5G Value Plane in action

Prioritizing outcomes for more effective 5G evolution

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1. Introduction

Promises, promises

Like many revolutionary technologies, 5G has generated expectations that were always bound to challenge. With a vision so much more ambitious than 4G, bumps along the way were inevitable. While 4G was primarily about smartphones and apps, 5G services are multi-device oriented, immersive and more highly focused on enterprises (B2B), machine-to-machine capabilities and wholesale B2B2X opportunities.

5G technology is more complex, with new and advanced 5G functions providing additional capabilities, mainly related to speed, latency and ability to handle massive internet of things (IoT). On the flipside, because these functions sit on a standard service-based architecture (SBA) and talk to each other via standardized internet-based connections, they can be more smoothly managed. Or at least that's the idea.
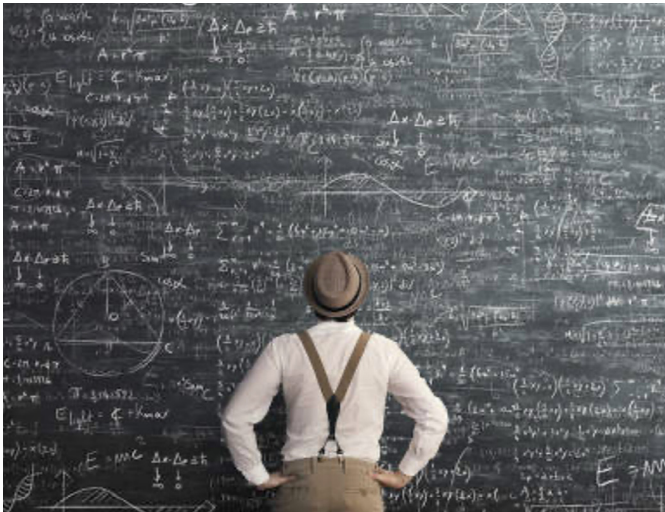
The trouble with reality

The road to cloud-based and microservices-driven 5G was never likely to be smooth. While 4G had become effective, its rollout didn't reach full maturity by the time 5G emerged. 4G will need to exist alongside 5G for some time. As a result, the two, with somewhat divergent sets of capabilities (reliable 4G and complicated but powerful 5G) must collaborate and optimize until we gradually reach a world where 5G becomes the dominant standard.

While this combined 4G and 5G network and IT tapestry can offer service providers a formidable set of assets, the process of evolving towards standalone 5G from a robust, 4G foundational environment is extremely challenging. Indeed, for some service providers, it has become too cumbersome and full of compromise, with vendors they cannot manage and a lack of ability to achieve hoped-for objectives. While 4G evolutions were often compared to changing a plane engine whilst flying, 5G is more like converting a small, twin-seater plane into a passenger jet – or even a rocket ship – whilst flying. The reality is perhaps less dramatic, but the consequences of poor change management and prioritization are clearly being felt by some operators.

Furthermore, in the eras of both 3G and 4G, organizational and technical silos crept into service providers' operations. For example, this often led to a situation where there is one team and technology pool for prepaid services, another for postpaid; one for consumers, another for enterprises; one for IoT and perhaps most significantly, one for network and one for IT. As a result, few if any service provider executives possess sufficient oversight and control across the entire technology stack, with the resulting impact on their ability to make positive changes as needed.

For these reasons, when it comes to 5G evolution, the result is often a complex mix of hardened 4G propping up a rather experimental but partially enabled 5G radio – marketed as "5G" but seldom featuring more advanced capabilities such as slicing or low latency. In some organizations, this leaves a quagmire of work-in-progress as personnel churns, while revenue continues to rely on 4G-enabled price adjustments rather than significant 5G-led innovation.

2. A more realistic version of 5G

While the 5G opportunity remains enormous, most service providers admit they're still at a very early stage of their journey. For some time, the reality will inevitably remain a mix of 4G and 5G operating in parallel. The work to fulfil the promise of 5G can therefore seem overwhelming and ever evolving, leaving the question of how it can be best managed and prioritized amid such a complex landscape and ever-emerging toolsets.

Amdocs' approach is to focus on prioritized value-oriented areas of 5G, combined with improved co-ordination capability. Using a bridge or the **"5G Value Plane" between network and IT**, we believe we can provide the best source of 5G opportunity – since it **resolves what is arguably the greatest boundary and division** at any service provider.

The 5G Value Plane, combined with smoother service orchestration, significantly reduces such divisions, as opposed to framing 5G as a set of disparate boxes or functions. Effectively, it collapses network and IT, together with their prevailing silos into a more cohesive and effective set of assets. Another objective is a rapid shift to a focus on coordination or orchestration combined with service monetization, rather than piecemeal methods of getting disparate functions to talk to each other. In statistical or economic parlance, it considers Pareto efficiency (i.e. the 80/20 rule) as applied to 5G; in other words, if the evolution of 5G seems unending, why not adjust focus to the 20% of capability that can drive 80% of value? As an analogy, consider prioritization the of the car engine as the most important part of a vehicle over other components. It may not be all that is necessary, but it is certainly a priority.

Pareto Principle and Motivation for 5G Value Plane Focus

The principle is named after Vilfredo Pareto, an Italian economist. In 1906, Pareto noted that 20 percent of the population in Italy owned 80 percent of the property. He proposed that this ratio could be found in many places in the physical world and theorized it might indicate a natural law.

In the 1940s, Pareto's theory was advanced by Dr. Joseph Juran, an American electrical engineer who is widely credited with being the father of quality control. It was Dr. Juran who decided to call the 80/20 ratio the "The Pareto Principle." Applying the Pareto Principle to business metrics helps to separate the "vital few" (the 20 percent that has the most impact) from the "useful many" (the other 80 percent).

The Pareto Principle states that roughly **20%** of inputs are responsible for roughly **80%** of outputs in most systems
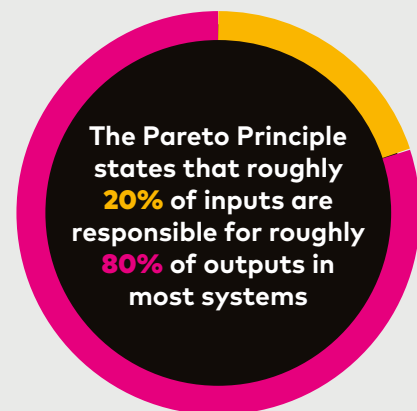
Fig. 1: Pareto efficiency – and logic for the 5G Value Plane

By applying the same Pareto principle to 5G, 5G control and monetization, supported by data management and exposure, are where most value and differentiation are likely to be derived. This is why, within the 5G Value Plane, those essential requirements of service definition, policy control and monetization are center stage. Since these elements complement 5G network exposure, we can extend this principle further. By exposing and facilitating a combination of key 5G elements, partners of all sizes can accelerate the realization of 5G's partnership ambition and grow without limitation – because the technology is suited to any kind of hybrid or multi-cloud environment. It also enables service providers, with the inclusion of next-generation data management, to consider possibilities such as automated service fulfilment and closed-loop operations that could only have been dreamt about in the realm of 3G and 4G.

Furthermore, since the Value Plane is built using microservices, advanced consumer and enterprise services can flexibly evolve without disruption to become more consistent with the early 5G vision – ready for whatever service opportunities arise. As a result, services such as enterprise automation, advanced entertainment and other edge-driven value can be supported and effectively managed as new devices and edge-based service requirements emerge, many of which will be driven by service level agreements (SLAs).

Focus on the Value Plane provides a more realistic focus for 5G priorities – especially with it encompassing increasingly tighter coupling of orchestration and customer experience management. This is tighter Amdocs integration enabling service providers to more powerfully and flexibly launch, manage, monetize, tailor and evolve 5G-enabled services.

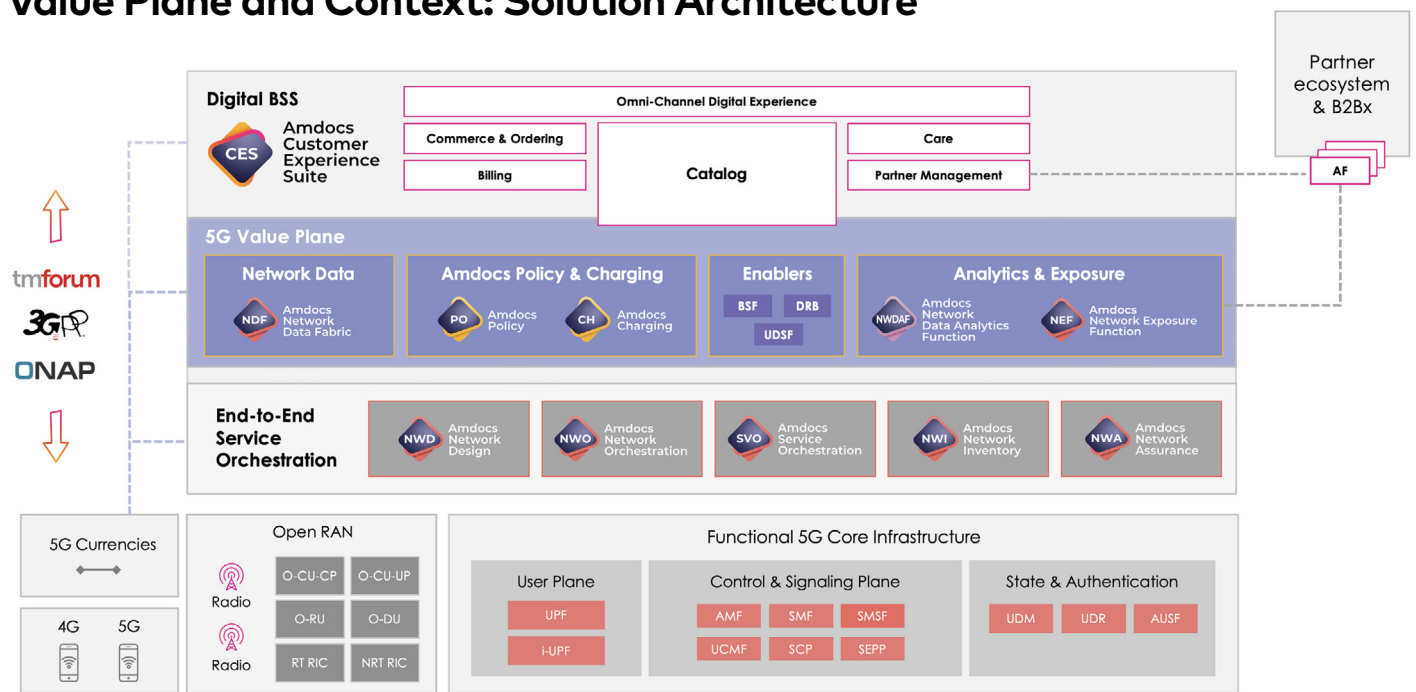## Value Plane and Context: Solution Architecture

Fig. 2: Amdocs Value Plane – driving acceleration, scale and partnership

Such reframing of 5G, not as a set of disparate functions that need to somehow combine or be forced together to slowly realize 5G value, but as a more wholistic set of prioritized enablers supported by orchestration and IT, provides a considerably stronger opportunity to fulfil 5G's early promises. In so doing, it becomes the vehicle for achieving three key organizational and technology objectives: **acceleration, scale and partnership**.

These are the focus and outcome objectives of the 5G Value Plane. We explore each of those outcomes further in the sections below – and how they are enabled via the 5G Value Plane.

i) Acceleration and automation

A primary objective of 5G was and continues to be the launch, monetization and co-ordination of large numbers of diverse new services. For IoT especially, this demands a vast range of requirements to be managed effectively – for the range of devices already available, as well as the deluge of future devices to come.

The 5G Value Plane ensures readiness via tight integration and usability of key 5G components, as well as supporting IT and B/OSS as provided by Amdocs – ensuring ease of deployment, service update acceleration and improved time to market with new services, business models and monetization schemes. Meanwhile, data-led automation drives value even further. Overall, the Value Plane serves as a focal point for horizontal as well as vertical 5G implementation, providing cohesive components based on microservices to ensure unmatched deployment and update cadence.

Examples of coordinated acceleration via the 5G Value Plane include:

- 5G policy control, enabling differentiated performance for each specific application (e.g. leveraging use case-focused slices) combined with 5G charging to provide more diverse options for service and network monetization, combined with revenue assurance
- 5G data analytics capability and normalization to easily handle increasing complexity
- 5G exposure control and interfaces, combined with charging to automate and monetize partnerships and service diversity

Learn more:

Read how services and functions are built upon and managed by Microservices 360, Amdocs' microservices management platform.

Learn more about Amdocs Intelligent Networking Suite.

ii) Scale

Service providers need to prepare for the next wave of on-demand services, which will require massive and automatic responsiveness from their resources to cater to ongoing, as well as spontaneous requirements. And whilst the hope is always for an overall upward trend, scaling downwards too needs to be possible on a per-services basis to ensure greater resource optimality, which will also be more consistent with service providers' own environmental, social and government (ESG) commitments.
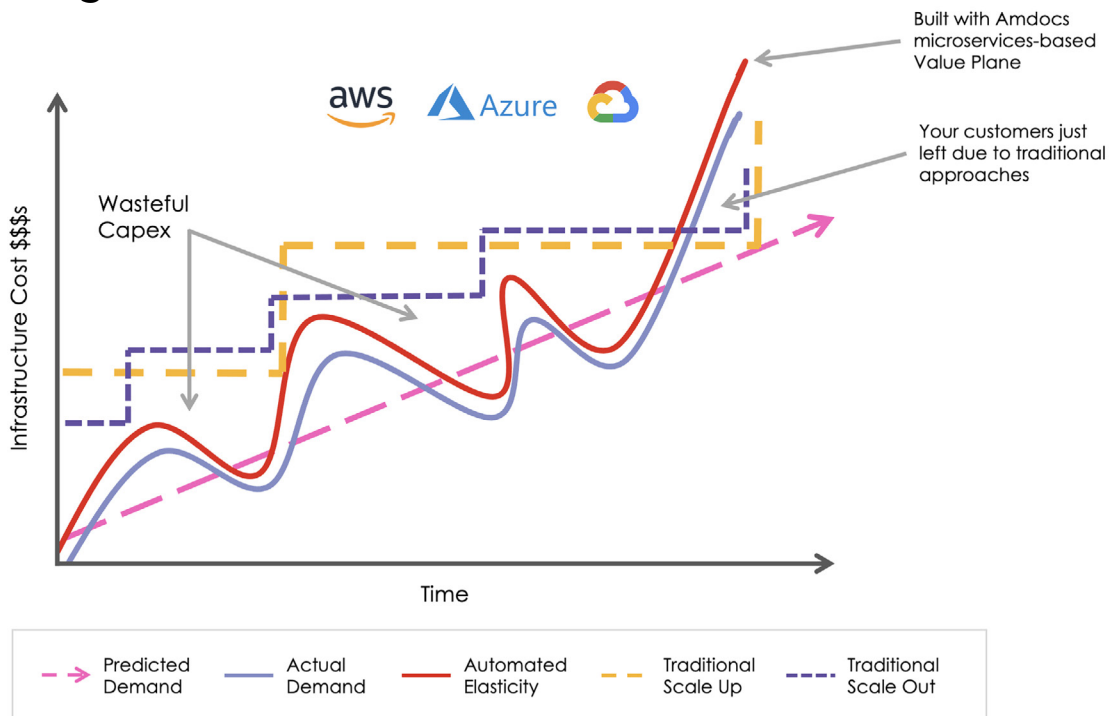
Cloud Scaling and Amdocs

Fig. 3: Cloud-native for access to cloud efficiency

5G Value Plane elements are cloud-native, deployable in any cloud environment and portable. Furthermore, they are agnostic, built around the best of open source and with CNCF principles applied – ensuring a basis for true efficiency and futureproofing backed by industry consensus. Amdocs is positioned to cater to any stage of an evolving cloud environment that may exist in a particular operator's environment, with the ability to ensure the correct Value Plane deployment evolves to the optimal target environment, in accordance with their requirements.

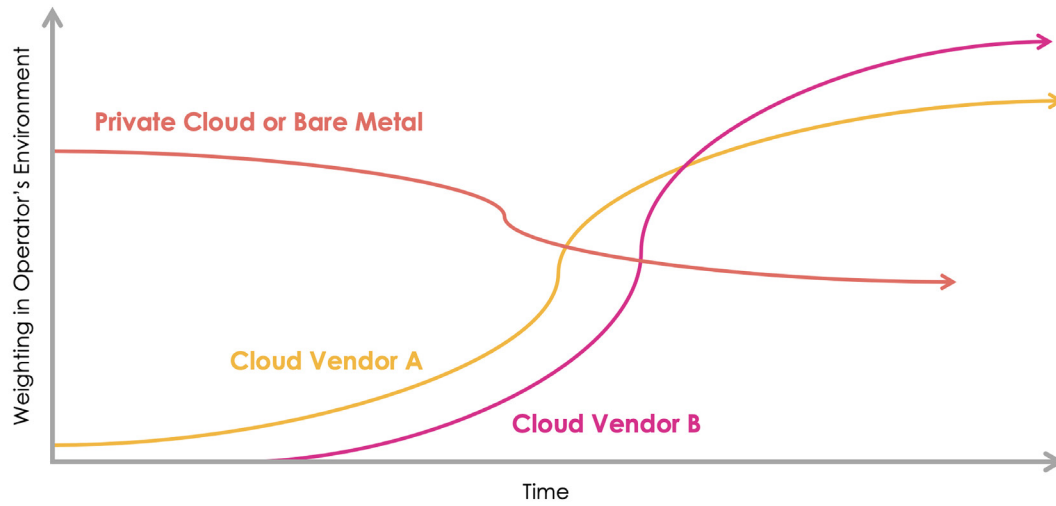# Possible Cloud Vendor Mix in Operator Over Time

Fig. 4: Example evolution of cloud mix over time

Learn more:

Get more information on the journey to cloud.

iii) Partnership

A further essential promise of 5G has been to facilitate openness and partnership. Specifically, this refers to where the network makes its 5G features available to become both a platform for partnership, as well as a facilitator of internally-driven innovation. Key to future partnerships will be the hyperscalers (especially Azure, AWS, Google – and others), webscalers (Meta, Google and a long tail of others), API exposure capabilities (including NEF – Network Exposure Function), as well as supporting exposure capabilities, all of which combine to form a conduit and suite of capability for 5G partnership.

Based on their specific historical and planned evolutions, preferences and constraints (such as regulations), almost every service provider today will be considering and targeting their own mix of cloud, edge and perhaps multi-cloud relationships. Regardless of the particular variety of cloud they may be aiming for, the 5G Value Plane can evolve with these players to facilitate a long tail of partners – either directly (on a B2B basis) or with additional hyperscale and webscale partners (more on a B2B2X basis) to further open 5G capabilities to their own ecosystems.

By leveraging NEF and complementary API-driven exposure capabilities, the 5G Value Plane enables service providers to re-position themselves as highly scalable and much demanded providers of 5G features. This includes the ability to deploy on the cloud and as a result, gain a more powerful means to leverage a wider ecosystem of cloud-native providers in the form of hyperscalers and webscalers – who rather than suppliers or competitors, become partners and drivers of new service revenues. Indeed, expanded cloud-based exposure capabilities have the potential to broaden 5G feature access and partnership way beyond what service providers might have been used to in a 3G/4G non-cloud environment – and far beyond any narrow considerations of cloud vendor relationship.
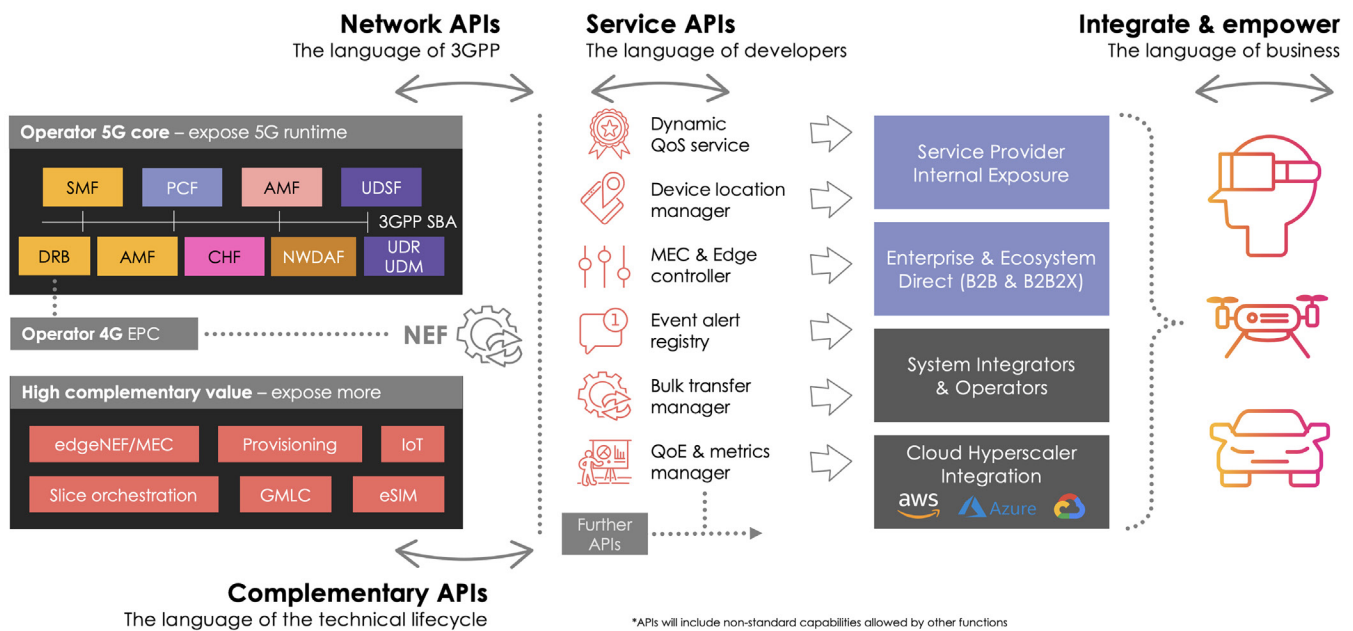
Partnership & Exposure of Value with Amdocs

Fig. 5: 5G Value Plane partnership with deeper hyperscaler ecosystem involvement

Learn more:

Read more about partnership and NEF.

Value Plane In Action: Tighter Orchestration and IT Complemented by Amdocs Experience for Effective Outcomes
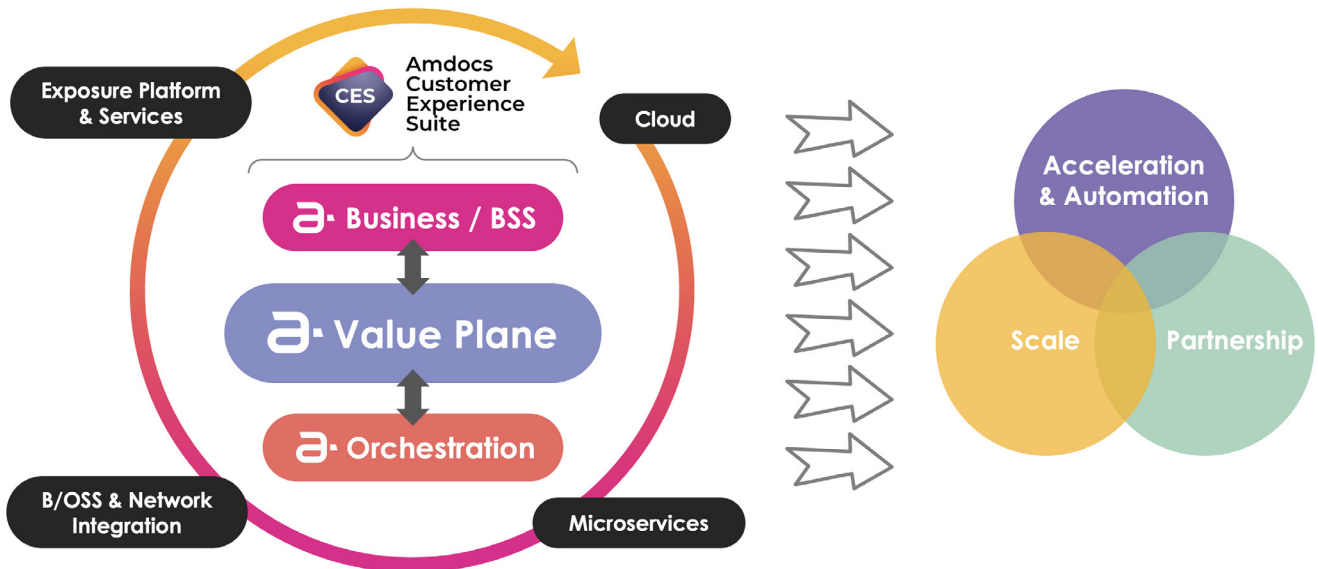

Fig. 6: Value Plane in action: Amdocs' vehicle for enhanced service provider focus to achieve prioritized 5G outcomes

Conclusion

Having thus far had very limited success in delivery of its early promises, 5G remains a challenging prospect for service providers. Nevertheless, huge opportunities await those who focus on key outcomes – namely **acceleration, scale and partnership** – leveraging the 5G Value Plane to prioritize them. This mechanism, together with Amdocs' best practices relating to cloud-native, microservices, – exposure and integration, is today enabling leading-edge service providers to prioritize within a wider 5G ecosystem to achieve a more effective 5G. Furthermore, with its continued evolution, the 5G Value Plane is becoming even more tightly coupled with orchestration and customer experience management, making it a proven, even more cohesive, focused and coordinated approach to 5G.

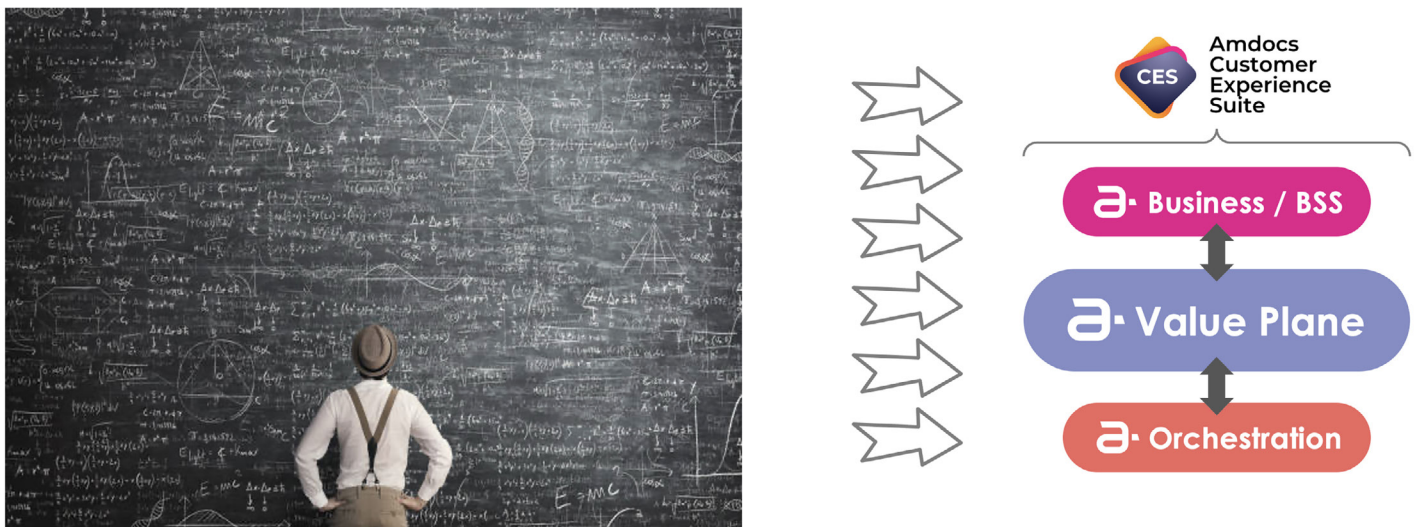## There's a More Effective Way to Manage 5G

Fig. 7: 5G Value Plane: A More Effective Way to Prioritize Amid 5G Complexities

Learn more:

Discover how Amdocs and A1 are working together to combine key elements of the 5G Value Plane, combining orchestration, monetization and policy management for improved 5G outcomes.

Learn more about the 5G Value Plane.

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