest product without attending to this web of interfaces.

The problems are not limited to the upgrade of existing systems, To meet the demands for new services, a broadcaster may want to add facilities for a mobile news service, a 3-D channel, and a social media web site,

Such services could be patched on the existing systems, but the whole becomes even more unwieldy. It is difficult to adapt or change the system without rebuilding all the interfaces.

Beyond the functionality, how can you manage such complex systems? Operational management are restricted in how they can monitor and optimise the many processes.

The search for a way forward

In the need to break out of these strictures, some media companies have looked to the experience of other sectors. Businesses from manufacturing to health, insurance to telecommunications, have adopted the Service Oriented Architecture or SOA.

Is SOA a magic bullet, and is it applicable to the media and entertainment (M&E) sector? The architecture has much to offer, but the M&E sector is small compared with telecoms, manufacturing and services like health and insurance, so has often been ignored by software vendors.

What sets M&E apart? Media files are very large. Data transfer rates can be very high. Add to that, many processes are creative.

A car is designed once, then millions are manufactured. Each TV program requires all manner of creative input throughout the production workflow. However, broadcasting can still be modelled as the orchestration of a number of services.

Consider a post-production facility. A post house offers their clients a list of services. These could include video editing, sound mixing and editing, transcoding, copying and captioning.

Services can be automated, like transcoding, but many require manual handling. Consider a work order to dub a tape. Others require a creative contribution, like editing and color grading.

The film and television industry makes programs (and commercials), so shouldn't the focus be on content, rather than services. Systems like media asset management handle the content.

Applying a SOA takes a different view. A look at the closing credits list the services used to make the program: the film editor, the online editor, the VFX, the sound dubbing. Services are at the core of program making, and services are the *business* of program making.

Some key points

What is SOA?

It's all in the words, an architecture for your business oriented around services. A SOA is a cross between a technology and a business system. And that is why the implementation of a SOA is not just buying another technology platform, but it is woven into the way you run the business.

Is it software?

A SOA-based system is a network of services, which could be provided by software but could also be provided by people. For example an editor provides a service, he or she cuts the program. On the other hand, transcoding is a service, but can be delivered as totally automated software process.

SOA is not the same as Web Services.

SOA may use Web Services to implement communications in the SOA, but SOA is an architecture, not a technology.

Loose coupling

Broadcast engineers are used to tight coupling, the real-time RS-422 interfaces used to control VTRs and video servers.

In a SOA, the services are loosely coupled. At the management level, this loose coupling between applications like DAM, billing, traffic and automation is all that is required..

What will SOA mean to me?

The adoption of SOA leads to a more agile organisation, that can adapt to change, that can optimise processes to control costs, and gives management better visibility in order to manage.

The existing web of frequently custom APIs and interfaces that link the business systems with the creative processes carry a cost overhead. You pay for the customization, and they lock you in the products you own. Upgrades and rebuilds often involve lengthy (and costly) integration with legacy systems.

In a SOA, interfaces are defined at the business level, not technical. So swapping out a service like transcoding or accounts for example, can be implemented without impacting the products or people providing the existing services. From this stems the business agility.

As broadcasters look to outsource more processes, from playout to archiving, an easily managable inteface becomes all the more important.

To find out more about the work of the AMWA, visit www.amwa.tv.