epsilon

WHITEPAPER

THE NETWORK API REVOLUTION

TRANSFORMATION, INNOVATION AND CREATING NEW COMPETITIVE ADVANTAGES WITH APIs

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NETWORK APIs AND PROGRAMMABILITY

are changing how network-centric businesses consume connectivity and transforming how partners interconnect and grow together.

The pace of change in global ICT is accelerating and the emergence of Network Application Programming Interfaces (APIs) and programmability is creating the foundation for faster, more agile and friction-free networking models. By 2021, the Telecom API Market is Expected to Exceed US$ 231.86 Billion according to MarketsandMarkets. Network-centric businesses of all kinds are entering a new era of networking where control is directly in their hands and legacy models no longer limit innovation.

Telecom API Market is Expected to Exceed **$231 BILLION** BY 2021

While APIs have been in regular use for Web and Cloud-based applications for nearly two decades, they have only just begun to influence global networking. McKinsey estimates that the number of public APIs has tripled over the last 12 months. In the consumer market, we benefit from the use of APIs every day. The seamless integration of Google Maps into a variety of applications and services from ride hailing to Artificial Intelligence platforms should be a lesson to network-centric businesses.

When networking is delivered via APIs, it can be as fluid and elastic as Google Maps. It moves beyond A to B connectivity, presenting network more as a service and resource. Businesses that are digitally-centric should aspire to access and integrate connectivity in the same way they might integrate Google Maps into one of their own applications. Seamless, accessible integration with applications can be presented as holistic services to customers and users.

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APIs are also enabling a new and efficient approach to interconnection and partnership within the networking community itself. Global networking can evolve into a platform-driven, software-defined, global networking ecosystem.

How Network Service Providers interwork both commercially and technically can be re-imagined. Where there were once traditional laborious commercial agreements and rigid interconnects between partners, programmable technical and commercial interfaces now enable smart and dynamic partner network interworking.

The demarcation lines are being redrawn and partnerships that are built with programmability and APIs in mind can extend across infrastructures to give users on-demand access to truly global Software-Defined Networks (SDN). While the concept isn't complicated, the industry is only just seeing the advantages of APIs in creating new threaded solutions that are continually growing through interconnection and partnering. This allows partners to seamlessly integrate new services into their platform.

It is still early days for the network API, but there are clear signs that they are the optimal way forward for a networking industry that must find ways to become more agile and efficient. The advantages are obvious, not only delivering what might be the six key network programming core functions – Available, Orderable, Deployable, Supportable and Reportable – but also enabling the extension of these functions across partner networks as a seamless, single source customer solution.

As legacy models and traditional methods of provisioning network capacity rapidly become obsolete, it is imperative for vendors of network services, their partners and customers to understand the potential of network APIs. It is clear that interconnecting and interworking at the application layer will play a critical role in defining the future of the networking industry. Network-centric businesses have an opportunity to engage with each other using network APIs, and not just transform their internal operations, but how they partner, procure connectivity and create the solutions of the future.

Estimated number of

PUBLIC APIs TRIPLED

IN LAST 12 MONTHS

THE NEXT NETWORK TRANSFORMATION

If APIs have been used for nearly two decades by other industries, why are APIs transforming networking now?

The drive towards operational efficiency, automation and SDN environment is supporting, if not, enabling the adoption of network APIs. Competition and user expectations mean network-centric or digitally-reliant businesses have to evolve their approach.

In an era of disruption, network APIs are solving critical challenges as well as creating new opportunities. These drivers are relevant to any network-centric business looking to safeguard their future in a rapidly changing market.

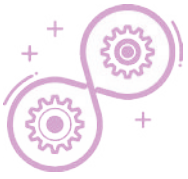
Cost-efficiency and Performance

The business of buying and selling connectivity has traditionally been focused on time-consuming commercial agreements and manual ordering processes, rather than automated technical integration. With a programmable network that is able to drive service orchestration, the whole business of provisioning connectivity becomes faster, seamless and far more cost-effective. Network APIs streamline relations between partners and remove unnecessary cost from the procurement process

Faster, seamless and far more **COST-EFFECTIVE**

DevOps and Automation

Network APIs allow software developers to harness the full power of today's SDN, enabling them to build apps that are native to a Cloud-centric, on-demand world. We can expect industry standards that will further shape the use of network APIs and enable the automation of the entire lifecycle for services, orchestrated across multiple networks and technology domains within a provider's network.



Automation of the ENTIRE LIFECYCLE for services

Digital Experiences versus Unit-Based Procurement

Network APIs enable network-centric businesses to create new digital experiences that are underpinned by accessible and programmable connectivity. Connectivity solutions presented via API can be use network APIs to create threaded solutions to solve much bigger challenges shaped to the needs of a platform, application or business objective. Developers can whilst relying on consistent and high-performance networking. Procurement of connectivity has to date been unit-based and centred around price rather than value. APIs change that.

Create threaded solutions to **solve much BIGGER CHALLENGES**

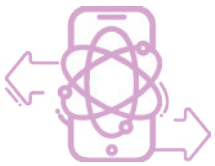
SDN Platforms and New Speed-to-Market Network

APIs allow for an agile response to new business opportunities. In a world that increasingly expects instant access to services and the ability to scale demand up and down at will, any innovation that speeds up time-to-market will hugely increase competitiveness. Not only will programmable networking increase responsiveness to market needs, it can also facilitate reach into new markets by making partnerships between providers of services more dynamic and fluid. The integration of SDN platforms at an API level can create a mesh of on-demand network infrastructure, enabling partners to immediately add new services and reach to their offering.

IMMEDIATELY add new services and reach

Networking as a Utility

The API economy is a whole new way to do business. For any company with networking at its heart, network APIs offer a way to integrate with the infrastructure of other network-centric businesses, using the power of software to tap into on-demand connectivity platforms. The model allows partners to provision services on each other's networks in real-time. The result is elastic and programmable connectivity that can be turned on and off like a utility.



ELASTIC AND PROGRAMMABLE CONNECTIVITY

AN API-FIRST STRATEGY

As APIs become a force for change in networking, network-centric businesses need to look at the role of network APIs in their organisations. The faster they develop a Network API strategy, the quicker they will see returns.

According to Jitterbit's 2018 state of API Integration report, 64% of organisations are creating APIs today for use in either internal or external use cases.

Epsilon has adopted an API-first strategy to prepare the organisation for a software-defined future. Northbound and Southbound APIs have been developed to create operational efficiencies with the ability to share or open these APIs to partners.

Northbound and Southbound APIs are computer to computer interfaces within domains. For example, all customers that are onboarded into Infiny by Epsilon on-demand connectivity platform need to be created as customers in Epsilon's backend BSS. This is achieved via a 'create customer' API.

By implementing an API-first strategy, Epsilon puts software at the centre of its business and is creating an environment that is flexible, fluid and ready to scale.

Through refining internal processes with APIs, Epsilon is living its transformation and using its practical knowledge to support its partners with new levels of automation, integration and access to global destinations. APIs are used to optimise its own business while also pointing towards a long-term strategy focused on Eastbound and Westbound APIs.

East to West APIs are computer to computer interfaces across domains. For example, a customer purchasing a service from Epsilon via API, or Epsilon procuring a service from a vendor. For example, Epsilon's partners can order Ethernet and Premium Voice services from Epsilon via its publicly available APIs.

Getting East to West standards in place means working with partners. Epsilon has begun to build partnerships with other network providers to integrate networks so that it can offer partners connectivity into regions where Epsilon does not currently operate. Network providers cannot have connections everywhere, so bridging these network islands at the application layer enables the creation of a single user experience.

Both Epsilon and its partners can build on this synergy to engage a global community of network-centric businesses in new ways.

However, the challenge is to accelerate and promote the use of network APIs across the industry, not just in individual organisations. The industry needs universally recognised API standards to avoid a situation where a new API needs to be written for every SDN platform in order to interconnect and offer services across another carrier's network.

The Metro Ethernet Forum (MEF) has made tremendous steps in bringing greater standardisation to APIs. As an active MEF member, Epsilon believe that standardisation is an important step forward for the industry.

MEF's standardised Lifecycle Service Orchestration (LSO) APIs provide a standard architecture and framework that promotes interoperability and will be critical for enabling agile, assured, and orchestrated services over automated, virtualised, and interconnected networks worldwide.

Beyond standards, interconnection also requires a common approach and shared levels of service and experience. Network analytics and performance metrics must be transferable and recognised by partners. A greater degree of integration and standardisation beyond just the APIs is required.

At the same time, network APIs are only valuable if a network-centric business is able to put them to use. It is not enough to innovate in DevOps internally. Organisations need partners that share their vision and invest in their Network API strategies as well.

A significant industry change brings equally as many challenges, for example, how does the network industry reach out to new customers via API when there is no relevant in-house software expertise, or plans to acquire it? The prize of overcoming these challenges lies in the clear benefits of APIs that resonates across the whole networking ecosystem.

> Epsilon has been positioned to become an aggregator or marketplace for a **growing number of solutions and capabilities** that can then be presented using its API. As more solutions are plugged into the platform, users gain **instant access** to the services they need with **one flexible and elastic digital experience.**

POWERING PLATFORMS WITH FEDERATED APIS

Network APIs can connect the islands of SDN present in today's global connectivity market. A truly federated and collaborative approach is the only way forward for programmable networking.

Federated networks not only have the power to create a partnership that enables best available pricing, integrated commercial models and consistent support, but also interconnect networks at the physical and orchestration layer that provide synchronised capability to deploy and knit services across each network. Provisioning functions are thus handled by the partner, effectively enabling end-to-end command and control of both networks to deploy services.

A partnership that enables **best available pricing, integrated commercial models and consistent support**

With programmability and service orchestration a reality, not only is provisioning services on a partner's network possible, there is full visibility into the state and health of that network. This in turn means that customers get a more seamless, transparent quality service, in a more cost-effective and timely manner. This kind of cross-carrier automation will be one of the major dividends of the API revolution.

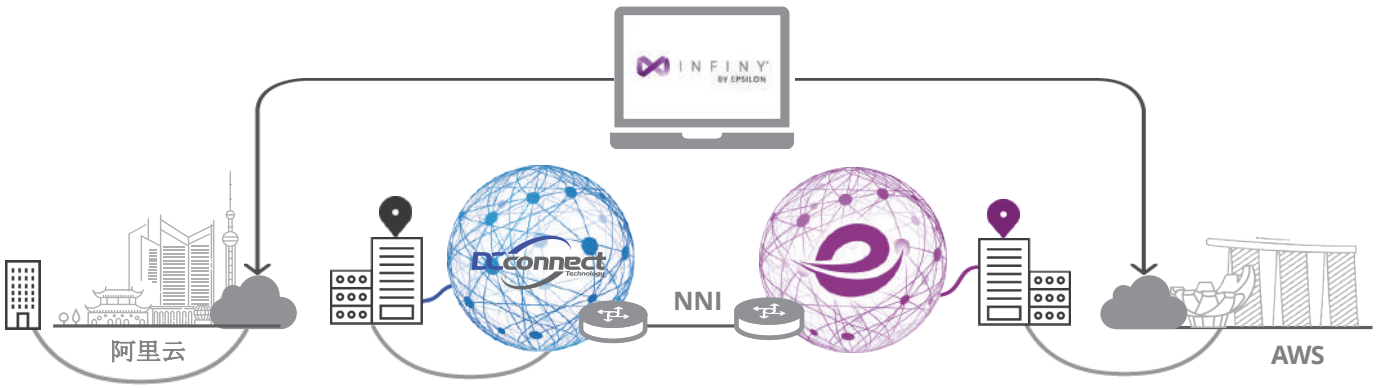
Epsilon has set itself the strategic objective of becoming a cornerstone API hub within the networking community, enabling a range of partner companies to interconnect with it in a programmable manner.

Epsilon will be a gateway into the programmable world for these partners, streamlining and simplifying their first steps in the API world, helping to connect islands of network services through seamless SDN interconnections as well as facilitating and automating access to Cloud Service Providers and Internet exchanges. For these partners, Epsilon will be their bridge to a whole new way of buying and selling services.

One of the early partners in this ecosystem is DCConnect, a Chinese on-demand connectivity provider. DCConnect has a unique China-wide SDN network with extended access to more than 118 data centres and 11 Cloud Providers, including Alibaba Cloud, Amazon Web Services, Tencent Cloud and Huawei Enterprise Cloud, that are available through DCConnect's network infrastructure.

DCCONNECT CHINA-WIDE SDN NETWORK » **118 DATA CENTRES** » **11 CLOUD PROVIDERS**

Epsilon has worked with DCConnect to interconnect SDN platforms and expand the reach of Epsilon's service capabilities within China. The partnership will boost the growing adoption of Cloud-based services in China whilst bilaterally enabling DCConnect's customers to access more than 220 global destinations across Epsilon's Global Interconnect Fabric through the Infiny on-demand connectivity platform.



API not only enables network services to be seamlessly delivered through SDN platforms, but also on other application platforms. This allows software companies to continually add new services that are relevant to their customers onto the platform, also known as service threading. For example, a Cloud Communications Platform as a Service (CPaaS) company can buy inbound numbers from Epsilon via API and present them on their platform to ride-hailing app companies for their call services.

> In the past, where there were once traditional laborious commercial agreements, it can take days to complete the ordering process. But now, with APIs, service request can be self-serviced with a quick turn around time.

A NEW ECOSYSTEM

As the network API economy grows, we will see more and more players interworking with APIs to deliver an increasingly efficient and programmable model for network integration. It is an ecosystem that can only get richer and more diverse as it develops.

Epsilon has been positioned to become an aggregator or marketplace for a growing number of solutions and capabilities that can then be presented using its API. As more solutions are plugged into the platform, users gain instant access to the services they need with one flexible and elastic digital experience.

Infiny by Epsilon is enabling orchestrated data centre interconnectivity and direct connect solutions to growing number of locations and interconnect partners. These connectivity solutions can be integrated directly into existing platforms via APIs. The 600+ Service Provider partners, world-leading Cloud Service Providers and Internet Exchanges preconnected to Epsilon's Global Interconnect Fabric can be seamlessly accessed with a friction-free model that is simple to embed connectivity into new solutions.

600+
Service Provider partners, world-leading
Cloud Service Providers and Internet Exchanges, seamlessly accessed

Infiny creates new competitive for users and is removing the barriers between users, partners and their networks. Epsilon believes competition in the future will be focused on the strength of platforms and the partners present there.

APIs will accelerate the development of network services with innovation coming in the form of bundled and tailored offerings for each vertical market. This can lead to graphic user interfaces (GUI) being used to deliver and bring new applications and services to market end-to-end.

Organisations of all kinds benefit from simplified access to networking platforms and the services they need in a scalable and controllable way, just as they currently access compute needs from their Cloud Service Providers. Network APIs are the foundation for a whole new way of networking and change how networks will be connected and optimised globally.

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ABOUT EPSILON

Epsilon provides connectivity and infrastructure solutions to Communications, Applications, Content and Cloud service providers. Its underlying network infrastructure, intelligent application layers and industry expertise enables its customers to seamlessly deliver mission critical, high performance applications and communications services globally. Epsilon offers a wide range of communications infrastructure services from network connectivity, co-location or data centre services and system integration through to an on-demand ordering platform for ethernet services and cloud access.

www.epsilontel.com

SELF-REGISTERING
WITH INFINY

Network-centric businesses that are interested in remote peering can self-register to use the Infiny platform and immediately connect to IXs globally.

By filling out a simple form, users can register for a direct account and experience friction-free and on-demand connectivity. Epsilon has removed the barriers to remote peering at IXs across the globe. Self register here www.infiny.cloud/auth/login

www.epsilontel.com

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