Secure SD-WAN: Network to the Cloud
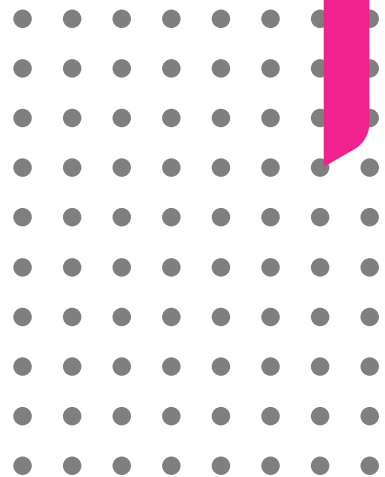
Foreword

I am delighted to introduce this document as Chief Technology Officer (CTO) at Viatel Technology Group, Ireland's leading provider of Software-Defined Wide Area Networks (SD-WAN). We have witnessed how effectively this application-aware network infrastructure paves the way to cloud adoption.

In today's rapidly evolving digital landscape, the way we approach network architectures is pivotal to ensuring the efficient and secure operation of businesses. SD-WAN has emerged as a beacon of innovation, offering a software-defined approach to managing Wide Area Networks that is revolutionising the way we connect, protect, and optimise our operations.

In this document, my colleague, Oliver Mallon, Head of Solutions at Viatel, examines the inefficiencies and limitations of the traditional hub-and-spoke network model, once the cornerstone of WAN architectures. SD-WAN emerged as the successor, providing a solution that not only efficiently directs network traffic but also addresses issues related to experience, and security. Oliver is particularly concerned with how SD-WAN ensures the secure and efficient routing of user traffic to storage and compute workloads in the cloud.

Through case studies of organisations like **St Francis Credit Union**, **Cpl**, and **Centric Health**, you'll witness the tangible benefits of adopting SD-WAN in real-world scenarios.

These success stories demonstrate how organisations have harnessed the potential of SD-WAN to drive efficiency and security in their network infrastructure and how SD-WAN became the cornerstone of cloud migration.

I invite you to delve into the following pages and discover how SD-WAN is reshaping the future of networking, enabling organisations to thrive and reach their maximum potential. The journey towards a more agile, secure, cloud-ready network begins here, and Viatel Technology Group is your trusted partner every step of the way.

Happy reading,

Eilish O'Connor
Chief Technology Officer
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About the Author

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Oliver graduated from Queen's University with a Master of Engineering Degree. His professional life began as a Deployment Engineer with Belfast-based software company, Aepona. Oliver solidified his expertise at Intel, spending several years as a Solutions Architect, in the realm of cutting-edge IoT products.

In 2018, Oliver joined Viatel Technology Group, where he now leads the Solutions Team. The team offers technical consulting services to customers and potential customers, working with businesses to understand their requirements and map those to potential solutions. The insights gathered during customer consultations play a pivotal role in shaping Viatel's product roadmaps.

Oliver describes his role as bridging the gap between technology and business. His wealth of experience and deep industry knowledge make him an invaluable asset to Viatel Technology Group and our customers.

Rethinking WAN Architectures: The Shift to SD-WAN

In the past, WAN (Wide Area Network) architectures primarily adhered to a hub-and-spoke topology, where all branch network traffic was directed back to a central hub, often the headquarters (HQ) or data centre. This design was suitable when most branch traffic was destined for the data centre, with only a small proportion being Internet-bound.

However, as organisations increasingly adopted cloud services and Software as a Service (SaaS) applications, the volume of Internet-bound traffic significantly increased. The traditional approach of funnelling all this traffic through the central hub became impractical, leading to potential bottlenecks, suboptimal user experiences, and hindrances to the widespread adoption of cloud and SaaS services.

Internet

Perimeter security appliances to protect network
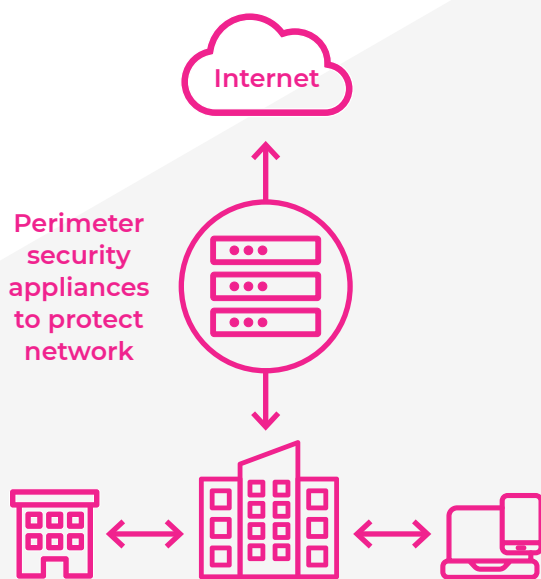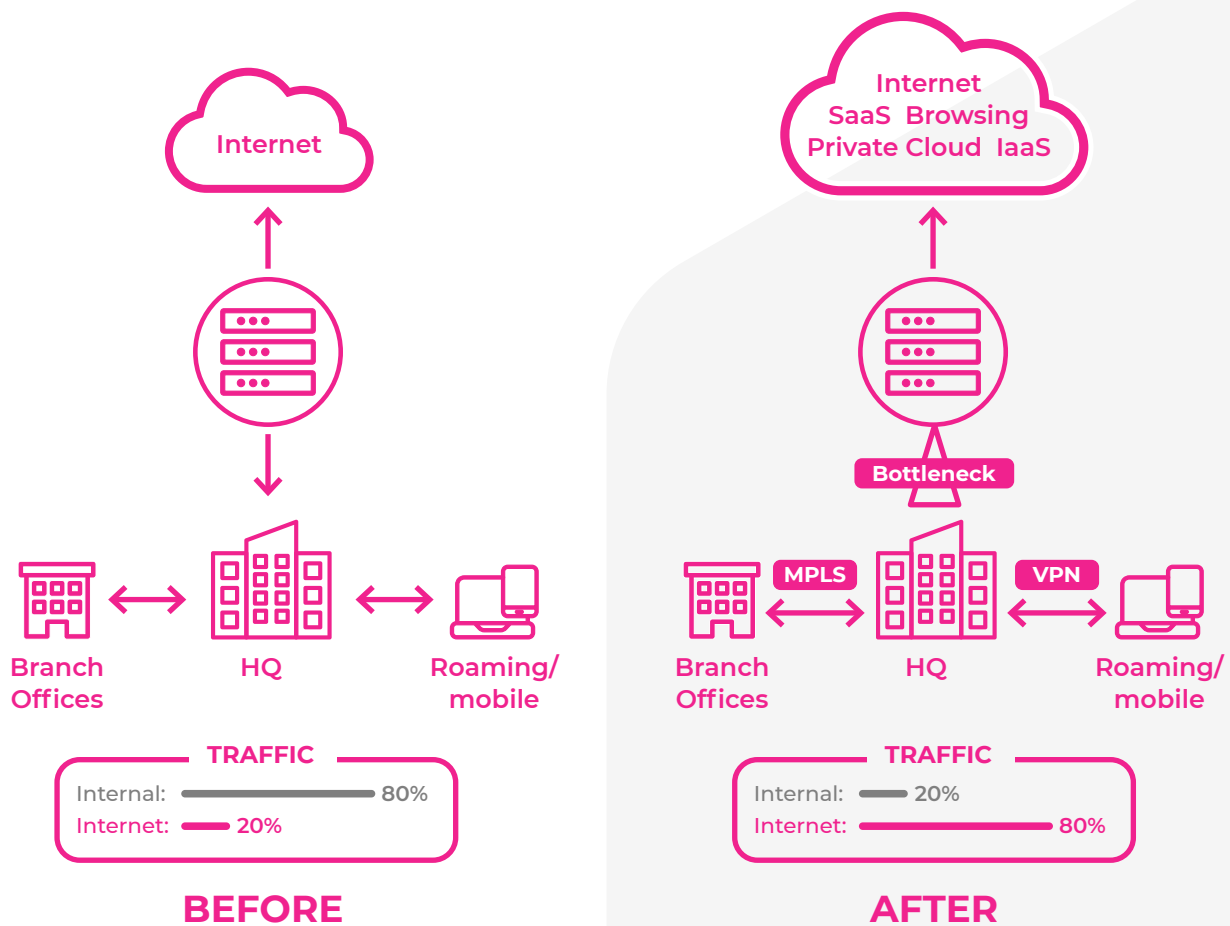
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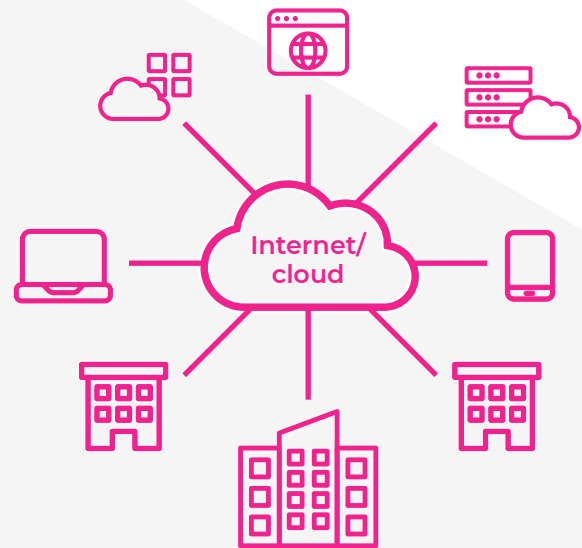
Internet/ cloud

Internet/cloud-centric

Transitioning to SD-WAN for Enhanced Efficiency

Recognising these challenges, many companies have embarked on the journey towards Software-Defined Wide Area Networking (SD-WAN). This approach still directs internal corporate traffic back to the HQ or data centre through the WAN. However, it enables Internet-bound traffic to break out locally. This leads to more efficient routing of user traffic and better utilisation of network bandwidth. However, the question remains: How can we ensure the secure and efficient routing of user traffic to storage and compute workloads in the cloud?

Internet

Branch Offices ↔ **HQ** ↔ **Roaming/ mobile**

TRAFFIC
Internal: 80%
Internet: 20%

BEFORE

Internet SaaS Browsing Private Cloud IaaS

Bottleneck

Branch Offices ←MPLS→ **HQ** ←VPN→ **Roaming/ mobile**

TRAFFIC
Internal: 20%
Internet: 80%

AFTER

Securely Connecting to the Cloud with SD-WAN Virtual Appliances

SD-WAN virtual appliances address this concern. Virtual machine images are readily available for the major hyperscalers such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform, among others. These virtual appliances serve as VPN concentrators, enabling the customer's cloud tenant to be configured as an additional hub site within the SD-WAN.

Secure VPN tunnels are then established from each branch site on the network to the cloud. User traffic destined for public cloud workloads is directed through these private, dedicated tunnels rather than across the public internet. Moreover, traffic shaping can be configured to prioritise this traffic over other applications on the SD-WAN during bandwidth contention.

Data Centre — SD-WAN Appliance — **Private VPN** — Virtual SD-WAN Appliance — **Public Cloud**

Branch — SD-WAN Appliance — **Private VPN** — SD-WAN Appliance — **Branch**

SD-WAN Appliance — **Branch**
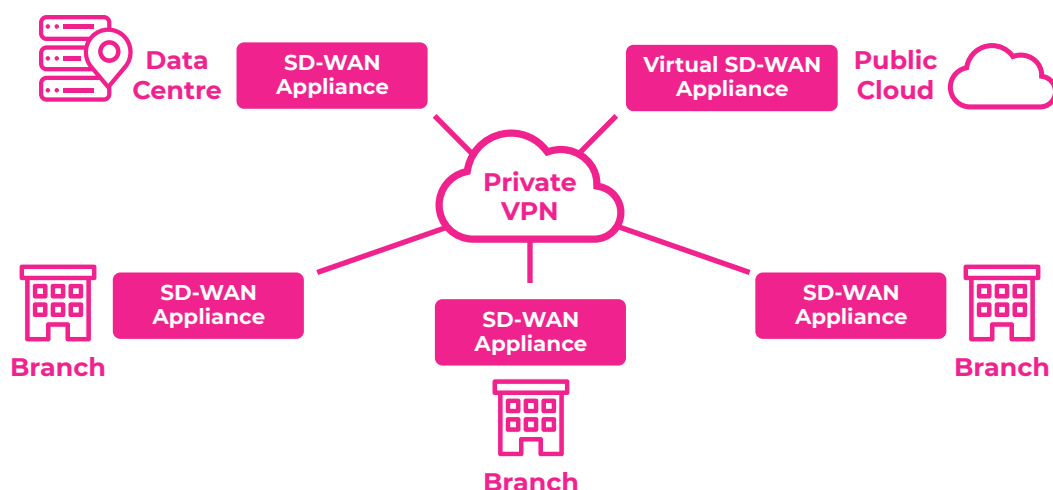
A More Efficient and Scalable Approach

This approach offers a more efficient and scalable method for routing branch traffic to the public cloud. As the organisation grows and new locations are added to the SD-WAN, each site can establish new tunnels to the cloud appliance via the SD-WAN, ensuring secure connections to public cloud workloads. Additionally, these virtual

appliances can be seamlessly integrated with the advanced security services provided by the cloud providers. Many of our Viatel customers are now harnessing the power of cloud appliances in their SD-WAN deployments, achieving both enhanced security and efficiency.

Case Study:
Centric Health

Centric Health's team of 500 staff provides primary healthcare services to over 550,000 patients across Ireland each year. Centric Health operates across an ever-expanding network of purpose-built primary care facilities.

Watch: Luke Tyrrell, Head of IT with Centric Health discusses his experience of partnering with Viatel Technology Group.

The Solution

Centric Health's expansion plans demanded a robust network and a secure cloud solution. To meet these demands, they turned to Viatel Technology Group. Moving from an old mixed technology network to a Viatel Managed Cisco Meraki SD-WAN paved the way for migration to a secure private cloud solution that enabled more efficient working and uncompromised security for patient data.

Scalability

Centric Health's network grows effortlessly alongside their business with seamless onboarding of new sites and the flexibility to remove legacy sites from the network, if necessary.

Central Management

SD-WAN offers seamless central management capabilities, the ideal choice for any IT team supporting dispersed branch locations.

Security

SD-WAN allows Centric Health to rapidly deploy security measures to protect their entire network when expanding to new branches. Fortified security measures are essential to ensuring patient privacy.

Trusted Partners

The long-established partnership with Viatel, along with direct access to the Viatel account team, have given Centric Health the reassurance and peace of mind they need to know their operations are in safe hands.

"We're growing and having a secure and stable network is paramount to what we're trying to do. The offerings that we get from Viatel through innovation and the services and the support is just vital to our business."

Case Study:
Cpl

Cpl is a global provider of recruitment, staffing and outsourcing services. As Ireland's largest talent solutions group, Cpl has 1,500 directly employed staff working in Ireland, the UK and Europe. Cpl's mission is to find the best candidates for their clients and to find the best jobs for their candidates. A fast, secure, reliable network with always-on access to databases, job boards and specialist software is essential to their everyday operation.

Watch: Nicola Connaughton, Senior Business Development Manager, Viatel Technology Group chats to Keith O'Connor, IT Director with Cpl.

The Solution

Cpl partnered with Viatel to migrate from a traditional MPLS network to a fully managed SD-WAN. Then, with aging hardware soaking up valuable IT resources, Cpl opted to migrate their physical server environment to Viatel's private cloud.

Deployment

Viatel's technical team delivered a seamless rollout despite the onset of the Covid-19 pandemic. Regular updates and weekly meetings with the appointed project manager were crucial for Cpl's peace of mind.

Efficiencies

SD-WAN: The single-pane-of-glass that the Meraki stack provides has been a game changer for Cpl, providing insights into traffic across the entire network. The visibility saves time and resources for a busy IT Department.

Private Cloud: The cost and time savings on offer were a big incentive for Cpl to migrate to a cloud environment. Day-to-day management is handed over to the experts in Viatel and Keith's team are freed up to work on more strategic projects.

Trusted Support

A stable service means Cpl rarely need to call on Viatel but they trust that the team are there when needed Responsiveness is essential and Cpl value the ability to pick up the phone at any hour of day (or night!) if they require assistance.

"We trust Viatel. It doesn't happen very often but if there is an issue, I can pick up the phone at any hour of day or night. We know you will react and respond in the manner we need you to so we can look after our clients and candidates."

Case Study:
St. Francis Credit Union

St. Francis Credit Union has nine locations throughout Co Clare with headquarters in Ennis. The team of 47 staff support 47,500 members and assets of approximately of €300 million. St. Francis has a longstanding partnership with Viatel Technology Group. The credit union operates on a Viatel deployed and managed SD-WAN and recently undertook an ambitious Azure cloud migration.

Watch: St Francis' CEO, Louis Fay and IT Officer, John Egan, share their perspective on working with Viatel Technology Group.

The Solution

On premise hardware was approaching end of life and St. Francis had a momentous decision to make. After careful consultation and with a full understanding of St Francis' operations and risk profile, Viatel and St. Francis embarked on a full migration to Microsoft Azure.

Full Migration

As well as deploying Azure Virtual Desktop, St. Francis now runs their key line of business application from Progress Systems from the cloud in a thoroughly modern approach in the credit union community.

Virtual Appliances

St Francis Credit Union was already fully operational on Viatel Managed SD-WAN as their branch connectivity network. This was a huge advantage in project planning and deployment. SD-WAN virtual appliances were deployed to securely route St. Francis' users' traffic to the cloud.

Core Partnership

Working with a core technology partner kept the cloud project moving at pace. If any issue arose, there was instant feedback and multiple engineers would coordinate to resolve as quickly as possible.

"We see the future with Azure providing St. Francis Credit Union with scalability, security, compliance, and ease of use, especially working with Viatel to quickly deploy the requirements that we need."

How SD-WAN Meets Common Cloud Challenges

Complexity

Complex connectivity and inconsistent experiences lead to scalability issues and ballooning costs.

Faster, cost effective scalability.

Experience

Lack of QoS, reliability, and optimisations for cloud application experience.

Predictable, consistent multi-cloud experience.

Security

Lack of a common policy framework across on-premises, cloud, offices, and remote users that provides full visibility.

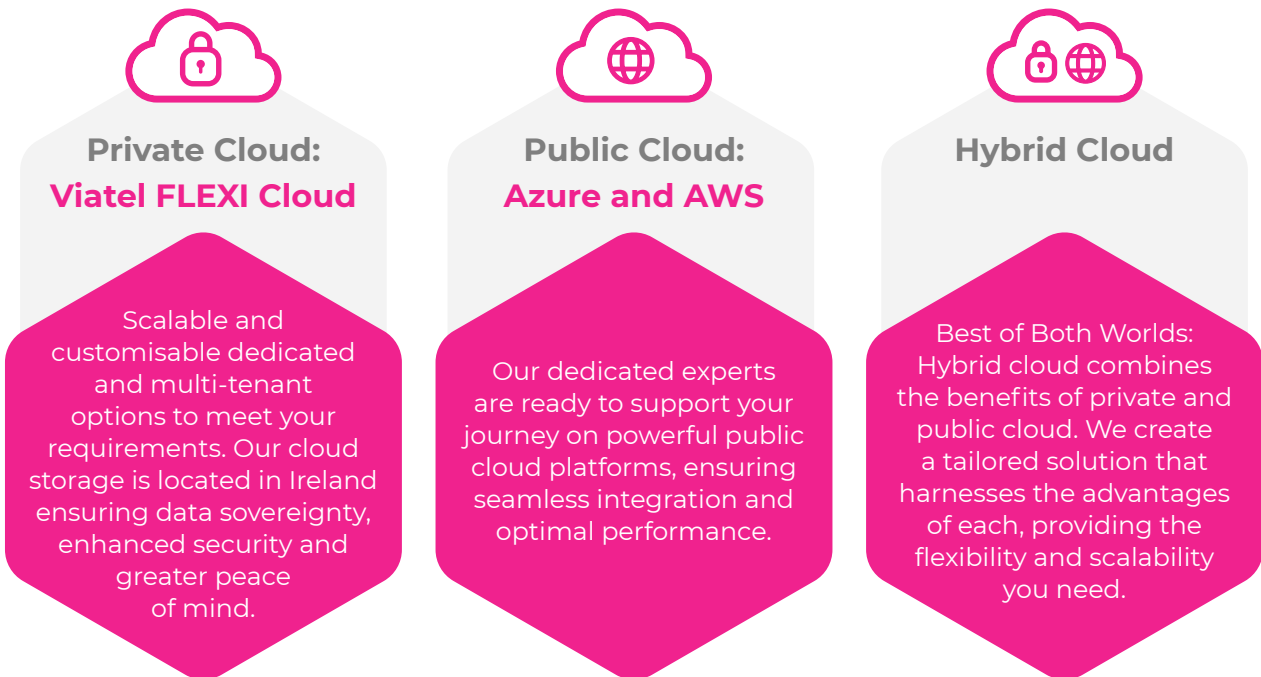**Feature-rich, unified security policies.**

Consumption

Traditional consumption models for networks are costly, with varied billing cycles, multiple contracts and diverse terms that add complexity.

Reduced Total Cost of Ownership and simplified procurement.

Our Cloud Solutions

Viatel Technology Group is passionate about helping organisations harness the power of technology for business advantage. Benefit from the latest in cloud technologies for compute, storage, monitoring, network, backup, and disaster recovery. Your data is safe and your performance is optimised. Contact us today to discover how our advanced cloud solutions can transform your organisation.

Private Cloud:
Viatel FLEXI Cloud

Scalable and customisable dedicated and multi-tenant options to meet your requirements. Our cloud storage is located in Ireland ensuring data sovereignty, enhanced security and greater peace of mind.

Public Cloud:
Azure and AWS

Our dedicated experts are ready to support your journey on powerful public cloud platforms, ensuring seamless integration and optimal performance.

Hybrid Cloud

Best of Both Worlds: Hybrid cloud combines the benefits of private and public cloud. We create a tailored solution that harnesses the advantages of each, providing the flexibility and scalability you need.

Why Choose Viatel Technology Group for Your Cloud Needs?

Expertise in Cloud Technologies
With our wealth of experience and expertise, we are your go-to partner for all things cloud. Our solutions are built upon best-of-breed infrastructure and software, ensuring top-tier performance and reliability.

Choice of Tailored Solutions
We understand that every business is unique. That's why we offer a wide range of cloud deployment options, including private, public, and hybrid solutions. We don't just sell you our solutions; we diagnose and provide the best cloud solution specifically for your organisation's needs.

Unrivalled Support
24/7/365 technical support, dedicated account management and stringent SLAs (Service Level Agreements) are three ways we deliver on our dedication to exceptional customer experience.

Our Cloud Partners: Microsoft Azure aws vmware veeAM zadara DELL

About Viatel Technology Group

- **#1 Market-Leading Supplier of Managed SD-WAN in Ireland**
- **Award-Winning Cisco Innovation and Transformation Partner**
- **Meraki Masters: our technicians are fully certified by Cisco Meraki**
- **Mature SD-WAN portfolio with tried and tested deployment model**
- **24/7/365 access to SD-WAN experts**

Our SD-WAN Estate in Figures

2017
First Viatel SD-WAN deployment

347
Networks delivered

852
Devices configured

15
Live across fifteen countries

50,000
Hours of expert NOC support

Viatel Technology Group specialises in secure networks, complete cloud solutions and cyber resilience. Our fully managed comms and digital services are designed to drive enterprise. Our impact on customers is immense. Relieved of daily technical headaches, with applications and data optimised, companies gain the freedom to thrive and reach their maximum potential.

A proud Guaranteed Irish member, Viatel combines extensive infrastructure with strategic partnerships with world leaders including Cisco, Microsoft, 3CX, Zadara, Veeam and ArmorPoint to ensure our customers work faster and smarter.

With over 26 years' experience, Viatel Technology Group is a Platinum Deloitte Best Managed Company and Chamber Ireland's ICT Company of the Year 2023. The Tech Excellence Awards named Viatel 'Best Place to Work' for the team of 300+ experienced staff who embody our values of customer service, excellence, trust and care as they serve over 4,000 business customers.

To find our more, please call **01 2569200**, email **getstarted@viatel.com** or visit **Viatel.com**

About Cisco

Cisco (NASDAQ: CSCO) is the worldwide leader in technology that powers the internet. Cisco inspires new possibilities by reimagining your applications, securing your data, transforming your infrastructure, and empowering your teams for a global and inclusive future.

A Leader in SD-WAN

With an estimated 43,000 SD-WAN customers globally, Cisco is a leader in the Gartner SD-WAN Magic Quadrant. Cisco operations serve clients of all sizes and verticals. Cisco has a solid roadmap for product and innovation that aligns with emerging customer requirements, such as single-vendor SASE, new consumption models and AI networking (Gartner, Magic Quadrant for SD-WAN).

Viatel - Cisco Partnership

Viatel Technology Group is proud to be a Cisco Partner. We deliver our managed SD-WAN service exclusively on Cisco Meraki technology. Our technical team are certified as experts in the configuration and support of Cisco's powerful products. Cisco named Viatel as their 'Transformation & Innovation Partner' for our deep understanding of our customers' operations and our talent in marrying that knowledge with technology to deliver real business results.

VIATEL

TECHNOLOGY GROUP

To find our more, please call **01 2569200**,
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