Network-as-a-Service

Simplifying Operations and Increasing Agility and Scalability within a Flexible Commercial Model

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Table of Contents

Synopsis

This paper examines the current view of Network-as-a-Service (NaaS), providing a perspective on what an enterprise client needs and wants and how the technical and commercial approaches can support those objectives in a complex, transformed environment.

The paper provides context to market forces, drivers and trends that are shaping the evolving NaaS market.

It looks at the different approaches to NaaS and how market perceptions of NaaS have raised new challenges and offered new solutions to the perennial problem of optimizing flexibility, cost, and functionality.

Finally, the paper examines the risks and rewards of NaaS, describes currently accepted practice and then recommends key courses of action through the unique world of NaaS from the buying decision through implementation.

2

Executive Overview

Network service models are being challenged to keep pace with enterprise demands. Many have started the journey, adopting SD WAN and cloud-based security among others. However, within other IT departments, namely Applications and Infrastructure, service delivery has demonstrated agility and flexibility for some time. Networks have historically been limited due to their purpose and singularly-built functions that span a far greater scope and dramatic scale differences. They often include multiple providers, sometimes within the same region with an overlapping scope of services. And within the subset of services provided by carriers, the last mile is still the lynchpin in the network as it limits scale and time capabilities.

Hardware is often sourced from several OEMs with various segments (e.g., LAN, WLAN) potentially being labeled as technology debt. Also, purchases vary from capital expense to lease to rental without common or standard approaches. The idea of NaaS has been with us for quite some time, but even in today's modern world with seemingly everything available as a service, NaaS is not well understood or even agreed to among enterprise stakeholders and providers as to what it can be. That said, when the topic of NaaS is broached, some core functional NaaS elements are common though scope, goals and objectives often vary widely.

Each ISG client identifies with one or more of the key aspirational concepts of NaaS, or in fact, anything as-a-Service. ISG is seeing our Network Transformation engagements striving to achieve some very basic cost and service improvement goals along with the following:

- Enable their drive to digital
- Create an agile infrastructure that can adapt to traffic pattern changes from cloud adoption
- Establish continuous improvement in all things "network"
- Find reliable, flexible, yet inexpensive network transport
- Maintain technical "currency"
- Migrate applications to the cloud with confidence in the underlying network
- Standardize operational processes that fully support customer policies
- Reduce technical risk by ensuring a constantly maintained and current network infrastructure
- Migrate the work of Networking to their providers to allow focus on their own core business.

Consuming network is inherently complex; for the past decade, the technology to enable NaaS, even to a limited extent, was simply not mature enough to deliver. As providers continue to invest in their infrastructure, platforms, software, billing mechanisms and portals, the reality of NaaS is now upon us. This whitepaper details the network services market and notable components/ services, affects of market forces and trends, and many of the supporting and limiting technologies. Key considerations are also provided to assist with beginning the journey to NaaS adoption and network transformation.

The Business Need for NaaS

The Continued Drive Towards Everything-as-a-Service

The past decade has seen Enterprise adoption of cloud services grow dramatically. Recent market research from Statista Technology, provided below, shows substantial growth over the past five years for Public Cloud and its IaaS segment, which includes network capabilities. The research indicates that this trend will extend for at least the next 5 years. The 'IT-as-a-Service' model is attractive to Enterprise leaders because it allows the infrastructure to adapt quickly to the needs of the business. This model has provided agility and scale without excess capital costs or risks associated with dedicated infrastructure.

Worldwide Public Cloud revenue in billions US$

Worldwide IaaS Segment (23.8% of Public Cloud)
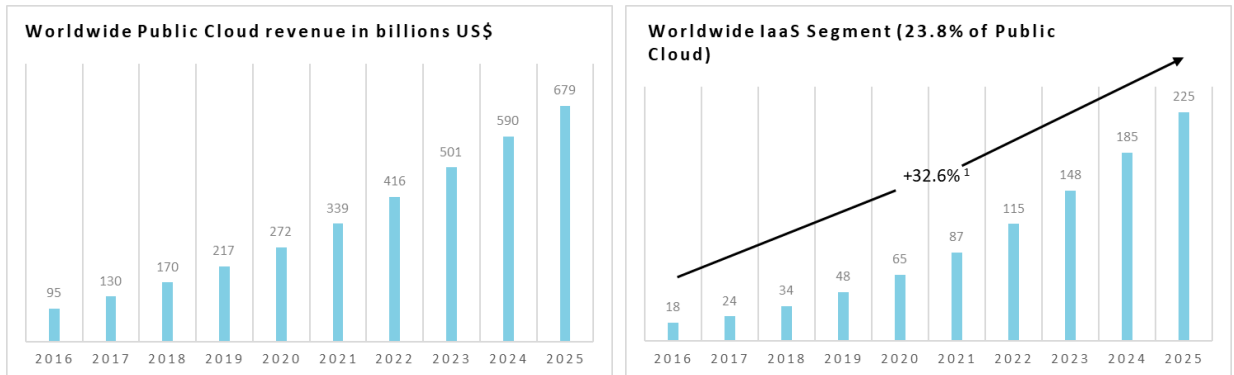
Source: Statista Technology Market Outlook 2020

Figure 1 – CAGR: Compound Annual Growth Rate/average growth rate per year

According to the 4Q20 ISG Index™ call, even while collapsing the view to the recent past, the global 'as-a-Service' market grew by 17% when comparing full year 2019 to 2020, within which the IaaS market grew by 22.8% and SaaS by 3.7%. Hyperscaler growth, which contributed heavily through Q42020, was the major contributor due to accelerated cloud adoption during the pandemic. ISG believes that IT spending will continue to grow and will be mainly driven by IaaS and cloud management providers. Over the past five years, the as-a-Service market grew at 40% CAGR, and is more than 50% of the overall outsourcing market. As public cloud infrastructure has commoditized, enterprises have readily adopted cloud-based infrastructure and associated technologies in their pursuit of digital enablement across B2B and B2C markets.

More recently, the communications domain has seen markets open and grow at a dramatic pace as well. For example, SD WAN infrastructure revenues worldwide in 2017 and 2018 were $833M and $1.37B, respectively, and forecasted to reach $5.25B by 2023 (source Statista), which represents opportunity for bundling and selling as-a-Service to Enterprises. Another example is cloud managed SD WAN services, which has seen multiple new entrants over the past years. Additionally, the Unified Communications as a Service (UCaas) market is forecast to reach $48.3B in 2023 from $32.97B in 2018 (source Statista). The network is all but surrounded by the insatiable appetite for as-a-Service portfolios. This appetite for "aaS" products will pressure NaaS to evolve and expand to meet market demands.

Global Network Market Trends

Network services have traditionally been difficult to deliver "on-demand". Many elements of an enterprise network (e.g., CPE and network access circuits) are dedicated to each client and do not easily lend themselves to rapid provisioning, scaling and decommissioning. However as Enterprises are increasingly moving to the cloud for compute and data resources, and as more mobile users and devices join the network, pressure is mounting on network service providers to create a consumption model for their offerings that is better aligned to the "aaS" paradigm. Fortunately, several technologies, such as network function virtualization (NFV) and software-defined networking (SDN), are making this possible as enterprise network models continue to evolve.

ISG client engagements, as well as our research over the past year, reveal that while Enterprises want cost savings, there has been a notable shift to decisions based on agility rather than cost alone. The interest in SDN and NFV in particular focuses on improving the integration, automation and orchestration of network assets to meet business and user goals more efficiently and securely.
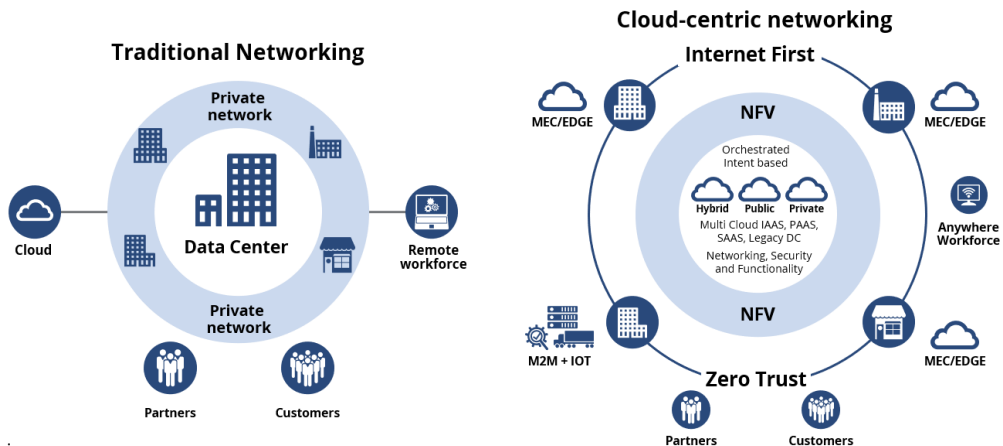
Figure 2 – Accelerating shift in network needs

ISG Research has identified the main factors that drive the rapid changes in enterprises to adopt new technology such as SDN and NFV. These are:

● Support for cloud and multi-cloud migrations
● Increasing flexibility and agility
● Increasing customer satisfaction while boosting sales
● Reducing costs and improving usage efficiency
● Simplifying management and planning of networks and integrating more fully with other enterprise IT initiatives
● Forming a basis for new or near-term innovative technologies and solutions

ISG sees a real and long term market demand for flexible bundled network services to support Enterprise digital transformation (DX) strategies. Enterprise networks underpin most DX roadmaps and are critical to their success, but are often considered last and require considerable investment to keep pace. Without a robust operational NaaS framework to address security, scalability, flexibility and agility, efforts to create competitive differentiation and execute DX strategies will have limited success. This represents opportunities for providers to position solution sets accordingly to Enterprise clients and then tie business value to the NaaS bundle.

Technology Support for NaaS

Working into an enterprise network from the WAN edge, there are any number of network elements that are built on OEM proprietary components and necessarily dedicated to delivery of network services for a specific client and location: core switches, distribution switches, access switches and wireless access points as examples. The network infrastructure that is deployed at a client site, and wholly dedicated to the network functions of that site, cannot be delivered in an 'as-a-Service' model allowing a client to flex up or down or decide not to use the device without financial impact. While the aforementioned devices can and have often been delivered in an OPEX manner, they are not truly being delivered 'as-a-Service'.

While traditional networks are rigid and slow to adapt to changes in business needs, several technologies discussed below have enabled a stepwise evolution toward a much more agile infrastructure. This evolution naturally results in a greater proportion of network costs being flexible and lending themselves to an "as a service" commercial model.

1. **Network Function Virtualization:** As previously mentioned, NFV virtualizes network functions such as routing, security, WAN acceleration, SBC, etc. from the hardware on which they run. This innovation allows the functionality of a network to be re-configured almost instantly in response to business needs. Assuming flexible licensing options from a NaaS provider, enterprises can virtualize multiple edge functions on a uCPE device and flex capacity on those virtualized functions, based on underlying demand. Further, the uCPE with NFV approach affords an opportunity to repurpose and redeploy an edge device when a site closes.

2. **Software Defined Networking (SDN):** SDN separates control and data plane functions to enable greater automation and centralized control over network environments. Software-Defined WAN is one example of this approach, providing overarching visibility and control to Enterprises of the transport and business applications. With an SD WAN enabled edge device, enterprises can deploy both higher cost dedicated circuits and lower cost shared access circuits and control routing based on application or other business parameters.

3. **Ubiquitous, High Bandwidth Wireless Access:** LTE Advanced can now deliver bandwidths that are often high enough to run retail stores, bank branches and small corporate sites. The fifth generation (5G) of wireless technology is pushing even higher bandwidth, opening the door to large enterprise locations to potentially eliminate fixed wireline connections within a large portion of their WAN. This is a major shift that is eliminating the long circuit ordering lead times that have been a bottleneck to the agility available with NaaS. While the ubiquity of LTE and 5G wireless access on a global basis will continue to be a limiting factor for the near term, they are increasingly viable options in many markets.

4. **Bandwidth On-demand:** Wired connectivity has undergone a transformation: carriers offer enterprises the ability to dial up and down the bandwidth of network ports connecting their remote sites. Enterprises are also increasingly shifting workloads to the cloud where connectivity can be scaled and metered on an on-demand basis.

5. **Visibility Tools:** Traditionally, enterprises have monitored network element status. Now, a new generation of tools enables the network to measure end user experience and application performance. This information can be fed back into the network management system (see orchestration below) for real-time control of the infrastructure.

6. **Orchestration:** To fully deliver the commercial benefits of the above technologies, providers have made the substantial investments in automation and orchestration capabilities required to instantiate services, ensure quality, and provide business intelligence over their life cycle.

Commercial Models for NaaS

Cost and Performance Optimization of NaaS

Consumption of network in an 'as-a-Service' model requires a supporting commercial model. As the Enterprise evaluates the give and take they are demanding as well as the move of many of the significant financial aspects of the Network to the provider's front door, these considerations cause a shift of certain fundamental concepts from the Enterprise to the provider.

This shift includes key concepts that ISG has seen our clients historically retaining such as:

- Architectural control
- Control of refresh cycles
- Maintenance cycles and schedules
- Hardware ownership
- Strategic engineering

As ISG clients approach us while considering a NaaS solution, one of the first questions that we ask is: what is NaaS to you in today's digital world? The answer to this question has driven a variety of responses from both the client and provider communities. While nearly all of ISG's transformational sourcing projects have varied in detail, the underlying concepts are simple: let the service provider make the decisions to determine how they are going to deliver on a client-specific outcome and allow the client to focus on their core business objectives. For many of ISG's clients, this concept is more comfortably approached as a journey from a locally controlled, wholly-owned environment, to a provider-controlled environment with an underlying commercial structure that defines the level of flexibility, scalability, capability, and control that the provider brings.

Verizon's approach to NaaS, and the overall goal of NaaS across all potential providers, is a shift from a fixed- cost model driven by the do-it-yourself approach to architecting while operating a private network, to a more flexibly sourced model enabled by underlying hardware and software with a partial shift of the underlying network capabilities to a true 'as-a-Service' model. In the market today, ISG is still seeing key restrictions in how much you can get 'as-a-Service', such as local loop and on-site hardware, but the foundational elements of flexibility in software licensing and billing, consolidation of hardware, and rapid turn-up and turn-down of port speeds are integral elements of the process.

Key Contractual Issues in NaaS

In many of ISG's Network Transformation projects, especially in walk-in-take-over scenarios, the client expectation is that their network will undergo an architecture, technology, process, and pricing restructure to achieve their overall goal of having a service provider build a network that will support their current and future state business outcomes.

The underlying contract structure ISG establishes on behalf of our client's is a process that balances the client's objectives with a fair and equitable contract for both parties. The question each client needs to consider is where any additional challenges come in when moving to as-a-Service; items such as service provider hardware sourcing capabilities, hardware and software "currency", length of term, complexities at termination, and long and short-term costs. ISG clients need to be comfortable that these challenges have been overcome by the selected service provider while still receiving a best-in-class solution.

ISG understands the service providers' position: the service providers are willing to take over the client environment, they are willing to make the investment necessary to transform the network to meet the client's business objectives, and they are willing to take on the financial risks of some equipment encumbrance and penalties associated with not meeting the outcome-based SLA's. This willingness to take on the management and the financial and regulatory complexities of a global network comes at a price; providers expect to be able to make a reasonable profit and act autonomously in the execution and management of the client network. The price to the enterprise is not just a dollar amount at the bottom of an invoice, but it is also the loss of technical control that most ISG clients willingly give up with a move to the public cloud but are hesitant to release when the equipment sits inside their own facility.

Counter to the above, when the client believes they are better served by maintaining control of the network (making technology decisions, determining the technology refresh schedule, anticipating the savings associated with asset write-downs and circuit-cost reductions) while expecting the provider to take on both the burden of the technology investment and the risk, they are buying a custom managed network service, not NaaS.

Everything noted above drives discussions around contract terms as well as what the consumer of services should expect from a contract. The market continues to seek shorter contractual terms for traditional services. However, in large scale transformation projects, where the provider is taking on significant upfront investment and risk such as in NaaS, ISG is seeing providers drive longer terms and varying levels of control over the hardware investment. For clients looking to move just the burden of networking to a provider, care must be taken at the contractual level to ensure:

- Hardware and software "currency" is maintained.
- Future state technologies such as 5G, IoT, and "the next best thing" are contemplated and considered throughout a contract term.
- Underlying fixed costs are minimized and in effect for the life of the agreement
- Services continue to improve over time.
- SLAs, Termination clauses and commitments are well understood and reported by the provider throughout the life of the agreement.

Such contractual considerations may result in fixed pricing for material service components over the term of the agreement. This provides no consideration for traditional contract levers intended to bring costs down over the life of the contract. Certain service elements of a contract, such as hardware, can be expected to remain stable and the client will need to weigh the benefit of a fixed-price, outcome based contractual model vs. having traditional contractual cost reduction levers. ISG's clients have expectations in typical network outsourcing agreements that efficiencies gained by the provider over the life of an agreement should be shared with the client; this assumes that service providers should be improving their capabilities and advancing internal delivery capabilities over time. Continual improvement and sharing these improvements with the client is often a fundamental cornerstone of technical and service advancement. Enterprises and Providers will need to consider how to equitably share in these improvements over longer-term agreements.

Governance

The Shift to Outcome Based SLAs

While the client is beginning to reach out for and consider how and when to establish outcome-based SLAs, what does this mean to the business? How do you know if your organization is ready to make the change from traditional metrics long based on SMART goals (Specific, Measurable, Achievable, Relevant, and Time bound) to measures based on business objectives? How does the change to business objectives impact your contracting decisions and what steps can the business take to put the right measures in place?

In order to begin the progression to outcome-based measures, the client will need to understand and document the concomitant business objectives whether these be by department, business unit or the entire corporation. Once the objectives are well understood, the services being asked of a particular sourcing partner will need to be evaluated and considered against those objectives, while answering the question: "How does this service contribute to my objective?". Once the question has been answered and the objectives clearly identified, the hard part can begin; development of the contract.

The client needs to keep in mind that their business objective may not be the same as another potential customer and careful consideration and detailed understanding of pre-developed measures should be included in any evaluation and contracting process.

ISG would recommend a move to outcome-based solutions only where: the client has built an established and trusted working and commercial relationship with a provider; the client has identified clear business objectives; the client has an aligned understanding of how the specific solution or service contributes to their business. Most clients are not on a maturity scale that will allow them to comfortably enter this space without significant risk of "value leakage". For now, we can expect to continue to see traditional metrics related to availability, time to resolution, and others as clients begin to understand and evaluate the value-for-money aspect of an outcome-based SLA.

Command and Control of the Network and Policies

Policies are one of the lifeblood of a business and they drive activities related to cyber security, personnel interactions, and a host of other items that identify the uniqueness and strength of a corporation. So, whose policies are in control when a NaaS solution is contemplated, how does a customer release architectural responsibility without breaching policy, how does a provider come to the table to support requirements dictated on policy, and what is the role of governance? Each of these components and the management of the service need to be evaluated and addressed in the risk model associated with the move to NaaS.

Recommended Actions

ISG recommends investing time and resources to investigate the benefits of NaaS and to establish a roadmap for NaaS adoption. Following are key considerations that will accelerate value realization:

Organize your Finances

Transformation momentum is often stalled/stopped when the objectives and outcomes are not grounded in the current network's financial reality. Not knowing precisely who owns what network equipment and where it is located, the technical debt situation, net book value of assets, contract obligations of incumbent network service providers (ETF's), and the total operational cost of the in-scope network as it sits today, will pause your project and slow you down. It is crucial to take the time to build out the financial base-case to enable the appropriate conversations about objectives, scope, and strategy. Additionally, engage Finance and Accounting, including auditors, early to understand and define conditions that will allow you to categorize and list equipment (i.e., OPEX vs. CAPEX) appropriately and align with your objectives. With a move to NaaS and a clearly understood multi-year pricing solution, the responsibility of the functions, and many of the hidden costs, are shifted to the provider. This level of consistency and a well constructed TCO will likely be a strong driver supporting the move to NaaS

Develop Clear Outcome-based Objectives

The transformation of foundational technologies carries a chaotic element that often ripples throughout an organization. People care about and engage in efforts where/when they genuinely feel responsible for the outcome. It is critical not just to include but also to empower the team to develop and agree to the objectives. Level setting on expectations and the expected results will prove foundational and the time invested will accelerate decision making. Be sure to openly share these outcomes internally and externally (service providers) to ensure familiarity and maintain focus.

Prepare the Technology Stack

Prepare your network environment for a successful transition and transformation. Auditing the network and CMDB is a great way to mitigate potential cost-value erosion. Tighten up all loose ends; detail all unused circuits, legacy equipment, legacy protocols, etc. Consider the limiting factors of NaaS delineated earlier in this paper and identify gaps in your specific environment that can be addressed prior to selecting a partner.

Ensure that the Scope is Proper and Understood

The network is a complex and hierarchical machine that is core to IT enablement of the business. Make sure to take the time and care to tightly define the scope that your organization is preparing to source through NaaS. Not all NaaS solutions or conventions will be suitable to achieve coherence beyond the network edge and into your premise. The functions that your enterprise determines are sourcing targets within the network may not align to a NaaS solution. Mold the scope to fit your specific purpose and move the functions unfit into another sourcing effort or assume them internally.

Understand the Market and the Market Players

As delineated earlier, the NaaS market is still maturing. Take a good look at the NaaS provider market and their service portfolios and also their near-term roadmaps. Ensure that you consider the implications of partnering with specific providers. Heritage matters; not all providers see NaaS through the same lens nor carry forward market offerings that facilitate a straight-line approach for a successful implementation. If a provider cannot support the ability to scale the technology licenses both up and down, they are likely not far enough along in their NaaS enablement journey to offer a reasonable enterprise grade NaaS solution. Determine to what level each provider is able to deliver NaaS internally within their network. To begin enabling a functional NaaS environment, the provider must be high on the innovation and technology investment curve. They must be capable of delivering the most contemporary technologies and empowering your network to scale to business demands. In short, be circumspect about providers that don't have a clear go-to-market solution and cannot demonstrate specific investment; helping the provider build a NaaS solution from scratch is not advised.

Conclusion

The complexity of NaaS and the environments it can potentially service within the enterprise necessitates unique and specific consideration. NaaS is not a "plug and play" technology nor is it a one-page service agreement to order. The questions of "why NaaS?" is equally as important as the questions of "what is NaaS?" and "how NaaS?". That said, NaaS is emerging as a pivotal enabler for many enterprise's digital transformation strategy, goals and objectives. The combination of market trends and new capabilities will increase the size of service bundles that can be more broadly leveraged, while simplifying operations and improving efficiencies. It's important to understand that deploying and operationalizing NaaS capabilities is not a static 'point in time' event; but rather an evolution that builds upon itself. Therefore it is important to adopt a strategy that is aligned with your specific business priorities and that can be adapted to keep pace as required. A best practice approach should be considered to develop your strategy and competitively source a partner that is aligned with your enterprise's culture and that has demonstrated competency within the evolving NaaS market. In summary, as NaaS emerges, it will continue to grow as technologies mature; be cautious as you explore your solution and provider options. Do your homework, especially the broader your scope. Expect longer term contracts in the near term, until hardware re-use can be solved for or commoditized. With these longer terms, cultural fit is paramount when selecting a provider; spend time ensuring alignment is right for the long haul.

Verizon Perspective

Recent events have forced all agencies and businesses to experience unprecedented change. Whether a Global Enterprise or a regional company, transitioning from the secure office environment to a work from home force, impacts all elements of IT, networks, applications, and security. Verizon and many of our customers had already begun their digital transformations. This effort, which includes virtualizing and software enabling the operating environment, allows the focus to be on supporting the remote work force and deploying applications at scale and less on infrastructure.

Another significant driver for NaaS, is the move to a digital first, multi cloud IT environment to contain costs while enabling growth. Driving the need to transform for many organizations is fueled by competitive pressures with new market entrants, a need to compete by offering digital customer experiences, all while ensuring resiliency and continuity.

Digital Transformation is a journey that Verizon knows well. Customers have called upon Verizon for years seeksing greater flexibility and speed to deployment of products. All while maintaining a flexible infrastructure closer to the customer. We have and continue to invest heavily in a more adaptable, scalable, and programmable network foundation to expedite delivery of new services, and support new technologies like 5G in the most secure fashion. Verizon's own network transformation delivers a highly programmable software-defined network architecture. This enables scalable, high-performing networking solutions with faster provisioning, improved reliability and unparalleled security. We leverage our own experiences as we help our customers realize the same benefits from (NaaS).

Verizon's NaaS combines dynamic applications and services while leveraging innovative technologies such as 5G, MEC, AI/ML, AR/VR and much more. Verizon Network as a Service delivers:

- **Optimized Resources:** More efficient network resources with an extensible service model where costs and resources are optimized to drive the best ROI
- **Simplify Operations:** Automate and centralize control and visibility of network resources leveraging Verizon's tools and expertise
- **Increased Performance and Agility:** More flexible, programmable network resources that scale up and down and can adjust to business dynamics
- **Path to Innovation:** Modern, programmable network foundation to enable world class experiences in an agile framework

Verizon's unique value is a result of our holistic model. We help organizations transform their business along three dimensions:

- **Commercial Terms:** Verizon NaaS transforms our customers' commercial models by helping them move away from services requiring large Capital Investments, upgrade expenses, and multiple vendor contracts. Instead they are able to leverage services with a pay-as-you-go OpEx models and simplified contracting.
- **Operating Model:** NaaS enables organizations to simplify operating models with more dynamic, on-demand services, centralized management and better digital engagement, rather than the long lead times, complex touchpoints, labor intense, manual engagements of the past.
- **Network Technology:** NaaS foundations help customers move from siloed, hardware and SW based networks that require manual coordination with multiple break/fix support models and transport providers. Verizon's NaaS solution provides a modern networking foundation that encompasses hybrid networking, network functions virtualization (NFV), orchestration, service chaining, and self-healing capabilities.

Network-as-a-Service is a journey that varies by customer depending on your starting position. The ideal transformation approach considers the desired business outcomes, existing network assets, contracts and commitments as these impact the TCO and drive the go forward timeline. From simple managed network services, to a full network transformation, Verizon has the portfolio, expertise and resources to transform clients of all sizes in 150+ countries, to the NaaS model.

Authors

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For more than a decade at ISG, Rob has led global consulting engagements grounded in complex Information Technology transformation. Rob is recognized as an authority in the ICT industry with experience steeped deeply in Voice and Network technologies, advising in 140+ engagement across the Globe. He brings a seasoned and valued perspective to clients and service providers alike—Rob and his team field the complex ICT projects for ISG.

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Mark Allen brings almost 30 years of ICT experience to clients around the world. Mark is a subject matter expert in communication technologies and services. He has led complex transformation projects for some of the world's largest companies, including Airlines, Food and Beverage, Pharma, Manufacturing, Finance, Healthcare, nonprofits, and more sectors. Mark's vast and unique experience brings value and execution to clients that are unparalleled in the industry.

Sheila Tortorici
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Sheila Tortorici offers two decades of IT leadership insight and experience. She is an expert in networking technologies and has in-depth knowledge of IT sourcing, contract administration, and negotiation. Drawing from both years as a technologist and consultant, Sheila provides recommendations and solutions to some of the most sophisticated IT organizations in the Fortune 200.

Nick Nagy
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Nick Nagy has almost a decade of experience in IT sourcing, implementation, and management. He is highly effective at identifying inefficiencies in the current processes and matching solutions within the industry. He has worked with more than 30 global clients in the ICT markets. Nick has advised in sourcing, strategy, and transformation projects in Network Services, NaaS. UCaaS, CCaaS, Voice, and Mobility. As a trusted advisor today, he is leading engagements with Fortune 500 clients.

ISG (Information Services Group) (Nasdaq: III) is a leading global technology research and advisory firm. A trusted business partner to more than 700 clients, including more than 75 of the top 100 enterprises in the world, ISG is committed to helping corporations, public sector organizations, and service and technology providers achieve operational excellence and faster growth. The firm specializes in digital transformation services, including automation, cloud and data analytics; sourcing advisory; managed governance and risk services; network carrier services; strategy and operations design; change management; market intelligence and technology research and analysis. Founded in 2006, and based in Stamford, Conn., ISG employs more than 1,300 digital-ready professionals operating in more than 20 countries–a global team known for its innovative thinking, market influence, deep industry and technology expertise, and world-class research and analytical capabilities based on the industry's most comprehensive marketplace data.

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