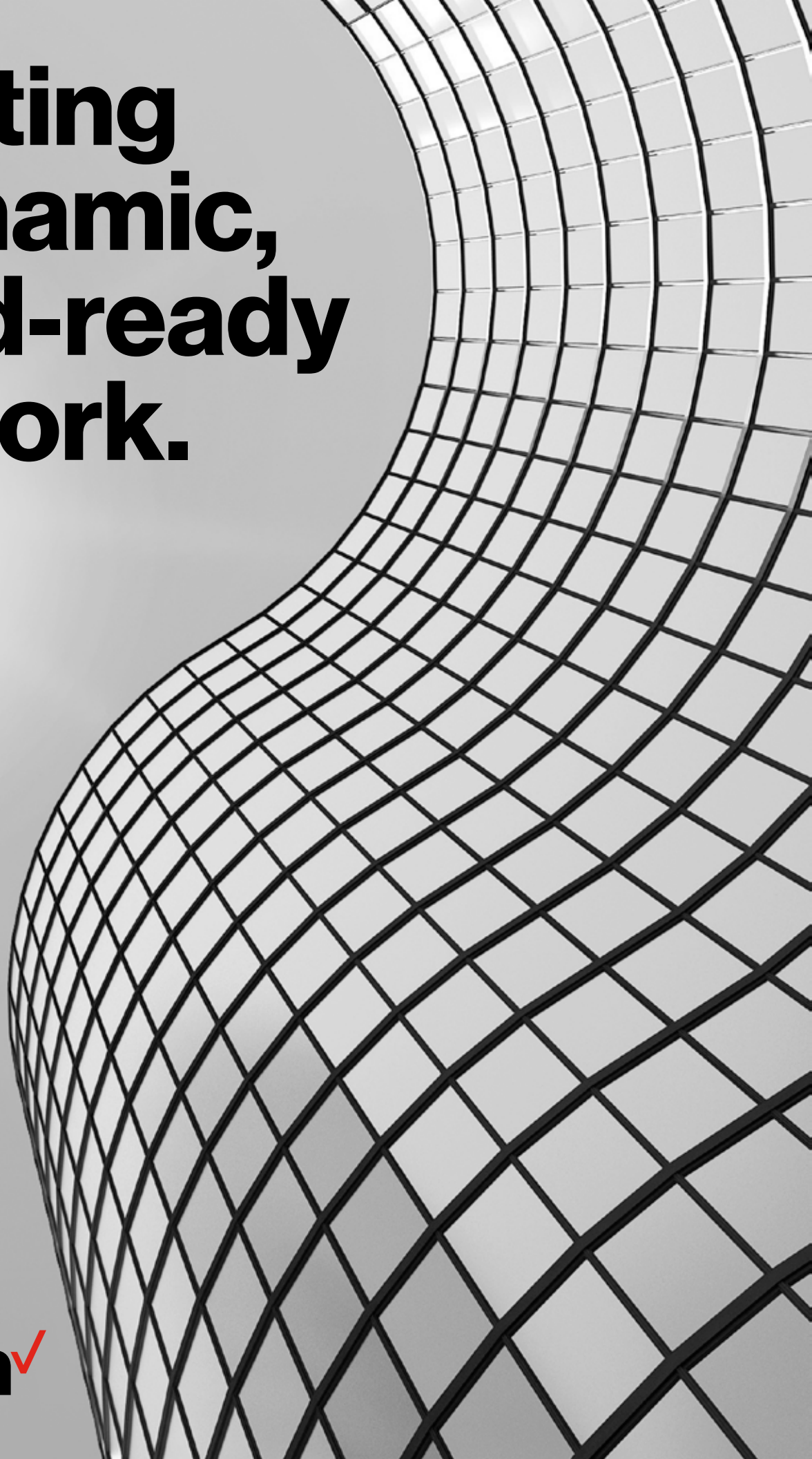


**Creating  
a dynamic,  
cloud-ready  
network.**

**verizon**



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# Foreword

**As business embraces the digital world, IT needs to deliver applications and services to meet digital requirements that are agile, sustainable and secure.**

The global COVID-19 pandemic has completely shifted the way in which people work, with many more working remotely. It has also led businesses to accelerate the use of machinery and robots to complete tasks, which now means there is more focus than ever on connecting things to the network. The network topologies used in the early millennium have not kept pace with changes in how applications are accessed, how dynamic users have become, or even what the user is: a person, or a machine?

Change in the network layer is now critical. When applications are not performing as expected, it is difficult to identify where the issue is in a traditional network. Is the issue on the network, is the issue the internet gateway, the WAN acceleration device, the way the traffic is routed, or something else? When new applications or devices need to be added to the network, is the network capable of supporting the change?

Network transformation is critical to the success of the world's digital future. Network-as-a-Service (NaaS) can make an immediate impact with tangible, incremental steps to a digital and cloud-ready network. And one that is agnostic of any existing network, contract arrangements, and current or future network vendors. Verizon can create a digital overlay platform, combining the tools you need to manage a robust, reliable and secure network with your own IT service management and provisioning toolsets.

This paper explains how Verizon can help you embrace change and meet the needs of the digital future while reducing the complexity and time required to procure and transform to a whole new physical network.

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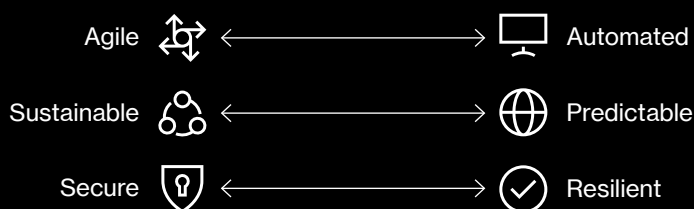
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# Cloud-ready networks for your digital future.

**As organisations embrace the digital world, IT needs to deliver applications and services to meet digital requirements that are agile, affordable, sustainable and secure. Verizon aligns its services against these objectives by being automated, predictable and resilient.**

To achieve a digital outcome, IT must deliver applications that are:

Verizon aligns with this by providing services that are:



## Agile | Automated

The delivery of cloud technologies over the internet has enabled storage, databases, networking, software, analytics and intelligence to be made available on demand. Many applications themselves are available as Software-as-a-Service (SaaS). This means that IT can make whole application suites ready for use across the globe in just a few clicks.

The network layer needs to be just as flexible. Verizon provides digital platforms, integrated with IT Service Management (ITSM) platforms, so that the network can be provisioned as fast as the software or server stacks are created.

## Sustainable | Predictable

Cloud computing has reduced the need for capital expense. Cloud, SaaS and Infrastructure-as-a-Service (IaaS) now means applications are effectively provided for the services that are needed at that time, and they can be increased or decreased as demand changes. Organisations pay for what is needed in the moment and these services can be available to anyone with internet access.

Verizon helps ensure network availability, regardless of server location, type of user (person, device or machine), and user location (home, office, café, field or mobile), at an affordable price point. We do this by facilitating the use of any network connection, provided by any telco or internet service provider. Verizon then enables consistent standards by routing traffic across its IP backbone. This means that users, applications and things are transported and consumed as economically as possible, but with a reliable, high-quality, global experience.

## Secure | Resilient

The world has already passed the tipping point where almost all applications and services are being migrated to the cloud if they haven't already done so. While cloud operators build their infrastructure to be robust and secure, taking care of patching and providing backups and disaster recovery, the same is required for the agile user, connected device or machine.

Verizon provide Security-as-a-Service in the cloud, providing a seamless, end-to-end security posture for the digital organisation.

# Don't fix, create.

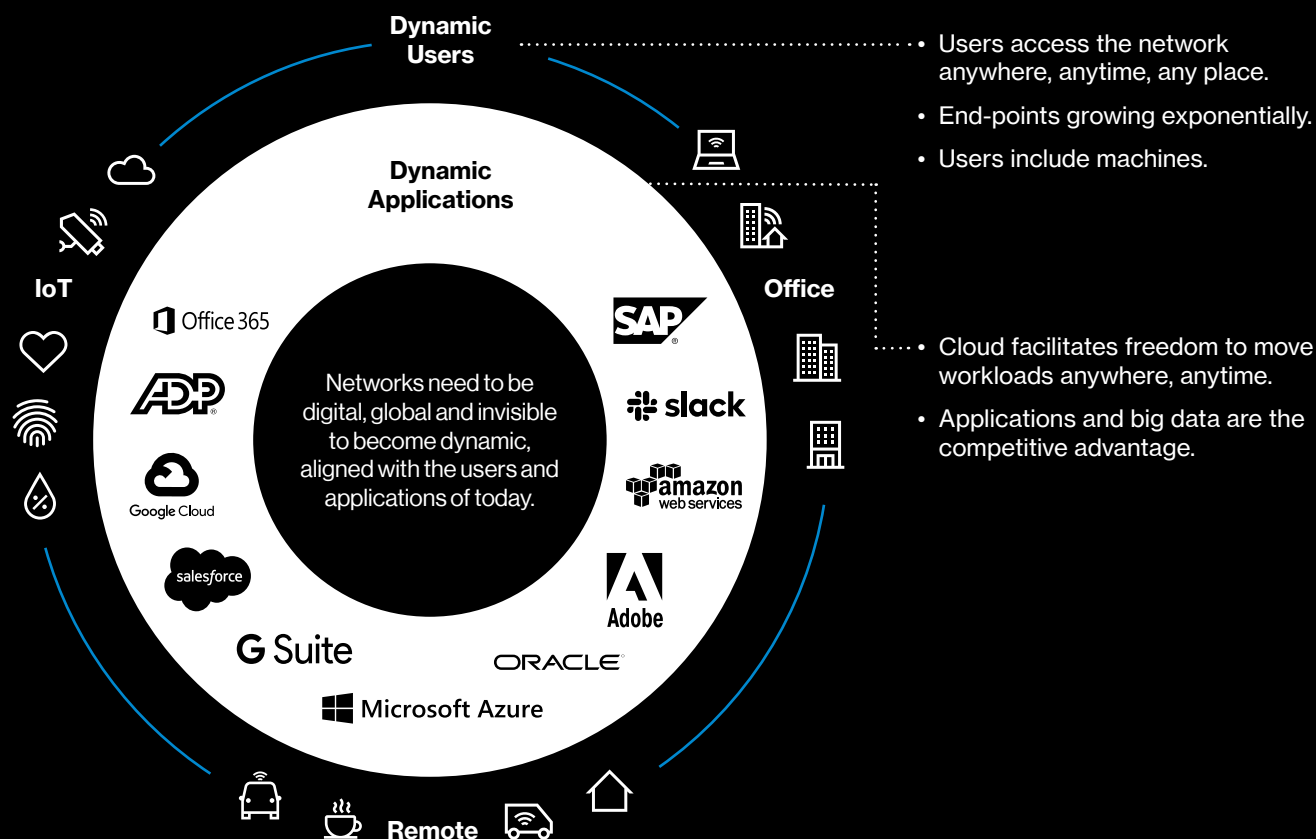
**Achieving agile, high-performing and secure applications with digital, adaptive and resilient networks requires some understanding of the current infrastructure, and a basic understanding of the radical changes in the network space required for the shift to cloud-based applications.**

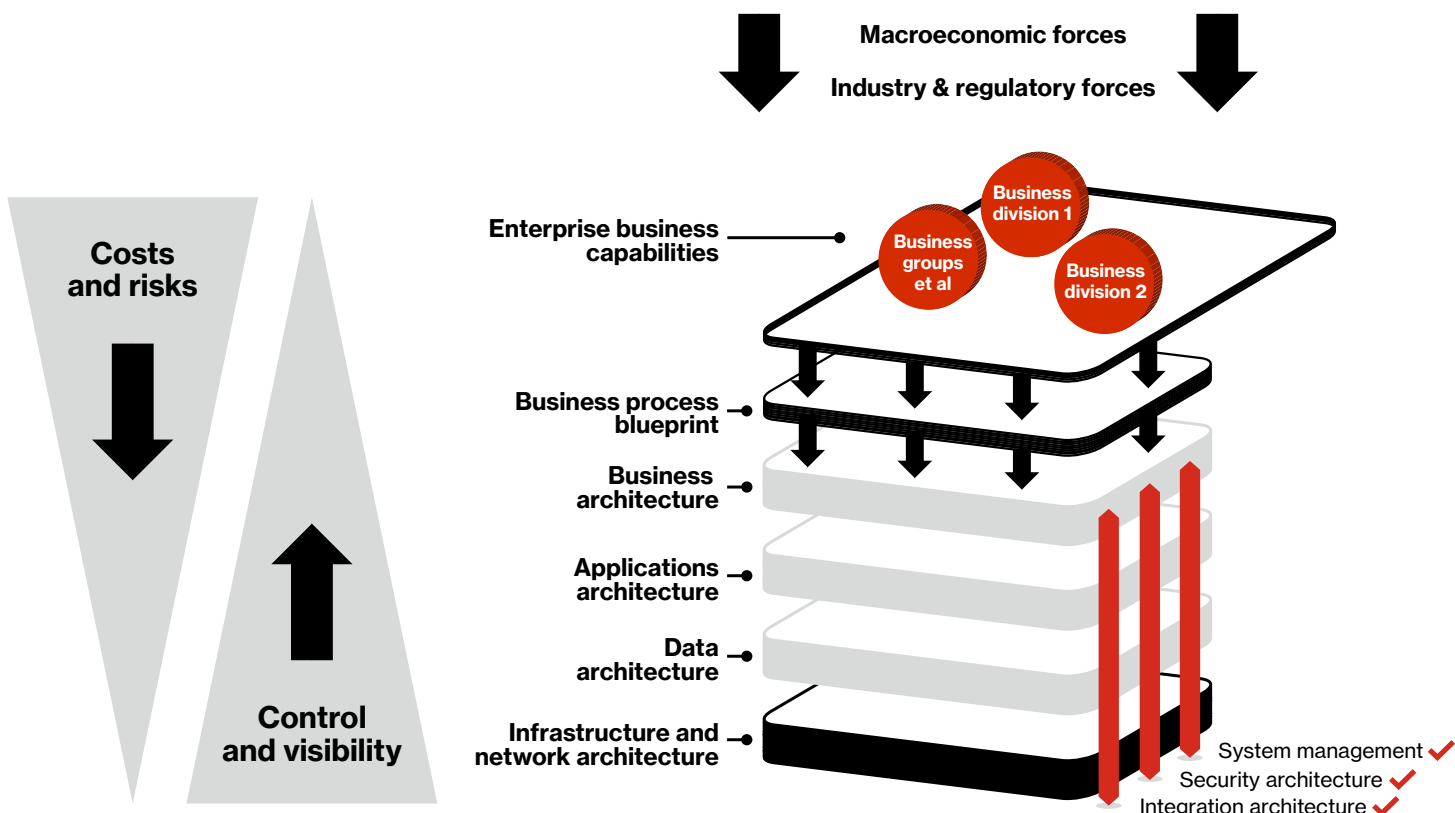
Existing infrastructures cannot simply be tweaked or back-engineered to fully embrace the world dynamic users and applications now expect.

“The network is down” or “the network is slow” is often reported to a CIO, CTO or network manager when applications are unresponsive or slow for the end-user. Upon fault finding, there is often a case where the feedback from their network team is that the network is up and running with no identified fault. Similarly, a business unit setting up a new application or connecting a new device

can take an inordinate amount of time, because core infrastructure or security policies need amending or upgrading to make it possible.

The business expects the network to function, regardless of the changing circumstances its agenda is driving – the network needs to be responsive. And given the momentum at which business is changing and the pace at which applications have shifted to the cloud, change within the networks space has never been more critical.





The target outcome of digital transformation is for a business to innovate faster, collaborate more efficiently and deliver more value with greater efficiency and with less effort. Economic circumstances, increased competition, regulatory forces and the unforeseen COVID-19 pandemic are all forcing businesses to act faster to change their internal processes to meet external pressures and demands from customers.

Beneath this sea of change sits enterprise network integration, the management of it, and just

as importantly, its security. Information and assets on corporate networks have historically been secured from the internet with trusted and untrusted architectures, but now the network needs to be connected to the internet in more ways than ever before to communicate with the new cloud-based applications and connected devices from all over the world.

**Beneath this sea of change sits enterprise network integration, the management of it, and just as importantly, its security.**

While the traditional 'trusted and untrusted' network architecture model is robust and reliable, it is too inflexible for the agile, digital world. A switch to SD-WAN is a step forward for the required transformation.

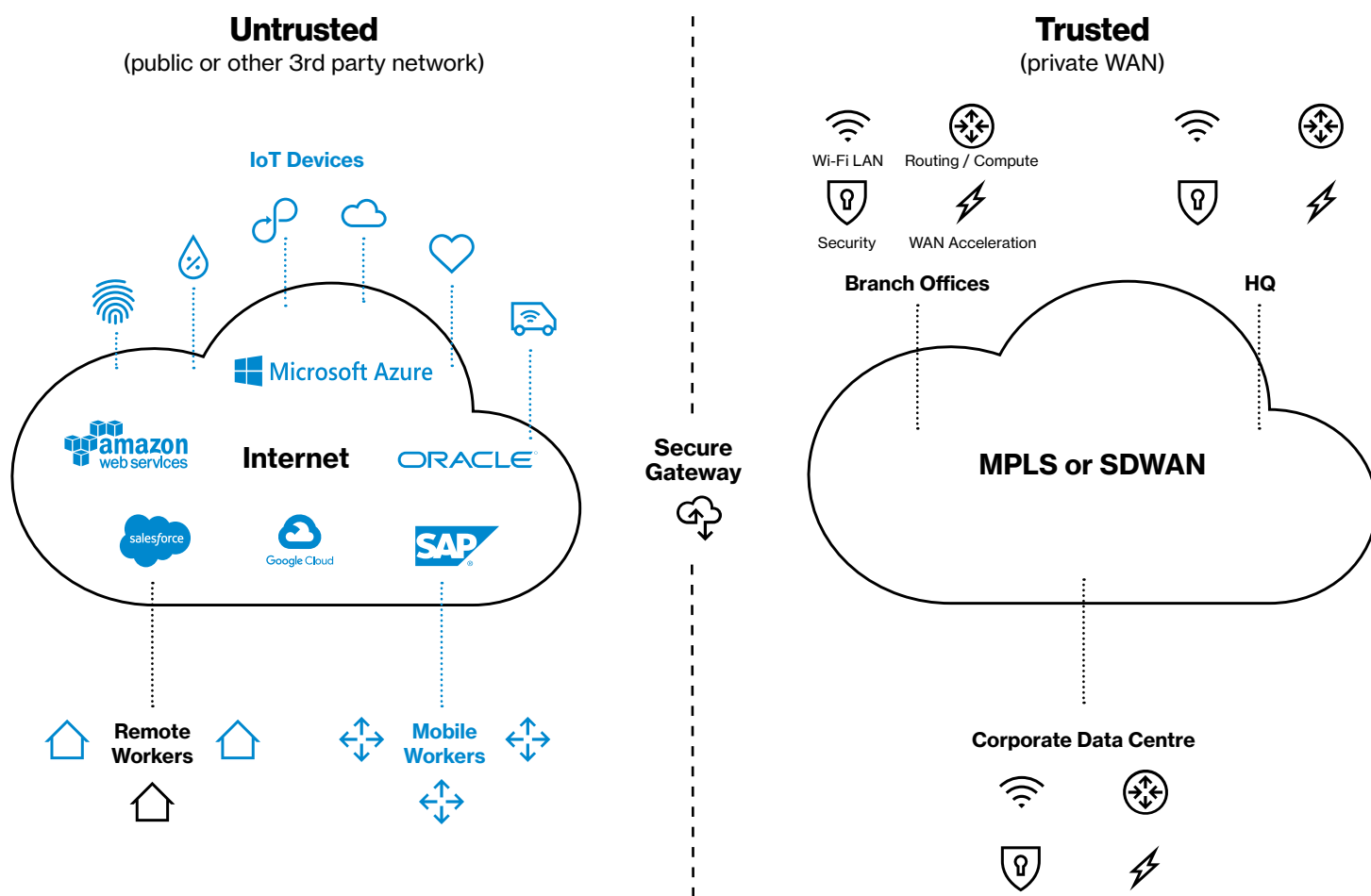
The trusted / untrusted model of network technologies was never designed with cloud or mobility services in mind. Even organisations who have dipped their toe in the water with SD-WAN with a hybrid of multi-protocol label switching (MPLS) and internet access discover that when these are combined with internet gateways and the necessary corporate security policies, the topology just isn't aligned with the shift to the use of public cloud offerings.

At the early part of this millennium, the internet was used for access to external information that was considered as non-trusted and home workers used a secure VPN via a gateway to access corporate systems. Even if a remote worker needed access to information from the worldwide web, this information would be accessed via the corporate gateway after the user had used a secure VPN to the trusted network.

The chart below depicts how the landscape has shifted with the introduction of cloud computing over the past decade, the introduction of IoT and connected devices, as well as the ethos of working from anywhere. As you can see, the pressures on the network and

the use of the corporate network and how it links up with the internet is now very different.

With any requested change, addition or issue with the network, so many things need to be worked through to ensure everything works efficiently. Who needs access? What needs access? Which sites? Where from? Is there enough bandwidth? What about security? Are any upgrades required? Shall we switch it on and then engineer from there? The list is endless.



Key for diagram  
 ■ Legacy topology  
 ■ How the landscape has changed



# Verizon can smooth the transition.

**We recognise that switching out a network and replacing circuits is a time-consuming and expensive exercise.**

We also acknowledge that there are existing contracts, with existing network providers that are mid-cycle and that trying to backward engineer an architecture that was built to support different requirements is fraught with cost, complexity and risk.

The reality is, in today's world, internet access is the key to accessing most, if not all applications. Most of the workforce has been using the internet to work during the pandemic of the past 12 months, so why can't corporate sites do the same? The applications are hosted on the internet and therefore, surely access to the applications would be faster if the offices were communicating directly across the internet into the cloud operator's infrastructure.

What about security, routing policies, authentication, access control, application performance optimisation or WAN acceleration, encryption, threat prevention, network management, visibility and control? The answer is that all of these commodities are based on

software, and if they are software, they can also be hosted in the cloud.

NaaS, combined with SaaS facilitates a shift to a dynamic network, without the need to rip and replace existing network infrastructure. As a global leader in networks, Verizon can use your existing network, provide new networks or provide a combination of the two, creating a digital and cloud-ready network architecture. We offer vendor interoperability across different network functions in order to deliver maximum value and performance for our customers.

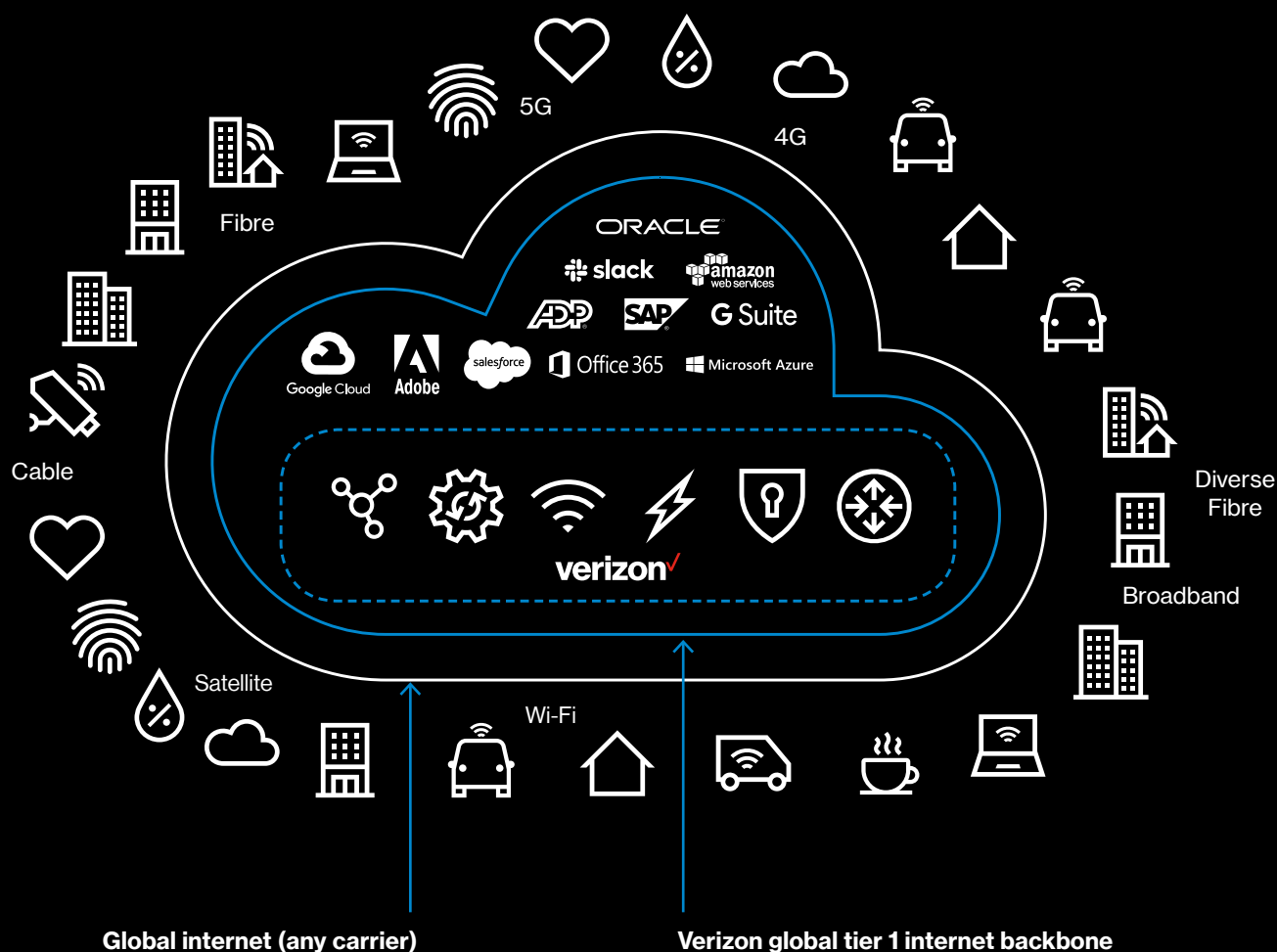
All connected devices, and remote or mobile workers are effectively already connected to the internet, whether they are working from home on their own broadband connection or from a Wi-Fi hotspot in a café or similar. Corporate sites connect to the Internet using a Verizon connection, or any quality internet service provider (ISP). You can keep your existing network connections.



With NaaS, everyone connects to the internet in a way that cloud-based applications were designed for. There is no longer a requirement for a router appliance, security appliance or WAN acceleration appliance at every site. One advantage of NaaS is that if you are mid-contract on any of these technologies, you can continue with them and make use of these assets until the relevant contract expires. There is no need to rip and replace.

For corporate sites, all that is required is a compute device, plugged into an internet connection, from any internet access provider or hotspot, pointing to Verizon's cloud-based NaaS. Verizon can deliver networking and security capabilities to any of your assets, sites or people that are connected to the cloud, as a single entity, transparent to all end-users. In other words, the full range of networking and security capabilities will be available to anything that is connected.

## Network-as-a-Service – Digital, Global and Invisible



- High performance internet for critical applications
- Interconnects with all tier 1 cloud providers
- Spanning 6 continents
- Gartner Magic Quadrant Leader for 14 consecutive years
- 24x7 monitoring
- Defence infrastructure against cyber threats
- Balanced network and security management
- Integrated services bus with ITSM platforms
- Agnostic access from any carrier

# Why Verizon?

**“Verizon’s broad and deep set of monitoring, security, transport, and other services makes it an attractive option for customers adopting the concepts laid out in Forrester’s report ‘Create A Customer Engagement Network To Accelerate Your Digital Business.’”**

**Customer engagement networks demand a higher level of sophistication and more forcing functions, as the concept interweaves business strategy and networking strategy. Customers spoke highly of Verizon’s ability to take on designing, deploying, and managing complex customer requirements.”**<sup>1</sup>

## Network

We acknowledge the internet can be unpredictable by its nature, with some connections struggling with latency over long distances. Verizon’s routing, managed from the cloud, will point all traffic to internet exchange points onto the world’s most powerful, global internet backbone, operated by Verizon. Our backbone already carries one third of the world’s internet traffic and our internet exchange points connect to all Tier 1 and Tier 2 backbone carriers.

Verizon’s Tier-1 internet backbone has more globally distributed, fully meshed PoPs than any other carrier, so the network can provide the most optimal overlay possible. Our Tier-1 backbone

is integrated with all major cloud providers such as Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform, Oracle Cloud Infrastructure, and IBM Cloud as well as all of the major SaaS providers.

We achieve this by facilitating access to our Tier-1 leading internet backbone from which we deliver all of our management, routing and security technologies.

## Resiliency

Resiliency can be added to corporate sites so they can connect via different internet connections, with a primary connection through a cable, with perhaps a secondary connection through a wireless 4G or 5G connection to provide greater resilience.

## Security

Verizon’s cybersecurity expertise can support security programme integration across your enterprise where we are able to recommend and build a whole security stack, or facilitate the use of your preferred security vendors within our NaaS platform.

## Visibility

A cloud-based management console provides a “single pane of glass” onto what is connected and how, along with security policies and their associated analytics. So if there is ever a suggestion that the network is slow, your IT organisation will be able to identify where there might be an issue. Verizon’s Integrated Services Bus aligns our cloud offering with your chosen ITSM platform, which means new devices or applications your business brings online can be configured on your ITSM platform.

Verizon’s security and network policies and routing can then be automatically and securely configured, knowing who will access the application or what the device needs to connect to seamlessly, injecting agility and speed into your business processes.

## Automation

Verizon is very experienced when it comes to network automation. It’s already at the heart of our own infrastructure. We can help your network deliver more by putting automation at its core too.

You’ll be able to provision and configure new services, business processes or locations, set up new employees, or deal with changes in traffic volume or prioritisation, without the delay of having to contact a service desk. All this can be done in the way you are most comfortable with, at the touch of a button, or completely invisibly through the use of AI.

Our experience means we can also help you develop the policies that will enable you to make the most of automation without relinquishing governance or financial control.

## Conclusion

Verizon can make an immediate impact on the transformation to NaaS, regardless of where your business is on that journey.

<sup>1</sup> Forrester, The Forrester Wave: Software-Defined WAN Services, Q4 2020



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