

Network Exposure Function (NEF)

Built for 5G



**Amdocs
Network
Exposure
Function**

Introduction

At Amdocs we believe NEF will be key to fulfilling and delivering on the strategic promises of 5G with partners and stakeholders – both internal and external. It will be key to more effectively realising the value of 5G. The Amdocs 5G NEF comes with greater ease of deployment, usability and access to a more powerful ecosystem than alternatives and is backed by partnership capabilities, software-focussed resources and strength of cloud experience that are unsurpassed.

5G is becoming considered as a means for service providers to diversify away from current business models that are comprised almost universally of commoditized “unlimited” 4G data offerings. The understanding that 5G can ‘change the future’ raises practical questions regarding “how” and “what” needs to happen in order to truly leverage these “potentials” of 5G. Which services, devices, content, partners segments and sub-segments should be prioritized? Which services should be managed end-to-end or delegated to partners and in the latter case to what extent? Which services are most valuable and relevant for a particular market context?

Responses to such questions don’t have to be painstakingly answered. Decisions on potential market strategies do not need to be binary or “all or nothing”. Service providers that plan consciously and execute technology strategy effectively are able to leverage the huge range of new capabilities embedded in 5G itself whilst leveraging partners, ecosystems and channels where necessary.

Experimentation with the right levels of access to the 5G network for key partners can expand with various levels of involvement and ownership on the part of service providers. Service providers can view their networks as a platform asset that empowers an infinitely expandable service portfolio – no matter which combination of relationships the service is delivered through.

A Service Provider can activate and own a fuller range of services end-to-end. Or they can provide a platform for network access and extended capabilities “as-a-service” to B2B partners as well as powering the B2B2X model, resulting in end-consumer services “powered by [brand here]”. They can also provide a strategic mix of any of the above based on their view of opportunities and investments required. In so doing, service providers are increasing both the size and diversity of the 5G “pie” (Figure 1).

Many service providers had, in a 3G/4G context, already dabbled with expansion into strategically new or adjacent services. Some well described examples are: banking, home security, IoT and of course media & entertainment. Service launches typically took many months, if not years, from conception through to launch, by which stage the market had more often than not already shifted out of reach, or at best, the business case had evolved substantially.

It is clear that service providers are rarely best placed to own the entire innovation, development and commercialisation chain for the endless range of services that happen to leverage their networks in one way or another. Much in the same way that hyperscale cloud providers focus on empowering success, the 5G provider will garner more value and create significantly more revenue by passing onto others the mechanisms that drive and integrate the 'art of the possible' that is now becoming available within 5G networks.

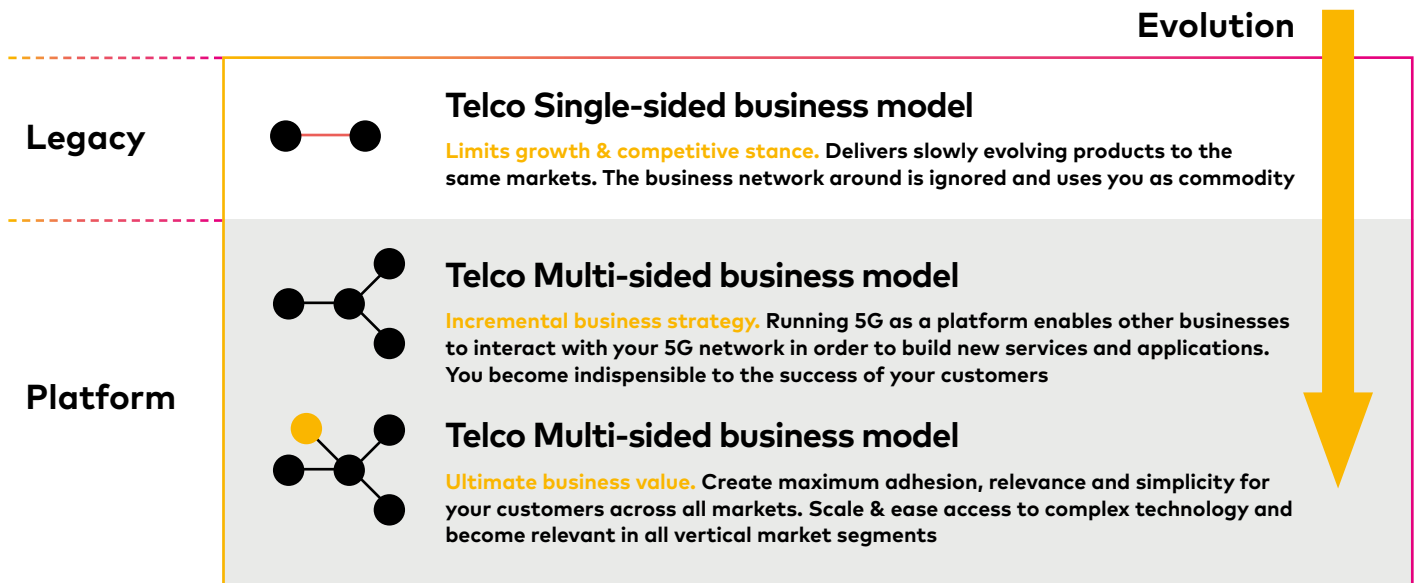


Figure 1: Telco 5G Evolution

The transition from early 5G non-standalone (NSA) radio rollouts to 5G "standalone" (SA) core networks is happening. Service providers are anchoring their 5G core networks with cornerstone functions such as Charging (CHF) and Policy (PCF). In the same movement, they are presented with key decisions of how to establish and release the newly available value, otherwise termed "5G currencies", to the market far more rapidly and extrovertly than ever before.

With the breadth and diversity of newly available 5G capabilities at their disposal, mobile network operators require the mechanism to integrate and mutually trade with partners and cloud players that have powerful brands or specific focus on sub-segments. This combination can produce, at unlimited levels, a constant stream of yet-to-be-imagined services, service combinations and of course: revenue.

The ability to go above and beyond the textbook definition of 5G slicing is where much value lies, by means of having the ability to transform 5G and the slices within to be a fully programmable and accessible, open environment. Whilst 3GPP has defined enhanced mobile broadband (eMBB), ultra-reliable low latency (uRLLC) and massive machine type communications (mMTC) 5G slice types, these definitions are broad-brush strokes which illfittingly map to real-world & precise business requirements.

The Amdocs 5G NEF allows secure network exposure towards ecosystems of external as well as internal development teams meaning that service launch can be controllable, instant and automatic. Rather than being reconciled (again) to playing the role of a basic transport network, 5G with the value-add of NEF is able to become an accessible, programmable and integral part of resolving Enterprise business requirements, partner service innovation and cloud player catalogs.

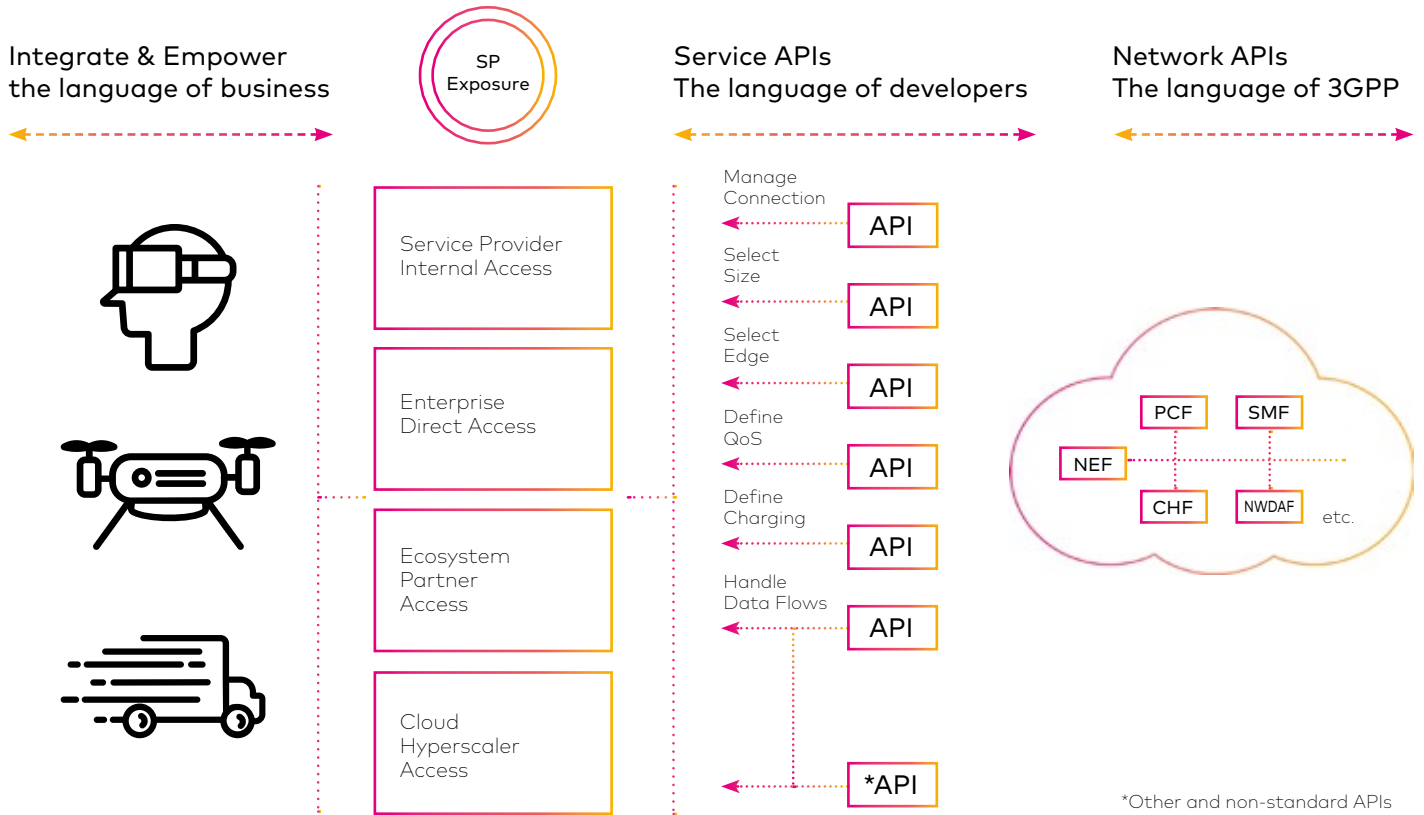


Figure 2: Key Role of Amdocs NEF: Internal as Well as External Exposure

Benefits

The Amdocs 5G NEF provides for a 2-sided set of benefits:

For Internal Efficiencies

As 5G Standalone features are activated they progressively unleash a set of capabilities that are effectively brand new or massively evolved for service providers. When combined, the overall value is amplified. The Service-Based Architecture (SBA) as defined by 5G is only valuable in as much it provides visibility and synergistic capability to and from the various functions it supports. The role of the Amdocs 5G NEF is to translate valuable aspects derived from practically all the 5G functions into the language of developers. This is achieved in the form of APIs, SDKs and good old plain-language user interfaces.

As a result, a service provider can rapidly become its own best deployment for the service combinations that it can now provide in B2B and B2C offerings. The combined exposure of these new functions will allow service providers to extend existing offerings and enter brand new, 5G-driven segments such as gaming and enterprise AR/VR.

For External Exposure Management

Exposure towards a combination of Cloud Hyperscalers, Partners and Eco-systems is a huge opportunity for service providers to attain the coveted 'platform effect'. These large and respected brands – as well as nascent start-ups – are constantly looking to enhance their own propositions to their own market segments. This is exactly where new service capabilities from 5G can become integral parts of these market structures.

An array of new or enhanced capabilities across sectors such as IoT, entertainment, transport and manufacturing have long been considered in the context of 5G. These markets are arguably difficult to access or manage end-to-end by individual service providers.

Realistically, a single mobile network operator is unlikely to have the access, brand and expertise in order to service all segments within a given market. An ecosystem of exposable APIs is therefore necessary to enable self-service and autonomous innovation. In this way, a win-win-win situation is created in which each player maximises their capabilities across the service delivery chain. With the right security, exposure rights and authentication in place, developers and their partners are able to access the promises of 5G including the embedded programmability that goes way beyond what is already promised by the broad definitions of 5G network slicing such as eMBB, uRLLC and mMTC. The result will be combined services provided that can move more rapidly from imagination to activation by an array of providers all of which can be more fully assembled and interconnected by Amdocs as required.

Features

The Amdocs 5G NEF is a cloud-based, microservices-built set of functionality to provide the benefits of internal and external exposure as described above. It encompasses Diameter bridging (via the Amdocs Diameter to REST bridge or DRB) to ensure that service combinations can include 4G where required or where coverage with 5G is not complete. Most significantly it securely buffers the internal (service provider) as well as external developer communities from the internal SBA workings (Figure 3).

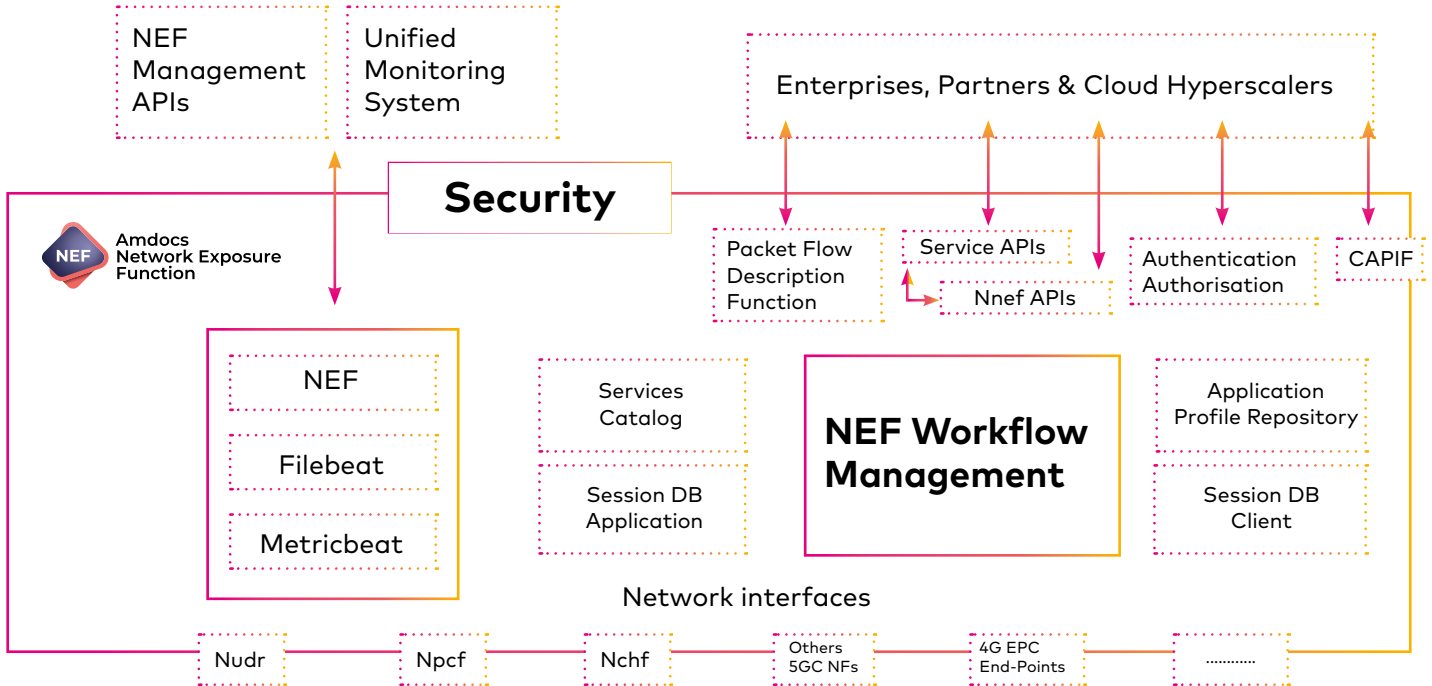


Figure 3: Amdocs 5G NEF Architecture (Functional)

Of course, as with all leading-edge Amdocs products, 5G NEF is built with the best available resources and our unique experience in building and deploying cloud native microservice based 5G core network functions (Figure 4).

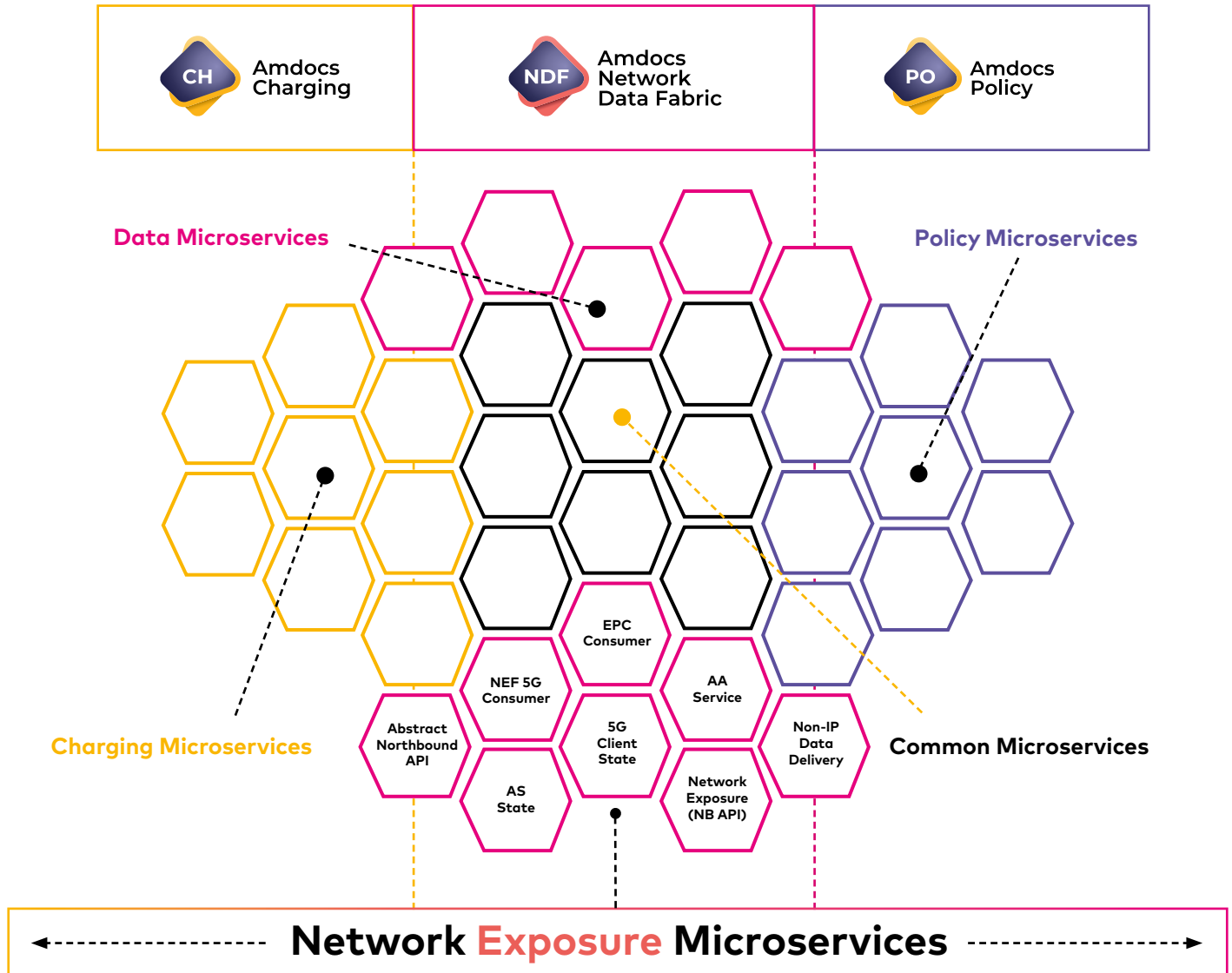


Figure 4: Illustration of Exposure Microservices in PCC Context

The Amdocs 5G NEF is deployable in whatever hybrid or multi-cloud environment a service provider is targeting. Our vast cloud and microservices deployment experience is available to optimise rapid deployment and activation. Synergies are of course available with the Amdocs Policy (PCF), Charging Suite (CHF), Data (NWDAF) as well as the fuller Catalog, Partner Management and Amdocs revenue management suite (Figure 5). Flexibility and compliance on the southbound network interfaces are also essential features for integration with 4G core end-points using the Diameter protocol and with 5G core endpoints via the service-based interfaces that are specified as part of the new 5G Core Service Based Architecture (SBA).

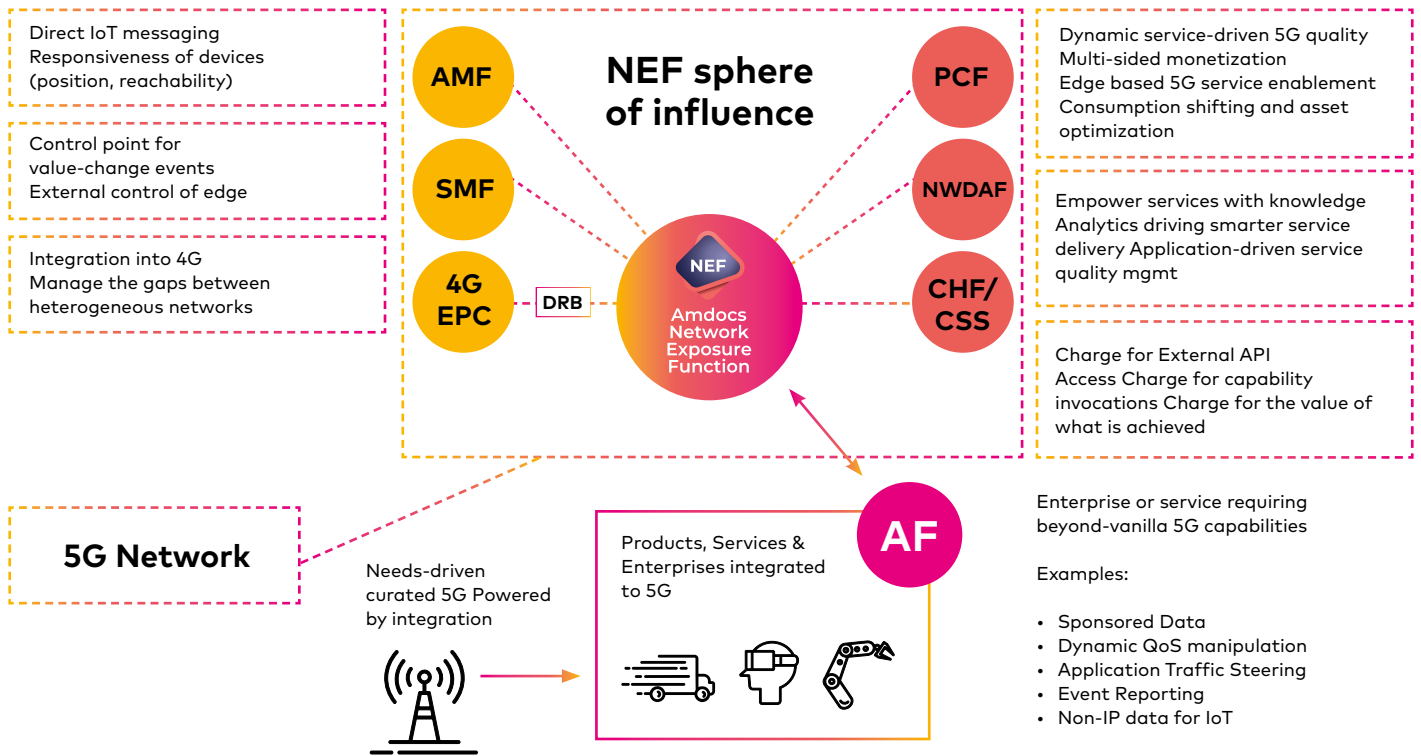


Figure 5: Network Exposure: Key Integrations & Value

Why Amdocs 5G NEF is Different

- The Amdocs focus is on the value-drivers of 5G. We prioritize NEF as it complements and builds upon best in class existing 5G assets and value-enablers from Amdocs and exposes the richness of 5G and other network currencies
- Amdocs bring extensive proof points and credibility in multi-vendor environments which extend across all 3GPP generations. This includes all types of service provider from extremely large Tier 1 to micro-operators or private enterprises, and every major network equipment vendor. Whatever your starting point, we will help you to get further with 5G
- Enterprises or systems integrators with multi-national or specialist services may prefer their primary contact to be with cloud vendors as the single technology provider rather than traditional service providers, which ultimately provide an element of their wider technology requirements. Amdocs have a neutral role to play with vast hybrid and multi-cloud experience
- Amdocs' decades of experience in complex IT and business transformation provides unique capability to address and develop media, revenue-share, partnering ecosystem, service and Lifecycle Management. All of these aspects require strong reputation in areas including legal, contractual, security, fraud protection and IT best practices
- Amdocs is a software-only company with best-in-class services organisations; we know and understand developer requirements that will enable growth of new, 5G-driven services that have yet to be imagined
- Early cloud and microservices experience in a 5G context means that our products are built from the ground-up, truly adhering to cloud-native methods and objectives. This provides our customers the extreme flexibility that 5G will demand