Telecom COTS World

Broadband Broadcast IoT AI Convergence

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Products & Technology from Chips to Application-ready Platforms

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Telecom COTS World
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ATCA World
Advanced Telecom Computing Architecture

Massive network automation might be years away, but there's plenty of scope now

5G Automation and Intelligent Edge, Autonomous Networks, Service Assurance & AI

By Annie Turner, Contributing Editor, FutureNet World

Contributing Editor, Annie Turner asks Steve Jarrett, Global Head of Data and AI at Orange, about the operator's ambitious network automation strategy, timing and progress.
He charts the path from the test and learn approach that is being applied today, to the recent transformational tie-up with Google Cloud and a future of "massive network automation".

Orange unveiled its Engage2025 five-year strategic plan in December 2019, which has four main strands. They include gaining a new level in its digital transformation by positioning AI and data at the heart of innovation model. More specifically, to achieve three tightly linked goals of smarter networks, greater operating efficiency and reinventing customer experience.

Telcos have been trying to exploit big data for years, with little or mixed success in the main. Jarrett says that artificial intelligence has accelerated progress with this greatly in the last two years, but adds, "We're in this environment where there's lots of new tools, most of which are not very mature and the environments extremely dynamic. That's what led us to the test and learn approach [with AI] because it's just a very dynamic situation."

He stresses that Orange is, "very focused on impact and use cases to help the business" right across the business. He is also keen to emphasise that in no sense is Orange waiting for the 5G non-standalone core to progress.

Jarret says, "The vast majority of our investment is in physical infrastructure and will continue to be so. Think about how much it costs to lay fibre and deploy base stations, even if they're virtualised. There is still the power element, the antenna and the compute, however it's structured at the base station, and those towers, not to mention the spectrum."

He says that AI and automation could be applied to them, with the "test and learn approach", from network planning to predictive maintenance. Early experiments are already saving the company millions of euros as well as improving customer service, from identifying the most profitable base station to preventing truck roll for fibre broadband problems, and saving energy through predicting idle nodes in the RAN.

On the starting blocks

However, Jarrett thinks that massive network automation, "will be more like a ten-year time horizon, because we're going to have a radical shift in network architectures that we're just beginning to see now. They will begin to function well over the next two to three years, but it'll take a couple more for them to be deployed and then adopted across the world."

He said that if on a scale of one to ten, the massive network automation envisioned in ten years is ten, then Orange's progress stands at two or three now. Jarrett continues, "Even somebody like Rakuten [Mobile I would put them at three to four], on that scale". This is not dismissive of achievement, but an indication of the "enormous opportunity" the industry has "to transform the way that we run our businesses through automation".

... to the next page

Massive network automation might be years away, but there's plenty of scope now

5G Automation and Intelligent Edge, Autonomous Networks, Service Assurance & AI

He adds, "If you look at, for example, how Google runs their data centres and how they also run the operations internally at their own company, and their capital efficiency. I think you see a model there for what the opportunity is for all businesses, not just telco."

"As you disaggregate the software from hardware, you have good interfaces to access the data and to act on the data that enables a much more dynamic kind of environment. I think we're going to see an explosion of that. We already see it generally in the containerisation of how services work on cloud providers today in terms of software providers. You see an explosion of ways that enable you to, for example control your costs, or provide security and so on. We're going to see enormous amount of innovation."

Partnership with Google Cloud

Little wonder then that in July, Orange and Google Cloud announced a strategic partnership to accelerate the transformation of Orange's IT infrastructure and the development of future cloud services, in particular edge computing.

Jarrett says, "A big part of my job is to make sure that we make large partnerships decisions that allow us to improve the advantage of all [that] external investment," pointing out that the hyperscale cloud companies have been dealing with data problems similar to those of the operators for years, but at much greater scale.

Still, while the cloud hyperscalers were created to be data driven, the operators were not, hence the travails of digital transformation. Jarrett is nothing daunted, comparing the situation to the early years of the internet when the pace of change was extraordinary, and companies had fundamentally to rethink how their business would operate.

He says, "We need to think about data as being a common wealth, which is the ability to share data between teams and break down the silos. It enables everyone to take business benefit from using the data for different purposes. Historically, the team that generated a particular data set felt like they owned it but, for example, network data is…extremely useful to many different teams. That's the biggest, the hardest, problem plus the willingness to change and that also relates to training and skills."

As part of Engage2025, Orange is committed to invest more than €1.5 billion in a skills-building programme open to all employees, that will train 20,000 staff in network virtualisation, AI, data, cloud computing, code and cybersecurity.

Data governance

In the meantime Jarrett explains, "To have extremely heterogeneous network data requires really good data governance, which is the methodology to structure the data, to understand where the data comes from and what actions have been taken on the data. Then additionally [you need] really good tools to allow you to ingest the data and look for anomalies."

He says very high scale data systems should not always simply use a pipeline to extract the data and prepare it for the next step, as pipelines can go wrong for many reasons. Consequently, systems must not only to look for network anomalies, but for anomalies in the data to avoid acting on bad or skewed data created by a software glitch or another issue generating inaccurate data.

He states, "I think we have a really good understanding of those problems and we've done very nice work, including… this deal with Google, which is a really fundamental shift for the company. And I think they also have a lot to bring to us regarding these kinds of problem."

Healthy market

This is because, Jarrett says, there is a rapidly growing awareness and understanding of the value of data and potential problems with it. "As a result, there's so many new startups, as well as established players, that are really invested in addressing these kinds of problems, and there is enormous innovation. I probably spend an hour or two, every day, just reading and trying to keep up with the industry."

He says the likes of Amazon and Google and Azure's not only invest in cloud infrastructure, but provide a platform for these companies to sell their specialist value added services – for example, fixing the labelling of complex, poorly labelled data. Jarret says, "They have a really strong business model," and continues, "There's enormous venture capital investments and acquisitions and so that's a very, very healthy market and it's really helping us dramatically in our ability to be efficient."

By Annie Turner, Contributing Editor, FutureNet World, Annie is also Editor of Mobile Europe, see their website here

Mavenir Acquires Small Cells Vendor ip.access

Matt Kapko | Editor | September 28, 2020

Mavenir today announced it has acquired ip.access to add 2G and 3G capabilities to its open radio access network (RAN) portfolio and boost its small cells offering.

U.K.-based ip.access, which was founded in 1997, develops and manufactures small cells for cellular technologies dating back to the GSM standard for 2G service. Those older technologies, particularly 2G and 3G, might generate less pizzazz as operators push for open RAN, but it's an area of heightened interest for smaller or less advanced operators that want to reduce costs and complexities associated with traditional RAN equipment.

"Operators are looking to transform their 2G/3G networks as they migrate to 4G and 5G," Mavenir CEO Pardeep Kohli said in a statement. "We expect to provide a seamless, multi radio access technology single RAN offering for those operators that allows them to have the benefits of advanced radio solutions across all layers."

Parallel Wireless, one of Mavenir's strongest competitors in the open RAN market, previously claimed to be the only open RAN vendor with 2G and 3G capabilities. CEO Steve Papa recently told SDxCentral that most of the early action on open RAN is anchored to 2G and 3G.

"Many subscribers in many networks and geographies need GSM and 3G service with LTE even as 5G is introduced," ip.access CEO Richard Staveley said in a statement.

Mavenir said the acquisition will also equip it with a more comprehensive suite for private enterprise networks and bolster its capabilities in specialized industries, including aviation and maritime, and more diverse offerings for rural and remote mobile network operators.

"Combining our assets enhances our end-to-end network proposition, provides a multi-G single RAN evolution path for carriers, and creates a market leading proposition for the private networks enterprise market," Aniruddho Basu, SVP and GM of emerging business at Mavenir, said in a statement.

Mavenir said ip.access, which has deployed its equipment and technology in more than 50 live networks to date, will join the company as a business unit within its emerging business group.

Note about ATCA (Advanced Telecom Computing Archtecture)
Mavanir and ip.access are both experienced users of ATCA. We, e2mos, met several times.

Mavenir Latest News

MAVENIR'S END-TO-END SOLUTIONS FOR MULTI-GENERATION MOBILE NETWORKS, IDEAL FOR AFRICA
Deliver and deploy cloud native software for mobile network services in Africa both in urban and rural areas
Richardson, Texas – December 22nd 2020 – Mavenir, the industry's only end-to-end cloud-native Network Software Provider for Communications Service Providers (CSPs) is geared up to provide end-to-end solutions for mobile networks in the...   READ MORE

MAVENIR ANNOUNCES CREATION OF BUSINESS UNIT TO ACCELERATE OPEN RAN RRU (REMOTE RADIO UNIT) ECOSYSTEM
Business Unit to develop Production Quality Hardware & Software for Radio Designs Richardson, TX, December 16, 2020 – Mavenir, the industry's only end-to-end Network Software Provider, announces an expanded Radio organization as its industry leadership and progress continues in OpenRAN. Mavenir has been an early advocate for OpenRAN to drive openness, innovation, and security in...   READ MORE

MAVENIR AND MTI LAUNCH FIRST EVENSTAR REMOTE RADIO HEAD TO ACCELERATE OPENRAN ADOPTION
RICHARDSON, TX - December 14, 2020 – Mavenir, the industry's only end-to-end cloud-native network software provider for mobile operators, and Microelectronics Technology Inc. (MTI), a network solutions provider, announced today the general availability of the Evenstar B3 Remote Radio Head (RRH) in collaboration with Facebook Connectivity. The Evenstar B3 RRH...   READ MORE

MAVENIR'S RCS BUSINESS MESSAGING SOLUTION AVAILABLE IN MICROSOFT AZURE
Simplifies Global Deployment for Mobile Network Operators to Help Businesses Accelerate Digital Transformation RICHARDSON, TX., December 1st, 2020 – Mavenir, the industry's only end-to-end, Cloud Native Network Software Provider and a leader in messaging and Rich Communication Services (RCS) today announced that its RCS Business Messaging Solution is available to...   READ MORE

World Markets for Communications Network Infrastructure Hardware, Software & Services 2020:
Technology Spending Across Telecommunications, Webscale and Carrier Neutral for 150 Network Operators « REPORT »

- Telecommunications Network Operators - TNOs
- Webscale Network Operators - WNOs
- Carrier Neutral Network Operators - CNNOs

Telecommunications network operators (TNOs) continue to face slow revenue growth, rising labor costs, and high network capital expenditures (capex). The cost of powering and maintaining networks are also challenges. To cope, telcos are digitally transforming their operations, restructuring their physical asset base, and learning from the Webscale world. Webscale network operators (WNOs) have grown to be among the world's largest companies, and are investing in a range of markets with network needs: connected cars, remote health care, drones and more. WNOs spend big in the cloud, and are pressuring traditional supply chains through their support for open networking, direct work with the ODM/EMS sector, and self-designed chips. A third segment of companies, carrier-neutral network operators (CNNOs) have emerged to help carry and connect a growing portion of the world's network traffic.

In 2017 these three groups of companies employed over 7.7 million people, accounting for $3 trillion in revenues and $400 billion in capex. Their technology spending supports hundreds of vendors across different parts of the value chain. Yet the spending is not stable, or easily predictable. That's especially the case today, as US-China disputes impact supply chains.

The Global Network Infrastructure (GNI) service provides clients with insightful, timely analysis of technology spending trends at over 150 network operators across three markets: telecommunications, Webscale, and carrier-neutral.

Access the Report from Research and Markets

Key Questions

1. Who are the top 150 companies investing in communications networks worldwide? How is their network spending changing over time?
2. How will 5G be deployed, how much will it cost, and what new services will it enable?
3. Who are the important tech suppliers involved in Webscale network construction? How do WNOs develop technologies internally & push to market?
4. What role will carrier-neutral network providers play in the 5G market? What new business models are CNNOs pursuing outside telecom?
5. Who are the top 50 vendors to the telecom network operator vertical? How is their market share changing?
6. How will supply chains evolve as politics & security issues alter the US-China relationship?
7. What strategies are telcos adopting to reduce their operating expenses? Which ones are succeeding?
8. How are telecom operators reshaping their workforces, and what is the role of artificial intelligence? Who may benefit from telco AI?
9. Who will be the key players in the connected car market, and what are the main opportunities for network operators?
10. What is the role of edge computing in future networks? How will data center designs change?

Some key companies in each area include:

Vendors: Accenture, Accton, ADTRAN, ADVA, Allied Telesis, Amdocs, ARRIS, Atos Origin, Calix, Capgemini, Casa, Ceragon, CCSCL, Ciena, Cisco, Comba, CommScope, Corning, DASAN Zhone, Datang, DyCom, Ericsson, Fiberhome, Fujikura, Fujitsu, Furukawa, HPE, Huawei, IBM, Infinera, Infosys, Italtel, Juniper Networks, NEC, Nokia, Oracle, Radisys, Radware, Ribbon Communications, SAP, Sopra Steria, TCSL, Wipro, and ZTE

Telecom Network Operators: Altice, America Movil, AT&T, Axiata, BCE, Bharti Airtel, BSNL, BT, CenturyLink, Charter, China Mobile, China Telecom, China Unicom, Chunghwa Telecom, CK Hutchison, Comcast, DT, Etisalat, Frontier, Televisa, KDDI, KT, Liberty, Megafon, MTS, MTNL, NTT, Oi, Orange, Jio, Rogers, Singtel, SKT, Sky, SoftBank, Swisscom, TI, Telefonica, Telekom Malaysia, Telenor, Telia, Telkom Indonesia, Telstra, Telus, True, Turk Telekom, Turkcell, Veon, Verizon, Vodafone.

Webscale Network Operators: Alibaba, Alphabet, Amazon, Apple, Baidu, Facebook, Microsoft, Tencent; Altaba, Booking Holdings (formerly Priceline), ChinaCache, Cognizant, eBay, Fujitsu, HPE, IBM, JD.COM, LinkedIn, Netflix, Oracle, Qihoo 360, Salesforce.com, SAP, Sina, Snap, Sohu, Twitter, Weibo, Xunlei, Yandex, YY

CNNOs: American Tower, Arqiva, Balitower, Bharti Infratel, Cellnex, China Tower, Chorus, Cogent, CoreSite, Crown Castle, CyrusOne, Digital Realty, EI Towers, Equinix, GTL, Internap, Interxion, IBS, Inwit, Level 3, NBN, QTS, SMN, SBA Communications, STP, Superloop, Telxius/Telefonica, Tower Bersama, Uniti Group, Zayo

More about Research and Markets: https://www.researchandmarkets.com/

Haivision Celebrates Important Company Milestone with its Initial Public Offering and Debut on Toronto Stock Exchange

Video Streaming and Networking Solution Provider completes IPO and Trades on TSX with Symbol HAI

MONTREAL, CANADA – December 16, 2020 – Haivision, a leading provider of mission-critical, real-time video streaming and networking solutions, today announced the company is celebrating an important milestone – its debut on the Toronto Stock Exchange under the symbol HAI.

Founded in 2004, Haivision is recognized worldwide as an innovator in connected cloud and intelligent edge streaming technologies that fuel real-time video for global organizations. The company's solutions are used for mission critical applications and broadcast quality, real-time video streaming and networking by Fortune 500 enterprises, governments, broadcasters, e-sports, defense, and other industries.

"Mission-critical real-time IP video is transforming the way organizations operate and promotes better informed decision making. Haivision is at the heart of the accelerated adoption of IP video across all industries," said Mirko Wicha, President and CEO of Haivision. "Listing on the TSX heralds in the next phase of our evolution, will continue to drive our innovation in live IP video and cloud networking and accelerate our growth" added Wicha.

Haivision intends to use the proceeds related to this initial public offering (IPO) to fund selective strategic acquisitions, accelerate the introduction of new products and services, and fund expansion of its global operations.

About Haivision

Haivision is a leading provider of mission-critical, real-time video streaming and networking solutions. Our connected cloud and intelligent edge technologies enable global organizations to engage audiences, enhance collaboration, and support decision making. We provide high quality, low latency, secure, and reliable live video at a global scale. Haivision open sourced its award-winning SRT low latency video streaming protocol and founded the SRT Alliance to support its adoption. Awarded an Emmy® for Technology and Engineering from the National Academy of Television Arts and Sciences, Haivision continues to fuel the future of IP video transformation. Founded in 2004, Haivision is headquartered in Montreal and Chicago with offices, sales, and support located throughout the Americas, Europe, and Asia. Learn more at www.haivision.com.

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High-quality, low-latency video encoding for broadcast workflows.

HOUSE OF WORSHIP
Engage and inspire your congregation no matter where they are.

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Rugged, compliant video solutions for mission-critical environments.
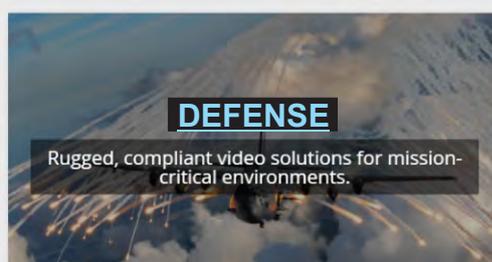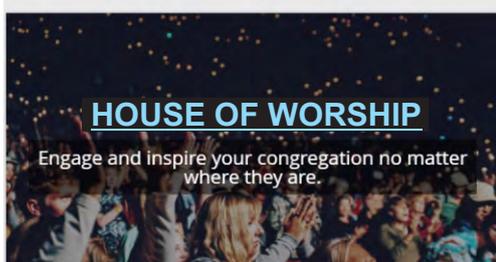
The Forrester Wave™:
Intelligent Application And Service Monitoring, Q2 2019

The 13 Providers That Matter Most And How They Stack Up
by Rich Lane

Why Read This Report

In our 29-criterion evaluation of intelligent application and services monitoring (IASM) providers, we identified the 13 most significant ones — BMC Software, CA Technologies, Cisco (AppDynamics), Datadog, Devo, Dynatrace, IBM, Micro Focus, New Relic, Riverbed Technology, ScienceLogic, Splunk, and Zenoss — and researched, analyzed, and scored them. This report shows how each provider measures up and helps infrastructure and operations (I&O) professionals select the right one for their needs.

To receive your copy of the Report, please contact

Forrester Research, Inc., 60 Acorn Park Drive, Cambridge, MA 02140 USA
+1 617-613-6000 | Fax: +1 617-613-5000 | www.forrester.com

HPE to move headquarters to the Houston metro Deeper in the heart of Texas

DECEMBER 1, 2020 BLOG POST ANTONIO NERI, PRESIDENT AND CHIEF EXECUTIVE OFFICER
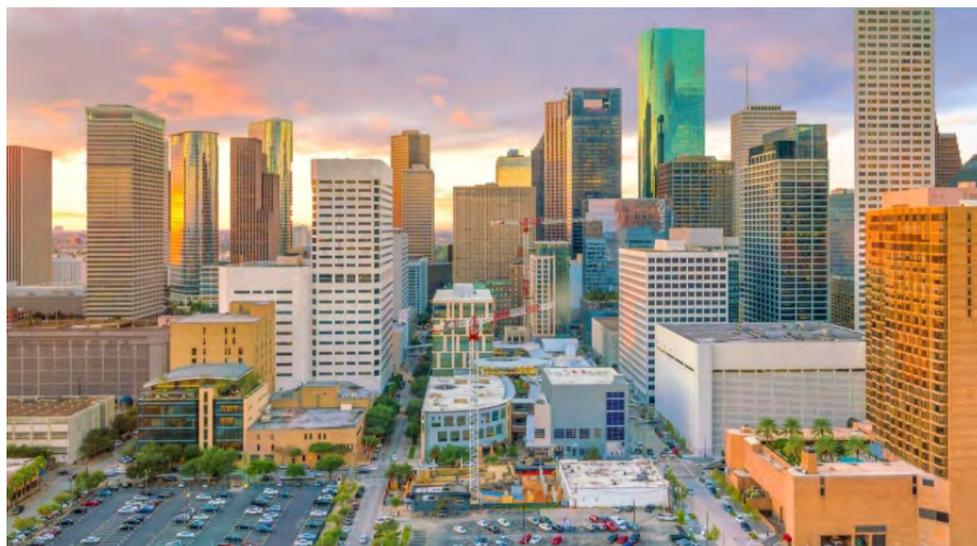
IN THIS ARTICLE
● HPE plans to expand our presence in Houston, our largest U.S. employee site – and make it our headquarters
● We've been innovating in Silicon Valley for decades, and it will continue to be a strategic hub for HPE R&D, innovation and technical talent
● There are no layoffs associated with this plan, and people and culture continue to remain our priorities

San Jose campus to become Aruba worldwide headquarters, remain a hub for tech talent and innovation

I
t's been quite a year for all of us. The COVID-19 pandemic has changed our lives in ways we couldn't have imagined. It has changed our business as well. We've accelerated our pivot to meet customers where they are in their digital transformations in these extraordinary times. If nothing else, this year has proven to me that our strategy is the right one and that our team members can rise to any occasion.

COVID-19 has also changed how and where we will work. We've listened to our team members, who have told us they want more to spend less time at a physical worksite, so we've launched an initiative called "Edge to Office" which provides this flexibility while equipping our workforce to continue delivering for our customers and partners.

And in response to this new future of work, we have reevaluated our real estate site strategy to ensure that we are utilizing our workspaces most effectively and positioning our teams and talent in the best interests of our business.

The world has changed, and we are changing with it for the benefit of all of our stakeholders

As we look to the future, our business needs, opportunities for cost savings, and team members' preferences about the future of work, we have made the decision to relocate HPE's headquarters to the new campus under construction in Spring, Texas, just outside of Houston.

Why Houston?

Houston has long been our largest U.S. employment hub, and construction has been underway since the beginning of the year on a new, state-of-the-art campus in the area. Houston is also an attractive market for us to recruit and retain talent, and a great place to do business. The most diverse city in America and the fourth largest, Houston provides the opportunity over time to draw more diverse talent into our ranks – a key priority for HPE as we work to be unconditionally inclusive.

We also anticipate long term cost savings associated with this move that we can reinvest in key areas of our business and innovation.

Given our company's long history in the region, this move makes sense for HPE. The world has changed, and we are changing with it for the benefit of all of our stakeholders.

HPE to move headquarters to the Houston metro
Deeper in the heart of Texas

Maintaining Silicon Valley presence as strategic hub for HPE innovation

We aren't leaving Silicon Valley, a region inextricably linked to our rich history and heritage since Bill and Dave founded Hewlett Packard. Our San Jose campus will remain a hub for technological talent and innovation.

Notably, San Jose will become the new headquarters for our Aruba Intelligent Edge business. The explosion of devices, applications and data at the edge continues to drive demand for secure connectivity, and through our Aruba business, we are uniquely positioned to take advantage of the $39 billion edge market opportunity, which the pandemic has only accelerated with the need for digital workplace solutions.

WHO we are is not about WHERE we are – it is about the work we all do to advance the way people live and work

This strategically important, high-growth HPE business will anchor our San Jose presence, and enable us to showcase the cutting-edge, post-pandemic digital workplace of the future, featuring Aruba technology solutions. In addition, our storage business, West Coast territory sales team, GreenLake, software, and other technical talent – along with non-technical talent that chooses not to relocate – will be based in San Jose.

Moving forward

Most of our customers, partners and team members won't experience any changes associated with this move. We will provide the option to the majority of executives and non-technical team members at the San Jose campus to relocate to the Houston area. Relocation will be entirely voluntary, and there are no layoffs associated with this move.

2020 has been a year of challenges. But with challenge comes opportunity, and as an innovation company we must seize those opportunities to advance our business, serve our customers and partners, and take care of our team members. Because after all, WHO we are is not about WHERE we are – it is about the work we all do to advance the way people live and work.

# Cox Network Automation Strategy: A Case Study

Independent market research and competitive analysis of next-generation business and technology solutions for service providers and vendors

A custom Heavy Reading report produced for Cisco Systems and Cox Communications
AUTHOR: STERLING PERRIN, SENIOR PRINCIPAL ANALYST, HEAVY READING

Introduction

Network operators are under continued pressure to scale capacity, meet customers' fast-changing needs, and rapidly deploy new services, all while keeping capital and operational costs down. To meet these requirements, operators globally are increasingly turning to network automation.

North American cable operator Cox Communications is at the leading edge of the automation trend as it seeks to drive automation tools and processes across all its engineering and operations groups. This white paper presents a case study of Cox's network automation strategy. Working closely with Cisco Systems, the Cox team is building processes and defining promising use cases. This case study focuses on two early wins related to remote PHY device (RPD) activation and commercial services Metro Ethernet configuration management and security compliance. These use cases have already demonstrated quantifiable results for Cox.
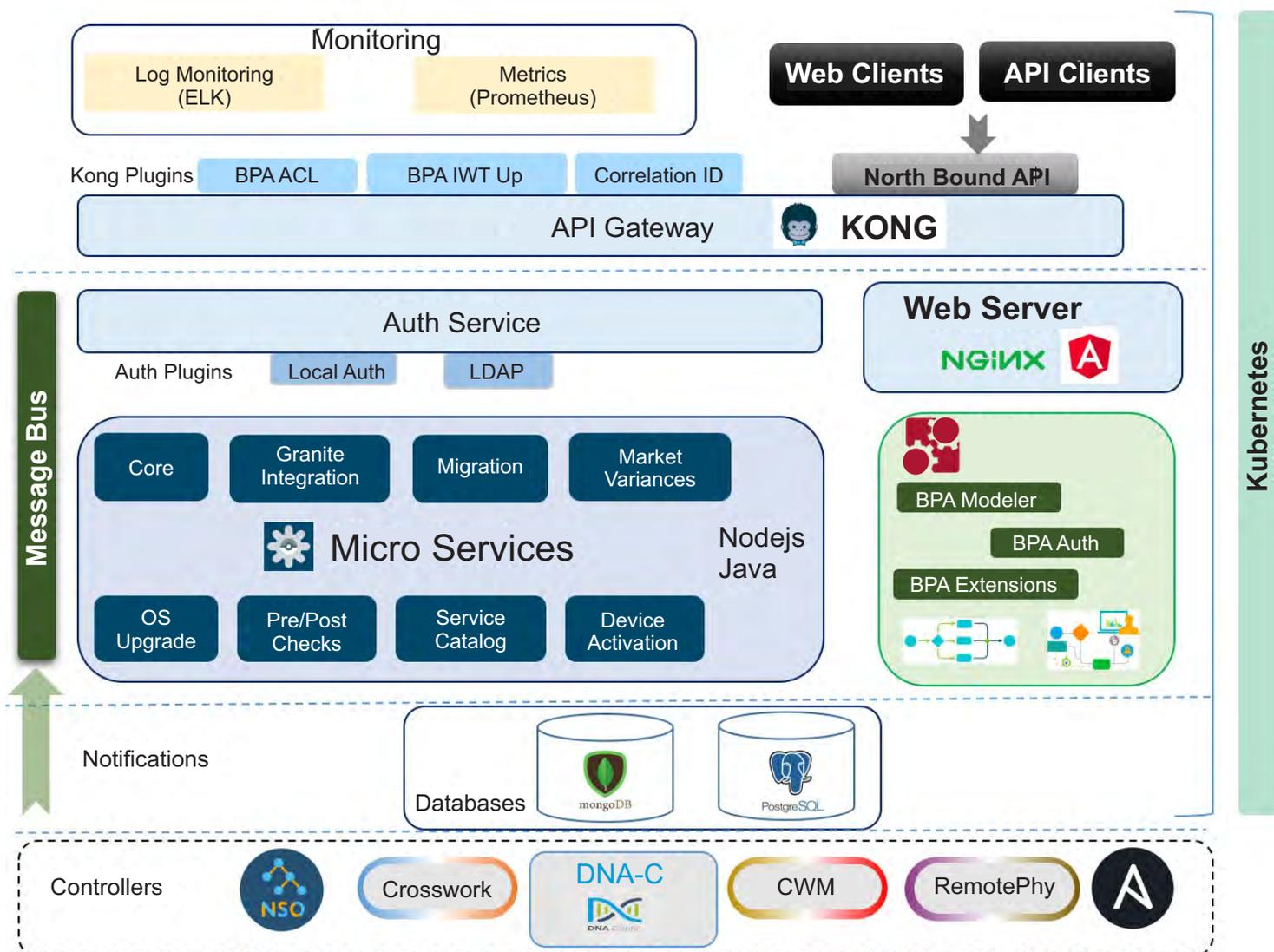
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André Kudelski Tapped to Share Expertise and Insights for Two Variety Entertainment Summit Sessions at CES 2021

A CES Partner Program taking place virtually on January 14

Cheseaux-sur-Lausanne, Switzerland, and Phoenix (AZ), USA – January 12, 2021 – André Kudelski, Chairman & CEO of the Kudelski Group, the world leader in digital security, will be a featured speaker during two sessions of the 2021 Variety Entertainment Summit: A CES Partner Program taking place virtually on January 14.

Founded in 1951, the Kudelski Group has been supporting and setting trends for the media and entertainment industry for 70 years, having earned both Oscars and Emmys for outstanding achievements in recording, production and content protection technologies, and is uniquely positioned to address what will be the major technology turn points in the coming years. The Group being also active in the fields of cybersecurity, internet of things and public access, André Kudelski will provide a holistic vision of the global innovation and technology landscape.

André Kudelski will first share his insights and expertise during a one-on-one interview with **Variety** NY Digital Editor, Todd Spangler in the session, "Key Technology and Innovation Trends". Later in the day. he will join the "Tech Heroes of the Pandemic" panel moderated by **Variety** Artisans Editor, Jazz Tangcay. Details and timing for each session can be found below.

"The M&E space is being fundamentally transformed by the COVID crisis," said Kudelski. "At the same time, appetite for media and content has never been greater. How do we, as an industry, address these shifts, and more importantly, how do we seize the opportunities they present to transform them into realities and future growth? What are new areas that need to be addressed and considered as media consumption evolves? In a nutshell, how can we reimagine entertainment in a meaningful way in the post-COVID world? I look forward to discussing these topics and more at the Variety Entertainment Summit."

11am PST – "Key Technology and Innovation Trends" – Interview with Todd Spangler, Variety NY Digital Editor: What tectonic shifts has the COVID-19 pandemic created and how will this environment create permanent changes for Media & Entertainment companies? What new opportunities and possibilities is it creating? In this one-on-one conversation, André Kudelski will address the impact of the COVID-19 pandemic on the M&E space, what it means for businesses and how it has changed the way we work. It will also highlight how protecting data and media integrity is paramount not only for the media industry but for society as a whole, and outline how speed, reliability and security will be key technology trends to look out for in 2021.

1:55pm PST – "Tech Heroes of the Pandemic" Panel Discussion: What is the impact on the M&E space and where have we seen the impact on innovation? How can we ensure multi-dimensional interactions for consumers? These are some of the questions that will be addressed during this panel session that will take a look at technology and innovation leaders pushing the industry forward during challenging times. The session will uncover the creative projects that have been born out of remote work and thinking under new pressures.

The panel line-up also includes Marvin Chow, VP Marketing, **Google**; Connie Kennedy, Head of **LA Lab, Epic Studios, Epic Games**; Sang Kim, SVP and Head of Product Management, **Samsung Electronics**; Janet Lewin, SVP and General Manager, **Industrial Light & Magic**, **Lucasfilm/Walt Disney Company**; and Tony Driscoll, SVP of Emerging and Production Technologies, **Warner Bros. Pictures**.

The Variety Entertainment Summit is an annual event exploring how new technologies and innovation are steering the future of film, TV, digital media, gaming and more. This year's event will be all-digital, taking place virtually on January 14. **The event is free to attend, but registration is required. Additional details about the event and registration information can be accessed** here.

About NAGRA

NAGRA, the digital TV division of the Kudelski Group (SIX:KUD.S), provides security and multiscreen user experience solutions for the monetisation of digital media. The company provides content providers and DTV operators worldwide with secure, open and integrated platforms and applications over broadcast, broadband and mobile platforms, enabling compelling and personalized viewing experiences.

Please visit www.dtv.nagra.com for more information. Follow us on Twitter and LinkedIn.

The 2020 Streaming Media 50 with HQ in North America
The 50 Companies That Matter Most in Online Video

By Eric Schumacher-Rasmussen Editor, [Streaming Media](#)

Welcome to the 2020 Streaming Media 50, our annual list of the most important, most innovative, and most interesting companies in the online video space. It's the third year we've capped the list at 50 companies, because as the online video industry continues to grow, it's more important than ever that this annual list highlights both the veterans whose staying power remains strong and the startups that we think have what it takes to stick around for the long haul.

Before we get to the list, a few qualifiers: As usual, we're focusing almost exclusively on technology vendors, rather than content companies. This list has always been about recognizing the companies that enable video services to deliver great content to consumers reliably at the highest possible quality on every device and hopefully to make money from it.

Also, the Streaming Media 50 focuses exclusively on companies with headquarters in North America. Later , we will publish a similar list, the Streaming Media Europe 101, focusing on companies with headquarters in Europe.

Without further ado, here's the 2020 Streaming Media 50. Congratulations to all.

Akamai Technologies - TOM LEIGHTON, CO-FOUNDER AND CEO
It's the original content delivery network, and you could make the argument that it's the original edge network. And even if video has become table stakes while the company has emphasized its focus on security and business continuity, its stable of engineers continues to push the envelope when it comes to advances in video delivery.

Amazon Web Services (AWS) - JEFF BEZOS, PRESIDENT, CEO, AND CHAIRMAN
When you think cloud video, you likely think AWS. And when you think encoding and transcoding, AWS Elemental is surely one of the first companies that comes to mind. And AWS Elemental keeps making state-of-the-art hardware too, including the new Link, a remote-control device for real-time video transport.

Apple - TIM COOK, CEO
It's a good thing we're not focusing on content, because while AppleTV+ hasn't exactly been a failure, it hasn't shaken up the OTT universe. And although it's been a while since Apple has introduced a consumer device that's blown anybody's minds, behind the scenes, the company is still one of the biggest drivers of change in the streaming industry. But on the tech side, where Apple leads, other follow, even if they're not always happy about it. When Apple introduces something like Low-Latency HLS, content companies and other tech providers have no choice but to start using it.

Beamr - SHARON CARMEL, FOUNDER AND CEO
Beamr is a perfect example of a company that follows Wayne Gretzky's famous maxim, "Skate where the puck is going, not where it has been." As one of the earliest encoding companies to embrace HEVC, Beamr got out ahead of the game and continues to innovate with big-name customers like Netflix.

Bitmovin - STEFAN LEDERER, CO-FOUNDER AND CEO
Since its founding in Austria in 2012, Bitmovin has expanded geographically—moving its headquarters to the U.S.—and technologically—moving from a clear focus on encoding to providing player and analytics products as well. Along the way, it's garnered high-profile customers like fuboTV, the BBC, and iflix.

Brightcove - JEFF RAY, CEO
After a bit of a bumpy first half of 2019 with its acquisition and integration of Ooyala, Brightcove roared into 2020 recharged, refocused, and rejuvenated. The OG OVP is now one of the few online video platforms left standing, and it remains the market leader, with an emphasis on monetization, marketing, and enterprise communications.

BuyDRM - CHRISTOPHER LEVY, FOUNDER AND CEO
Speaking of OGs, BuyDRM has been providing digital rights management since around the turn of the century. In 2019, the company delivered more than 10 billion DRM licenses, and in 2020, it revealed that it's a central partner in the Oscars voting screening platform. You can't get much more secure than that.

CenturyLink - JEFF STOREY, PRESIDENT AND CEO
CenturyLink and Level 3 Communications (which the former acquired 3 years ago) form a telco-CDN powerhouse, but it's still the company's Vyvx Cloud Connect—which connects studios and venues to Amazon Web Services and Google Cloud—that brings it back to the Streaming Media 50 year after year.

Comcast Technology Solutions - KEN KLAER, EVP
No major company is doing more to advance the quality, reliability, and effectiveness of online video advertising and bridge the gap between broadcast and digital. Its comprehensive CTSuite is a soup-to-nuts collection of digital entertainment services for advertisers, broadcasters, OTT services, MVPDs, and operators, and its list of technology and channel partners is a who's who of streaming luminaries.

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Conviva - BILL DEMAS, CEO
With its proprietary sensor technology, which is currently embedded in 3 billion streaming video applications and analyzing 1.5 trillion transactions daily, Conviva offers more data-driven insight into the state of streaming video than anyone else. Its quarterly "State of Streaming" reports are required reading for anyone who wants to better understand what's going on in the networks, especially when it comes to video advertising.

DaCast - STEPHANE ROULLAND, CEO
DaCast's customer roster might not boast the biggest names in the business (although eBay and The Weather Channel are nothing to sneeze at), but it's precisely the company's commitment to small and medium business that has made it a Streaming Media 50 mainstay.

Discover Video - RICH MAVROGEANES, PRESIDENT AND CEO
Started in 2008 by Rich Mavrogeanes, one of the earliest streaming video innovators, DiscoverVideo is the little engine that could, with hardware, software, and a video management platform (DEVOS) that serve the education, corporate, healthcare, and government markets.

Dolby Laboratories, Inc. - KEVIN J. YEAMAN, PRESIDENT AND CEO
Dolby is the David Bowie of streaming tech companies, focusing equally on sound and vision. Dolby Vision offers state-of-the-art High Dynamic Range, while Dolby Atmos offers immersive sonics no matter what device you're viewing and listening on. And don't forget its Hybrik cloud media processing division.

DVEO- LASZLO ZOLTAN, FOUNDER AND CEO
DVEO doesn't waste money on flashy marketing campaigns. (Those Hawaiian shirts they wear to trade shows—remember trade shows?—can't cost that much.) Instead, they sink all of their investment into cutting-edge, robust streaming hardware for encoding, backhaul, streaming, and more.

Encoding.com - GREGGORY HEIL, FOUNDER AND CEO
The very first cloud encoding and transcoding service is still a market leader. Its customers, such as Time Warner, UFC, and Discovery, and its wide range of services, features, and partner integration will likely keep it there for a long, long time.

EZDRM - DAVID EISENBACHER, CO-FOUNDER AND CEO
EZDRM's goal with its DRM as a Service is to make the DRM process easier. It covers all the bases—DASH/CENC, PlayReady, Widevine, and FairPlay—on their own or in a multi-DRM solution called Universal DRM.

Fastly - ARTUR BERGMAN, FOUNDER, CHIEF ARCHITECT, AND EXECUTIVE CHAIRPERSON
No CDN has done more to advance the cause of edge computing than Fastly. Combine that with great customer service and a unique approach to data insights, and you've got a (relatively) small CDN player with big, big upsides.

Firstlight Media - ANDRÉ CHRISTENSEN, CEO
A first-time entrant to the Streaming Media 50, Firstlight Media bought Quickplay earlier this year; bolstered its executive team with veterans from Disney, Comcast, and NeuLion; and is pushing the boundaries of OTT personalization and time to market.

Google - SUNDAR PICHAI, CEO
Google has its fingers in almost as many segments of the streaming world as does Amazon, and a few that Amazon doesn't—namely, user-generated content (via YouTube) and advertising. And now it's pushing Google Meet as a better alternative to Zoom.

Haivision MIRKO WICHA, CHAIRMAN, PRESIDENT, AND CEO
Haivision is about much more than encoders and SRT, although those alone would be enough to secure it a place on the Streaming Media 50. With the acquisitions of LightFlow and Teltoo, though, the company has turned into a global powerhouse.

Harmonic - PATRICK HARSHMAN, PRESIDENT AND CEO
Harmonic's one-two punch of cloud software (its VOS360 platform for live streaming and channel origin) and a full range of encoding, server, and contribution hardware makes its annual inclusion on the list a no-brainer.

HellaStorm - STACY KENWORTHY, CEO
HellaStorm's Stream Processing Unit may not have a sexy name, but its combination of increased capacity, lower latency, higher efficiency, and reduced power consumption looks pretty attractive to us.

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IBM - GINNI ROMETTY, EXECUTIVE CHAIRMAN
Even though IBM scaled back its facial recognition technology in 2020, IBM Watson Media boasts some of the most innovative approaches to AI-driven analytics and captioning aimed at the enterprise and live-streaming markets.

Interra Systems - SUNIL JAIN, PRESIDENT AND CEO
Offering one of the most comprehensive quality-control and monitoring solutions for video on demand and live OTT and broadcast, Interra has built up a customer roster that's a veritable who's who of major media companies from across the globe.

Intertrust - TALAL G. SHAMOON, CEO
Intertrust Media & Entertainment security solutions consist of ExpressPlay multi-DRM service, ExpressPlay XCA broadcast TV security based on Marlin DRM, and anti-piracy services, with customers including some of the largest OTT platforms across the globe. The company also offers ExpressPlay DRM Offline, which enables secure streaming of premium content along with the Kiora content delivery platform.

Intrado - JOHN SHLONSKY, CEO AND PRESIDENT
In a year when just about every conference moved online, Intrado quickly became the gold standard. It offers full-fledged virtual conference environments, including everything from registrations to sponsor booths, providing an effective simulacrum of the real thing.

JW Player - DAVE OTTEN, CO-FOUNDER AND CEO
Its player offerings are well-known, but over the last few years, JW Player has expanded to address streaming delivery, monetization, and engagement, embracing APIs along the way.

Kaltura - RON YEKUTIEL, CO-FOUNDER, CHAIRMAN, AND CEO
Kaltura was founded and grew on its reputation as the go-to online video platform for enterprise and education, but with its Cloud TV offering, the company is delivering entertainment experiences for big-name customers like HBO and Viacom too.

Lightcast - ANDREAS KISSLINGER, MANAGING DIRECTOR
Lightcast promises "A to Z" support for digital publishing. We still haven't figured out what the "Z" stands for, but Media Cloud covers most everything else you can think of, from advertising, app creation, and live streaming to media management, monetization, advertisement, and social video.

Limelight Networks - ROBERT A. LENTO, PRESIDENT, CEO, AND DIRECTOR
While latency remains a buzzword for everyone in the industry, Limelight is the only CDN that has made it a linchpin of its service, promising sub-second live-streaming WebRTC along with top-notch quality and interactivity.

Media Excel - JONGIL KIM, FOUNDER, CHAIRMAN, AND CTO
Still the industry's best-kept secret? Maybe. But you'll find Media Excel's HERO encoders in use by big-name clients, including the NBA, NFL, Olympic Games, and World Cup.

MediaKind - MATT MCCONNELL, CEO
A few years ago, MediaKind introduced its "universe"—Cygnus for contribution and distribution, Aquila for consumer delivery, Orion for consumer experience, and Vega for services and support. "Universe" might be a bit of an overstatement, but it's certainly a galaxy's worth of OTT offerings that's worth looking at closely.

Microsoft - SATYA NADELLA, CEO
One of the most notable trends of the last year or so has been how many video solutions providers are partnering with Azure, demonstrating that Microsoft's commitment to video—which, let's be honest, has waxed and waned over the last decade or so—is on the rise again.

MUX - JON DAHL, CO-FOUNDER AND CEO
MUX takes an API approach to both video and data, and it's quickly and quietly emerged as one of the true innovators in the space. Plus, its annual Demuxed conference brings together a group of video engineers second only to Streaming Media East and West.

Panopto - ERIC BURNS, CEO
Panopto is simply one of the easiest-to-use, most versatile video platforms for enterprise and education. 'Nuff said.

Primestream - CLAUDIO LISMAN, PRESIDENT AND CEO
Primestream has been at the forefront of media asset management solutions for years, and its latest platform, Creative Bridge, offers the unprecedented ability to access files using all of the major postproduction tools, no matter where they are.

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Qumu - VERN HANZLIK, PRESIDENT AND CEO
A perennial leader in enterprise video, Qumu supplies cloud, on-prem, and hybrid corporate video solutions to some of the biggest companies in the world.

Red5 Pro - CHRIS ALLEN, CEO AND PRESIDENT
Red5 Pro delivers sub-500-millisecond latency to more than a million viewers, with a combination of edge computing, clusters of virtual instances in the cloud, and WebRTC. And now the company offers a cross-platform player software development kit too.

Sonic Foundry - MICHAEL NORREGAARD, CEO
The Mediasite lecture capture hardware is how Sonic Foundry made its name, but in recent years, its event streaming platform (also called Mediasite) has taken center stage. And with the COVID-19 pandemic sending academic institutions scrambling for online solutions, it stepped up in a big way.

SSIMWAVE - ABDUL REHMAN, CO-FOUNDER AND CEO
SSIMWAVE keeps expanding the capabilities of SSIMPLUS, its proprietary algorithm that brings the way human beings perceive video into an automated, digital process measuring video quality across the end-to-end workflow and capturing banding, macroblocking and source validation, and other issues.

Telestream - DAN CASTLES, CEO
From its estimable Wirecast live-streaming production software all the way up to its Vantage media processing platform and Lightspeed Live servers, Telestream has software, hardware, and cloud-based tools for virtually every point in the streaming video workflow and ecosystem.

Touchstream - BRENTON OUGH, CO-FOUNDER AND CEO
Live streaming stepped up to a whole new level in 2020, and Touchstream's VirtualNOC (network operation center) integrates with every major CDN to monitor the quality of live streams in real time, across the globe.

Tulix - GEORGE BOKUCHAVA, CO-FOUNDER, CEO, AND PRESIDENT
Tulix started out as "just a CDN" (in quotes because building a CDN is no mean feat), but has since evolved into so much more. Its Digital Distribution Platform and Monetization Engine help companies large and small to not only deliver content but to focus on ROI right away. It gets bonus points for being one of the first companies to offer its services for free to K–12 schools during the COVID-19 pandemic.

Verimatrix - AMEDEO D'ANGELO, PRESIDENT AND CEO
Verimatrix not only offers watermarking, authentication, and multi-DRM solutions, but also ways for content publishers to use them to gain insights into consumer behavior and then leverage those insights to maximize revenue.

Verizon Media - GURU GOWRAPPAN, EVP AND GROUP CEO
Verizon Media has added new capabilities to its Media Platform. They've made it easier to create virtual linear channels, extend content reach by publishing live streams or live channels across social media, and maximize ad value by making the programmatic ad marketplace more transparent.

Wowza Media Systems - DAVID STUBENVOLL, CO-FOUNDER AND CEO
After making its name 15 years ago as a media server solution, Wowza has grown to encompass a much wider range of solutions, and in the last year, it added professional services to its stable of offerings.

Xilinx - VICTOR PENG, PRESIDENT AND CEO
Xilinx has done more than any other company to advance the cause of field-programmable gate arrays (FPGAs) in the streaming workflow, and in 2020, it introduced the Real-Time Video Server Appliance for low-cost, real-time video transcoding.

Zixi - GORDON BROOKS, EXECUTIVE CHAIRMAN AND CEO
Major broadcasters and publishers have used Zixi's low-latency transport to deliver live streams for years, but as the company has faced competition, it's had to expand. ZEN Master is a single unified intelligence center for content transport, and Zixi keeps adding features that keep it ahead of the competition.

Zoom - ERIC S. YUAN, FOUNDER AND CEO
Chances are, you had a Zoom video conference today. While continued questions over security and a lack of clarity on the company's long-term strategy give us pause, 2020 is undoubtedly the year of Zoom.

Zype - ED LACZYNSKI, CO-FOUNDER AND CEO
Zype is the go-to video CMS for small and medium-sized customers, but it also counts Vevo among its clients, so there's no doubt it can scale. Plus, it took a real leadership role in helping businesses get online with video when COVID-19 shut down brick and mortar, and it deserves props for that.