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Managed IT Services

The IT Manager's Guide to 4G WAN

Create high speed, reliable, secure connections to your corporate network within days.

What's inside

Introduction

Most IT teams know the challenge of keeping colleagues joined-up and information flowing during changes to their business, their buildings or their connectivity.

Sometimes you need to roll out connectivity in places where there's little or no existing infrastructure. Sometimes you may need to restore connectivity in disaster situations. Occasionally you may need to join networks after a corporate merger.

What's most important is that you do this quickly, reliably and with the minimum of fuss. You cannot afford to have your operations compromised because the impact on the business would be unthinkable and the pressure on you,and your team, would be enormous.

4G WAN technology is about ensuring that this never happens. Think of it as your enterprise-class connectivity-in-a-box, providing your workforce with instant access to your corporate network and the internet from the moment you turn it on – wherever, whenever. It's robust and offers great quality with no lengthy lead times.

The result? You can obtain reliable short-term connectivity before a fixed line is set up, respond to seasonal or temporary events, connect vehicles and tackle disaster situations.

In this guide, we'll introduce you to this technology, helping you to understand how it works, the problems it solves and the questions you should be asking before you implement it.

Discovering 4G WAN

What is 4G WAN?

4G WAN leverages the mobile data network to provide you with a reliable, high speed connection through multiple 4G SIM cards from a mix of carriers.

The technology bonds these SIMs together into a single data connection and connects to your corporate network, the internet, or both. This means you can:

- Provide interim connectivity until permanent circuits are installed
- Provide connections for temporary or seasonal events
- Provide connectivity to mobile sites such as cars, buses, trains and boats
- Achieve high-performance backup for your network that is diversely routed in the last mile
- Connect sites that are prohibitively expensive to connect with fixed lines

The technology provides a flexible, robust and cost-effective alternative to fixed line circuits.

It takes very little time to implement compared to services such as FTTC – which can take weeks to install – or fibre Ethernet, which can take months to provision and be subject to delays, Excess Construction Charges (ECCs) and wayleave.

Ultimately, 4G WAN keeps businesses digitally agile, with infrastructure that allows them to stay connected and respond quickly to the scenarios they face.

80 Days A typical provisioning time for a new Ethernet circuit

What problems does it solve?

Because it can provide high speed, reliable connectivity quickly, 4G WAN is extremely versatile and can help businesses that are:

- Operating in locations with no existing infrastructure, such as those in the construction industry
- Moving office, merging networks, or making planned changes to their infrastructure
- Seeking a continuity solution to protect them in disaster situations
- Looking for a backup solution that is diversely routed (i.e. that won't be destroyed by the same road digger that takes out their main circuit)
- Using popup stands at events such as festivals, conferences and exhibitions
- Looking for in-vehicle connectivity that can turn their fleet into mobile offices

Here are some of the main scenarios...

Delayed circuits

When ordering fixed network connectivity, you are at the mercy of lead times – which are often lengthy. When a site is opening at short notice, the lead time to get a circuit provisioned, installed and made live can impact the site opening date.

This is made worse if circuits are unexpectedly delayed because of wayleave, traffic disruption or unexpected construction that needs to be undertaken and paid for.

By implementing 4G WAN, you can bypass these delays because the technology does not require any fixed connectivity. You get your site fully connected in a matter of days.

This means that you can set up a reliable, high speed connection into your network with no operational impact while a fixed line circuit is being installed.

Temporary locations

If you operate in temporary locations or frequently relocate sites, you'll be met with the same issues and delays mentioned above. This is especially true if you operate construction sites, trade at festivals or exhibit at shows and events.

Some companies will only be at a given location for a matter of days, making fixed line connectivity illogical, while others will be on-site for months or possibly years and must face the lead times associated with getting fixed line connectivity up and running.

In both cases, IT Managers need to provide connectivity to the site, but cannot have this impacting project deadlines. This leads to administrative challenges that occur not once, but again and again.

In both these scenarios, 4G WAN can remove these challenges and help you maintain reliable, high speed connectivity for temporary and movable sites, while simplifying administration.

Backup and disaster recovery

With applications increasingly utilising the cloud, having a business continuity solution to keep users connected during a disaster is imperative.

Some IT departments combat this by installing backup fixed connections, but these services don't protect against an outage of the provider's network, or fire and flood disrupting both primary and secondary fixed circuits.

4G WAN provides a high-performance solution to backup circuits, especially when you want to connect over a different route to improve resilience, and over a different network in case of provider outage. The technology can provide:

- On-site cold standby for rapid, low-cost failover in the event of a main circuit outage
- On-site hot standby for instant failover
- Off-site standby, delivering a preconfigured router at short notice

Unreachable or cost prohibitive locations

If you have a remote site, or one with especially challenging circuit construction requirements, the cost of installing a fixed circuit can be prohibitive. This is often the case for remote site monitoring, security, entry systems, roadside sites and CCTV.

4G WAN can provide the connectivity needed without the expense of roadworks, digging trenches and laying lengthy fixed line cables.

Vehicular deployments

Connecting your fleet of vehicles to your network allows the transfer of vital information between them and your business. You do this by deploying 4G WAN ‘in vehicle’, effectively turning your fleet into mobile offices.

You can then connect these vehicles to your network, just as you would a standard ‘bricks and mortar’ office.

This enables your mobile workforce to enjoy connectivity to video and CCTV streaming, and GPS telematics through wireless hotspots. As well as automobile, 4G WAN is suitable for deployment into rail, emergency vehicles, bus and marine installations.

4G WAN technology is suitable for multiple sectors

With many hundreds of deployments, the service is widely proven and suited to multiple use cases and industries.

If you have a WAN, you probably have a need.

New site & office move

Backup

Disaster recovery

Temporary event

Health

Emergency Services

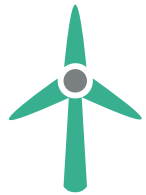
Construction/ Drilling

Highways

Leisure

Rail

Retail



Utilities/Wind/ Solar

Transport/ Marine

Manufacturing

Logisitics

Insurance

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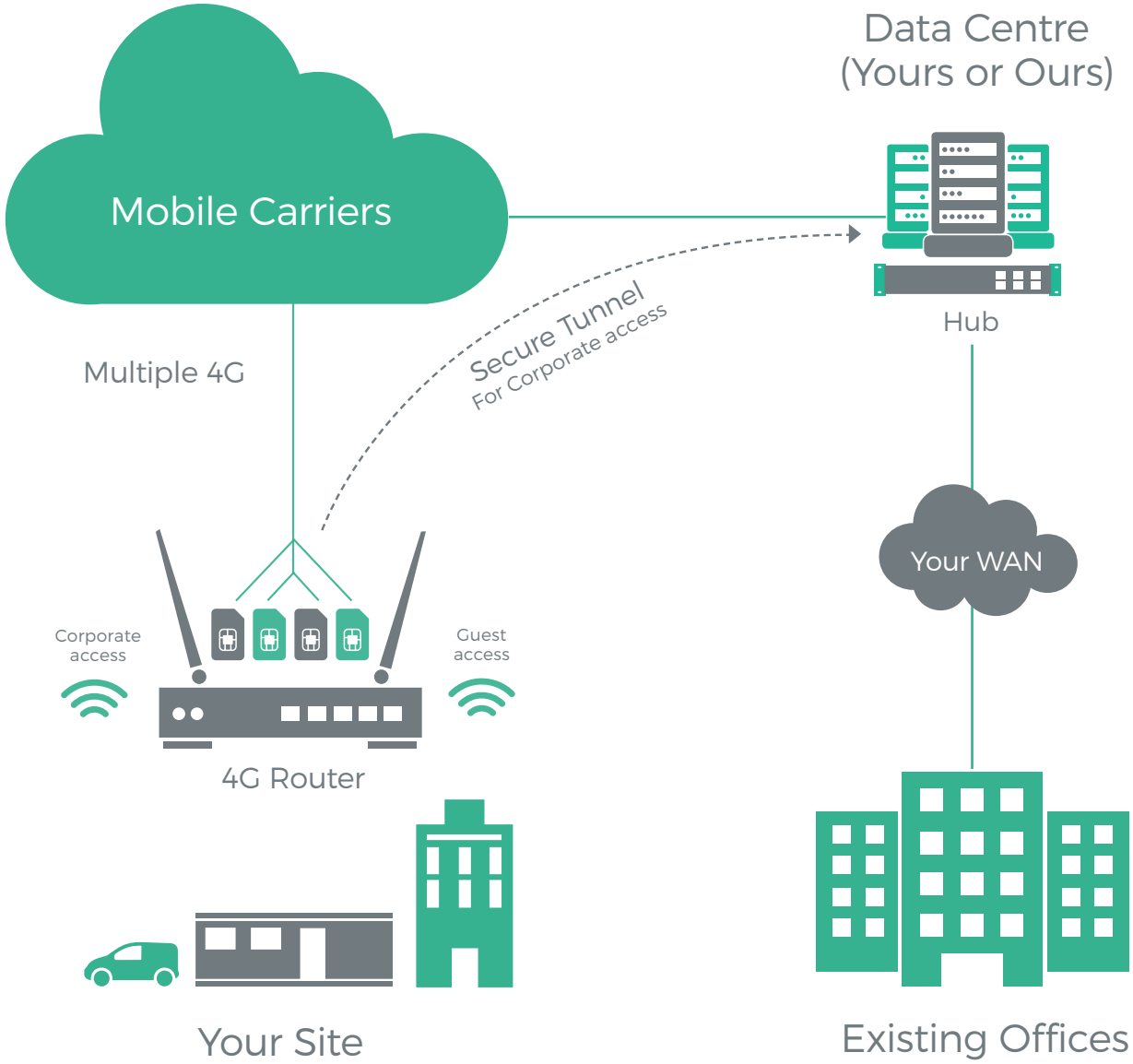
Key questions you should be asking yourself

- Do you ever need new sites to be set up more quickly than fixed network circuits can be delivered?
- How important is it to get these sites connected before they go live?
- Are new sites ever delayed by wayleave, traffic management, or do Excess Construction Charges (ECCs) impact your decision?
- How are you providing resilience and diverse site connectivity currently?
- Do you use mobile sites such as vehicles or boats? How do you connect these to your corporate network?
- What's the cost to your business of slow, unreliable connectivity?



How does it work?

For best performance, you use multiple SIMs

- Using a multi-SIM 4G router at your remote site

From multiple carriers

- This delivers maximum performance in demanding (eg congested) environments
- And provides additional resilience and diversity

To the internet or your corporate network

- For corporate network you set up a secure tunnel to a hub router
- With onward connection to your WAN

If your priority is to achieve the most stable, reliable, lossless connection, you would bond multiple 4G connections together into a single, reliable connection that links into your corporate network or the internet.

The solution starts with a hub router being installed in your Data Centre, or your Managed Service Provider's (MSP's) Data Centre should you wish to use a hosted service.

The hub allows multiple 4G connections to be bonded into a single, reliable, high performance connection with the lowest possible latency.

After that, a business grade multi-SIM 4G router is installed at each of your remote sites. If you're using 4G WAN as a continuity solution, you'll house these routers on-site for hot and cold standby, or off-site and ready for dispatch should you opt for an off-site standby setup.

If you don't have time to install a hub, or perhaps if you don't have latency-sensitive applications, you may choose to load balance the multiple SIMs instead of bonding them. Here, the router makes intelligent decisions about which channel to use for each conversation, based on intelligent algorithms such as lowest-latency.

To avoid the pain of managing SIMs, billing and 4G performance yourself, you can source these routers pre-configured with multiple 4G SIM cards from different networks to ensure the connection is both resilient and high-performance, while mitigating the risk of poor signal or any one carrier being congested.

Once both elements are set up, you're provided with a secure tunnel to your Data Centre, with onward connection to your WAN or the internet.

By opting for an MSP experienced in rolling out 4G WAN, you can expect your solution to be provisioned and brought live within a matter of days – vastly different to the weeks of waiting for fixed line services.

Commonly required options

The most common requirements we find people have when implementing 4G WAN are:

Wireless LAN access

Guest internet access

Internet breakout for corporate traffic (split tunnelling)

What do you need to set it up?

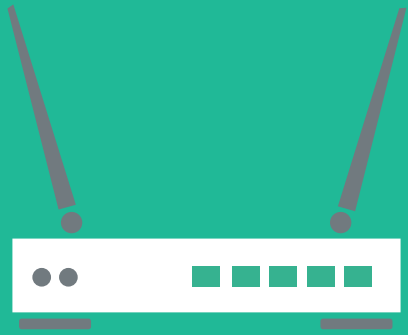
A 4G WAN solution is made up of four main components. Once these have been set up and configured, your connection will be available immediately.

- Site routers
- 4G SIMs from multiple carriers
- An optional central hub if you are bonding (which is sited in your data centre or hosted on your behalf)
- A management service

Your hub will be set up in your data centre (or your MSP may offer to host it in theirs). The site routers need to be sent to site along with the SIMs, ready for set-up, configuration and importantly, tuning (which is best done by an engineer working with a Network Operations Centre).

A central hub

The central hub is what bonds the traffic from the SIMs at your sites. It can support multiple sites, and can be installed at multiple data centres if required, or hosted on your behalf.



A 4G router

Your 4G router is delivered to site together with your SIMs. The router provides the secure connection back to your central hub. We'll highlight things to look out for in a router later in this document. Two of the leading providers of 4G routers that we like are Peplink and Viprinet.

4G SIMs

Multiple 4G SIMs are bonded to provide you with a single, high speed connection. For additional resilience and 100% coverage, you can bond SIMs from multiple mobile networks. However, you should avoid mixing 3G and 4G SIMs in the bond as the maximum performance of the network will be determined by the slowest connection – which will be the much slower 3G network in this situation.

Monitoring

Most Managed Service Providers (MSPs), such as SAS, will provide inbuilt monitoring of the service as standard, but not all are alike. Look for elements including proactive connection monitoring, proactive raising and resolution of tickets, on-site replacement guarantees and the provision of a customer portal to see your stats.

These services allow your department, and your chosen supplier, to monitor the performance of your solution 24/7 – giving you complete confidence and peace of mind.

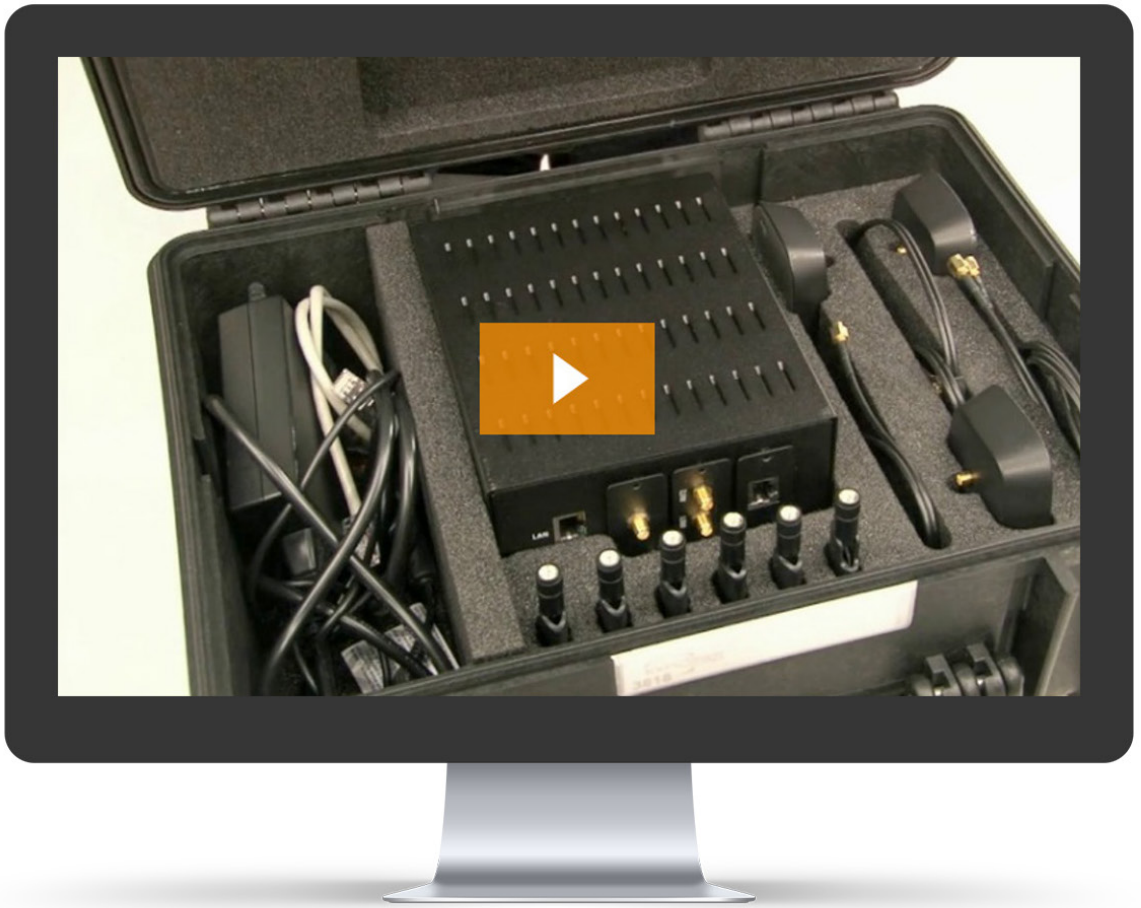
All in one box

Since 4G WAN is so often required quickly, experienced suppliers will hold pre-configured routers, with SIMs and aerials ready to go. They'll have them boxed in appropriate containers because of the environments they're commonly going to.

They'll usually also have a mix of aerial types to cope with the specific location that they'll be going to. The best providers will have an engineer bring this to site and set it up for you within a couple of working days.

If you'd like to see how your solution should arrive on-site, we've made a handy video to show you what's typically in the box.

WATCH THE VIDEO



Understanding 4G WAN concepts

Bonding or load balancing?

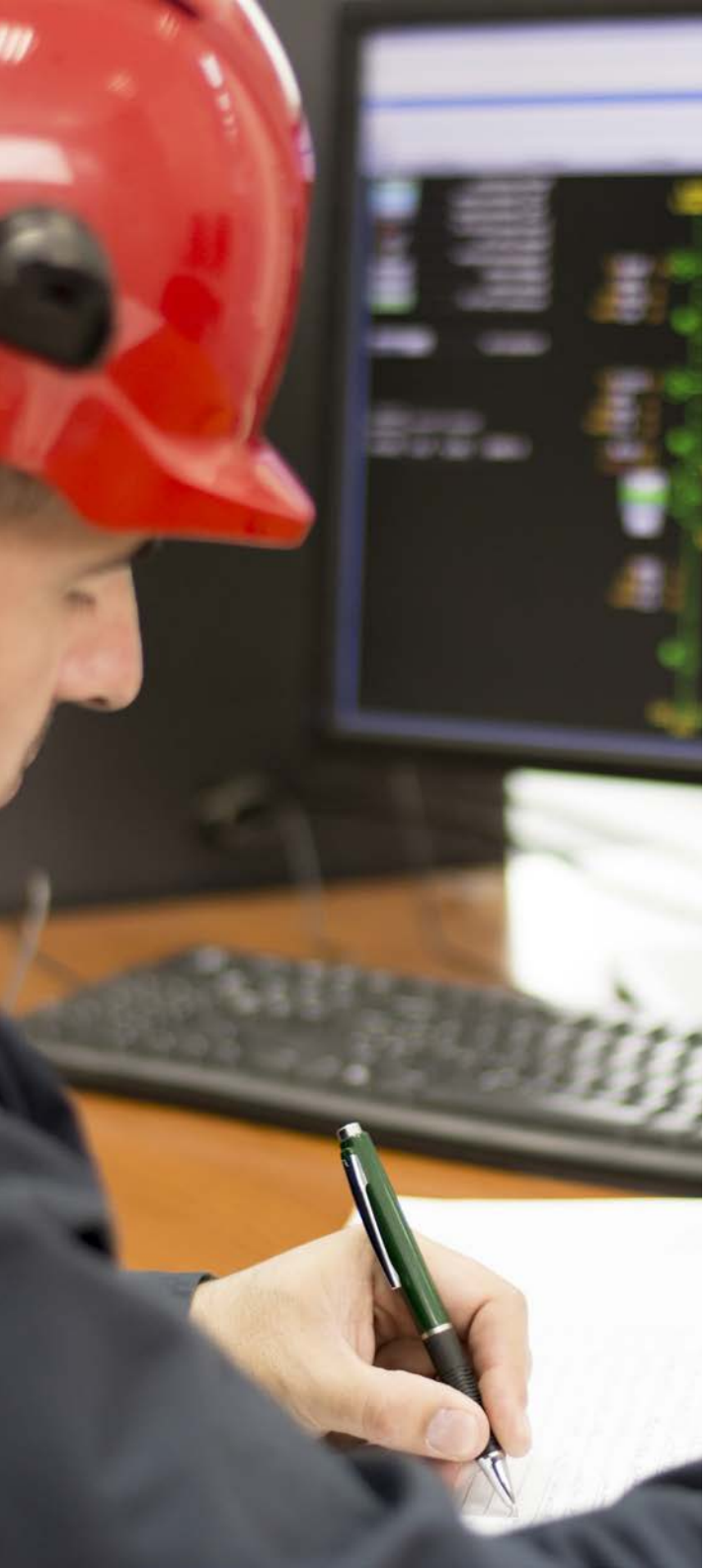
There are two approaches to combining multiple SIMs: bonding and load balancing. We generally recommend bonding for reliability, but there are scenarios where load balancing can be a useful solution. Generally, you would opt for:

Bonding when you require:

- Reliability
- Latency-sensitive applications
- Connection to the corporate network

Load balancing when:

- You are accessing internet-delivered applications
- You are not running applications that are sensitive to packet loss or latency
- You don't require high speed access to a corporate network
- Or perhaps you don't have the time to install a hub in your own data centre or the desire to use a provider's hub



Bonding

Bonded solutions take individual connections and combine them to form a single aggregated connection.

Advantages

Reliability: By using multiple links at once to split the traffic flow across each in real time, you can re-transmit dropped packets instantly via another active channel. This makes it ideal for applications that are sensitive to packet loss or latency.

Monitoring: Bonding allows the use of mechanisms to monitor the performance of each channel in terms of speed, latency and packet loss. This means Quality of Service (QoS) can be configured according to this data, for example not sending voice down a channel that has exceeded a pre-defined latency threshold.

Performance: When a VPN is required for corporate connectivity, bonding allows each channel to form its own tunnel while the bonding protocols split the traffic up across all the active channels, meaning all of them are used for the VPN traffic. This allows for instant failover and no packet loss.

Disadvantages

Traffic flow: Because all traffic is sent through the bonded tunnel to the central hub before breaking out, it can influence native internet performance. The encryption overhead of the VPN can also impede performance.

Low performing channels: The bond is only as good as the worst performing channel. For example, if you have four channels – three running a 4G service and one running a 3G service – the bond will run at the speed and latency capacity of the 3G service.

Compatibility: Because bonding is not an open standard, different MSPs will have their own approach to doing this, which is usually proprietary to their equipment and common standards for VPN such as IPSEC cannot be used. This means that you'll probably have to use the same MSP for both core and site devices.

Performance: 4G routers commonly auto-tune their bonded connections with a priority on reliability and minimum packet loss, rather than on performance. We sometimes find we need to tune the settings to achieve the right balance between reliability and performance.

Load Balancing

With load balancing, traffic is distributed across a number of connections. Unlike bonding, these connections remain separate and you do not need a hub in a data centre to bond these connections together.

Advantages

Local internet performance: You can split traffic evenly, or even by specific channels, in order to prioritise critical users and activities over non-critical. As an example, you could give corporate users 95% of available bandwidth and guest WiFi only 5%. Because breakout occurs locally, you're also not met with the overheads of bonding protocols or encryption for VPN.

Compatibility: Load balancing supports open standards such as IPSEC when setting up VPNs. This means that existing equipment can more likely be used and services do not need to be run through the same MSP. While the VPN itself will only run on one active channel at a time, it can be set to auto-failover between channels should the link fail.

Disadvantages

Failover isn't instant: While the service improves local internet speed, it is not ideal if pure corporate connectivity is required via a VPN. Though a VPN connection will failover to a second channel if the connection is interrupted, this will not be instant – resulting in a noticeable outage and packet loss.

Performance: Because traffic is only running over one tunnel, it cannot take advantage of the additional bandwidth available on other active channels.

Outages and packet loss: If you have packet loss or latency-sensitive applications running over your corporate connection, load balancing is not ideal as you'll only have one active channel with a failover time period. There are also no mechanisms to monitor latency and packet loss, meaning the connection is not intelligent enough to switch between channels when one is degraded.

The importance of latency

Latency is a measure of delay. In a network, latency measures the time it takes for data to get to its destination across the network. It is usually measured as a round-trip delay – the time taken for information to get to its destination and back again. This delay is an important measure for TCP/IP traffic.

Transmission Control Protocol (TCP) is concerned with making sure all the packets of your data get to their destination safely, and in the correct order. It requires that only a certain amount of data is transmitted before waiting for an acknowledgement. That's where latency becomes a problem.

Imagine a network path as a long pipe filling a bucket with water. A longer pipe (greater latency) takes longer to fill the bucket. TCP requires that once the bucket is full, the sender has to wait for an acknowledgement to come back along an identical pipe before any more water can be sent to fill the next bucket.

So, the greater the latency, the longer it takes for data to reach its destination and the longer it takes for safe receipt to be acknowledged before any more data can be sent. This has a profound effect on the throughput of any individual conversation.

Latency is usually measured in milliseconds (ms). A modern Carrier Ethernet network such as BT Ethernet Connect might have a latency of 10ms. A 4G cellular data connection might have a latency of 60ms, but a 3G connection is more likely to be around 120ms.

A key point is that the latency of bonded connections is driven by the latency of the slowest link. If you include any SIMs that are connecting at 3G in the bond, you will ruin the latency, and therefore the throughput, of your connection.

For more information, see our blog post: **What is network latency and why is it important?**

TIP: Don't mix 3G and 4G connections into one bond. Check your connections when you set up, and exclude from the bond any SIMs that are connecting at 3G.

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Usage & cost

Usage and cost are important when you come to choosing the right Managed Service Provider (MSP) for 4G WAN, especially relating to the SIMs you use to provide your channels:

- Bundles and packages are useful if you know exactly how much data your sites are using and expect little or no variation – but beware of excess usage charges
- Pay as you use offers a true reflection of what you use, billing you more accurately
- MSPs, such as SAS, should help evaluate your usage and make a recommendation. They should also be able to set you up with accurate usage reporting and alerts when limits are being reached, controlling costs and reducing bill shock
- When exploring the option of 4G WAN, it's important to consider how you will measure your usage and control costs accurately. If you don't address this now, your Finance Director soon will.

How will you be charged for usage?

Cost and usage control depends on the pricing model your chosen provider follows. Most will either adopt a 'bundled' or a 'pay as you use' model. There are pros and cons of each, and some important questions you should ask before deciding which is best for you.

Bundles and packages

Some will offer packages with bundled usage included at a set price. While this headline offer may be tempting at first, it's important to establish if the bundle you're being offered is truly reflective of your usage, and what happens if you go over your allocation.

Questions you should ask include:

- Can you pool your usage across all the SIMs you use from a carrier? Data pooling allows you to aggregate your usage across the multiple SIMs in your 4G routers, keeping your costs lower by reducing the excess usage charges when your most-used channels exceed their cap.
- What's the minimum term? It might be as little as one month, but watch out for longer contracts!
- Does your MSP provide access to all UK carriers? How about international carriers?
- If you exceed your bundled usage, what are the overage charges?
- If SIMs are labelled as 'unlimited', do they have a fair usage policy, and what happens if this is breached?
- Will your operator allow you to use standard SIMs in cellular routers?
- How frequently can bundle limits be adjusted if you find you're repeatedly exceeding or coming in under your usage limit?

Overall, bundles are ideal if your department knows exactly how much each site is going to use and are confident that there is little or no change to this usage as months' pass.

Unfortunately, data usage rarely remains this stable, so you could quickly find yourself paying over or under the odds.

Pay as you use

Other MSPs will adopt a model where you are charged for what you use, often per GB. While the headline figure may not sound as tempting as with a bundle, we often find that this pricing model provides a much more accurate reflection of your usage.

It also means you can account for peaks and troughs in demand without having to worry about the threat of bill shock in one month, or paying for data you simply don't use in another. Still, there are questions you should ask around this pricing model too:

- What is the length of the contract?
- Are there any early termination charges should you need to break the contract?
- Will you still be charged for the service, even if your usage is zero?

Which is right for you?

If you're not sure which model best fits your needs, you should speak to your MSP. Good providers will be able to discuss your needs during the design phase of your project, establish your usage and recommend the best solution going forward.

How will you monitor usage?

Once you have evaluated potential partners and decided on a pricing model, you'll want to remain aware of your usage.

You don't want to be surprised by a jump in usage only when it appears on your monthly bill, nor do you want your critical traffic to simply be turned off when a limit is unexpectedly breached or your carrier imposes a fair usage policy.

Proper monitoring and reporting is beneficial for both you and your MSP. It gives both parties an overview of your solution and the ability to see trends, set and see when you're approaching usage limits, and avoid any possibility of bill shock. You should ask potential MSPs:

- Can you set automated alerts when you're approaching a certain usage level?
- Can they stop or throttle your connections once they reach a certain usage level?
- Will your usage and charges be presented on a single amalgamated bill, or a series of bills?

Choosing hardware and services

Choosing your hardware

Features to consider when choosing a 4G router

With many different 4G routers on the market, each offering a wide variety of features, it can be difficult to select the best one for your needs. Here are the main questions you should ask your MSP when selecting one for your business.

- ☑ Does it support multiple SIMs?
- ☑ What is the SIM capacity?
- ☑ Does it support bonding?
- ☑ Does it support load balancing?
- ☑ Does it support SIM failover?
- ☑ Can it prioritise by traffic type?
- ☑ Does it support caching?
- ☑ Can it include other WAN interfaces?
- ☑ Does it offer WiFi access?
- ☑ Does it have a modular design (and do you need one)?
- ☑ Does it support Power over Ethernet (PoE)?
- ☑ Does it offer reporting?
- ☑ Can it act as a WiFi controller for larger installations with multiple WiFi access points?

Which hardware do we recommend?

So, what is the best router? Having explored the features to consider in a 4G router, you'll naturally arrive at this question.

With many years' experience deploying 4G WAN technology to hundreds of sites, we've had the chance to explore many of the 4G routers on the market as part of our continuous service development. Throughout recent years we have settled on two router manufacturers for the majority of our installations – Peplink and Viprinet.

We like Peplink when we need

- Remote site users to access the service via WiFi (without additional hardware)
- To configure local breakout to the internet (not through the tunnel to the data centre)
- The ability to have 2 SIMs for every modem (even on single modem devices) so that if you lose one carrier, you can continue working

We like Viprinet when we need

- The ability to bond more than 9 SIMs
- The ability to include DSL into the bond
- The flexibility to migrate a site from 4G to fixed line plus 4G, once the fixed circuits are installed

Choosing a Managed Service Provider

4G WAN is a simple concept, but can be complex to set up correctly to achieve the highest possible levels of performance and reliability. If this is not your area of expertise, it can help to partner with a Managed Service Provider who can set it up and manage it on your behalf.

There are many MSPs on the market, offering a wide variety of services. To ensure you select the best provider to meet your needs, there are some key questions and considerations you should take into account before making your decision.

These next pages take you through the basics, and you can see more detail in our guide to choosing 4G hardware.

Read more here >>

Features

Many 4G WAN services are simple, single-SIM solutions, so it's important to check what you're being offered. Key questions to ask prospective MSPs are:

Service flexibility and customer experience

- Can they connect your 4G circuit into your corporate WAN?
- Do they offer bonded multi-SIM, multi-carrier solutions for reliable, high speed connectivity?
- Can they demonstrate experience and provide customer references?

Deployment

- How quickly do they promise to deploy? When do they count this time from?
- Can they offer seamless migration to a permanent fixed circuit once it's in place?
- Can they support SIMs from multiple mobile carriers, to improve throughput and resilience?
- Do they support multiple aerial types, such as directional, high gain, magnetic mount?
- Will they provide full installation, including on-site cabling and WiFi?

Connecting to your corporate network (if available)

- What is the lead-time to connect into your corporate network?
- Is there any extra cost for the interconnect circuit required for connection to your network?
- Is there any limit put on the bandwidth available on the interconnect circuit?

Resilience

- Can they offer ultra-high-speed deployment for backup and disaster recovery scenarios?
- Do they offer high availability hubs?
- Do they support out-of-band management (where your primary router can be managed over your 4G WAN circuit in the event of problems)?

Management

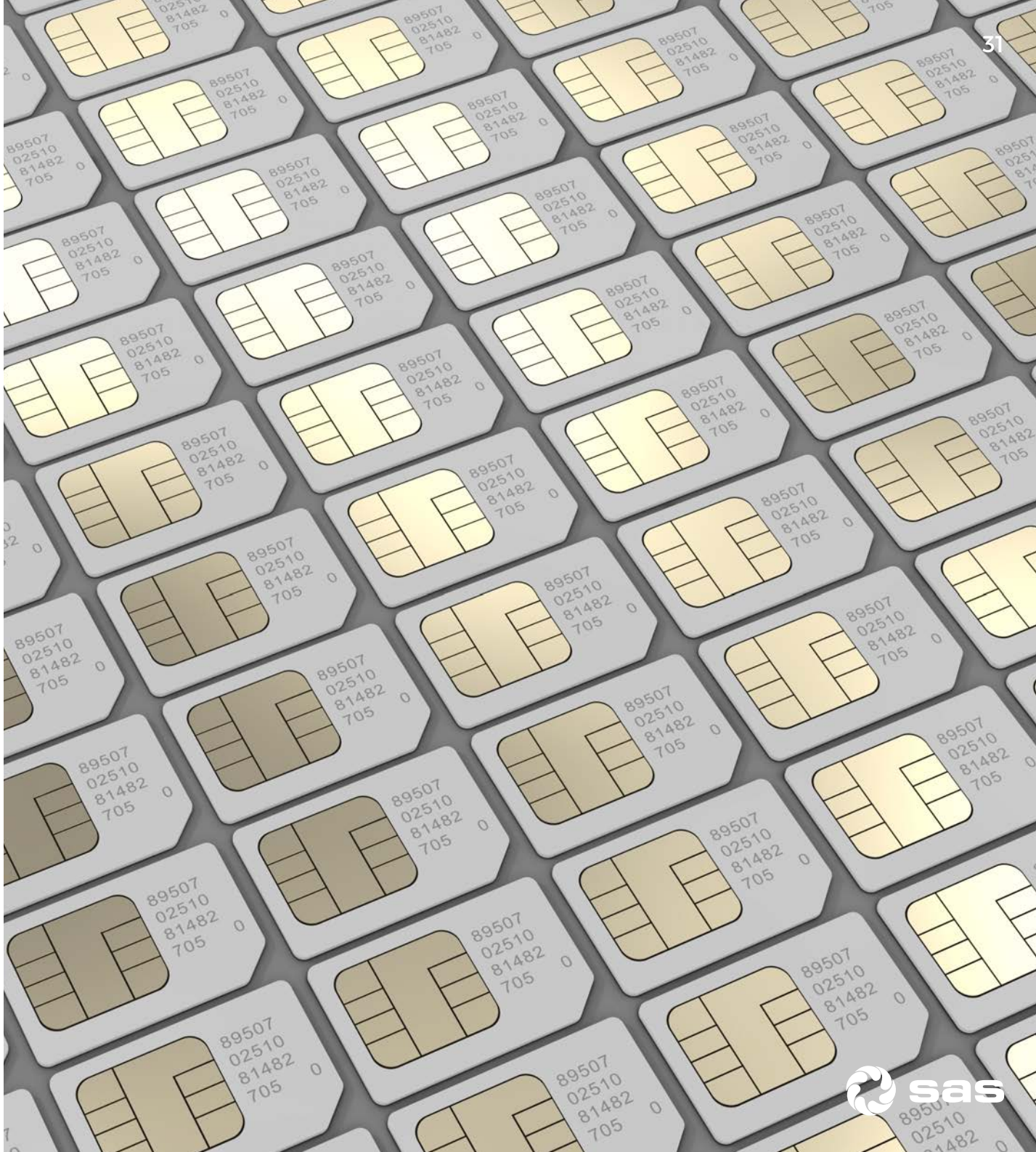
Choosing the right hardware is the easy part of 4G WAN. Just like with a WAN, it's important to be supported by a good management service. Questions you should be asking prospective MSPs include:

- Do they offer technical design to specify and tune the service to suit your environment?
- Do they offer pre-deployment surveys?
- Do they provide a project-managed installation service?
- Do they provide 24x7 monitoring?
- Do they provide real-time reporting?
- Do they provide an integrated portal for all 4G and any other circuits and devices you want managed?
- Do they provide hardware maintenance?

SIM management and commercials

It can be helpful to have an MSP who can manage the SIMs used in your 4G installation, as using multiple suppliers – each managing their own element of your solution – can be complex and time-consuming. Ask your prospective MSP:

- Can they provide SIMs from every carrier?
- Can they provide SIMs through a single aggregator when you want to keep data off the internet?
- Do they select the right SIMs for each site?
- Do they install and test SIMs into the router for you?
- Do they handle SIM fault reporting and monitoring?
- Do they provide SIM asset management to track SIMs as they are deployed and re-deployed?
- Do they help with usage reporting and management?
- Can they set usage alerts and allow you to limit traffic once thresholds are set?
- Do they offer a single bill?



Rapid Site Deployment from SAS

A different approach

Unlike other MSPs, we bond multiple SIMs from multiple mobile operators – and will provide up to 18 when needed. This gives reliable, high speed connections for critical applications. Alongside this, our service is fully-managed – giving you peace of mind and flexibility.

Our solution is designed to address three key business challenges:

- Temporary site deployment
- Mobile and remote site connectivity
- Resilience and diverse site connectivity

How we work

Consult: We consult on the design that will achieve the best connectivity for each situation you need to address, drawing on expertise gained from many hundreds of deployments.

Design: We'll design a solution to match your needs, combining the best hardware, network operators and data packages for each deployment.

Install & Configure: We'll install and configure each of your sites to make sure you obtain optimum performance.

Support: We'll provide year-round support for your solution, including monitoring and usage management, tailored to match the business-critical needs of your sites and applications.

FAQs

How reliable is Rapid Site Deployment?

Rapid Site Deployment is far more reliable than traditional mobile connectivity because it bonds multiple SIMs. The bonding delivers a higher bandwidth, but its primary aim is actually to create reliable performance. Traffic seamlessly fails over via another live channel in the bond. Having SIMs from multiple carriers further increases resilience.

Can a mobile service be fast enough to support multiple users?

Rapid Site Deployment is far faster than traditional mobile connectivity. Bonding of multiple SIMs delivers up to 90% of the aggregate bandwidth of all the SIMs in use. Rapid Site Deployment can have up to six SIMs in the mobile router deployed to site, and multiple routers can be stacked together. We've had up to 100Mbps using multiple SIMs.

Can Rapid Site Deployment support time-critical applications?

We can configure Rapid Site Deployment to support latency-sensitive applications such as VOIP and Citrix. Quality of service policies can be applied (although this may not always be guaranteed across the entire communications path).

Is Rapid Site Deployment secure?

Rapid Site Deployment runs on AES256 bit level encrypted tunnels. Traffic is also split across multiple encrypted streams, which makes it very difficult to intercept and re-assemble the full data stream.

What if there's limited mobile coverage at my site?

We can improve performance using multiple SIMs, and exterior high gain and directional aerials.

Does performance suffer if the mobile network is congested?

We typically install SIMs from three mobile networks. This reduces the loading on any one cell, and thus mitigates congestion issues.

Is this technology proven?

This service has been in use for several years and has been deployed to many hundreds of sites for demanding enterprise customers, supporting sites from 5 to 500 staff.

Is the service easy to set up?

Rapid Site Deployment is designed, installed and configured by our expert team, so it is extremely easy to deploy. Once your Hub is set up in your data centre and paperwork complete, sites are usually deployed in 2 working days.

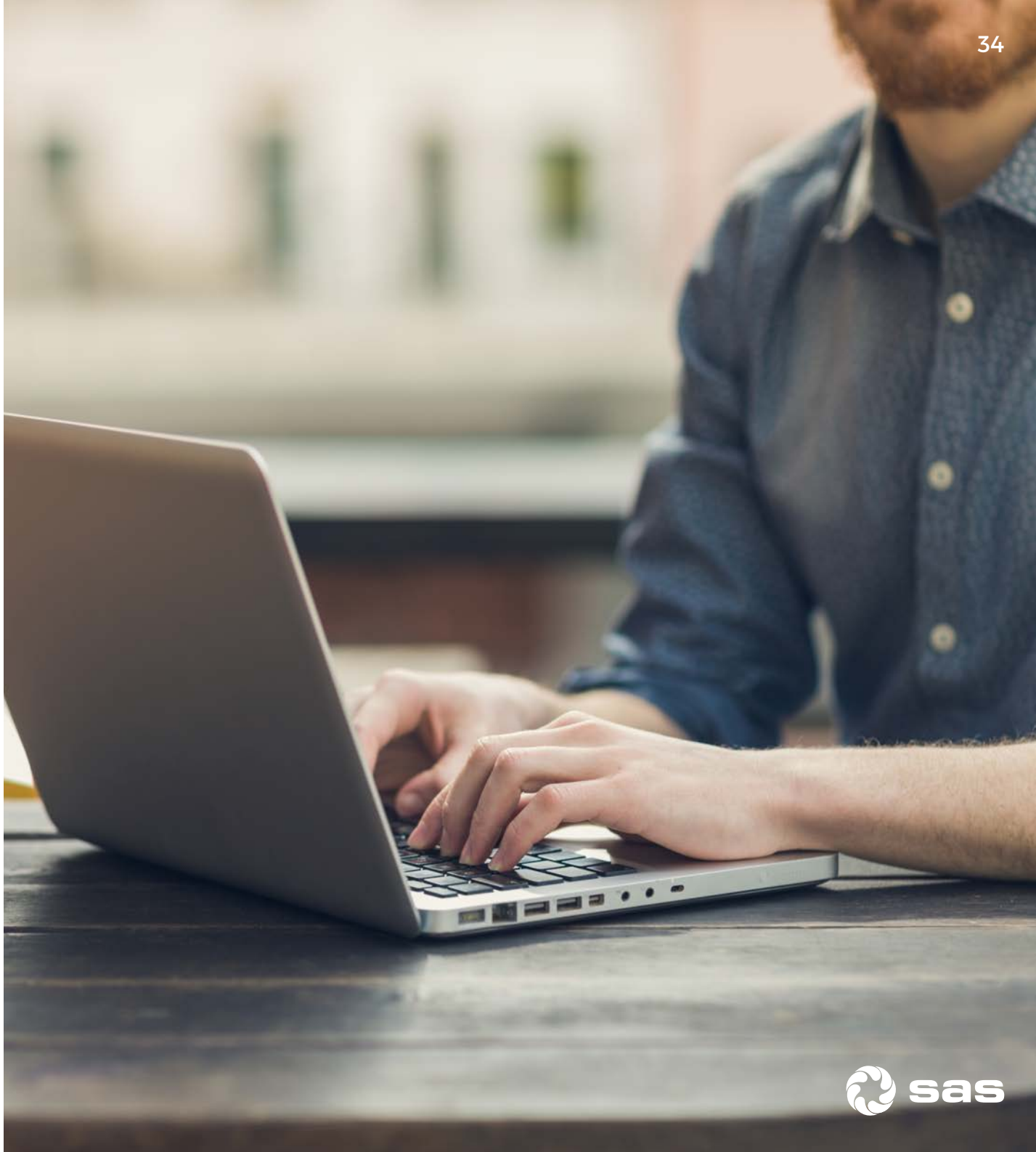
FAQs

How can I manage usage charges?

We can provide managed SIMs with alerts when usage approaches limits. We can arrange for overage to be charged at no more than standard usage.

How does Rapid Site Deployment compare with competing services?

Competing services often involve a single SIM solution, which we believe is insufficient for sustained, high performance, reliable business connectivity. To illustrate, one enterprise user has over 100 installations under their belt. Only 1% of their sites have been single SIM. 88% have had three or more SIMs and almost 30% have had 6 or more SIMs.



Your next steps

Now you know what 4G WAN is and what it's capable of, the next step is to discover how it can meet your needs specifically.

Our Rapid Site Deployment brochure guides you through how our market-leading solution works, the power it holds and the benefits it brings your business.

It's free to download by clicking the image opposite.

Are SAS right for me?

To discover more about how Rapid Site Deployment from SAS can help you connect better, faster and easier than ever before – please get in touch.

DOWNLOAD BROCHURE

sas

About SAS

We design, deploy and support the networks, infrastructure and applications on which our customers run their businesses around the world.

We help IT teams become heroes

Be a delivery hero

Get new sites running fast. Our global hybrid network delivers reliable, high speed multi-SIM 4G circuits within 2 days.

Be an application hero

Be accountable for end-to-end user experience and trace problems fast. Our platform improves application performance by monitoring the entire path.

Be an all-round hero

Never get a call about a problem that you're not already aware of and getting fixed. We flag 95% of issues protectively and fix 75% on the first call.

SAS in 60 seconds

CELEBRATING 28 YEARS 1989-2017

CONVERGENCE EXPERIENCE

ISO9001 · ISO27001
OHSAS18001 ·

25k

>25k ELEMENTS PROACTIVELY MONITORED 24/7

15%

YEAR-ON-YEAR GROWTH

100%

CUSTOMER ADVOCACY

65 COUNTRIES 24/7

GLOBAL PROACTIVE MONITORING 24/7

95%

PROACTIVE INCIDENT IDENTIFICATION

FTSE 250

A-LIST FTSE 250 ENTERPRISE CUSTOMERS

best COMPANY

< 2% STAFF TURNOVER

£15m

INVESTED IN NOC SYSTEMS & STAFF

95%

CUSTOMER RENEWAL RATE

CISCO
MICROSOFT • BT
HP • VMWARE
SYMANTEC
CERTIFIED

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Managed IT Services

> SAS recently delivered a temporary Rapid site Deployment solution to one of our satellite offices. The service was faultless.

Paul Messenger
Persimmon Homes

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