GUIDE

DIY vs Managed SD WAN

sas
Managed IT Services

Contents

Introduction

They said SD WAN was easy!

One of the promises people make about SD WAN is that it will make our lives easier. It will orchestrate the network, choose routes that give the best performance, distribute patches and updates automatically and replace the command line with a graphical interface.

Download our excel template to help you decide on DIY vs Managed SD WAN

People are sometimes told they can move to SD WAN and then manage the network themselves, because SD WAN makes it easy to deploy and manage it.

- Is this true?
- Would a DIY or a managed SD WAN suit your business best?
- How should you decide?
- Let's explore some drivers that will affect your choice, and some questions that will help you decide.

Two SD WAN characteristics particularly influence the choice

Many of the factors driving the choice between Managed and DIY come from two characteristics of SD WAN.

- The first is that SD WAN is an overlay; you still need a network beneath it.
- The second is that SD WAN hides complexity but does not completely remove it.

SD WAN is an overlay; you still need an underlay

An SD WAN network starts with devices and the software to control them, which are known as an overlay. It's an overlay because it sits above your MPLS, VPLS, Internet or other connectivity, which in turn is known as the underlay.

When you move to SD WAN, this underlay does not go away. It still needs to be procured, installed, configured, monitored, repaired, changed, billed and paid for.

That means managing carriers (who each have their own names, definitions and processes for services), placing circuit orders, project-managing installations, and dealing with faults. That's on top of designing the underlay in the first place, monitoring it and maintaining its performance.

> *"Someone has to do that work. The question of WHO does that work goes to the heart of your choice about DIY vs Managed SD WAN."*

Self-Driving WAN

One major vendor positions their SD WAN as Self-Driving WAN, because of its ability to adjust the way that it runs the network to meet your business intents.

That is a great analogy, especially if it's self-navigating, too. If we upgrade to a self-driving car we could just imagine being able to dispense with the chauffeur!

If a self-driving car needs no chauffeur, does a self-driving WAN need no management service?

Well, there's more to a running a car than just driving it around. If we fire the chauffeur, then we still have jobs to do to keep our self-driving car fuelled and on the road.

What will still need doing?

With a self-driving car, we'll still have to buy fuel from the same filling stations that we take for granted today. If it's an electric car, we'll still have to deal with all the charging networks and their accounts. Without the chauffeur, we'll now need to get out of the car to fill up and to pay ourselves.

Would that be so bad?

No, not on the face of it. However, back in the real world we buy a lot of things from carriers, and we know its not always pain-free to deal with them (especially multiple carriers). So, what if our chauffeur had been handling the refilling or charging of our car, what if we fired him, and then found that:

- Every fuel station has a different process to get the fuel each time?
- They each need you to set up a separate account, and send you a separate bill?
- They ask you to pay in different currencies – with some not offering to speak your language?

That could be quite a lot of hassle. If our chauffeur had been dealing with all of that for us, then we might miss him when he's gone.

What about the things that other people do for us?

We also need to keep our new self-driving car on the road. We still need a garage, a mechanic and a spare parts department.

Will still need a breakdown company for when it won't start in the morning, and a recovery truck and body shop to pick up the pieces after a crash.

And we need someone to deal with all of those suppliers, and with all of their admin.

> *"Dispensing with a managed service is like firing the chauffeur, the garage, the mechanic, the spares supplier, the breakdown company, the recovery truck, the body shop - and the manager who administrates all their work for you."*

If we had to pick up all of their jobs, then we may have little time left to use the car!

So, this begs some questions:

- What are ALL the jobs involved in running your WAN today?
- Who is doing them TODAY?
- Who do you want to have doing them AFTER you move to SD WAN?

By the way, when you pick up your new self-driving car, you can't just sit in the back; you'll be behind the wheel to check everything is ok, start the engine, set up the Sat Nav and keep a watch out for problems.

However, if you keep the chauffeur and the rest of the support crew, you can safely get in the back and get on with some real work while the car gets you quickly and reliably to your destination.

SD WAN prides itself on simplicity, presenting you with a simple view of your network, and promising to make it simple to manage. But beneath that simple view lies a network that is just as complex as it was before, probably more so.

SD WAN makes your network look simple, but it's complex underneath

While the overlay makes things look simple, there is a lot going on under the hood. And while an SD WAN user interface makes things easy to change, the implications of those changes can be far-reaching. This creates new risk for teams who previously delegated such changes to the management service.

Turning to the underlay, this will tend to become more complex with SD WAN.

Why more complex?

Among other things, the underlay can be more complex because SD WAN encourages you to:

- Have multiple circuits at each site;
- Mix internet with traditional network technologies;
- Route traffic dynamically.

With SD WAN, the underlay still needs to be designed and sized to support the traffic and performance that your applications need. When things go wrong, the problem still needs to be identified and rectified. With complex and intermittent problems this work can be non-trivial, and it's often outside the scope that SD WAN can deal with.

To illustrate, a large global geo-science business recently reported that their new SD WAN suffered from poor latency.

The SD WAN overlay presented global connections as single hops with low latency.

However, this masked the reality of multiple physical hops and sub-optimal transatlantic hops that led to very long total latency.

It took traditional skills to identify and fix this problem, and at best, SD WAN didn't help because it obscured what was going on.

> *"The automatic gearbox in your car presents you with a very simple experience, but it hides great complexity. Similarly, SD WAN presents a simple view of your network, but it, too, hides great complexity."*

Complexity means that, for the whole network to perform well, network expertise is still required at design stage, during deployment, during post-deployment tuning, and when complex problems arise in-life.

Again, someone has to do that work, and the question of who does that work goes to the heart of your choice about DIY vs Managed SD WAN.

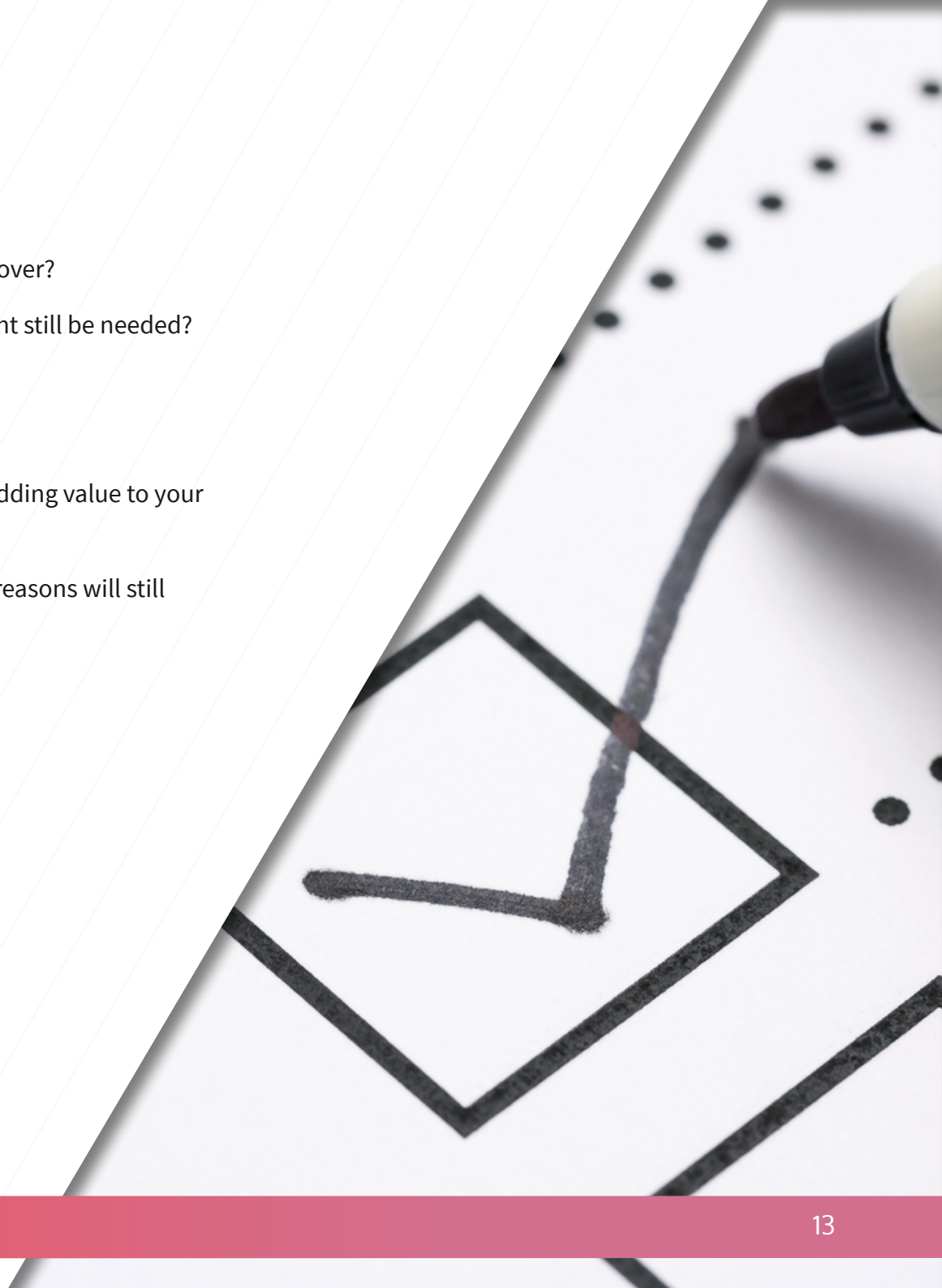
How to choose between DIY and Managed SD WAN

We've discussed some of the drivers that could influence a choice between DIY and Managed SD WAN. It highlights the fact that moving to SD WAN poses questions about who does the work to manage the overlay and the underlay, and who understands the complexity that still remains despite SD WAN.

Here are some questions that you could ask to help decide whether you want to do this work, or whether you would rather have a managed service do it for you.

- Do you want to retain CCIE or equivalent skills to design the network and troubleshoot tricky problems?
- Do you want to manage the procurement and provision of circuits?
- Do you want to project manage the deployment of your WAN?
- Do you want to run a field engineering team to deploy and then support in-life?

- Do you want to supply the WAN helpdesk staff required for 24x7x365 cover?
- Do you want to manage the traditional parts of your network that might still be needed?
- Do you want to be the place where the buck stops?
- Do you want to manage connections to Cloud?
- Do you want your team to manage the network or to concentrate on adding value to your business?
- Why are you using a Managed Network today and how many of those reasons will still apply with SD WAN?



Do you want to retain CCIE or equivalent skills to design the network and troubleshoot tricky problems?

We've seen in our article They said SD WAN was easy! DIY vs Managed SD WAN that that moving a network to SD WAN does not make the network intrinsically more simple.

With a DIY SD WAN you would need to manage the devices and software, as well as the circuits, carriers and underlay performance.

Managing SD WAN requires real networking skills in your team, not just field engineers. It might be easy to roll out changes using SD WAN but you still need the CCIE in your team:

- It's easy to break things in a big way;
- Updates and patches are pushed out automatically but someone needs to respond quickly if something goes wrong with them;
- With at least one vendor you still need to understand boolean logic to set it up correctly.
- If you need high speed links between HQ and data centres, or sites in countries that don't allow encryption, then you may need to run traditional networks alongside SD WAN, for which your DIY network will need expertise.
- Some people ask if SD WAN can be set up for them, so that they can manage it themselves going forward. The risk is that, if you don't retain network expertise of your own, you won't really understand it when it goes wrong.

Here are some further questions you might ask:

- Is the design of the network currently handled by a managed service?
- Are network performance issues currently handled by a managed service?
- Are application issues over the network currently supported by a WAN managed service?
- Is network security currently handled by a WAN managed service?
- For DIY, would you need to redeploy or hire in-house skills capable of designing and troubleshooting the network? If so, what is the likely cost?
- For DIY, would you need to train your skilled staff on your chosen vendor? If so, what is the likely cost of downtime, out of office cover and training?

Do you want to manage the procurement and provision of circuits?

This question could have been expanded to “Do you want to manage the procurement and provision of circuits across multiple countries, multiple carriers and multiple technologies, in multiple currencies and languages?”. Or perhaps just

Do you want to manage the carriers?

If you’re using a Managed Service today, then circuit procurement and provision is most likely being done for you. SD WAN could make this work more complex, because it will encourage:

- Multiple circuits per site;
- Across multiple technologies;
- Quite possibly from multiple carriers, maybe in multiple languages;
- The need for a new security regime as you increase your exposure to the internet

With this additional complexity, moving the management in-house might be non-trivial. If you sit next to one of our Provision Managers, you’ll hear an endless series of calls to carriers to get wayward circuit deliveries back on track.

Related to this question is the choice of hardware vendor. If you use a managed service, then you can leave it to the service provider to deal with delivery and maintenance of hardware. If you decide to go DIY then this may have a bearing on your choice of SD WAN Vendor. You’ll need to ask:

- Does the vendor have global reach?
- Can they deliver WAN replacement hardware everywhere?
- What’s the model for hardware break fix?

It’s perfectly possible to manage procurement and provision yourself; you just need to have resource lined up to do it, accept the pain that comes with it, and develop a thick skin for when deployments go wrong.

Here are some further questions you might ask:

- Is the placement and management of circuit orders currently handled by a managed service?
- For DIY, would you need to redeploy or hire in-house skills that you could rely on to procure and provision circuits?
- For DIY, would you need to redeploy or hire resource to handle contracts and billing from each carrier and ISP?
- For DIY, would you need to redeploy or hire resource to handle foreign contracts or languages?

Do you want to project manage the deployment of your WAN?

When you roll out a new network, whether traditional or SD WAN, good project management can be the difference between success and painful failure.

A good WAN project manager will plan, lead, co-ordinate, schedule and document the deployment of your SD WAN network, often involving transition from the existing network. Project managers do a great deal, but it's their long experience of network deployments that makes the difference.

We can illustrate the project manager's impact by looking at a few of these areas.

Let's start with scheduling. There are multiple activities that need to be scheduled and co-ordinated at every site, such as

- The procurement of hardware, and licences
- The procurement of maintenance contracts
- The procurement of circuits (each with individual lead times)
- The deployment of hardware (often to a staging point before going to site)
- Configuration of hardware (yes, even with SD WAN!)
- Shipping to site
- The delivery of live circuits (usually more than one per site)
- Testing of the circuit
- Installation of the hardware
- Troubleshooting
- Post-install tuning
- On-boarding to the network operations centre
- Handover to support

After deployment considerable documentation must be pulled together so that knowledge is retained and the network can be operated reliably, such as:

- Circuit documentation
- Network diagrams
- Hardware and licence inventory
- Configs
- IP addresses
- Helpdesk numbers for internal helpdesk, carrier helpdesks and vendor helpdesks
- Processes and procedures

To illustrate the scale of this information, our monitoring and management platform holds up to 150 pieces of meta data on each device. Remember, too, that your infrastructure will have multiple devices in the underlay, not just the SD WAN devices.

All this work requires the co-ordination of multiple roles such as carrier contacts, account teams, provision managers, engineers, warehousing etc.

What makes the project management function so critical is the insight it can bring to bear when it has considerable experience. Here are some examples of how that experience can help:

Third party permissions (or wayleaves)

This is required when landlords or owners need to give permission to allow digging or building works (such as conduits) to be undertaken. A WAN project manager will often find themselves having to obtain permissions from landlords and dealing with solicitors. They'll also be dealing with carriers. An experienced WAN project manager will know from long experience both what to do and how to do it.

Excess Construction Charges

This is when additional work is identified following the initial order for a circuit. Carriers each have their own language and coding that they use to feed back that they need to do additional work (such as digging up a road). An experienced WAN project manager will understand the language of the carrier, and the implications and practical realities of dealing with these situations.

Circuit orders

An experienced project manager will know exactly what to expect from a multi-circuit delivery at each site and will know that different circuits from different carriers will all have different delivery stages and published lead times. They will know from experience and documentation that they also have different real lead times. They can use this insight to order circuits at the right times to synchronise their delivery (and avoid multiple engineer visits).

Project Management reduces risk

Project management is a critical function that needs to be resourced, whether by you or a managed service. A managed service should result in you having an experienced project manager with the insight and skill to plan more realistically and slip less often than a beginner.

Here are some further questions you might ask:

- Is Project Management currently handled by a WAN managed service?
- For DIY, would you need to redeploy or hire in-house skills to project manage deployments and change control? If so, what is the likely cost?

Do you want to run a field engineering team to deploy and then support in-life?

One of the speakers at a recent conference shared the experience of his company's SD WAN deployment. He asked if anyone believed they could post an SD WAN device to site and have the janitor plug it in. There were titters but no hands went up.

He was pointing out that WAN is a critical resource; that you still need a responsible engineer to turn up when you deploy SD WAN.

The engineer will have to co-ordinate the disconnection and connection of your circuits (which may be new and as yet untested), make sure they're plugged into the correct ports, handle any testing and remedial work, liaise with the network team, take photos to help with future fault resolution, document what's done, leave the Comms room tidy and not break anything.

If you have a managed service today then this work is most likely being done for you, both for new circuits and for adds, moves and changes. If you move to a DIY model then you'll need to resource it yourself. Here are some considerations:

- You'll need to set up a deployment process to handle the logistics of getting kit and engineers to site, and then train the engineers on the process and the details of the on-site work.
- If you need new staff then you'll also need to deal with resourcing for the peaks and troughs in workload.
- In either case, you'll need to manage holiday and sick cover, skills update and succession planning.
- If the WAN is not their day job, then you will need to mitigate the lack of regular and recent experience of your network.

Here are some further questions you might ask:

- Is Project Management currently handled by a WAN managed service?
- For DIY, would you need to redeploy or hire in-house skills to project manage deployments and change control? If so, what is the likely cost?

Do you want to supply the WAN helpdesk staff required for 24x7x365 cover?

How do you keep your WAN running well?

One thing you need is to have people on hand to triage and resolve issues, and to co-ordinate between resolver groups. You typically use a Helpdesk with a range of skill levels to handle alerts, calls and issue resolution.

Helpdesks are best run 24x7. Even if your business doesn't operate around the clock, faults can arise at any time and progressing straight away minimises disruption the following day. It also means that the clock is started on your carrier's SLA straight away!

To run 24x7 requires a minimum of three people to handle 24-hour working, holiday and sick cover; probably more, to cope with both simple and complex issues Someone will also need to deal with management, skills updates and succession planning. The cost for this should be part of the calculus for choosing between Managed and DIY.

> *"It's all very well having snazzy SD WAN monitoring; it's what you DO with the monitoring that counts. Who's watching your network, and who's going to deal with issues that arise?"*

Here are some further questions you might ask:

- Is the network helpdesk currently provided by a WAN managed service?
- For DIY, would you need to redeploy or hire resource to run your 24x7 network helpdesk?
- Would you prefer to have external skilled resource accountable for responding effectively to network issues rather than your own resource?
- Would you prefer to have a managed service handle the hiring and management of skilled resource rather than doing it within the business?

Do you want to manage the traditional parts of your network that might still be needed?

There might be situations where you need to run a more traditional network alongside SD WAN, so it is worth considering whether those situations could apply to you, along with your attitude towards managing them yourself.

One scenario might be that your chosen SD WAN vendor cannot support all of your sites. For example, your SD WAN vendor's maximum device bandwidth might be insufficient for the data centre or HQ circuits you anticipate.

Another scenario might be that you have sites in countries that do not allow encryption, preventing you from running SD WAN in those locations.

It is helpful to consider whether you will need to run more traditional technology for parts of your network, and how you would prefer to manage the network for them.

Here are some further questions you might ask:

- Are there any parts of your network that might remain using traditional network technology rather than moving to SD WAN?
- Does a managed service provider currently support any such traditional parts of your network?
- For DIY, would you need to redeploy or hire resource to manage traditional parts of your network? If so, what is the likely cost?

Do you want to be the place where the buck stops?

It's a lonely place to be when a network problem takes out your users, senior people are looking at you, and you're scratching your head trying to fix it.

One of the attractions of a Managed Service is that it gives you expertise to rely on, and someone to take the pressure from you.

Does SD WAN reduce this pressure?

- In some ways SD WAN can make things more of a worry because it adds complexity but hides it away. We've heard already about the situation in which latency took a dive but SD WAN made it harder to diagnose.
- SD WAN encourages greater use of the internet, which is unpredictable and creates an additional challenge to find and solve poor user-experience.
- When introducing internet to your sites, you're introducing a new attack surface so you need to have security built-in. Converged security adds a further complication to the network.
- An Enterprise WAN manager recently made these points while summarising his SD WAN experience:
  - "SD wan updates and patches are really critical as they touch your entire estate."
  - "SD wan is more sensitive to ISP quality than traditional network - we don't know why yet. You really need a reliable underlay."
  - "When there is a problem I want a service provider to rely on."

Here are some further questions you might ask:

- Is a managed service provider currently accountable for keeping your network running 24x7
- For DIY, would you need to redeploy or hire someone to be ultimately accountable for keeping the network running and performing? If so, what is the likely cost?
- If moving from Managed to DIY, is an existing resource willing to take on accountability for the network? If so, will they require changes and what are the likely costs?

Do you want to manage connections to Cloud?

Cloud connectivity comes with some design choices and management implications that have a bearing on the choice between DIY and managed SD WAN. Examples include:

Internet connections might be considered cheaper, but egress costs from cloud platforms can be up to 4 times greater

Private connections to cloud platforms can provide better performance

Private connections are also inherently more secure

Either type will need to be designed, scaled and provisioned

Location of Cloud DCs and cloud network access points will have a bearing on performance and will require you to be clear where your data resides and the latency involved.

This raises the question whether you would prefer to make the design decisions and handle the work yourself or use a managed service.

Here are some further questions you might ask:

- Are Cloud connections currently designed and managed by a managed service provider?
- For DIY, would you need to redeploy or hire resource to design and manage Cloud connections? If so, what is the likely cost?

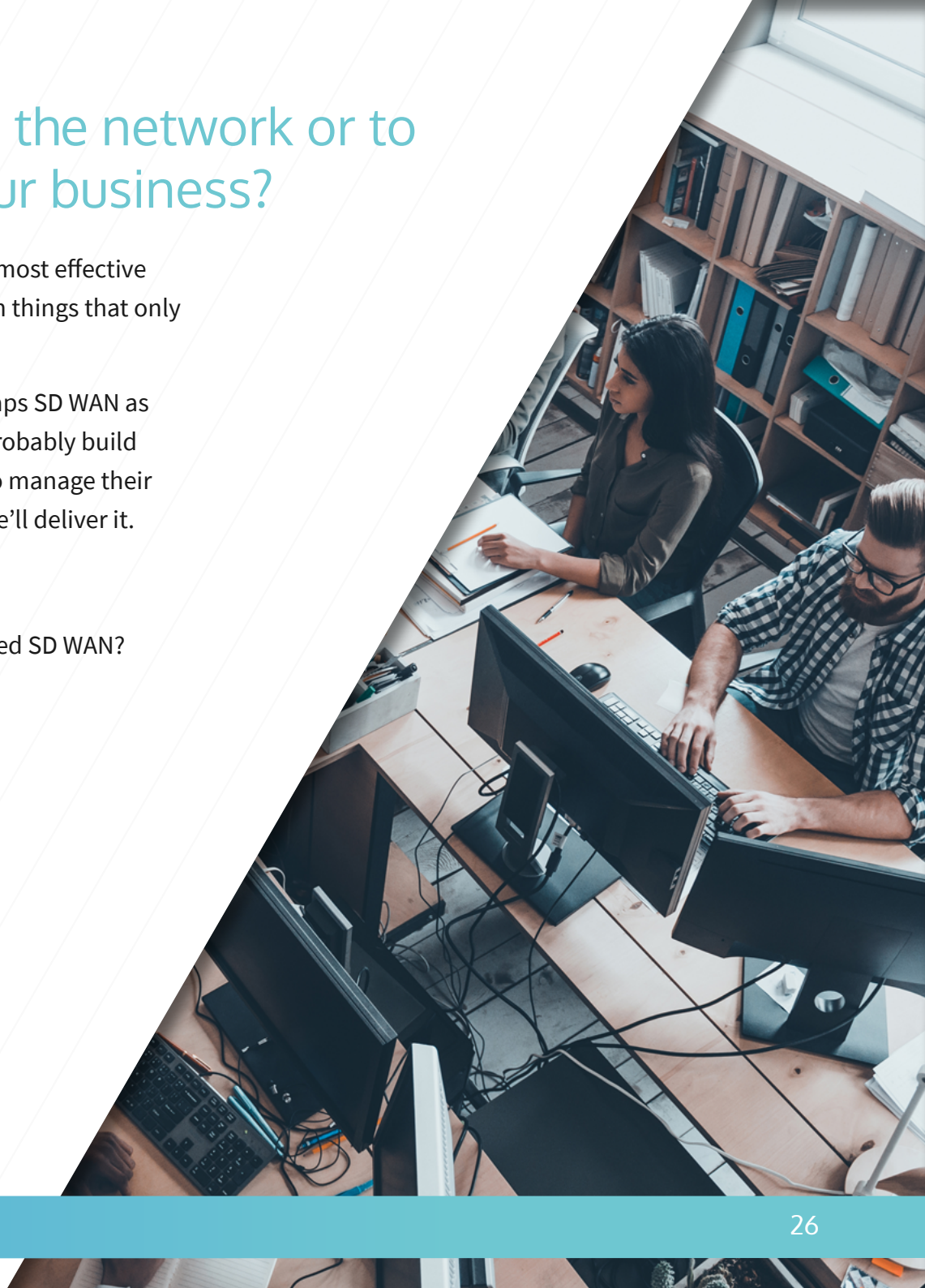
Do you want your team to manage the network or to concentrate on adding value to your business?

Most businesses have limited IT resources and want to deploy them in the most effective way. A common line of reasoning is that the IT Team should concentrate on things that only they can do, and have the WAN managed by experts.

You might consider the WAN as a haulage or parcel delivery function; perhaps SD WAN as the smarter version that auto-routes around congestion. Amazon would probably build their own capability. The rest of us might prefer to ask a parcel company to manage their deliveries, so that we can focus on the product we build rather than how we'll deliver it.

Here are some further questions you might ask:

- Would any IT activity be constrained by having to resource a DIY managed SD WAN?



Why are you using a Managed Network today and how many of those reasons will still apply with SD WAN?

If you have a Managed WAN but question the value of a Managed SD WAN then it would help to identify all the reasons why you're using the service today and decide which would still apply with SD WAN.

What do you value in your current Managed WAN Service?

- The procurement and provision of circuits and carriers?
- The project management of deployments?
- The field engineering team to deploy and then support in-life?
- The 24x7x365 WAN helpdesk to deal with problems arising?
- Someone to rely on, and with whom the buck stops?
- The design and management of connections to Cloud?
- The provision of networking skills to design the network and troubleshoot tricky problems?
- Having expertise on tap?
- Accountability - the buck stops over there?
- Freeing your team to concentrate on adding value to your business?

Here are some further questions you might ask:

- Capture any other reasons for using a managed network here, adding Y in column F
- Capture any other costs required for a DIY network in colums L and M

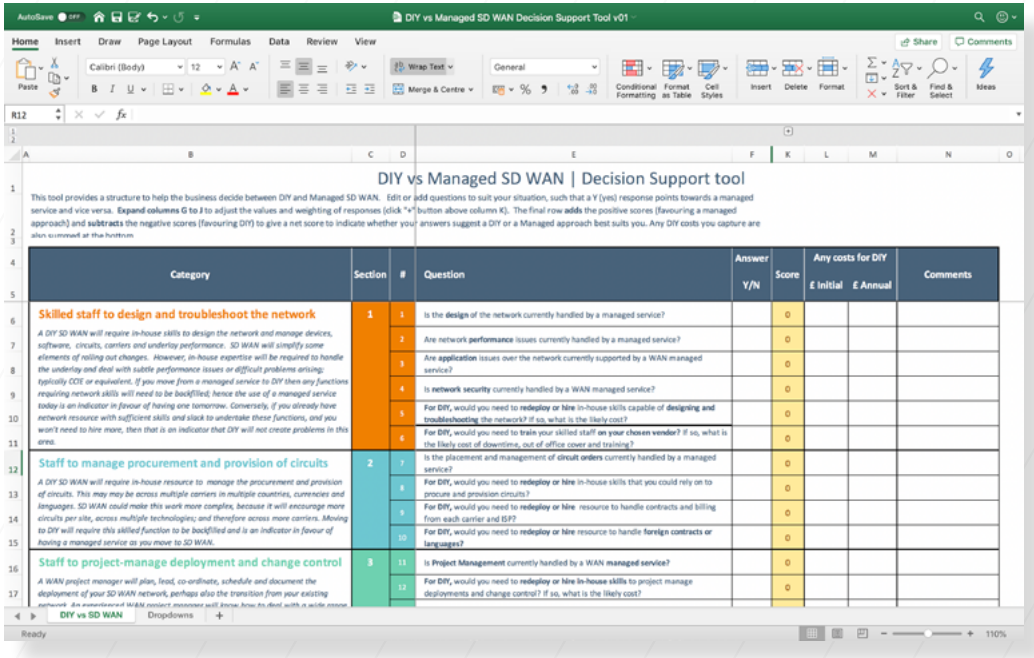
Your next step

How can you choose between DIY or a Managed Service?

When you move to SD WAN, you will be taking on a network that remains complex despite SD WAN, and one that still retains the underlay that you've always had.

This helpful spreadsheet will help you work through the questions you will need to ask yourself when deciding, it has a weighting factor built in so you can adjust the weighting for each question. It suggests either a DIY or Managed SD WAN solution based on the input of your answers and may make you think about some aspects of the decision you may not have considered.

DOWNLOAD TOOL



30
Years

Convergence Experience

ISO9001 • ISO27001
OHSAS18001• ISO22301

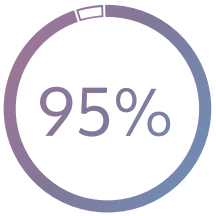
25,000+ elements
proactively monitored 24/7

17
Years

17 years Hybrid WAN
experience

Typical saving for a WAN

Global proactive
monitoring 24/7



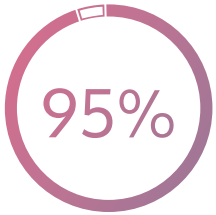
Proactive incident
identification

FTSE
250

A - list FTSE 250
Enterprise Customers

70
NPS

>70 Net Promoter Score



Customer renewal rate

16,000+

Network projects over
10 years

5000+

+5k installations of 4G
cellular WAN

SAS Global Communications

We design, deploy and manage the networks on which our customers run their businesses in an increasingly digital world.

Our hybrid networks will help customers digitalise their businesses

The best price possible
Our hybrid networks, enhanced by SD-WAN, blend carriers and technologies to optimise the price of every site, and minimise installation cost with zero touch deployment. We offer transparent pricing for peace of mind.

The fastest deployment
Our hybrid networks let you choose circuits that deliver fastest for each site, and our 4G WAN circuits offer 2 day delivery with seamless transition to permanent circuits.

The easiest migration
We can phase your migrations to suit you, minimising cost and hassle.

The best performance and uptime
Our advanced monitoring shows the whole application path, raise 95% of key issues proactively and allows detailed reporting and drill-down to show issues and long-term trends.

The most enjoyable and pain free experience
Our end to end digital systems and processes deliver Right First Time with clear, accurate bills.

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