



WHITE PAPER IN PARTNERSHIP WITH NIMBUS NINETY

Building Digital Advantage

Stories from the Real World



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Building Digital Advantage

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Introduction

In COVID-19, enterprises faced their most stringent test of resilience and agility. In the space of just a few months, many have made bold leaps towards digitisation. Those with strong digital foundations were able to pivot and adapt more effectively than their competitors.

Regardless of industry, reach or size, digital leaders follow common principles to build the strategic advantage necessary to withstand the changes that lie ahead. As shown in the latest [Global Interconnection Index \(GXI\)](#), digital transformation continues at pace, driving increased interconnection and the re-architecting of digital infrastructure.

The world's digital leaders harness Equinix's trusted global platform to bring together and interconnect the foundational infrastructure that fuels their success. With Equinix, digital leaders scale with agility, accelerate the launch of digital services, seamlessly connect to customers and partners and deliver world-class experiences. The challenge is defining which route to follow, and then how quickly to move forward.

It's vital to build on the momentum and learnings of the past year. In this white paper, we hear from the people spearheading their transformation and elevating a new standard of digital leadership within healthcare, media, financial services and transport.

We hope the following stories inspire you on your digital journey. [If you are ready to accelerate your digital transformation, we can set up a free Digital Edge Strategy Briefing to kickstart your Digital Advantage.](#)

Lorraine Wilkinson, Regional VP Sales, U.K., Equinix



Digital Infrastructure to Support World-leading Genomic Medicine

David Ardley, former Platforms and Infrastructure Transformation Director, Genomics England

Genomics England is a technology company supporting some of the world's most advanced and precision medicine. As the central genomic service for the U.K., the organisation was created to sequence 100,000 genomes of patients with rare diseases and cancers. Their genetic information is compared to the 'standard' genome, enabling diagnosis and treatment evaded by traditional diagnostic techniques. Participant data is then anonymised, so that researchers around the world can study results to advance the treatment of rare diseases and cancers.

This requires an architecture that can support two very different uses of a vast and expanding volume of data. "The focus and trend is very much towards a hybrid model," explains David Ardley, former Platform and Infrastructure Director at Genomics England. "Firstly, the scale of data generation at Genomics England has increased from sequencing 100,000 genomes in the original project, to 5 million genomes by 2023.

Each genome is 200GB of data. A high performance compute cluster (HPC) does the genome sequencing calculations on-premise. The data created could be tiered and moved to archive storage; however, the research uses of the data prevent this due to performance needs, resulting in the need for a very performant storage system to underpin the HPC. The ancillary applications that support research and analysis typically use secondary data and are able to operate in the cloud. So, the focus is very much on hybrid IT."

In 2018, the government announced an ambitious new target to sequence 5 million genomes. "That requires up to 150PB petabytes of performant storage, which in itself is a real challenge." David and his team had to think creatively about how to manage this. "We wanted a very robust Disaster Recovery solution and opted for a distributed storage system across three sites. Equinix made it very easy to bring up a new data centre. It was cost-effective and flexible."

"Equinix made it very easy to bring up a new data centre. It was cost-effective and flexible."



Then the coronavirus pandemic hit. Genomics England was tasked to refocus around COVID-19, using genomic information to help sufferers of this new disease. “In the space of a few months, we stood up a research environment in partnership with a third party, built in AWS from scratch that could, if needed, handle significantly more research and compute. We hit the timelines very aggressively. There were plenty of non-technical issues, such as time taken to source COVID-19 samples from across the U.K. for example, and other physical processes that had to be resolved. So, it’s making sure there’s a realistic connection between users of the environment and what you’re building.”

Attention on COVID-19 may have altered the trajectory of the work at Genomics England to reach the target of sequencing 5 million genomes, but scaling compute storage and networking to handle massive amounts of data in a highly flexible and distributed environment, remains a core challenge. “To have maximum availability of data for researchers requires robust, dedicated connectivity to the cloud, that’s flexible enough to dial up or down, depending on the compute required,” explains David.

“To have maximum availability of data for researchers requires robust, dedicated connectivity to the cloud, that’s flexible enough to dial up or down, depending on the compute required.”

The coronavirus pandemic has undeniably demonstrated the value of rapidly sharing data between pharmaceutical companies, researchers and the government. Accessing large-scale, sensitive patient and medical data requires multiple access roads and pathways into other environments. This new level of cross-industry collaboration, and the need to disperse data geographically, along with new mandates arising from COVID-19, underscore why healthcare and life sciences enterprises are expected to drive a five-fold increase in interconnection bandwidth by 2023.¹

The success of the new COVID-19 research environment at Genomics England, points to a wider challenge: how to re-architect digital infrastructure to support

connection to peers across the life sciences industry in a highly flexible way, making data available whenever required, but without always knowing the exact size and scope of the data itself.

“Data needs to flow around, which requires a lot of connectivity because it’s very large.”

Decentralised data models could be part of the solution. What could this look like in healthcare and life sciences? “There are different potential models,” David explains. “One is where security and compute are distributed. Take the concept of a beacon, where the beacon is effectively the metadata. You can see what the data is, but you can’t see the content. You connect all these beacons and effectively your compute job would run in that area, almost a distributed computing environment.” Or could the data itself move? “We looked at the idea of encrypting a genome so it can move around, and you can see it if you have the right authorisation. Access is centrally governed and can expire or be withdrawn. A distributed security model is really key for both these scenarios.”

This will change technology strategy, reflects David. “More distributed data is the ultimate goal. Different organisations within life sciences and healthcare have their pots of data, and it’s likely that to solve future problems and treat diseases, you’ll need to run analysis across many different datasets. In a sense, data needs to flow around, which requires a lot of connectivity because the data is very large. And, there’s a question of scale. Further, rigorous security is also at the heart of Genomics England, and this is a core principle that our participants rightly expect.”

The government’s vision over the next decade is to build the world’s most advanced genomic healthcare system. Realising this ambition will require a cutting-edge approach to digital infrastructure, supporting the shift from a hybrid IT infrastructure to a distributed, dynamic and secure architecture.

For more insight into how to manage hybrid environments, watch [The Future of IT Infrastructure](#).

For your route to digital advantage, [contact our team](#).

¹ [Global Interconnection Index Volume 4 Forecast and Data](#), Equinix, September 2020



The Future of Media and Broadcasting

Kris Langbridge, Head of Transformation and Video Distribution, Red Bee Media

Today's video content and media experiences are delivered online and on demand. In 2020, two-thirds of U.K. adults watched video on demand (VOD),¹ highlighting the shift away from traditional linear TV that has characterised internet-era broadcasting. Streaming high-quality video has transformed the media landscape, fuelling a proliferation of globally diverse, live channels, events and ready-to-watch VOD content that must be delivered with reliable performance and low latency, whenever and wherever required.

Red Bee Media, a leading global media services company, enables this expanding universe of content to reach its audiences at a consistently high quality,

by delivering end-to-end managed services to broadcasters, content owners and distributors. Kris Langbridge, Head of Global Transformation and Distribution at Red Bee Media, highlights the major trends fuelling the evolution of media and broadcasting. "Two things really stand out for me. Consumers have welcomed the choice, flexibility and immediacy of content delivered over the internet, and the Media and Entertainment value chain is changing in reaction to new and emerging markets," explains Kris. For example, we've seen advertising-free, subscription-based services go mainstream (Netflix, Disney+, Amazon Prime) and content rights holders go direct to consumer (Premiership TV), while most of the growth in advertising has been in the digital domain (Google, Facebook). These twin pressures are really driving broadcasters to innovate to stay relevant and maintain audience share."

COVID-19 has had multiple effects. Demand for streaming services intensified during lockdown, demonstrating the need for flexible, high-capacity networks and digital infrastructure.² In addition, the pause in sports and other live events has hurt

¹ [Media Use & Attitudes Survey](#), Ofcom, 2020.

² [How Zoom, Netflix, Dropbox and Equinix are tackling coronavirus infrastructure challenges](#), Venturebeat, March 2020.



broadcasters, who can no longer capitalise on expensive rights investments. Despite some of these short-term shifts, competition for attention has intensified, with platforms such as TikTok and Twitch overlapping with the broadcasting space. And there's another trend, "What we've seen in the last 20 years is that the traditional division of the TV market, into broadcasters, studios and distributors for example, are all converging."

The shift to online and advantages of cloud technology have fundamentally changed the broadcasting landscape. Kris outlines, "The way companies have had to buy infrastructure and compute has radically changed. Traditionally broadcasters had to invest significant sums of capital to acquire spectrum and install distribution, transmission and production equipment, which required dedicated, purpose-built facilities, infrastructure and customised software solutions. They then had to pay off that investment and make a profit through advertising or consumer

licensing (in the case of the national broadcasters) and offer a broad range of content to appeal to as great an audience as possible. Today, with relatively little investment, content owners can create a niche online streaming platform using Software as a Service, hosted in the public cloud, and go direct to the consumer."

"The way companies have had to buy infrastructure and compute has radically changed."

To survive, major broadcasters need to provide audience experiences that can compete with the new digitally native platforms, and consequently they still have cost drivers to deliver high-quality, reliable services that consumers will buy into.



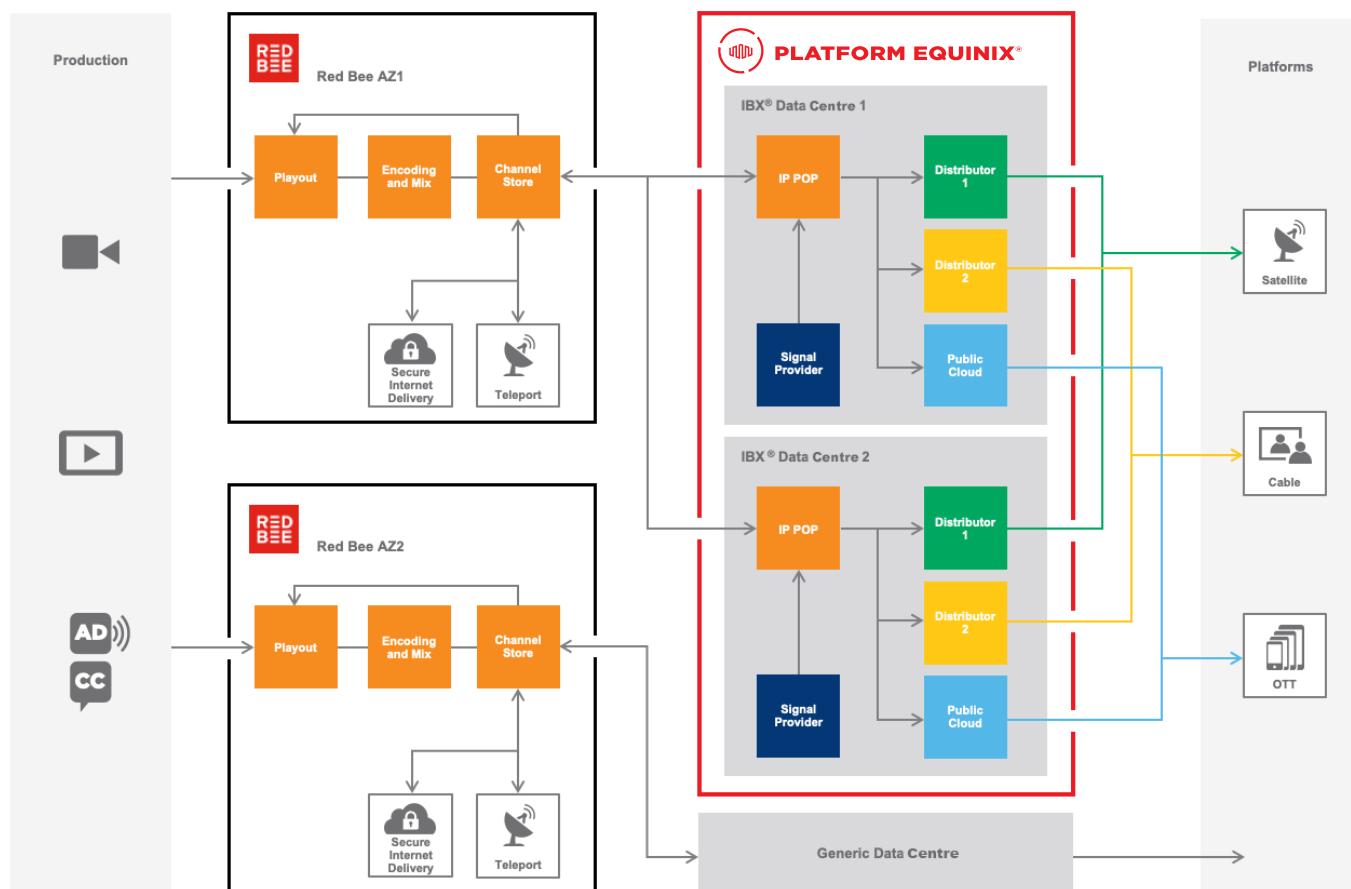


Figure 1: Red Bee Media Interconnection Oriented Architecture®

“We understand that content has to be processed and delivered in super high quality because viewers drift away the moment buffering increases or quality drops, and that impacts the bottom line. Whether in-studio or outside, linear or online services, digital video platforms now drive up compute, storage and connectivity costs.”

“We want to provide our services at the best cost possible, and leveraging Equinix is a big part of that.”

Red Bee Media combines technology and innovation to deliver consistently high-quality content, ensuring its customers can compete and stay relevant in this rapidly

evolving and converging market. Red Bee’s Channel Store harnesses the connectivity of Platform Equinix® to deliver over 1,000 active channels with a catalog of over 10,000 that can be spun up quickly whenever needed (Figure 1).

“Red Bee Media is really focusing on helping its customers handle and bring down the cost of compute, storage and bandwidth, through managed services and efficiencies of scale. It’s really important to connect to different partners within a data centre, and that includes the public cloud providers. We want to provide our services at the best cost possible, and leveraging Equinix is a big part of that.”

A constant evolution towards the cloud has underpinned many of the developments in broadcasting. “Where Equinix really adds value is the network. An interconnection-based approach on Platform Equinix enables cost-effective connections



into the partners and public clouds that you're colocated with, in the data centre itself." Content and Digital Media is the fastest growing sector for interconnection bandwidth in the EU region, estimated to grow by 50% CAGR to 2023,³ attesting to both the increasing preference for VOD and the thirst for high-quality media experiences.

"Where Equinix really adds value is the network. An interconnection-based approach on Platform Equinix enables cost-effective connections into the partners and public clouds that you're colocated with, in the data centre itself."

The coronavirus pandemic, as in many industries, has intensified the force of change. "The direction of travel is the same", explains Kris, "but the pace is quicker. At Red Bee, we're trying to innovate in how we provide services. We've moved a significant number of production staff to work from home, so that access services, subtitling and captioning are now being delivered remotely, for example. At the same time, we've had to protect live operational areas to make sure broadcasts go out on time and critical nationwide services can continue."

And then there's the future, which in media terms is forever fast-approaching. "We have to look forward, and keep changing and developing on those principles of our own technology approach. We're introducing as much automation as possible, reducing manual handling and processes, introducing microservices and self-service to give customers access to our own platforms, and really open things up using API-driven services."

Red Bee's agile approach is critical, "Our core aim is to deliver amazing media experiences. We've been working in an agile business culture for some years now."

In the past, solutions were siloed into specific customer interests, delivered project by project, and the results were slow to market. So, we radically improved time to market by adopting agile methodologies, and the constant release of improvements is accepted, maybe even demanded, by consumers, which gives more freedom for services to 'wow' audiences."

The need to be closer to customers is driving the Direct-to-Consumer (D2C) model, where an increasing number of brands are distributing and leveraging video content, in essence adopting the principles and practices of traditional media and broadcasting companies. As this trend grows, managing the distribution of high-quality content to multiple endpoints will require extending networks to the edge, to allow more processing or caching of content closer to where consumers are located.

Re-architecting digital infrastructure is key to unlocking new content opportunities. Kris agrees, "Edge becomes critical when you need low-latency services between users and high-volume data processing systems. Within live or e-sports and online gambling for example, we see edge compute play a key role in serving consumers with high-definition video and instant payment gateways wrapped in a highly personalised experience."

"Edge becomes critical when you need low-latency services between users and high-volume data processing systems."

Succeeding in this converging world requires a new playbook. Re-architecting digital presence is the first step for content and digital media companies looking to achieve digital leadership of a rapidly evolving landscape, and will be critical in enabling enterprises to stay ahead of demand.⁴

To understand how media is optimising for a rapidly changing market, watch [The Future of Media](#).

For your route to digital advantage, [contact our team](#).

³ [Global Interconnection Index Volume 4. Forecast and Data](#), Equinix, 2020.

⁴ [Content and Digital Media Playbook](#), Equinix, 2020.



The New Standard of Digital Leadership in Financial Services

Simon Jones, Chief Customer Officer,
ClearBank

All digital disruptors shake up the established order. Few can match the scale of ambition at ClearBank, the first challenger to the U.K.'s clearing market in over two centuries, and the first to be built in the cloud.

Clearing banks process in the region of 40 billion payments each year in the U.K.¹ ClearBank's cloud-native platform offers financial services companies fast, secure access to payment infrastructure through modern APIs, enabling innovation across the entire industry. Simon Jones, ClearBank's Chief Customer Officer, explains, "ClearBank is the fabric of disruption and innovation. The platform can be used by payments disruptors, asset managers, brand new banks, Forex players, or insurance companies. We provide the infrastructure layer that connects innovators to the main payments systems, and to international payments systems through our relationship with JP Morgan."

Running payments in the cloud requires a unique hybrid environment. Payment Hardware Security Modules (HSMs) encrypt data for authorising and settling the thousands of payments that take place every second. These physical devices located in data centres are an essential part of the payments infrastructure and require real-time connectivity to ClearBank's platform. Built on Microsoft Azure, ClearBank's technology platform operates a hybrid cloud environment. Equinix hosts the Payment HSMs and provides private connectivity to Azure creating the hybrid cloud environment for high-performance processing of payments transactions, with dual site resilience, and a sub-four-millisecond connection into Azure, all delivered by Equinix Fabric™ (Figure 1).

"It's about bringing together best-of-breed technology partners. Equinix provides a core infrastructure element that delivers real digital advantage."

¹ [UK Payment Markets Summary](#), UK Finance, June 2020

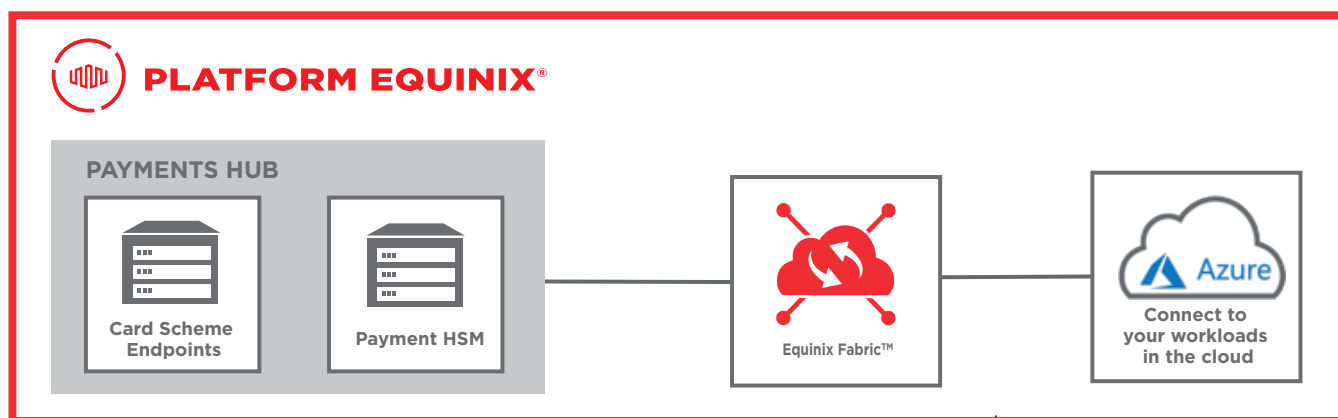


Figure 1: Hybrid Cloud Environments for Payment Processing

This model enables faster and more efficient payments processing than existing legacy technology. Private connectivity to the cloud offers a robust security profile for the service, ensuring ClearBank traffic and data isn't traversing the public internet. Client interactions take place only on the public cloud and are encrypted, thereby creating a resilient and secure digital infrastructure that meets clients' demands for speed and the regulator's stringent standards of security. Simon Jones explains, "It's about bringing together best-of-breed technology partners. Equinix provides a core infrastructure element that delivers real digital advantage."

There are significant advantages to being the first cloud-native clearing bank. Cloud delivers access to high-performance compute for big data analytics, enabling ClearBank to offer innovative services such as real-time liquidity management, and AI-driven Anti-Money Laundering and Fraud Detection services. Cloud compute also enables ClearBank to offer a unique range of Banking as a Service (BaaS) offerings, a new approach enabled by technology that is unshackling the financial system from years of legacy.

The BaaS model (Figure 2) has the potential to reshape banking, but it's not always well understood. Simon explains, "BaaS is sometimes viewed as little more than a card platform by some in the industry. But it's so much more. It's direct access to all the payments schemes leveraging the strength of someone else's banking license. So if you're trying to set up a new bank, BaaS provides an easy platform to gain access to the payment rails and get an account platform up and running quickly. For legacy financial brands, it's a very interesting route to competing with fintechs.

It drastically changes time to market, although these new offerings still have to go through the pains and integration with the credit and risk policies of a large bank."

"What BaaS providers are getting good at now is enabling banks to put up a new venture and adopt a cloud-based platform. It's not just about enabling payment connections and account availability, but

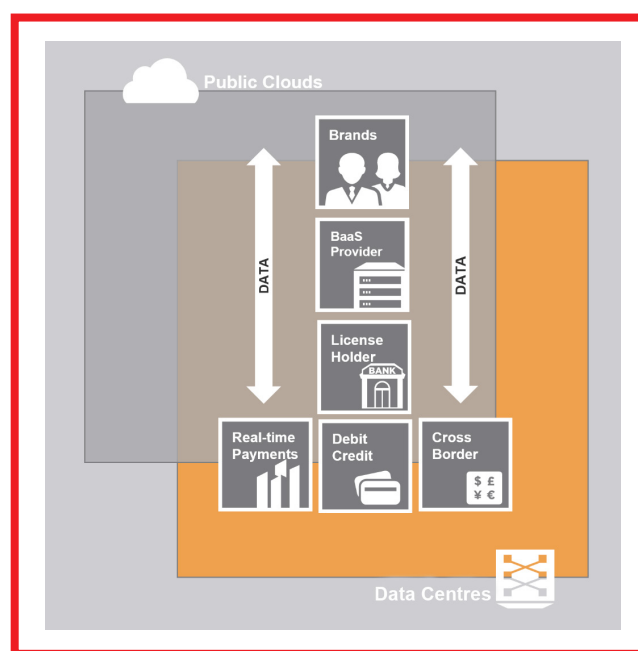


Figure 2: Example Banking as a Service Architecture



actually integrating into their core banking system, especially when it might be quite new for them to have a core banking stack, as opposed to peripheral services, in the cloud. So success depends on having a strong partnership with core banking system providers, like ClearBank, who are truly cloud-native, and who have APIs integrated already, so you can get to market much quicker.”

“In the future, if you still have a traditional bank account, you might not have many transactions going through it anymore.”

Innovation under Open Banking provides a sense of the shape of things to come, “We’re excited about what’s going to iterate now payments are happening on Open Banking platforms and rails. We’re starting to see really exciting things from innovators who are acting as middlemen between business and consumers. In the U.K., expect to see lots of innovation in digital payments in the near term, in part fuelled by COVID-19, providing services that we won’t have even thought about.”

Does this mean the end of banking as we know it? Simon explains, “We all think about subscription services as integral to how we buy things online. We’re seeing a strong growth in a model whereby a brand

might not want to deal with regulatory complexities, which are handled by the BaaS provider, but they do want to get closer to the transactions that are going through them and save costs through eliminating card acquiring. If you top up and spend on a wallet on a regular basis, the merchant won’t have to pay merchant acquiring fees each time the top-up occurs.”

“It’s about disaggregation. You might organise your leisure through a particular brand and your entertainment via another. In the future, if you still have a traditional bank account, you might not have many transactions going through it anymore.”

Despite enabling much of this disruption, ClearBank won’t rest on its laurels, “Really innovative banks will either compete with us at ClearBank as BaaS providers, or use BaaS to launch new products. The question for them is, can they get the cloud-based architecture and fluent multi-product APIs up and running quick enough to provide the services the market will demand?” Today’s pace of change suggests that anything is possible. ClearBank’s startlingly successful entry into the clearing market has demonstrated the power of a hybrid cloud environment in rewriting the rules for payment processing. The race is on for banks to truly embrace cloud, and BaaS could provide the best defence in the face of continued disruption.

For more information on digital leadership in payments and banking, watch our webinar [The Future of Banking as a Service](#).

To explore the issues raised in this article further, [contact our expert team](#).





Fuelling AI Development: The Digital Data Marketplace

Dr. Leon Gommans, Science Officer, AirFrance-KLM Group & Professor of Data Exchange Systems, University of Amsterdam

Enterprises with the multi-sided exchange of data at their heart have unlocked astonishing value and growth. In fact, platform businesses dominate the top ten of the world's most valuable enterprises.¹

Platforms are constantly evolving to solve a core question: how to get more value out of data? In partnership with Equinix, AirFrance-KLM Group, University of Amsterdam, Dell and Nokia developed a Digital Data Marketplace (DDM) that enables companies to access more data in order to improve AI development in an equitable, secure way, through trading data assets.

“Equinix is that neutral place ever since the internet started, where now clouds, ISPs and enterprises interconnect.”

AI has many applications in air transport, from predictive maintenance to enabling autonomous flight. Yet data sharing is the Achilles heel in improving AI, as Dr. Leon Gommans, Science Officer at AirFrance-KLM Group and Professor of Data Exchange Systems at the University of Amsterdam explains: “Maintenance companies, component manufacturers and particularly operators, all hold different datasets that could, if shared, continually improve AI-based products and benefit the industry as a whole. A working group within the Society of Automotive Engineers (SAE G-34) is standardizing ways how to certify and safety assess AI development in aviation. To date, initiatives from individual industries proved less successful because of the reluctance to share data with a single party acting as a hub.”²

¹ [Global Top 100 companies by market capitalisation](#), PwC, 2019.

² Marco Iansiti, Karim R. Lakhani, “Managing Our Hub Economy”, Harvard Business Review, September-October 2017.

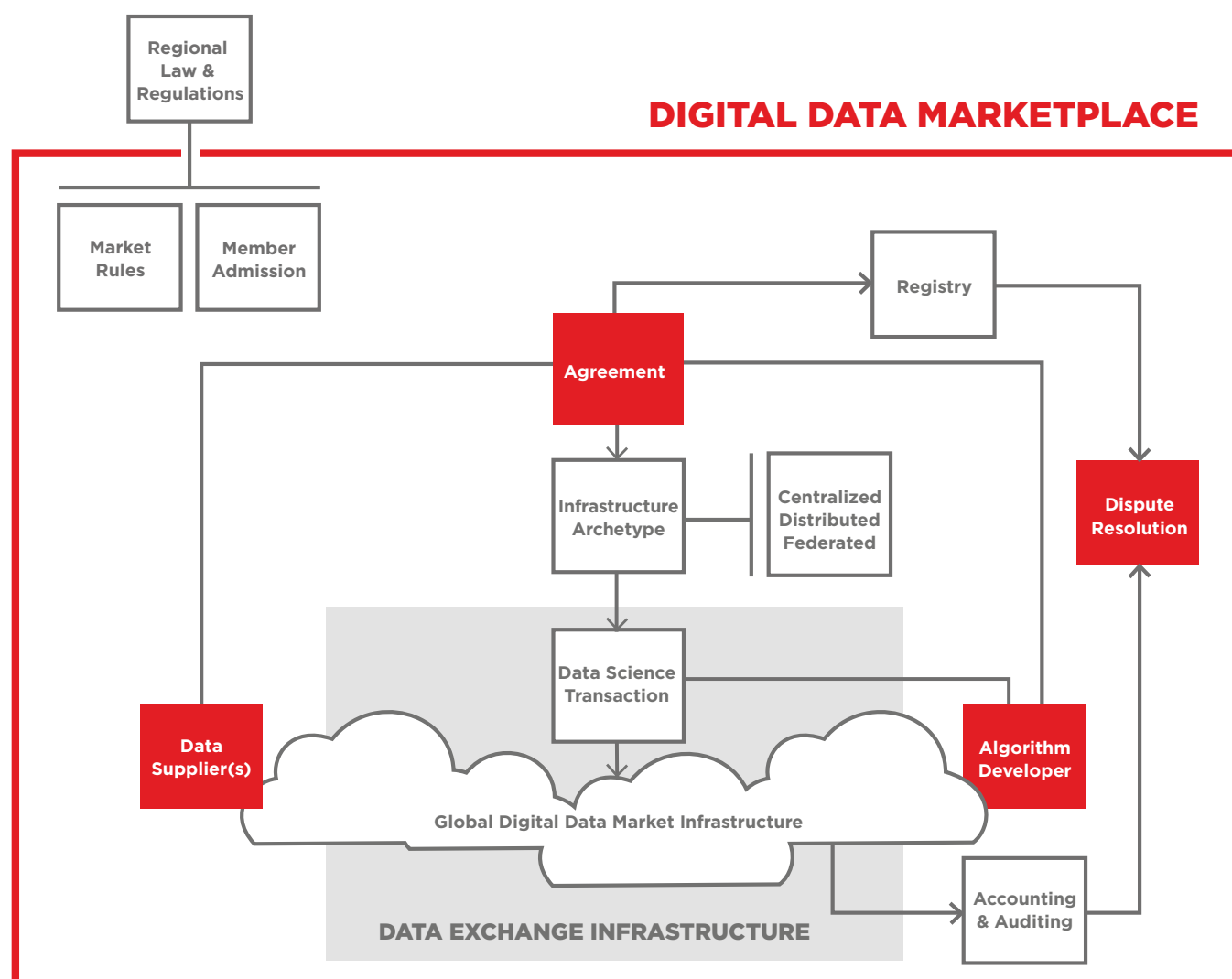


Figure 1: High-level Digital Data Marketplace Architecture

How the DDM is designed and operated is crucial to drive confidence. “Companies fear a loss of control on their data or exposing algorithm IP. You need a neutral platform operating model where each party can network with one another, so that AI learning can happen without any loss of control. Equinix is that neutral place ever since the internet started, where now clouds, ISPs and enterprises interconnect.”

“Flexibility is one of the unique features Equinix can deliver.”

Leon continues, “To make it work, the consortium procures a Digital Data Marketplace by selecting data exchange facilities at different locations in the Equinix data centre ecosystem. The infrastructure is completely governed by the consortium, and software-definable capabilities enable complete digitised provisioning and security zoning. Once this is in place, members can add their data assets, publishing metadata to make them discoverable. When a developer is interested in a particular asset, a smart contract stored on the marketplace’s blockchain, governs access, usage and monetisation of the acquired data.”

Developers can use the data to train models, whilst protecting their algorithm IP. “A developer sends an



AI pipeline to the marketplace infrastructure, which orchestrates the learning process using centralised, distributed or federated learning across multiple supply member locations. Once completed, only the trained network or decision tree is returned. The developer can't see the raw data, and the supplier can't see the algorithm."

"Moving data to compute requires a different model, based on reliable, private, high-speed networks that can move large datasets, potentially to the cloud, or in some cases keeping the data close to the cloud, in a location like Equinix, to give access to the data in a hybrid way from multiple clouds."

In contrast to many existing commercial platforms, the DDM exists for the community so that no single entity captures a disproportionate amount of value. This aspect is critical, explains Leon, "You need a governance model, rules about who can join and how you compensate people. There are different sharing requirements depending on the volume and sensitivity of the data."

The complexities in sharing different types of data sources are managed by the digital infrastructure. Kaladhar Voruganti, VP Technology Innovation, Equinix, explains, "There are different models. For highly confidential data that needs to remain within the walls of the organisation, the federated platform moves the algorithm to the data. Moving data to compute requires a different model, based on reliable, private, high-speed networks that can move large datasets, potentially to the cloud, or in some cases keeping the data close to the cloud, in a location like Equinix, to give access to the data in a hybrid way from multiple clouds. In experiments with AirFrance-KLM Group, the federated learning model was within 5% accuracy of centralised AI training, and in the hybrid model, where you're moving data to compute, training time and accuracy wasn't compromised either."³

Leon agrees, "I think of it as enabling different constellations where AI learning can take place, each addressing different community or consortium needs. Flexibility is one of the unique features Equinix can deliver."

Trust and governance are critical to convincing enterprises to participate, particularly at a senior level. It can take six months to establish a governance model and as long as two years for this model to stabilise. Blockchain is important here. "Once the community has established its rules of engagement, smart contracts are required to enforce them," Leon explains. "We're researching how to automate this process in the Computer Science department at the University of Amsterdam in collaboration with the Faculty of Law, and CWI, working on how legal complexities of contracts can be stored and coded as a smart contract on the blockchain, so they become digitally enforceable. Blockchain helps with dispute resolution, because you can see what actions have been taken with the data."

With different data exchange models comes security challenges. There's a lot of development in this area. "Equinix made a big contribution to security in the DDM project," explains Leon. "Starting from physical security to highly programmable software-definable zoning. Every consortium will have their own requirements, so it's important to accommodate all these options."

"Equinix made a big contribution to security in the DDM project."

The DDM represents an exciting evolution of the platform operating model towards application exchanges, where digital infrastructure enables on-demand, contract-based data exchange and processing between enterprises. Application exchanges can liberate value from data in new ways, both advancing the data economy and embodying a new standard of digital leadership within industry.

For more insight into digital data exchanges, watch [The Platform Economy](#).

For your route to digital advantage, [contact our team](#).

³ The Digital Data Marketplace, AIExchange White paper, 2020.



Adapting to a New Retail Landscape

Scott Robertson, Principal Cloud Architect, Co-op

Co-op Group is a unique business. It is the U.K.'s fifth biggest food retailer and largest convenience retailer, and the number-one funeral care provider. It offers a medical prescription service and is a major general insurer. It was the founder of the co-operative movement and is one of the largest consumer co-operatives in the world. Its food retail business has over 2,500 local convenience stores, giving it an important foothold in the community.

COVID-19 had a major impact on the retail industry, Scott Robertson, Principal Cloud Architect, Co-op explains, "In the first wave, consumer habits changed almost overnight. Customers were shopping less frequently, yet transaction value increased. We were experiencing unprecedented footfall, and at the same time we had and still have, limits on occupancy. It's fair to say COVID-19 has completely changed shopping."

Food retail is a highly optimised, highly competitive business. Pandemic operating conditions validated the company's cloud-first strategy, enabling it to withstand and adapt to this unique set of pressures. "When we put our cloud strategy together about two years ago, we

were responding to market demands at that time. We had to increase speed to market and improve agility."

Co-op adopted a pragmatic approach to modernising its core infrastructure. Scott outlines, "It's about hosting the most appropriate workload in the most appropriate location. We have a presence in AWS, Microsoft Azure, utilise several third-party SaaS services, and we leverage colocation facilities where required." This approach was underpinned by deep investigation into what the new digital architecture for Co-op would entail. "It involved a series of learning exercises with partners such as Equinix, to define how things would work in the cloud. We wanted to understand where the client would sit, the latency between all the components, and what other integrations would be required. We assessed where the data would be kept, who would use it, and the authentications and authorisations that we needed to wrap around it."

Security policies were assessed very early on, "When you put things into the cloud, you take a different view of where the security boundary is located. The user has become the security perimeter. If you, as a user, want to consume apps from home over the internet, or from a laptop on an office desk, that's ok." Scott and his team spent a long time on the security architecture. "In the digital world, things need to happen at speed," Scott said. "For users, we need to have robust but flexible processes, so they don't find their own workarounds. If data is in Azure or AWS, why not just consume it



directly? We have a link via Equinix Fabric™ to broker what we have in our network hub out into the cloud.”

“If data is in Azure or AWS, why not just consume it directly? We have a link via Equinix Fabric™ to broker what we have in our network hub out into the cloud.”

Making the case for long-term transformation is never straightforward and it's helpful to articulate the benefits of cloud in a particular way. Scott explains, “Cloud isn't a hosting location, it is a way of working and a way of delivering IT and technology services to your business—whether through your own data centres, colocation, or through a hyperscaler. It's about automating and accelerating the pace of change and delivering software-defined services in a modular way, regardless of where the equipment is located.”

This new way of working propels a change in mindset. “Moving from a traditional data centre environment means IT teams require a broader set of competencies, whilst partners like Equinix, can really provide those specialist skills. As siloes dissolve, managing a hybrid environment requires more touchpoints and communication. This evolution of skills within enterprise IT is actually a greater challenge than the technology itself.”

As coronavirus swept across the U.K., this adaptive technology approach and the transformational attitude within the organisation enabled a rapid response to an unprecedented set of parameters. Co-op could quickly adapt for its members and its customers, “We built a call centre in the cloud in two to three weeks. We transferred thousands of staff to remote working. We had the flexibility and fluidity to deliver applications without the corporate network and secure those endpoints.”

The in-store experience had to change too, and Co-op's estate of over 2500 stores provided a number of challenges. “The footprint of each store is unique, and the experience within each store is tailored to its location. We need to optimise for customers and colleagues. Before the pandemic, we'd rolled out Shifts, an app to manage staffing patterns that replaced paper time sheets, and MyWork, where automated task

managers enable better in-store management and help to free up colleague's time to spend on customers. Responding to COVID-19, we implemented a traffic light system across the estate to regulate footfall.” Co-op could also develop new services quickly, “We're not known as an online retailer, although that is coming, but we're very much out there in the community, so we're exploring partnerships to make the most of our stores.”

Co-op's flexible digital infrastructure supports its future ambitions. “Retail today is all about experience, and that, is driven by data. We have to provide the right infrastructure to support that, to enable our data scientists to interrogate data, understand demand, and the changing needs and habits of the different demographics that we serve.” Does this require greater use of the edge? “As stores become more intelligent, you might need to host more at the edge. Let's say you want to aggregate the data from a digital shelf close to its location, or as high-definition video becomes more important, you don't have the bandwidth to backhaul this type of data. This is where a distributed, software-defined model will be crucial.”

“Moving from a traditional data centre environment means IT teams require a broader set of competencies, whilst partners like Equinix, can really provide those specialist skills.”

Many retailers have had to pivot hard to respond to new conditions. An interconnected approach to infrastructure can enable a faster, more reliable digital experience and, through direct connection to partners, the emergence of new business models. Benchmark data from the fourth annual [Global Interconnection Index \(GXI\)](#) predicts a 37% compound annual growth rate between 2019-2023 for Wholesale and Retail Trade in Europe, on a par with Banking and Finance, another rapidly transforming industry.¹

COVID-19 placed huge demands on all parts of the Co-op's business. Did it alter strategy? Scott reflects, “We reprioritised. The pandemic changed the order of what was already on our roadmap.”

For more information on building agility in retail, watch [The Future of Commerce](#).

For your route to digital advantage, [contact our team](#).

¹ [Global Interconnection Index Forecast and Data Volume 4](#). Equinix, September 2020.

The Route to Digital Advantage

Industries are transforming at pace, and the route to recovery, growth and transformation is different for everyone. What's clear from the stories in this white paper, is that deploying the right digital infrastructure is critical to the effectiveness of transformation.

As the [Global Interconnection Index \(GXI\)](#) shows, the foundations that power the digital economy are crystallising around a number of trends.

The shift to Interconnection Oriented Architecture® (IOA®) is powering growth across industries. The old world of centralised IT infrastructure is making way for a distributed, interconnected digital foundation, providing the optimised multipoint connectivity that enables digital leaders to deliver superior experiences, wherever and whenever required (Figure 1).

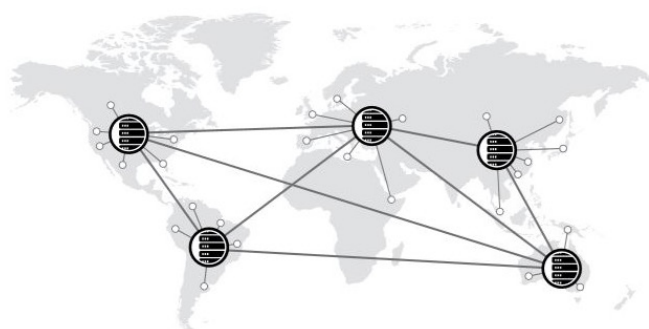


Figure 1: Before Interconnection versus With Interconnection.

Workloads are moving towards an Edge-First Architecture. Extending networks to the edge transforms digital experiences. Modernising the digital

core enables the hybrid architectures that power agility. Direct interconnection with applications and partners offers a rich digital ecosystem and exchange (Figure 2).

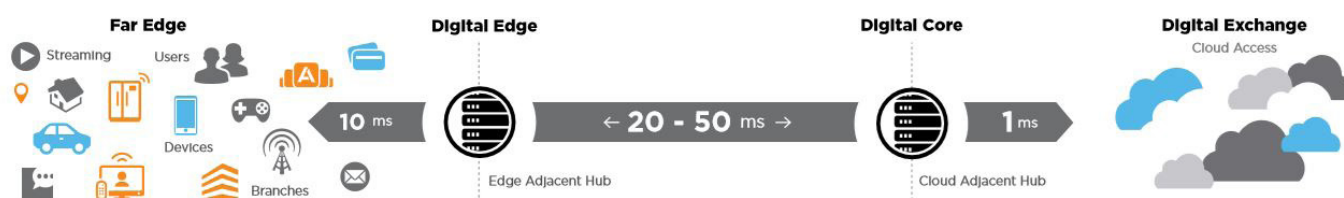


Figure 2: Workloads are moving to an Edge-First Architecture

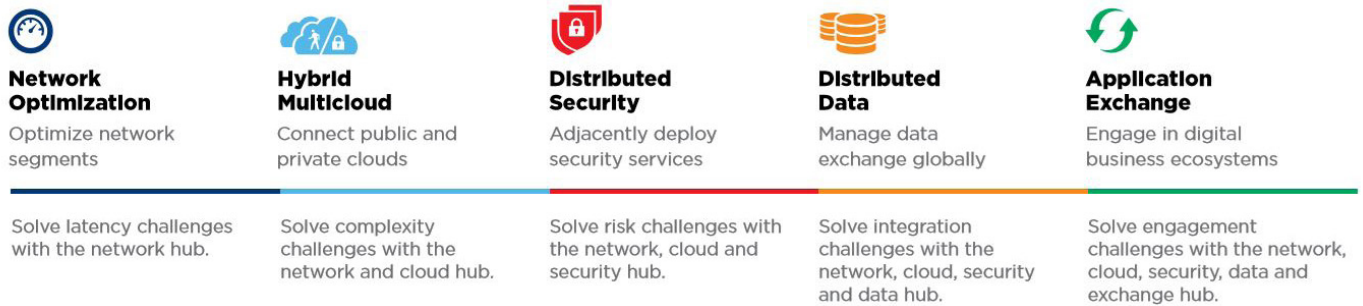


Figure 3: Five Steps Digital Leaders are taking to Digital Transformation.

A [Digital Edge Strategy Briefing](#) can help you explore these trends and apply them to your own business, to define how to get the most out of networks, cloud and data. Briefings combine insights and best practices from the latest Equinix data, to show the baseline digital infrastructure trends in your industry, and the common use cases that will help define your target architecture. A key part of any briefing is the customer's own input - to determine a more precise picture of where you are on the transformation journey.

These personalised sessions explore the steps digital leaders are taking to re-architect their business, and offer a roadmap to your own digital advantage (Figure 3).

Competing in today's digital economy requires agility to be built into the core of your enterprise. It's that ability to adapt your operations on a hairpin when things change.

Kickstart your route to digital advantage with a free [Digital Edge Strategy Briefing](#).

Matt George, Director Segment Marketing: EMEA, Equinix



Power Your Digital Leadership at Equinix

On Platform Equinix®, digital leaders bring together all the right places, partners and possibilities to create the foundational infrastructure they need to succeed. On a single global platform, place infrastructure wherever you need it. Connect to everything you need to succeed. Seize opportunity with agility, speed and confidence.