WHERE'S THE DNA OF YOUR BROADCAST AND MEDIA SERVICE?

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THE BROADCAST, MEDIA
AND SERVICE PROVIDER SCENE

It's needless to state that the global broadcast, media and service provider industry is going through some pretty radical changes, and that its very foundations are continuously shaken by new waves of disruption.
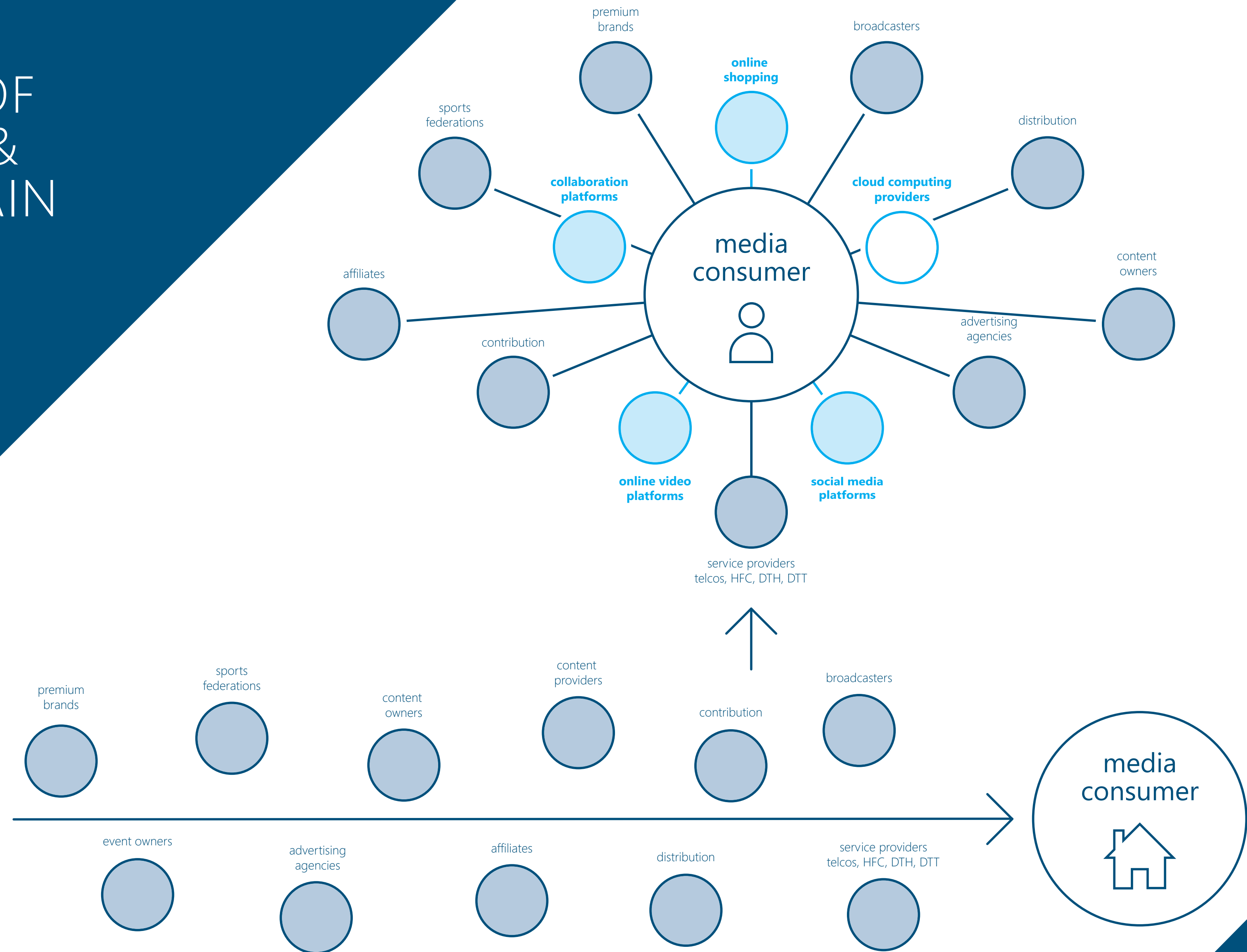
Suddenly, the traditional players that were living happily alongside one another in a fairly well-defined and static broadcast value chain find themselves face to face in one big new and entirely re-defined arena. And as if that was not confusing enough, global internet behemoths are also stepping into that very same arena.

And today, an intricate play is unfolding where courtship and competition go hand in hand in an almost Shakespearian fashion.

ABOUT THE AUTHOR

Ben Vandenberghe, CEO at Skyline Communications, is one of the industry's thought leaders and visionaries in the area of next-generation end-to-end network management solutions for complex broadcast, satellite, cable, telco and mobile ecosystems. Ben Vandenberghe has reoriented and subsequently led Skyline Communications to become the acknowledged global leader in end-to-end multi-vendor network management software technology. Based on highly innovative and even disruptive concepts, the now renowned DataMiner platform was developed by Skyline Communications from the ground up, completely redefining how the most complex technology networks and systems can be managed more efficiently and more intuitively than ever before.

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THE EVOLUTION OF THE BROADCAST & MEDIA VALUE CHAIN

premium brands

broadcasters

online shopping

distribution

sports federations

collaboration platforms

cloud computing providers

media consumer

content owners

affiliates

contribution

advertising agencies

online video platforms

social media platforms

service providers
telcos, HFC, DTH, DTT

premium brands

sports federations

content owners

content providers

contribution

broadcasters

event owners

advertising agencies

affiliates

distribution

service providers
telcos, HFC, DTH, DTT

media consumer

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RAPID CHANGES IN THE MEDIA LANDSCAPE LEAD TO AN INDUSTRY WITH NO CERTAINTIES, BUT PLENTY OF OPPORTUNITIES

You name it, and it has made the headlines over the course of the last years. Internet companies have built media platforms that attracted a global audience, bringing them on a par with some of the largest cable operators in no time. Telcos acquire cable networks, and cable networks acquire mobile networks, heralding the real consolidation of different physical delivery infrastructures, both wired and wireless. Service providers and distributors have acquired exclusive content, or simply started producing their very own premium content.

But at the same time, established content creators with strong brand value now launch OTT services and go directly to the consumer, cutting out the middle man. And why not? Even premium brands ranging from commodity consumer products to sports federations, up till now never directly involved in media, now build up their very own media operation, leveraging their brand in an attempt to strengthen their relationship with the consumer. Apparently, every executive in this industry has suddenly been reminded that there are simply no certainties and only opportunities.

WHAT IS HAPPENING EXACTLY?

If you take a careful look at all of this, a lot of what's happening of course simply revolves around one objective, and that's truly owning the so-called user experience. The content strategy, which has proven to be quite successful, is all about creating an exclusive offering for the user. The acquisition and consolidation of different types of service delivery networks is all about being transparently connected with the user at any time, and being able to deliver a highly personalized on-demand service offering to that user, wherever they may go and whatever platform they have at hand at any given time.

However, owning the user experience is not only about strategy and going through mergers and acquisitions, whether this is for reasons of scale, consolidation or content. Because who is this elusive user? Obviously, to start with, the user has evolved from a physical home (i.e. a group of people) towards an individual person, which has fundamentally changed our perspective. But equally important, we need to understand that this media consumer population of individuals is increasingly dominated by millennials, with Generation Z emerging very quickly now.

This is a generation that has developed a very specific expectation of instant and effortless gratification, nurtured by the rise of social media, instant news updates and online shopping, just to name a few. Their expectations towards media? Plain and simple: to be permanently connected, watching personalized content, at any time and any place, on any platform at hand. It's safe to say that consumer expectations are actually ahead of what the media industry is effectively offering, and that's an important consideration to remember. After all, fully understanding the expectations of the consumer and translating these into a tangible, viable and matching service offering is one of the important challenges these days.

You could even argue that the most advanced on-demand service is not even close to living up to the expectations of the consumer. After all, it's only a mediocre attempt to provide users with the content they want, by giving them sufficient choice. We try to mitigate its shortcoming towards user expectations by adding analytical recommendation engines to present users with the content they are most likely to want, so that they can pick and choose without too much effort, because otherwise we are at risk of losing them.

In theory, every user would be perfectly happy with a single linear channel, as long as that channel would bring them what they have an appetite for at that specific moment. But of course, that won't happen until we can effectively read the user's mind (which, that being said, is probably one of the biggest competitive advantages of some of the previously mentioned internet behemoths such as Facebook, Amazon and Google).

IN THEORY, EVERY USER WOULD BE PERFECTLY HAPPY WITH A SINGLE LINEAR CHANNEL, AS LONG AS THAT CHANNEL WOULD BRING THEM WHAT THEY HAVE AN APPETITE FOR AT THAT SPECIFIC MOMENT

And finally, in all of this turmoil, without any real certainties, all the traditional business models can pretty much be thrown overboard. The constant battle for the proverbial piece of the pie among both the new and the existing actors in the media industry is resulting in continuous waves of diversification of business models.

As will be outlined in more detail in subsequent paragraphs, in fact, many technology transformations in the industry are now driven by those changing business models and not so much by the technology itself. This is a unique and rare situation, which deserves the necessary attention when contemplating strategies for a broadcast and media business these days.
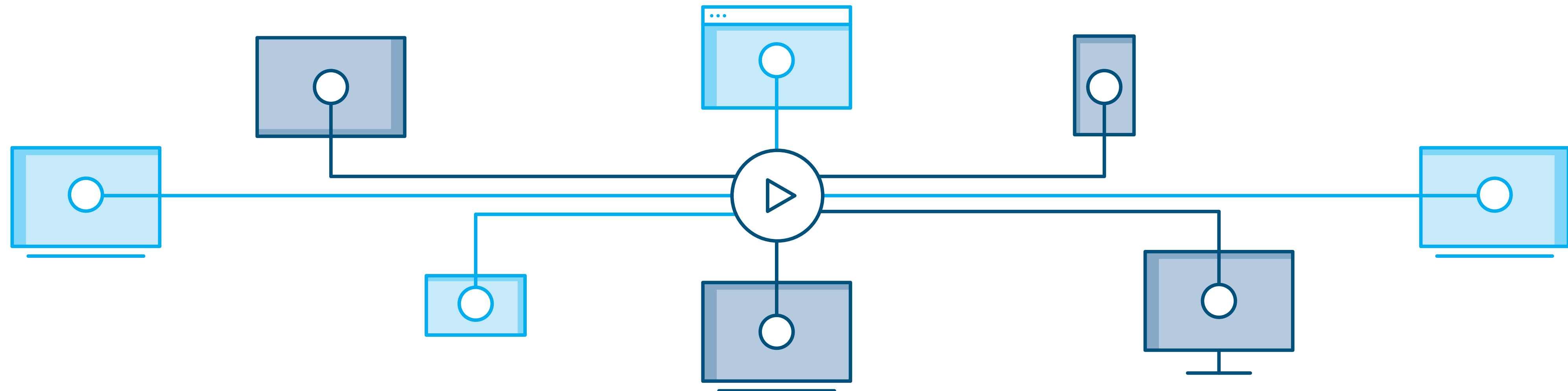
WHAT ABOUT THE TECHNOLOGY SCENE?

When we go from the business to the underlying technology layer of the broadcast and media industry, we can see the same magnitude of very radical changes, the kind of changes that affect pretty much every possible level and aspect of the typical broadcast and media operation. They disrupt so many of its long-established certainties, that it is safe to refer to this as a major tipping point in the broadcast and media history.

While broadcast engineers started to feel a certain level of discomfort when the bespoke physical video service cable was being replaced by an IP cloud interconnecting their broadcast devices, they now see an increasing number of broadcast hardware processing devices simply vanishing into thin air as virtualization sweeps across the industry. Traditional bespoke broadcast hardware and software infrastructure is increasingly moving into IT data centers, and two technology worlds are literally colliding, resulting in the new Broadcast Data Centers. Now, operators have to deal with processes, applications, virtual functions, microservices, virtual machines, containers, broadcast-specific FPGA-based processing functions and much more.

A very complex and dynamic stack of technology, difficult to wrap your head around, and entirely redefining how we look at what used to be fairly simple concepts like availability, capacity, capabilities, QoS and QoE, etc.

Furthermore, the traditional specialized on-premises broadcast facilities are now also increasingly further complemented with commodity off-premises broadcast and media cloud services, along with external CDNs, instantly available for those who want it. All of this has a dramatic impact on the set of skills that is required, the traditional media workflows, the overall dynamics of a broadcast operation, the tools, the way operational excellence can be achieved, and pretty much anything else involved in broadcasting.

A lot of these new technologies bring very tangible new opportunities, as they herald unsurpassed flexibility, agility, scalability and transparency. An opportunity rarely comes without its own set of challenges, however, and in this case, it's all about harnessing that new technology.

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Harnessing it, and this in many different ways. Because a lot of the new technology is like a bronco, and all that flexibility, agility and scalability doesn't serve any purpose whatsoever if you cannot properly leverage and orchestrate it to the fullest extent of its potential. And also, because the scale of complexity of this new generation of operational ecosystems, once they are in place (even in their most simple constellation), is rapidly surpassing the level of human understanding. Not to mention that they need to be managed in the context of an ever more competitive and more demanding market, leaving very little margin for error. This calls for the latest and greatest software technologies to be leveraged, including sophisticated self-learning artificial intelligence, in order to enable a proactive management strategy, and including new innovative solutions for very agile orchestration of resources.

Last but not least, as if this was not enough of a challenge, we must account for the fact that technology evolutions are continuously accelerating. This creates an environment where one technology transformation has barely been brought into practice when the next one is already lurking around the corner. Adapting to and embracing new technologies and managing migrations in a live operation has never been more strategic, introducing the need for agile principles and a true devops approach in the broadcast industry.

RAPID CHANGES IN THE MEDIA LANDSCAPE LEAD TO AN INDUSTRY WITH NO CERTAINTIES, BUT PLENTY OF OPPORTUNITIES

THE DNA OF YOUR BUSINESS

Now, if you take all of that in, you can start wondering about what defines your media service. What is the DNA of your media service? In the past, it was fairly simple. The DNA of a broadcast, media or service provider business was pretty much hardcoded in a line-up of bespoke industry-specific hardware devices and some bespoke siloed software solutions. As there was not much room for variety in the way these components were leveraged, chances were slim that your offering could really stand out from others. And whatever bespoke hardware you invested in, it was pretty much there for many years.

THE DNA OF A BROADCAST, MEDIA OR SERVICE PROVIDER BUSINESS WAS PRETTY MUCH HARDCODED IN A LINE-UP OF BESPOKE INDUSTRY-SPECIFIC HARDWARE DEVICES AND SOME BESPOKE SILOED SOFTWARE SOLUTIONS

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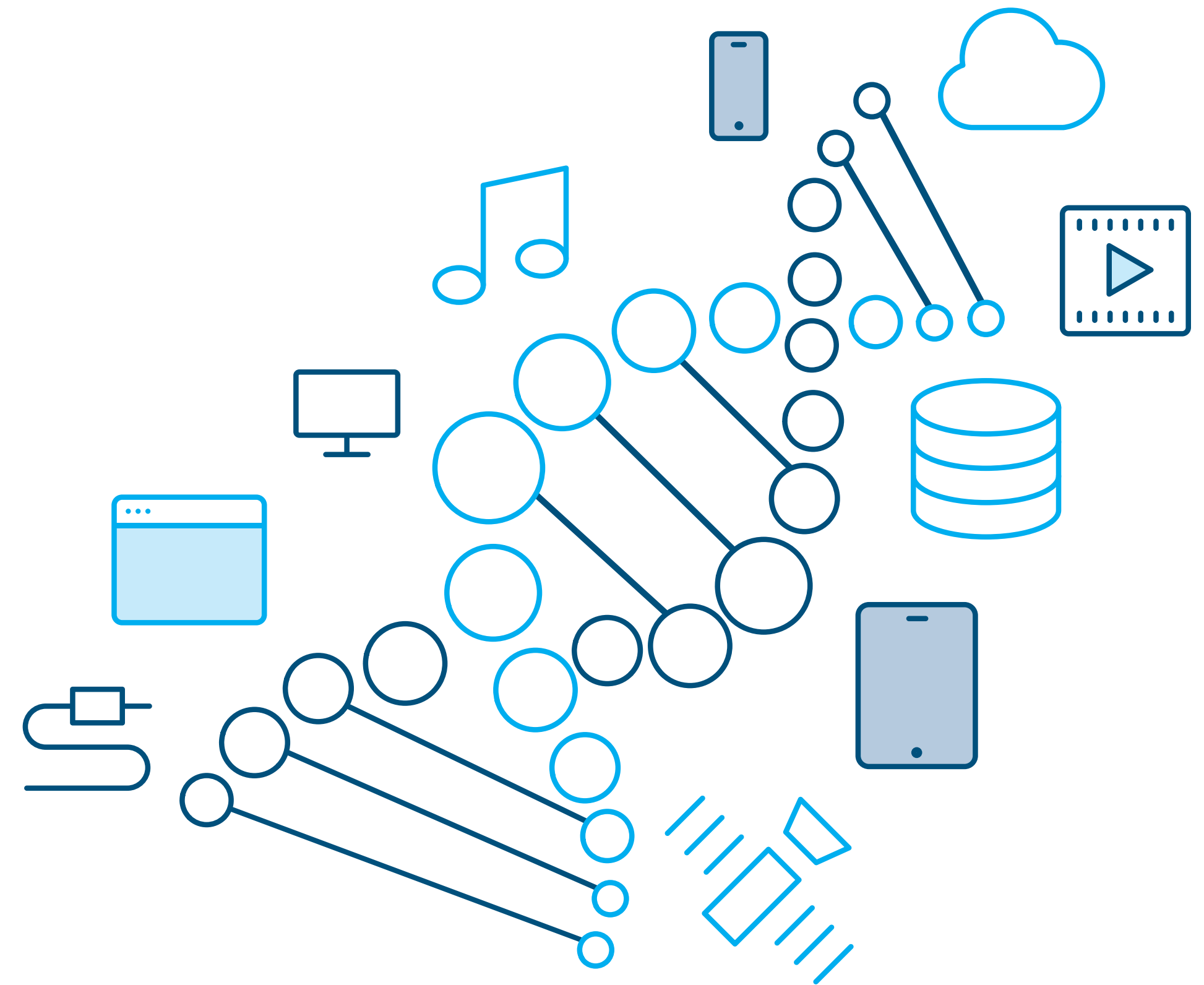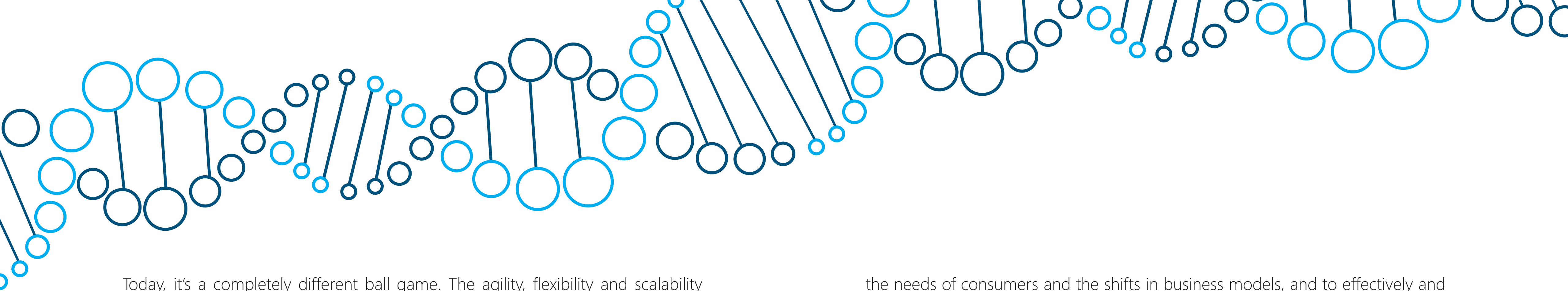
Today, it's a completely different ball game. The agility, flexibility and scalability of new technologies, fueled by virtualization, container technology and instantly available off-premises cloud services, allow you to design your operational media platforms in a virtually unlimited number of ways. And not only that, they can be redesigned and scaled up more quickly than ever before. Therefore, the DNA of your business is no longer hardcoded in your infrastructure components, no matter if these are hardware or software. The infrastructure becomes more of an available resource, more specifically, a resource that needs to be leveraged and managed. In that respect, more and more of that DNA is now effectively defined by the management and control layer of the operation.

Media consumption patterns will continue to shift and transform, as will the relationships between the growing number of new and established actors in the global media industry. Unavoidably, business models will do the same. A distinctive and highly personalized experience for the media consumer will be indispensable. Waves of technology transformations will continue to evolve, at an ever-faster pace. One of the real strategic keys to success in all of this will be the readiness of broadcast and media companies to embrace new technologies, to identify

the needs of consumers and the shifts in business models, and to effectively and efficiently translate those into their ongoing broadcast service DNA, almost literally at run-time. To a large extent, much of this will be defined by their management and control planes, with all their diversity and different sublayers.

In the past a lot of transformations were triggered by the technology itself, simply because it was becoming available and if offered certain operational benefits or savings. However, nowadays the primary triggers are the quest to live up to customer expectations and the associated evolving business models in the rapidly changing landscape, as well as the continuous process of operational excellence. In this context, the latest and greatest technology is also to be considered more as a means to achieve that; it is the raw material for your operation that can be leveraged in an infinite number of ways. But the management and control plane of your business, in all of its aspects, is going to be the real strategic asset. That management and orchestration fabric will increasingly define if and how you can live up to customer expectations and effectively implement the business models that optimize your revenue in the new context.

THE BROADCAST MANAGEMENT AND ORCHESTRATION FABRIC

The management and orchestration fabric of a modern broadcast and media operation has its own very distinctive requirements and challenges. And this not only from a technology perspective (combining both broadcasting and IT), but also in terms of how it becomes a vital intrinsic part of the actual operation, the workflows and the overall day-to-day business. It will consist of different layers and functional blocks, each serving its own purpose. This will range from generic IT-centric components all the way up to very broadcast-specific components, but also from low-level technology-specific and vendor-specific controllers, all the way up to a sophisticated top-level end-to-end management and resource orchestration layer.

That top-level layer in the fabric actually plays an absolutely vital role in connecting the disparate underlying components and making them function as one. What is more, it also serves as a strategic connector between the actual service layer and the business operation, the latter now more than ever being a real-time operation. A major pitfall in that respect is to simply repeat the mistakes from the past, when many operators deployed various bespoke vendor-specific EMS (Element Management System) platforms and consequently failed to achieve their goals, because they attempted to make sense out of these by connecting them together using nothing but alarm aggregation with a so-called MoM (Manager of Managers). This turned out to be a major disillusion, and this whole concept was quickly overtaken by more purpose-developed and far more sophisticated end-to-end multi-vendor network management solutions.

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THE PAST SHOWED US THAT TRYING TO CONNECT VARIOUS SILOED MANAGEMENT PLATFORMS WITH A MOM WAS DEFINITELY NOT THE ANSWER, AND YET A MULTITUDE OF POINT SOLUTIONS GET DEPLOYED EVEN NOW

In the same way, you could have the illusion today that it could suffice to deploy a set of point solutions, which are in fact currently springing up like mushrooms, to build your broadcast management and orchestration fabric, and that by just connecting some APIs, you would somehow magically end up with an all-encompassing solution. However, this could not be any further from the truth. In fact, the dynamics of tomorrow's broadcast and media industry would make that an even bigger mistake than it ever was in the past. The top-layer broadcast management and orchestration fabric must be a very specific high-tech solution leveraging the most advanced software technologies, a solution developed for that one specific purpose and featuring very specific characteristics. Among others, it has to be vendor- and technology-agnostic, unconditionally interacting with both legacy and new technology, both broadcast and IT technology, both hardware and software components, and both on-premises and off-premises components. It has to feature highly advanced capabilities, some of which are highlighted below.

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KEY CAPABILITIES OF THE NEXT-GENERATION BROADCAST MANAGEMENT AND ORCHESTRATION FABRIC

While the previous generation of monitoring and control layers was a fairly static and more auxiliary-style component sitting on top of the actual operation, the modern broadcast management and orchestration fabric is rapidly evolving towards a much more dynamic and above all also fully integrated environment.
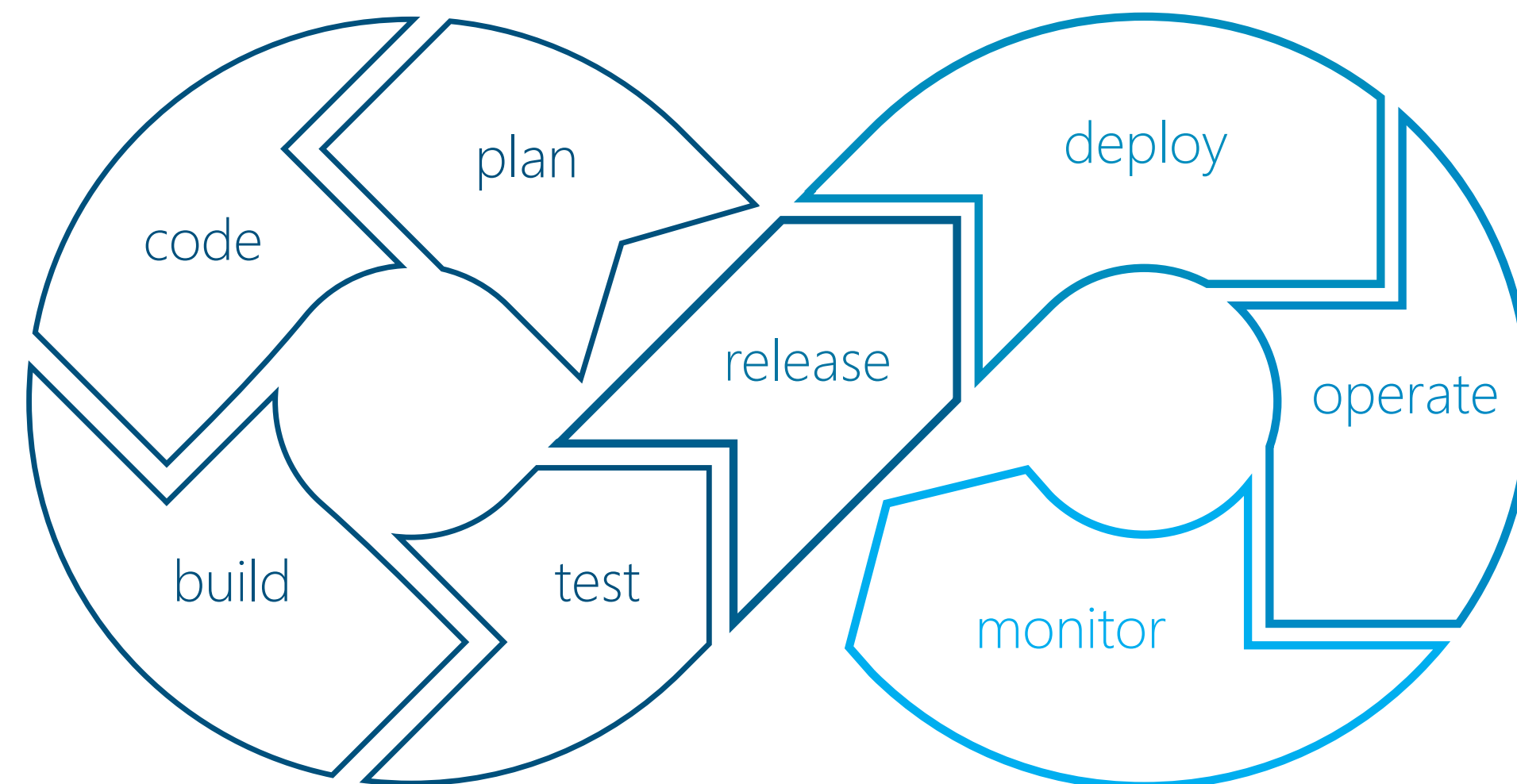

It is a living and breathing integrated component, and a vital intrinsic part of the operational workflows and therefore of the day-to-day business. In other words, there is a major shift from it being a facilitator to it becoming a strategic enabler. The latter is a first very important and strategic consideration to keep in mind, because the management and orchestration fabric is an essential part of the gradual move towards a more devops-oriented approach to running a broadcast and media operation. This leads to a much more agile environment, where engineering resources are embedded within the actual broadcast operation and have the means to develop, test and move small incremental changes into a live production environment continuously. As such, the management and orchestration fabric needs to be designed in such a way that innovations can be implemented at run-time, including testing, small-scale validation through canary deployments and moving into system-wide deployment.

This includes a wide variety of key activities, such as adding new APIs that interface with new operational hardware or software components (both on- and off-premises) on the fly, leveraging new features on updated APIs instantly, spinning up and scaling capacity of the orchestration fabric dynamically at run-time, abstracting underlying technology into generic and transparent virtual functions, introducing new workflows and updating active ones that are already in use, KPI/KQI engineering for monitoring, linking KPIs/KQIs back to live workflows, connecting a business with the proper operational data sets on the go, updating graphical operator front ends instantly, and much more.

Another key strategic consideration for the design and deployment of the next-generation management and orchestration fabric is the fact that the complexity and dynamics of the underlying operational ecosystem simply transcend the level of human understanding. This is in fact in line with the overall evolution of most ecosystems in our society, including for example finance, logistics and energy grids, just to name a few. Furthermore, considering the overall trends observed and described above, operators are in desperate need of new technology to evolve from a reactive to a much more proactive operation. This makes it imperative for the fabric to evolve towards a far more intelligent and self-sustaining technology. The latter is enabled by the latest generation of sophisticated unsupervised machine learning and artificial intelligence software technologies, which need to be an integral and intrinsic part of the fabric as a whole, rather than another point solution dropped within it.

This kind of technology is among others also going to empower the newly coined concept of algorithmic driven operation, where sophisticated algorithms come into play to further facilitate and accelerate the typical processes in a day-to-day operation. It might be a simplistic parallel to draw, but Siri, Alexa and Cortana will have their peers in many different applications, including the operation of advanced broadcast and media ecosystems. And obviously, it's not about the voice-activated aspect of these assistants, but rather the underlying intelligence to assist operators in complex operational processes, as this is the essence of what we are referring to here.
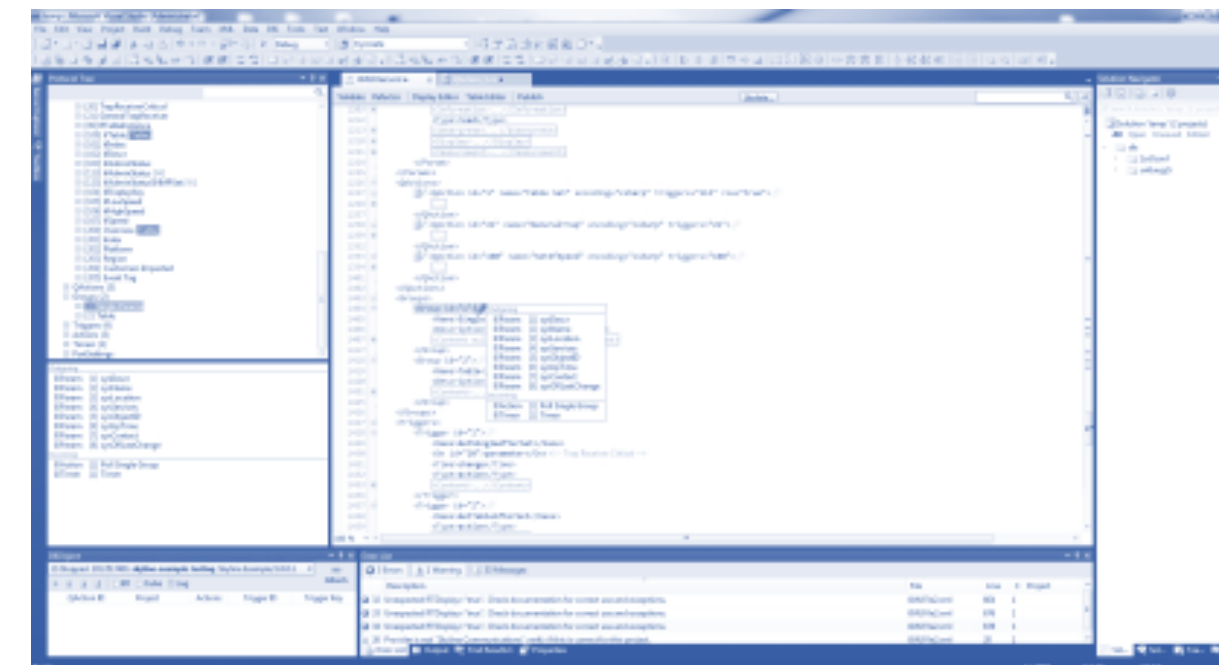
IDE enabling live API integration, validation and push into production

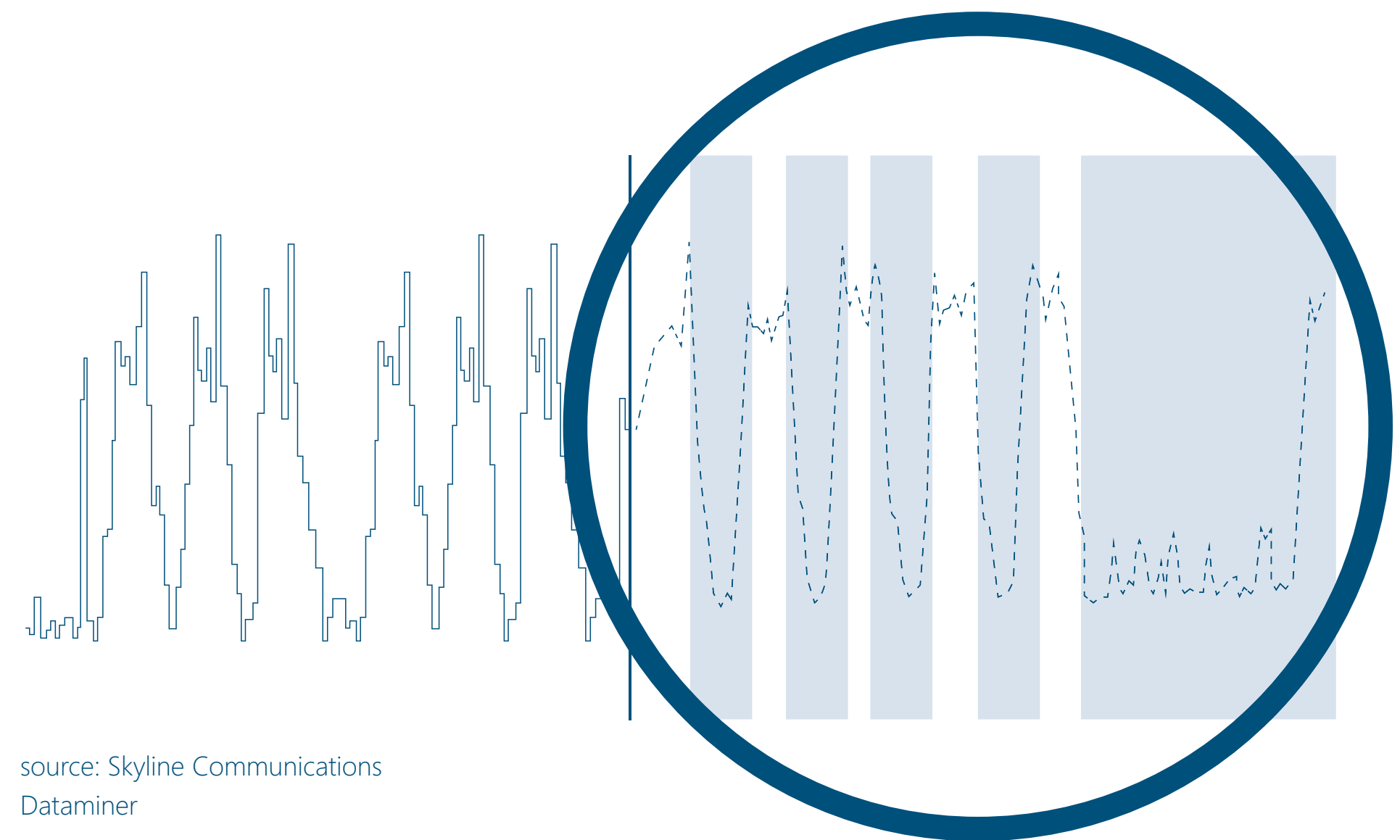source: Skyline Communications
Dataminer Integrated Studio

ANYONE DEDICATED TO SUCCESS IN TOMORROW'S BROADCAST AND MEDIA INDUSTRY CANNOT AFFORD TO IGNORE THESE TRENDS

Of course, applying all of these generic IT trends to the broadcast and media domain brings along its own unique set of challenges. These require their own specific broadcast-oriented research and development, but beyond any doubt they will be one of the indispensable key characteristics of the modern broadcast management and orchestration fabric.

In fact, the first solutions featuring these kinds of capabilities have already been deployed in the field with very tangible and promising results, including automated incident identification and tracking, root cause analysis without the need for pre-defined correlation logic, fault management based on sophisticated behavioral anomaly detection, and intelligent acceleration of workflows, just to name a few.

All in all, these are just some of the many considerations we should keep in mind when contemplating the future of the broadcast and media industry. Though nobody really knows exactly how all of this this will unfold in the coming years, the fact of the matter is that some of the above considerations cannot be ignored by anybody dedicated to success in tomorrow's broadcast and media industry.

un-supervised machine learning powering advanced data forecasting on streaming data

source: Skyline Communications Dataminer

KEY INDUSTRY TRENDS & CONSIDERATIONS

- leveraging ever faster technology cycles
- managing transitions while running an operation
- ever more competitive market
- ever more demanding consumers
- constantly changing value chain
- more fluid business models
- constantly changing consumption patterns
- continuously striving for operational excellence
- complexity growing beyond human understanding
- agile business and operational processes
- evolution towards devops methodologies
- automating infrastructure changes
- continuous delivery of incremental changes
- leveraging off-premises cloud services
- continuous platform consolidation

ESSENTIALS FOR THE MANAGEMENT & ORCHESTRATION FABRIC

- vendor- and technology-agnostic framework technology
- end-to-end capabilities, from service ingest to the service end point
- open architecture empowering your in-house devops
- unconditional interfacing, supporting any protocol or API
- easy integration with both hardware and software products
- supporting on-premises and off-premises technologies
- run-time plug-in & version transitioning of hardware and software APIs
- scalable big data technology for data retention
- ad-hoc analytical cross-vendor and cross-technology dashboards
- artificial intelligence powered automated behavioral anomaly detection
- real-time learning from streaming data and proactive intelligence
- easy design and run-time editing of transparent workflows
- integrated platform-agnostic session and resource management
- OSS/BSS integration framework to connect with business processes
- out-of-the-box broadcast and media expert solutions

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