

dpp[®]

MAKING INTEGRATION WORK

Integration Expertise

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FOREWORD

With any new technology the path to success often presents intricate and complex challenges. So, as we explore and deliberate the power of integration, we ask ourselves, “Why is integration important? What benefits and insights does it offer? Which solution is best to implement? What connects all the data together?” These common questions likely elicit different responses, dependent of many factors. Certainly, we must step outside of the comfort zone of how we do things today. We must seek greater collaboration to unravel the true power of integration so that we can realize its maximum potential for tomorrow.

As media companies strive for effective integration of their systems and processes, its success is heavily predicated upon an ethos of flexibility. Various methodologies and approaches exist, some on premise and some cloud-based, each with varying degrees of functionality and capability. Big picture integration opportunities must address business applications, user experiences, multiple data sources, orchestration workflows, as well as security, monitoring, governance, and much more. We know the solutions exist, but then we wonder, “Who has the expertise to deliver?” Chances are that you’ll need strong contributions from both your current talent pool, as well as outside experts and vendors, to ultimately meet your business goals.

Vubiquity proudly supports the DPP and its ongoing, steadfast efforts to share knowledge across its membership, and encourage collaboration to solve media industry problems. As sponsors of the *Making Integration Work* series of reports, Vubiquity is committed to shaping the evolution of integration to enhance its viability, drive its effectiveness, and produce measurable results for all parties involved across the media supply chain.



Raman Abrol
Chief Executive Officer, Vubiquity

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Integration Expertise

	INTRODUCTION	4
	EXECUTIVE SUMMARY	6
	CONTRIBUTORS	7
1	A discrete discipline	10
2	Out of the box	13
3	Integration specialists	19
4	Doing it yourself	24
5	Developing capabilities	29
	CONCLUSION: Best of breed	36

Introduction

A modern media company relies on a wide array of software tools and applications, from cloud production to media management, from streaming video to HR and finance. Integrations between many of these software applications underpin critical workflows and supply chains, whether on premise or in the cloud.

But many organisations are now looking to take a more strategic approach to integration. They seek to gain operational efficiencies by providing a seamless integration architecture for the whole organisation. And they aim to connect and analyse data from across the business, in order to gain insights and enable true data driven decision making.

The Integration Opportunity examined the potential benefits of integrating applications, data, and organisational silos. And *Delivering Seamless Integration* explored common architectures for integration.

In this report, we investigate one of the most important questions: who is best placed to deliver successful integration?

Who is best placed to deliver successful integration?

Are the vendors of software tools best placed to integrate with each other? Or should you look to specialist integration platforms?

Are systems integrators as relevant for software integration as they were for hardware projects?

Or should media companies nurture the skills in-house to develop their own integrations?

We spoke to 60 business and technology experts from a wide range of DPP member companies to find out.

MAKING INTEGRATION WORK

Integration Expertise is one of three reports in a series, *Making Integration Work*.

Each document in the series examines a different aspect of integration; the others focus on [*The Integration Opportunity*](#), and [*Delivering Seamless Integration*](#).

You may also be interested in [*The Cloud for Media*](#) series, which explores the broader topics of cloud migration for media companies, and examines specific use cases including automation, post production, playout, and streaming.

Executive Summary

1

Software vendors are not systems integrators

Although many software tools have pre-built integrations with complementary applications, vendors should generally avoid building custom integrations, instead offering capabilities as APIs to be integrated by the customer.

2

Systems integrators will adapt or die

The discipline of systems integration is as relevant as it ever was, but the skills and capabilities needed have changed. As media technology overlaps more with IT, customers have more options, though media expertise is still highly valued.

3

Media companies need integration capability

Even when working with SIs, media companies are well advised to have some integration capability in differentiated areas such as business logic and legacy systems integration. But the amount of internal capacity required varies.

4

Integrate with multidisciplinary teams

Stop asking whether to hire media engineers or software developers, and instead bring both together with business experts, to form collaborative cross-functional teams.

5

Create building blocks for agility and innovation

An agile and flexible integration environment is achieved when software building blocks are available, well defined, and reusable. Good practices of documentation and sharing are a foundation for integration success.

Contributors

The content for *Making Integration Work* has been gathered through workshops and interviews with subject matter experts from across the industry. Valuable input has also been provided by our Lead Sponsor **MuleSoft**, and our Expert Sponsors: **mediaSaaS, Mux, Ross Video, Signiant, Skylark, and Vubiquity**.

Although the content of this report has been informed by these discussions, it should not be assumed that every contributor shares all the views presented here.

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A discrete discipline

KEY INSIGHTS

- ▶ The move to software and the cloud has disrupted traditional patterns of systems integration
- ▶ Media companies have developed the capability to integrate systems, but many do not have an organisation wide strategic integration capability
- ▶ It is useful to think of integration as a discipline in its own right, with its own set of skills and best practices

Decisions of insourcing or outsourcing key skills are hardly new to media companies. In the technology domain, there have been questions for many years about whether to create large internal software development teams or not.

In the days when media workflows were largely served by hardware devices, perhaps things were simpler. The standard approach to new integration projects was to use an external systems integrator (SI).

SIs provide specialist knowledge, resell the equipment, maintain close relationships with vendors, and provide the manpower to deploy the hardware. But with the migration of many workflows to software and cloud, the dynamic has changed.

“ In around 2015, as media companies started moving workloads to the cloud, they quickly found there was no SI for the cloud. So they found that all the technical, operational, and financial burden fell back on them to make it work for themselves.

JOE ZALLER, DEVONCROFT PARTNERS

This left many media companies having to develop their own skills, sometimes in an ad hoc way. They have developed the capability to integrate systems, but in some cases, not a strategic capability for broader integration.

“ There are lots of organisations with incredibly good architects and developers, but they tie themselves up in knots when it comes to connecting systems. I see organisations who've created thousands of point to point connections into their CRM or databases. They spend a lot of time connecting to the same system over and over again, and don't get any real visibility or control. Then when it comes to changing that system, they have to unpick all their integrations. There are better ways to connect systems so you don't leave lots of technical debt.

OLIVER WYNN, MULESOFT

Lots of organisations have good architects and developers, but they tie themselves in knots

So when a company sets out to seize the integration opportunity, how should they go about engaging the right expertise?

Each organisation's starting point is different of course; a young streaming company is likely to have fewer legacy systems than a mature broadcaster. Some companies have strong internal software teams, where others need to build such capabilities from scratch. As a result, their integration challenges will be fundamentally different.

“ At one end of the scale, we see companies with a great idea, but nobody who can deliver it. As many APIs as they have from vendors, they're missing the glue architects. In other big organisations with lots of developers, they do the integrations, but the enterprise architecture suffers – being so flexible, how do you ensure security? How do you ensure you're getting the greatest value from your vendors? Every company needs to understand where they are on that scale.

PAUL CHARLESTON, QVEST

To make matters even more complex, those on a modernisation journey often find that skills are more advanced in some parts of the business than others.

“ There have been huge advancements in cloud and API technologies in the parts of the business that deliver web and application development. But it's not so open on the video production side. It's started opening up now: cloud based playout, editing, post production are being made possible, but we still see integration pockets. There's broadcast operations, and the data team, enterprise applications, and the apps development, and they all have their own integration patterns.

KRISHNA POTHULA, RTL

We still see integration pockets, all with their own integration patterns

It is important, therefore, to work towards a common integration approach, and that requires specialist expertise.

“ How do we do integration? How do we connect systems? How do we do error handling? How do we do data mapping? All of this is usually well documented and well established, whether within the customer or in an SI. It's a discipline by itself.

BRUNO CARDOSO, COGNIZANT

Many of the practices that make up the discipline of integration are discussed in [Delivering Seamless Integration](#). In the following sections, we'll explore whether that discipline is best provided by software vendors, systems integrators, in-house teams, or a combination.

KEY INSIGHTS

- ▶ For simple integrations between complementary tools, vendors often provide capability out of the box
- ▶ There is a trend away from vendors building custom integrations for clients, accelerated by the move to SaaS
- ▶ Orchestration and integration tools are becoming decoupled from MAMs, and need not always be media specific
- ▶ The range of components in modern media companies' workflows means that vendors' support with integration is necessary, but not sufficient

It should not be overlooked that individual software vendors often provide extensive integration capabilities. Most commonly, they provide standard integrations with complementary tools.

A media asset management (MAM) product might provide connectors to common transcoding tools, for example. In the case of software as a service (SaaS) products, configuring an integration may require nothing more than authenticating the connection.

“ We have integrated SaaS tools where you don't need to do anything. You just buy the software, and the integrations are in place. Social feeds are a good example. You don't need to build those integrations, they're just part of the software as a service.

KRISHNA POTHULA, RTL

When the required integrations aren't already available in a product, many vendors will be happy to develop them in conjunction with the customer. Often, the results will be useful to other customers, and so they become product features.

“ More and more, we're getting vendors to up their game. To provide APIs, and to integrate with others' APIs. In many cases, those integrations are reusable for multiple clients.

DANIEL ELIAS, VICE MEDIA GROUP

We're getting vendors to up their game developing reusable API integrations

“ As a vendor we can never expect to get everything exactly right for every customer use case. So we work with customers to write an integration, and then to feed that back into the product. We've found that a really good way to enhance our offering and solve real world use cases.

MIKE FLATHERS, SIGNIANT

FLEXIBILITY AND CUSTOMISATION

It is, however, possible to have too much of a good thing. And that includes flexibility from vendors.

Caution must be used when implementing less common use cases, or integrating to custom applications, to avoid a product becoming too customised.

It is possible to have too much of a good thing, even flexibility

“ We’ve all worked with companies where the longer you had the software, the less off-the-shelf it became, because the vendor was so flexible.

BRIE PEGUM, IMAGEN

“ It has an economic impact, because it costs a lot to support custom solutions.

SEAN GIGREMOSA, PREMIERE DIGITAL

The trend towards SaaS strengthens the case for resisting customisation within products. A SaaS provider maintains a single instance of their software for many clients, so any custom code is generally deployed across all customers. While it is possible to use techniques such as feature on/off switches to limit exposure to certain clients, the maintenance overhead for the vendor is invariably increased.

SaaS strengthens the case for resisting customisation within products

Increasingly, software vendors instead meet customers’ needs without customisation by providing more fully featured application programming interfaces (APIs). This ensures that customers have the ability to interact with a product’s capabilities programmatically, giving them the option to implement custom business logic or integrations externally.

“ We’ve done a lot of work on developing our APIs over the last 18 months and it’s been great for us. It’s reduced the amount of custom development work we need to do per customer and has smoothed and simplified our onboarding process. This in turn has freed up our development team to work on things that help Blackbird to innovate and evolve.

DUNCAN WARRICK, BLACKBIRD

Vendors will rightly point out that API development is like the creation of any other feature, however. New capabilities must be added to APIs over time, and supported once developed. It therefore becomes important to identify products that have the right APIs, and vendors who prioritise providing and supporting them.

“ We develop APIs and we add features into those APIs to do what we think our customers might want. But invariably there will be new requirements, because as a vendor we can't think of everything up front. So it's important that you choose the right vendors who can make those adaptations.

PETER HAJITTOFI, CORALBAY.TV

It is important for vendors to prioritise providing and supporting APIs

INTEGRATION AND ORCHESTRATION

When individual tools offer up their functionality via APIs, some external logic is required to initiate requests, apply business logic, and orchestrate systems. The advantages of different options for this – from building custom 'glue' code to using dedicated integration platforms – are discussed in [Delivering Seamless Integration](#).

Using an orchestration or integration platform has the added advantage of the expertise and assistance provided by that platform's vendor. So choosing the right vendors here is important.

Traditionally, a MAM would often become the de facto orchestration layer for many media organisations. It connected to systems as diverse as storage, quality control (QC), editing, transcoding, and delivery. But many now feel that the functions of orchestration and integration ought to be separated out into dedicated tools.

“ Those monolithic approaches don't necessarily work very well. You need to decouple complexities, and have different tools for different parts. Having a MAM be the front facing tool for journalists for example, but having the technical tools on a different layer, and decoupling technical and business rules.

CHRISTOPH JURKUHN, HISCALE

Increasingly, broader questions are also being raised about the advantages of media specific versus generic orchestration tools.

“ One of the key questions about next generation technology and cloud deployments is whether or not a media specific workflow orchestration layer is needed. While opinions vary, there’s increasing weight on the side of ‘probably not’. There’s a high level of agreement throughout the industry that modern workflows are loosely coupled and event driven, and there’s a lot of pressure to keep them simple. We increasingly see customers take lightweight approaches by using general purpose policy engines or serverless compute functionality.

MARGARET CRAIG, SIGNIANT

Opinions on whether a media specific orchestration layer is needed increasingly trend towards “probably not”

In the industry as a whole, there is perhaps a case for both to exist. Not least because some organisations see value in applying both media and generalist orchestration.

“ In media there’s plenty of functions that are commoditisable. When it comes to data processing, I’m a big believer in separating out the commodity data processing aspects, and separating them from the things that are really media specific. So there is space for a really media specific integrator, but there’s also plenty of space for a commodity ESB or other tools.

DAVID KLEE, A+E NETWORKS

The scope of the problem to be solved will of course shape the right decision for any individual organisation. But integration and orchestration tools are increasingly important, and it is clear that the relationship with your integration or orchestration vendor will be crucial.

MANY MOVING PARTS

Without doubt, individual software vendors bring a range of capabilities and skills to the world of integration. There is no question that they are critical partners for media companies. Yet the trends described in this chapter point in a common direction.

Individual software vendors are exposing more capability via APIs. They simultaneously wish to deliver fewer customised integrations. Capabilities such as asset management and orchestration are being modularised. And general integration platforms are increasingly used in addition to media specific orchestration tools.

All these trends point towards more flexibility but also more complexity

All of these trends deliver greater flexibility. Yet they increase the number of individual components that are likely to be required to make up a solution. The challenge was summarised succinctly in [The Integration Opportunity](#).

“ You can increase flexibility and agility, or reduce complexity, but you can't do both.

GARTNER

There are simply too many elements and vendors involved in most modern media companies' technology infrastructures for the individual software vendors to manage all of the integration requirements. Additional effort and expertise is required.

So then, when is it right to turn to an external specialist systems integrator, and when should capabilities be grown in-house?

Integration specialists

KEY INSIGHTS

- ▶ The systems integration market has been significantly disrupted by the move to software workflows
- ▶ But systems integration skills are still important and relevant; the key is to find a partner with the right expertise
- ▶ Those partners now come from a broader pool: traditional SIs that are modernising, specialist cloud consultancies, and even IT industry integrators
- ▶ The most effective SIs do more than procure products and connect them together. They are advisors, consultants, and providers of scalable resource

For decades, the broadcast industry relied heavily on systems integrators. Major technology implementations involved deploying racks of hardware. It was a strong advantage to have one partner to procure, connect, and commission that hardware.

But as spend increasingly shifts towards software, systems integrators need to adapt if they are still to be a useful source of skills to connect these end to end supply chains.

As spend shifted to software, some questioned whether SIs were the best source of integration skills

“ The people that we tend to call on to help us scale when we do a big project are also evolving. Many still want to start everything in CAD software. But full IP systems do not have a defined and set state – so this approach only works for the racking aspects of equipment. More expertise with full IP and cloud based systems is needed.

GORDON CASTLE, DISCOVERY

Although many companies have developed in-house capability, most have so far also relied on software vendors to pick up some of the slack, as discussed earlier in [Out of the box](#).

“ The rise of D2C led to a lot of internal builds, because media companies realised (or believed) that they needed to control more of their tech stack. While doing this, they started to get vendors to include systems planning in their RFP responses, effectively pushing some of the integration work on to vendors and taking it away from the integrators.

JOE ZALLER, DEVONCROFT PARTNERS

But as supply chains and infrastructures get more complex, this approach may not be sufficiently scalable. There was a view from a number of contributors that separate integrators are still necessary in many cases.

“ Partnerships with your vendors can make the SI role less important. But you don't want to throw out the baby with the bathwater. You still need to think about the details of the integration, and the custom products or customisations that you need to account for.

RICHARD AMOS, SKYLARK

“ What I’ve seen is that people generally start with a vendor partnership, and then they start to build internal teams around optimising their processes. Initially when you want to start out on new initiatives, it’s always been best practice to work with experts in the domain, such as systems integrators.

SHYAM VISAMSETTY, NAVTECH

Over the last decade, the need for software specialists who understand media integration led to the rise of a number of small, specialist workflow and cloud consultancies. But traditional SIs are evolving too.

“ The role of the Broadcast SI has evolved, and the landscape has changed. We started to transform our business a number of years ago by investing in training our technology staff in areas such as networks, IP video and IP audio. We developed data models and tools that provide project agnostic methods of defining a system. And we did all that because we feel companies that want to stay relevant need to embrace change and adapt their offerings accordingly.

DAVID BIRD, DB BROADCAST

Some SIs have embraced software, and others are becoming less relevant

The key is to identify which prospective partners have the skills you need. The use of more generic (i.e. non media specific) software tools leads to the possibility that non media specific integrators might also have a useful perspective.

“ Media and entertainment is changing from an artisanal craft with lots of bespoke workflows, to trying to adopt the infrastructure of the data centre. So any systems integrator that knows enough about the data centre, and can also work on media specific workflows, that’s the people that you want to do your integration.

TOM BURNS, DELL

Media has changed from an artisanal craft to infrastructure in a data centre

SCALABLE INTEGRATION

Having recognised the need for dedicated integration skills and effort in addition to individual software vendors, one might still logically ask: why seek these skills externally rather than building them internally?

For organisations with sufficient scale, insourcing is undeniably a valid option, as it always has been.

“ You could always have done what an SI did – you could have employed the wiremen and designers to do it yourself, but it comes at a price.

PAUL CHARLESTON, QVEST

You could always do what an SI does, but it comes at a price

But the promise of the effective SI is that they are a trusted peer. They have domain expertise in integration, and can bring experience and lessons garnered from working with many customers, to combine with your own detailed knowledge of your particular business. They augment the internal team to add both scale and expertise.

“ There’s a number of occasions where we’ve embedded our design team with the client to ensure the project is a success. You’re going on that journey together. So when we’re doing the handover we also ensure that the client has the tools and experience to maintain and expand the new system.

DAVID BIRD, DB BROADCAST

Like a good consultant, they have the ability to bring new perspectives, casting fresh eyes over existing processes, workflows, and solutions. They can offer suggestions and improvements, and in some cases may even be able to navigate organisational silos and politics more effectively than internal teams, simply because they are neutral outsiders.

As software defined workflows are increasingly deployed and evolved in an agile, iterative way, there might be less need for major projects requiring SIs. But those moments of transformation do arise, and SIs provide flexible capability at times of need. It might be valuable to have software and integration skills in-house, but media companies may not want to increase the scale of their own teams to deal with this peaky demand.

Agility and scalability are hallmarks of cloud supply chains; why not of the teams that build them?

After all, agility and scalability are hallmarks of cloud supply chains; why not of the teams that build them?

A brief online search already reveals the emergence of the term 'Systems Integration as a Service' (SIaaS). Scalable expertise is perhaps the real selling point for the modern systems integrator.

Doing it yourself

KEY INSIGHTS

- ▶ Most media companies have a need for some internal capability to build and manage integrations, retaining flexibility to change with evolving business needs
- ▶ The right amount of in-house development and integration capacity varies with each organisation's context, history, and strategy
- ▶ In most cases, internal teams should focus on differentiators such as unique business logic, and integrations with bespoke or legacy systems
- ▶ Therefore the understanding of business processes, and of the value being delivered through integration, is more critical than the technical capability

If added value can be provided by systems integrators, one might question whether media companies still need to have in-house integration skills too.

But, while SIs are engaged on a project basis, in-house teams can adapt and change software defined workflows and integrations as business needs evolve.

“ We want to be empowered to evolve our own business processes. We don't want to have to phone an external vendor for that.

DAVID KLEE, A+E NETWORKS

We don't want to have to phone an external vendor to evolve our own business processes

“ People talk as though it's a one off thing that happens at a particular point in time and you're done. But I see these as evolving and continuous processes that happen between our customers and different vendors' products. So if it's something you need to evolve and change with your business, that perhaps tells you something about where you want to do the integration work.

NICK WRIGHT, PIXEL POWER

BUY OR BUILD?

The line between software integration and software development is blurry. When does a piece of 'glue' code become an application? Where business logic and other code come into the equation, a clear strategy or set of guidelines on when to buy and when to build is essential to ensure that integration remains coherent, manageable, and scalable.

The question of buying or building can be as much a cultural question as a technical one. At [The Leaders' Briefing](#) in 2021, one broadcaster CTO reminded us that software developers – perhaps unsurprisingly – like to develop software.

“ I'm not sure that my teams are really curious to get your help either. Because it's an enormous team that would like to build. I'm really afraid in the upcoming years that I will have a legacy of a lot of development that really doesn't work into the future.

ADDE GRANBERG, SVT

In reality though, the choice is a continuum not a dichotomy. There will be some need to do integration in-house, some need to write code, and many elements that can be bought in.

Buy versus build is a continuum not a dichotomy

“ As a media company it’s not about build versus buy – it’s deciding what percentage are you going to build, and what percentage are you going to buy. Being specific about what you’re going to build. In our case, it’s as simple as the system that manages the video ID. Because with that we can integrate with any vendor, all sorts of integrations, and map it all to the video.

PETER ANDERSON, VICE MEDIA GROUP

“ You have to figure out where your company belongs on that continuum of how much do you build, how much do you buy, and how much do you stitch together? Everyone is somewhere on that continuum, but it depends on the company. What makes sense for a streaming platform with huge investment doesn’t necessarily make sense for a traditional broadcaster, or for an upstart company that’s just trying to get in the game.

JON FINEGOLD, SIGNIANT

Understanding your own organisational context is certainly an important factor in the decision making. But perhaps the most important step is to understand which capabilities or functions are strategic differentiators. This is why integration code is usually considered independently of broader application development.

“ We want to focus our development effort on things that bring value to our business. If a solution is commodity and does not bring any distinguishing factor to our products then we rather not build it but buy it. It needs to provide unique added value. We want to take the best tools from the market, but we often build the integration ourselves.

KRISHNA POTHULA, RTL

So what are the strategic differentiators that matter to media companies? What capabilities justify in-house development?

Two areas emerge as most common. The first is the understanding of business needs and workflows, with the associated creation of unique business logic.

“ I’ve always believed in being very strategic about what value an internal team adds. We shouldn’t be building tools like transcoders or media processors. But we should be working to leverage the commercial tools, to make them work the right way for our business. I am a believer that the internal team knows the business needs better and has more context, so they can get more done quicker.

DAVID KLEE, A+E NETWORKS

“ We put an enormous amount of effort into the analysis and the design and the optimisation. We’re agile in the way we deliver, but we’ve got a very clear and optimised workflow that we’re aiming for. We’ve got more business analysts and subject matter experts in the business than developers.

ANTONY JOYCE, UKTV

We’ve got more business analysts and subject matter experts than developers

This understanding of business needs is a significant way that internal teams deliver benefit. When they build integrations, they can – and must – align that work to business value that will be delivered. By doing so, the foundations of flexibility and composability are realised.

“ Before trying to build any API, it’s always useful to ask yourself, what business objective will this API help me achieve? How can I design this API so it’s easy to self service, secure and reuse? These are qualities of a productised building block. They need to serve a specific purpose, such as unlocking data from systems of record, orchestrating that data or presenting information to a user. By doing so you can decouple data and processes from your systems and can compose the desired experience by linking together these building blocks or APIs that have been either previously built by someone or are being built by you.

ABHINEET ASTHANA, MULESOFT

The second reason many media companies build their own integrations and abstractions is that they have existing in-house systems. Whether legacy applications or highly specialist tools, it is common to have some bespoke systems that need to be integrated into the overall architecture.

“ [Our integration platform provider has] done all the application level integrations, which I think of as abstract from our use cases and business logic. I could wire something up in a serverless cloud function to call the transcoder and process the output. But what value am I bringing at that point?

Meanwhile, there's tremendous value in an internal team building the integrations into our internal systems. Not only to build it in a way that makes sense, but also to build it in a way that reflects the way people want to work.

DAVID KLEE, A+E NETWORKS

In the end, however, the amount of internal integration and development capability will be an individual decision for each organisation. Almost all will need some competencies in-house, but few will want to do it all themselves.

All media companies need some integration competency in-house, but few will do it all themselves

“ It comes down to a strategic preference. We like to do as much as we can for ourselves, developing and building our capabilities. It's not just about the development, it's about supporting it thereafter.

But it's a blend. We try to leverage the capabilities and the skill sets and knowledge that we have internally, but we also pull on our vendors to work with us.

STEWART CURTIS, WARNERMEDIA

We've seen that there are important decisions to be made about the extent and type of integration work that a media company should perform in-house. However, the biggest challenges faced by many of our contributors relate to finding people with the required experience, and developing the right skills and capabilities within internal teams.

KEY INSIGHTS

- ▶ Media companies are suffering shortages of technical skills, which can only be overcome by investing in people, training, and collaboration
- ▶ Different disciplines require different approaches; live production is still much more specialised than media management and streaming
- ▶ Teams of all-round experts are hard to build, but multidisciplinary teams that mix broadcast and IT engineers can be just as effective
- ▶ Innovation happens when integrations are well documented, and made available for use across the organisation

Skills shortages are some of the most critical issues facing the media technology industry today. Media companies from around the world have reported the challenges of recruiting and retaining talent with sufficient skills in software and information technology, as well as an interest in – and understanding of – media.

We still ask the seemingly age old question: is it better to teach broadcast engineers about software, or software engineers about broadcasting? The consensus from our contributors was that software engineers have a lot to offer, and to teach us.

“ Where we found success was in getting people that had very strong IT skills, but found media fascinating. They’re a bit hard to find, but if you find them, they can do wonders for you. They can work with the subject matter experts who know what we need to accomplish, and achieve it in a way that is more IT centric.

GORDON CASTLE, DISCOVERY

We had success with people that had strong IT skills but found media fascinating

“ We’ve hired developers throughout our existence who’ve never worked in video, and they’ve managed to do everything that needed to be done for any customer in terms of integration. I think fundamentally that’s because the underlying problems are the same technically, it’s just the specifications that are different. The real problem is the snowflake mentality. The industry in general could learn from other industries that have just ended up with a load of REST APIs that you just look at the documentation for and use them. There’s a lot of anachronisms.

RICHARD AMOS, SKYLARK

The real problem is the snowflake mentality. We could learn a lot from other industries

Perhaps the story is the same for individuals as it is for companies; making the transition from technology to media has clear advantages. Companies such as Netflix come with Silicon Valley DNA, and provide some of the most extensive and well documented APIs seen in the media industry.

But to characterise an engineer’s transition from pure IT to media engineering as simple would be a mistake. When taking on staff from other industries, companies with more legacy technology and workflows are likely to experience greater challenges than newer digital first companies.

“ It’s important to have access to developers with the right legacy experience. We’re often having to integrate old systems into the new world. And there’s a lot of complexity in broadcast that may not be documented, or people have forgotten about. If you haven’t got the people on your team that have come up against this stuff before, it can be quite an issue.

ALAN PIMM, MEDIASAAS

ONE SIZE DOES NOT FIT ALL

We often consider media technology as if it is one discipline. However, there are many different specialisms.

**Media technology is not one discipline;
it has many specialisms**

Areas such as direct to consumer streaming tend to align more closely with the wider world of information technology and internet content delivery. Other parts of the business may be more specialised, and that affects the skill levels that companies have in-house.

“ On the broadcast and especially studio side, there is very little integration knowledge in-house. It’s all based on using systems integrators. As we move more towards direct to consumer, there is complete knowledge inside the company. It’s a major contrast.

KRISHNA POTHULA, RTL

“ Whether you’re in engineering or project delivery, understanding the workflow is really important. These differ depending on the area and therefore you need people who understand the intricacies of them, whether that be MAM or live workflows. Most recently, a number of our projects have had a significant focus on live workflows.

MIKE BRYAN, DB BROADCAST

The technology for live production in particular – whether studio based or outside broadcast – requires a specific skill set. This is in part due to the demands of working with real time streams of video, audio, and data. But it's also because some of the fundamental technologies are unique to our industry.

Live production technology in particular requires specific skills

Protocols such as SMPTE ST 2110 do operate over IP networks, but they come with unique requirements which mean that they are most commonly deployed on dedicated network, not in a generic IT environment. Therefore, general IT integration expertise is not sufficient.

“ Metadata, media assets, workflow orchestration could be in the cloud. But the live part stays on the ground for now.

KRISHNA POTHULA, RTL

ITN's Director of Technology outlined the challenge at last year's *Leaders' Briefing*.

“ In twelve months' time, we will have a nicely established 2110 news production system with all the capability of a really flexible, powerful system. And we'll also have a world of virtualised cloud based tools, pop up experiences, and new dynamic requirements. But what we're missing at the moment, is the world where they neatly come together. We know we want to be able to move our media around those spaces. We also want to be able to move our broadcast comms around. And at the moment, they very much feel they sit apart. And so this is an appeal for further discussion. We're really interested in speaking to vendors and partners who can help us understand the best way to merge these two growing parts of our business.

JON ROBERTS, ITN

Even the expert systems integrators feel the same challenges, and find themselves needing to have specialists in each domain.

“ We’ve got some people who are beginning to cross over between areas of expertise. But for ST-2110 for example there are a whole bunch of very specific nuances about how all of that works, so you end up building a core set of competencies within that sphere.

MIKE BRYAN, DB BROADCAST

MIX AND MATCH

The ideal engineer or architect might be someone who has excellent knowledge of media technologies, video workflows, and software architecture. But contributors continue to report that these people are rare.

“ Software people with a broadcast bent really make the difference, but are extremely hard to find.

MIKE BRYAN, DB BROADCAST

“ Those people are in short supply. That’s a problem we’re all having. So to attract and retain the good people you need to treat them well and you need to provide them with an environment where they can do quality work.

FRANÇOIS CHABAT, BEBANJO

Software people with a broadcast bent are in short supply

The pragmatic solution is to build teams with specialists in multiple disciplines. By buddying, cross training, and working collaboratively, each group can help the other.

“ Do you take a video expert and teach them to code, or do you take someone with integration expertise and teach them video? I have been melting engineers’ brains with timecode for the past two weeks! I think you have to walk that line, and probably have a mixture.

HILARY ROSCHKE, SDVI

“ I think you want a healthy mixture of people who are very familiar with the unique problems of broadcast, and some people who aren't. You get that freshness, that innovation from people in adjacent industries who are used to working with generic large scale systems integration. They've seen problems like yours, but that aren't specific to broadcast.

BRIE PEGUM, IMAGEN

You get a freshness and innovation from people who come from adjacent industries

EMPOWERING COLLABORATION

With so many different specialisms and specialists, it is imperative to enable and encourage good collaboration. Individuals must be given the opportunity to share knowledge and to learn from each other. And to enable the broadest range of innovation, teams should be able to share, reuse, and build upon each others' work.

Enterprise integration platforms, and increasingly media orchestration tools, have app stores or marketplaces. These act as gateways to both standard and pre-existing integrations with off the shelf tools, and to APIs and integrations that have been created in-house.

Gartner's model of the composable enterprise calls for discrete capabilities to create APIs, curate a marketplace of them, and compose them into applications, for consumers to use.

Whether following this formalised model or not, a managed way to share APIs, integrations, code, and examples is strongly recommended.

“ Being able to see development work that's been done by others is a huge shortcut sometimes. It may not be that you can always reuse the code, but if someone's already shared an example of having achieved something similar to what you're trying to do, then that's a huge help.

DOMINIC BROUARD, VICE MEDIA GROUP

Being able to see development work that's been done by others is a huge shortcut

It is also hard to overstate the importance of documentation. Although it has always been important to properly document code, correct documentation around APIs and other interfaces is a prerequisite for successful integration. This applies equally whether it's for an internal API or that of a commercial product.

“ The value of documentation is underestimated. But I guess it goes back to the speed problem. We're asking everyone to run so fast that no one ever has time to write up the documentation. Maybe we're our own worst enemies, sometimes.

MARTIN RICHARDS, SKY

“ When we pick and choose who we integrate with, a lot of the decision is based on the quality of their documentation. It is so, so much easier to integrate with someone – whether it's an API or a message queue – if the documentation is good and well written. It defines how well our solutions team can take that information and turn it into a scope of work for the development team.

ASHLEY HORNE, SIMPLESTREAM

“ API documentation is key to a successful integration. Samples of code and test platforms are also extremely helpful.

DUNCAN WARRICK, BLACKBIRD

For most media companies, internal teams will be most effective when they comprise experts in business processes and workflows, media technology, and software. Those teams will achieve the most success when they have good governance and practices such as documentation. And their work will have the most impact when it is shared and made available for others to reuse wherever possible.

CONCLUSION

Best of breed

In the *Making Integration Work* series, we have considered how media companies can form the right approach to integrating software, workflows, and data. In *Integration Expertise*, we've seen that achieving your integration vision requires a thoughtful approach to capability and expertise.

Achieving your integration vision requires a thoughtful approach to capability and expertise

Most media companies now take a 'best of breed' approach to their technology, mixing software building blocks from many different vendors. While the majority of these building blocks will be commercial off the shelf (COTS) products, most companies also need to develop some of their own custom integrations and business logic.

“ Build versus buy has always been a continuum rather than a single binary decision.

MARGARET CRAIG, SIGNIANT

A similar 'best of breed' approach works best for resourcing. Success is usually achieved by mixing internal and external expertise to deliver the best results.

Media companies must forge close relationships with their suppliers, including vendors of software applications, integration systems, and infrastructure. And when additional resources or expertise are called for, there is still a strong case to bring in specialist systems integrators.

But external suppliers alone cannot be expected to build a deep understanding of a customer's workflows, business processes, and evolving needs. Internal skills are also needed: to choose and connect the right software tools, to create internal APIs, to curate and manage different integrations, and to build unique business logic.

Perhaps now more than ever, every media company needs some software development and integration skills in-house. Investing in skills is as important as investing in technology, and as media and IT converge, high performing teams include experts from both domains.

**Every media company now needs
software development and
integration skills in-house**

Making Integration Work was researched and authored by **Rowan de Pomerai**, and the reports were designed by **Vlad Cohen**.

The workshops were organised by **Abdul Hakim** and **Anh Mao**. Additional support and accompanying materials were provided by **Edward Qualtrough**.

About the DPP

The DPP is the media industry's business network. It is a not-for-profit company with an international membership that spans the whole media supply chain, covering global technology companies, production companies, digital agencies, suppliers, service providers, post production facilities, online platforms, broadcasters, distributors and not-for-profit organisations. The DPP harnesses the collective intelligence of its membership to generate insight, enable change and create market opportunities. For more information, or to enquire about membership visit

thedpp.com

About Vubiquity

Vubiquity, an Amdocs company (NASDAQ: DOX), is a global media and entertainment technologies, products, and services provider. Vubiquity provides established expertise and innovation across the whole media supply chain from content processing and distribution; direct-to-consumer streaming and monetization; through to systems integration and professional services. With an extensive range of core competencies that can be rapidly and flexibly deployed, the world's leading content owners and service providers trust Vubiquity to power their consumer-facing, entertainment experiences.

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