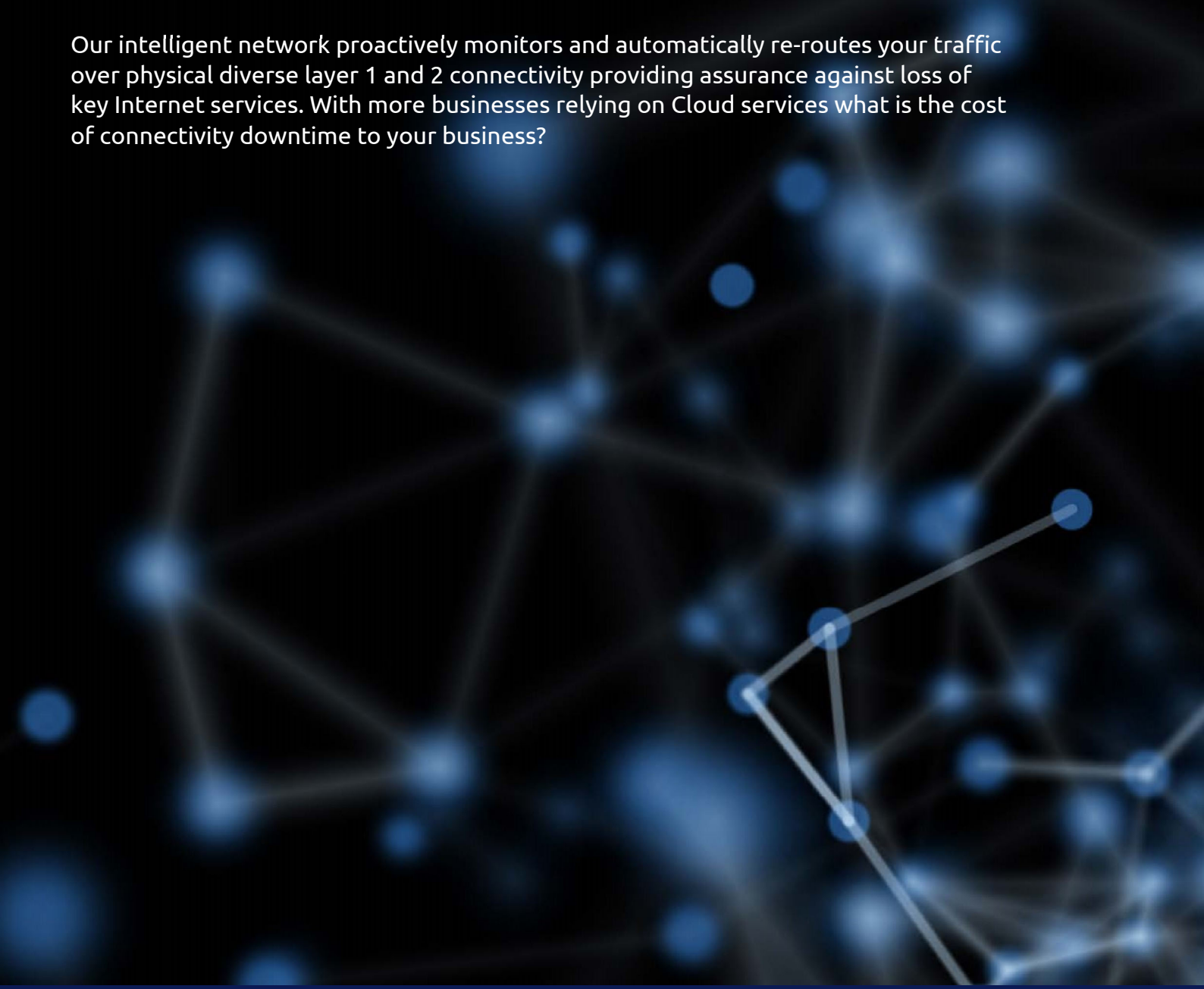


Insight Guide into Leased Line Backup and Internet Resilience

Loss of Internet connectivity has a direct financial impact on business performance.

This guide will enable you to see some of the innovative ways Stream Networks are securing our customers Internet service against downtime. Our services provide possibly the most resilient and secure Internet service from a UK Business to Business ISP ever.

Our intelligent network proactively monitors and automatically re-routes your traffic over physical diverse layer 1 and 2 connectivity providing assurance against loss of key Internet services. With more businesses relying on Cloud services what is the cost of connectivity downtime to your business?



Isn't a leased line resilient anyway?

Businesses and organisations of all sizes are being challenged to extend their networks to more people, places and services than ever before. The rise of, Cloud, SaaS, and hosted telephony are forcing more network traffic over the public Internet.

As a result, the reliance on Internet Connectivity is crucial to business success, and any loss of service has a direct financial impact on business performance.

Businesses with a high reliance on connectivity often implement leased line internet connectivity

due to the recent reductions in price, and for the added performance benefits including enhanced SLA's, speed and latency.

But how resilient is the connection, how does your ISP deliver the connection and even though services have 6 hour fix SLA's can your business afford to be without connectivity for 6 or more hours?

This guide covers some of the issues you need to consider when ordering a leased line.

The rise of the LLU unbundler and potential downfalls

In 2005 Ofcom ruled that BT had a monopoly on last mile access. The Ofcom ruling opened up the market to allow for 3rd party providers to locate their own infrastructure in BT's exchanges to increase competition in broadband services.

Fast forward to today and businesses have a wide variety of choice for leased line and broadband provision however, as competition grows you need to be sure your provider has not only the financial resource but network resilience and bandwidth capacity to cope with failure and demand!

Questions to ask your provider!

- 1) Does my leased line have generator backed power at the Openreach exchange?
- 2) How many backhaul links do you have from the exchange to your network and what is the capacity?
- 3) What network equipment (manufacturer) do you utilise and is it configured for resilience?

If the answer is no to any of the above, you need to ensure you have suitable back-up to mitigate against failure in the provider network.

The 6 hour fix SLA

Fibre Ethernet Leased Lines comes with a standard 6 hour fix to major service outage, EFM and broadband services even less. In reality what does this potential downtime mean for your business and are leased lines actually fixed within the time frame?

Things to be aware of:

The 6 hour SLA is only normally triggered once you have logged a fault with your service provider and they have acknowledged the fault on their system.

After the initial fault is logged the provider will ask you to confirm that you have power cycled the on-site equipment and have confirmed the status of all the lights on both your router and the Leased Line terminating equipment. Any delay in this process can add time to the 6 hour fix SLA.

As soon as your provider has collated and logged the information required, the fault is then logged with the underlying fibre carrier.

Typically this will be BT Openreach however, in more and more cases new entrants are appearing in physical fibre networks so double check what fibre your service uses. Each fibre provider will have their own process and underlying SLA.

Once the fault is accepted by the fibre provider further tests on the circuit will be completed and if a fault is detected you will be asked for access times to your premises so an engineer can visit to fix the service.

Questions to ask your provider!

- 1) What underlying fibre provider do you use?
- 2) What is the underlying fibre providers SLA?
- 3) What SLA do you provide and what service credits are provided?

Router / Firewall and Switch resilience

It is now common place for routers to be provided with leased line circuits as a managed service. But what does the management fee include and if a problem occurs with your router in reality how quickly will the problem be fixed?

Typically service providers will offer a 4 hour on site engineer or next business day replacement if the router fails.

Again as with all faults the clock will only start once your service provider has accepted the fault and then logged a request for hardware replacement with their hardware vendor or engineering provider and full diagnostics of the issue provided.

This will add time to the hardware replacement and often results in loss of connectivity until the fault device has been replaced.

The same applies to any firewall or switch infrastructure installed, what back up plans do you have in place if a switch or firewall fails?

Questions to ask your provider!

- 1) How quickly will you replace my router if it fails?
- 2) What is the process when diagnosing a faulty router?

Stream Networks - SMART Leased Line Backup Overview

Stream Networks provide a comprehensive leased line backup and resilient Internet connectivity service.

Our account and project management team work closely with our clients to ensure that we deliver 100% up time connectivity.

Our services encompass diverse RA02 fibre delivery, providing leased lines that terminate at different points in to you premises, different telephone exchanges and separate termination points in our core network.

Our Smart Core Network proactively monitors your Internet Circuits and automatically switches routing to your back up circuit should we see a primary circuit fail.

In addition our team of experts specialise in the delivery of High Availability dual router, firewall and switch stacks to ensure that should a device, port or fibre connection fail a standby device will automatically take over.

Stream Networks - SMART Leased Line Benefits

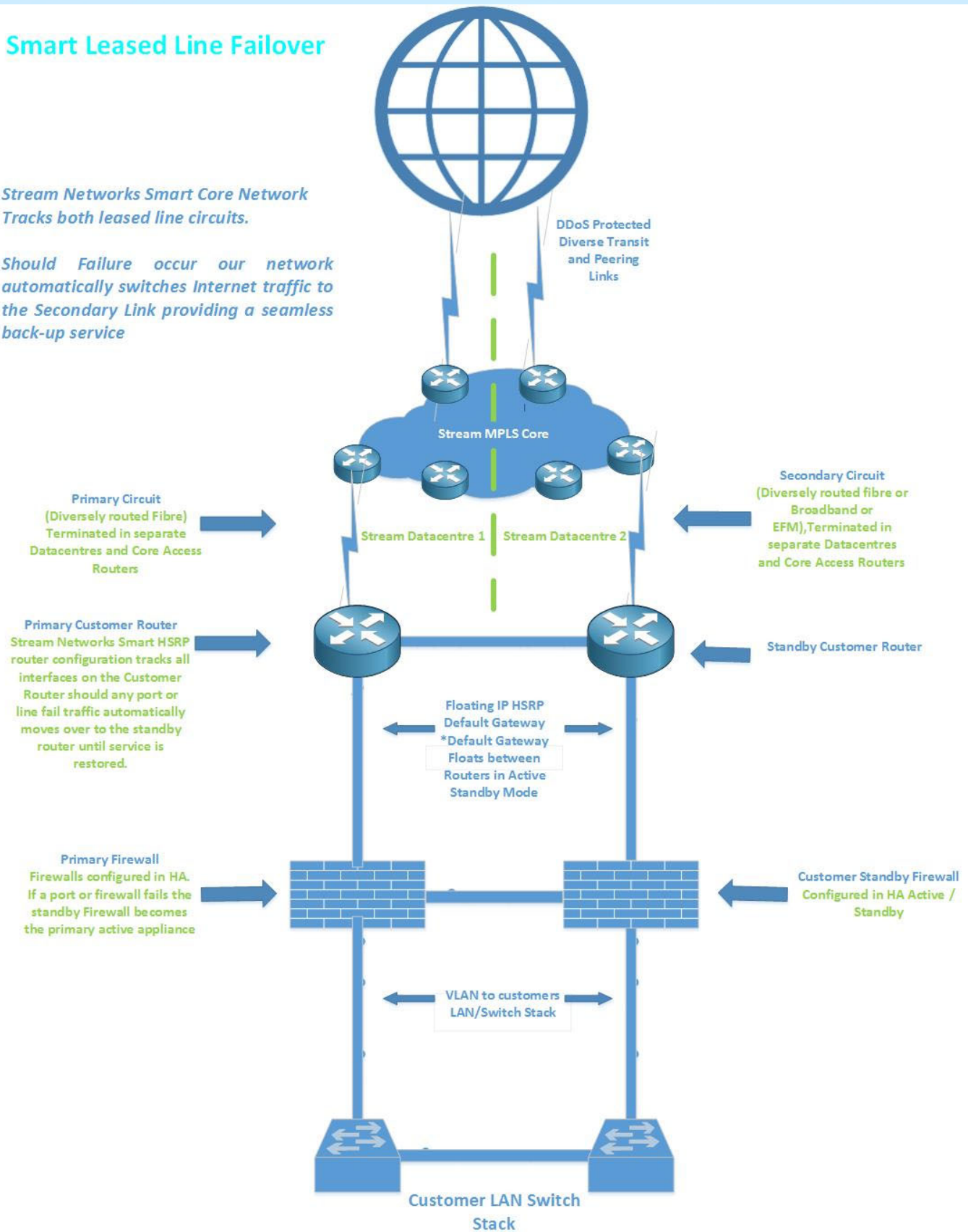
- + Diverse Fibre provision (Building entry points, separate exchanges, datacentres, core access routers)
- + Smart IP SLA's – Our core network proactively monitors and automatically re-routes traffic
- + High Availability Router/Firewall/ Switch infrastructure – HSRP, VRRP, HA, Load Balancing
- + On site engineers – 4 Hour onsite engineers to replace faulty equipment
- + 100% uptime guarantee SLA's

Stream Networks - SMART Leased Line Schematic

Smart Leased Line Failover

Stream Networks Smart Core Network Tracks both leased line circuits.

Should Failure occur our network automatically switches Internet traffic to the Secondary Link providing a seamless back-up service



Stream Networks – Our answers to our questions

Throughout this document we have presented a lot of questions, but what good is a question without an answer? Below we present our answers to the all-important questions.

Q: Does my leased line have generator backup power at the Openreach exchange?

A: Openreach have backup generators installed in exchanges. However when an exchange is unbundled, it is up to the carrier who is “unbundling” as to whether or not they use this backup power. Using it costs more money, and one of the main reasons carriers unbundle is to increase profit margins by reducing costs. It is therefore increasingly likely they will choose to keep the cost down by not adding backup power.

With this being hard to mitigate, as carriers do not openly publish areas of weakness, such as lack of backup power, Stream Networks ensure our resilient SMART Fibre Ethernet connections route to two different telephone exchanges, certifying there are no single points of failure - in this example a power outage at the exchange.

Your circuit would automatically failover to the secondary circuit which is routed to a different exchange on a different power grid, ensuring you remain online.

Q: How many backhaul links do you have from the exchange to your network and what is the capacity?

A: We have multiple backhaul links with multiple carriers ensuring our resiliency cannot be questioned. We also ensure our network is never running at over 50% capacity utilisation.

Q: What network equipment (manufacturer) do you utilise and is it configured for resilience?

A: We use a variety of the industry leading hardware providers such as CISCO, JUNIPER, HP, and Fortinet. All of our equipment within our network is set to High Availability mode.

Q: What underlying fibre provider do you use?

A: Stream Networks work with a multitude of carriers which allows us to carefully select the best supplier for each and every exchange that we work in.

Q: What is the underlying fibre providers SLA?

A: We recognise how important uptime is and therefore we only work with carriers who provide a 4 hour SLA – this is the SLA that we pass on to our customers.

Q: What SLA do you provide, and what's service credits are provided?

A: For Fibre Ethernet Leased Lines we provide a 4 hour response and 6 hour fix time. On the rare occasions we fail to comply with our SLA's, we will automatically credit you with Service Credits ensuring you do not have to do any of the legwork for our misgivings.

Q: How quickly will you replace my router if it fails?

With our SMART Fibre Ethernet failover service, customers are protected from router failure as the secondary router will automatically “kick-in” and takeover. In the event the primary router does fail, we will have a replacement router on-site within 4 business hours.

Q: How quickly will you replace my router if it fails?

With our SMART Fibre Ethernet failover service, customers are protected from router failure as the secondary router will automatically “kick-in” and takeover. In the event the primary router does fail, we will have a replacement router on-site within 4 business hours.

Next steps

To fast-track a conversation, simply click on the link below to send us an email and one of the team will call you back straight away.

[Please call me to discuss Leased Line Backup](#)



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About Stream

Stream Networks has been built for business use, enabling our customers to leverage the power of our 10 GB network capacity and benefit from our peering agreements by lowering costs and increasing bandwidth.

Our core is built using Cisco and Juniper to provide a fully meshed network between four key UK datacentres, at which point we extend our footprint with our peering agreements and connections into the major carriers. Our network is managed and monitored 24x7x365 to ensure your business stays connected.

With a significant capital investment in our high availability cloud infrastructure (which continues to grow each year), businesses are able to realise the benefits of moving computing to the cloud whilst knowing their data is secure, UK-based, and available 24x7x365. Based in our core UK datacentres, each cluster is designed to provide 100% uptime, and comprises the latest in replicated storage arrays, network capacity, and processing power, all built using vMWare's HA hypervisor.