



THE BUYER'S GUIDE

# It's just internet access. Isn't it?

How to buy the **right** business internet service for your company — and tell a good ISP from a cheap one before you sign.

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# "It's all the same, isn't it?"

## 01 / UBIQUITOUS

Internet access is everywhere now. Free WiFi, mobile, home broadband, office connections. **It's all the same — isn't it?**

## 02 / A COMMODITY

Business internet gets treated as a commodity, bought on budget. **What can I get for £100, £400, £1,000 a month?**

## 03 / BANDWIDTH = ALL

Bandwidth is seen as the only measure that matters — **100Mb, 1Gb, 10Gb, even 100Gb.**

## 04 / QUALITY IS FUZZY

Quality is hard to define. Is it bandwidth? Ease of use? No "whizzy wheel" waiting? Teams and Zoom that just work? Or is it "always on"?

Rather than guess at all of this, this guide walks through what a business internet connection **should** have — and what you might need — so you can choose your supplier against the criteria **you've** set.

# Why do businesses need the internet?

Or, more useful: which applications do you run that depend on it? The first six are used by almost every business.

## 1 Internet access

Viewing websites, gathering information.

## 3 Teams / Zoom / Google Meet

Now one of the most-used and most important applications. Demands consistent bandwidth and latency to work with video.

## 5 Telephony

Most phone systems are moving to cloud-based telephony — just another remote application. On-premises systems use SIP trunks now (ISDN30 is being phased out).

## 2 Email

Of course.

## 4 Cloud-based software

Accounting, CRM, technical software — now cloud-based and cost-effective even for small firms. Without access, the business stops.

## 6 Backup and storage

Holding everything on an office server is risky — fire, theft, failure. So data is backed up to the cloud or another connected location.

# Beyond the basics

Items 1–6 are used by nearly everyone. SD-WAN is increasingly common for multi-site operations. These next three are more specialist — you don't have to be large to use them, but not everyone will.

## 7 SD-WAN

A Software-Defined Wide Area Network connecting multiple offices over local ISP links. The choice of ISP matters more here, not less — congestion or poor support hurts the whole company.

## 9 Direct connection to a cloud service

Moved to Azure, AWS, Google or a specialist provider? A dedicated connection avoids throughput and latency issues and can be more cost-effective on data egress.

## 8 Direct connection to a data centre

Moved your IT out to a secure, resilient, 24/7 data centre? A direct low-latency, high-throughput link beats the open internet — especially for large files like CAD or mapping.

## 10 IP addresses

You'll normally get a fixed IPv4. Some ISPs hold a pool for when you need more. IPv6 is the newer scheme — most, but not all, ISPs now offer both.

# How the service differs **between ISPs**

## Contention

The number of connections sharing a single backhaul link from the local node. A 30:1 ratio could still cause complaints if demand spikes; a 100:1 ratio could be fine if the backhaul is sized for it. **So don't fixate on the ratio.**

## Congestion

What you actually feel: files slow, the whizzy wheel of doom, Teams breaking up. A good ISP monitors usage and upgrades the core when peak hits 80% — preventing congestion. A cheaper ISP may run the network hotter.

## Bandwidth (it isn't everything)

100Mb of good-quality access can support 50+ office staff on core services. A 1Gb link looks better, but on a congested network you've wasted the money — or picked the wrong supplier. **Quality over headline speed.**

## Service desk & tech support

Connectivity faults can be complex. A good ISP gives you Tier-1 technicians who can trace a difficult problem. A commodity ISP only cares if the fault is on their kit — and may give you call handlers, a chatbot, or "fibs".

The cheapest quote usually saves money in the backhaul or in customer service. Ask for customer references in your area.

# Flexibility and the core network

## Flexibility & range of services

Your needs were simple when you ordered — now the architecture is changing. You need resilience, or to move office, or to connect to a data centre or the cloud. Can your ISP offer the full range, move the service with sensible lead-times, and flex your bandwidth up for a week or two and back?

## Core network

- **Upstream connectivity.** A good ISP connects to the world via Tier-1 global IP transit with stable, world-wide routes that don't make your connection fluctuate.
- **Peers.** Direct links to big data users — video, software updates — so traffic flows easily and costs stay down without hurting quality.
- **Resilience.** Multiple upstream transit providers, and at least two core nodes, each able to handle the entire load if one fails.

# How important is the internet to your business?

The answer is always obvious the moment it stops working. A single connection stays up most of the time, but expect to be down once or twice a year — a working day each time. If you can live with that, you don't need more.

## DIVERSELY ROUTED

### Two routes, at least 5m apart

Separated throughout, connected to different core nodes — each node able to carry the full load, so if one fails you see no difference. This is what gets you to 99.99% availability: under one hour of downtime a year.

## RESILIENT

### No single point of failure

On top of diverse routing: two routers, each with dual redundant power supplies, ideally in two separate IT racks. Fussy — but fussy prevents problems.

- The backup needn't match the main line — a cheaper FTTP, FTTC or 4G/5G/Starlink link can cover the rare occasions the main line is down.
- So you might run a 1Gbps main connection with a 100Mbps backup. It depends on usage, location and budget.

**Beware:** an ISP may quote "100% availability" on a single link. That just means they pay you service credits when it's down. It's as likely to go down as any other single-route service.

## There's a lot behind "it's just internet"

If your use of the internet is simple, don't overthink it — find an ISP that serves your area and place the order. But if you rely on it to work — and most businesses do — choose more carefully.

Ask:

- ✓ What connectivity will I need in the future? Direct links to the cloud, data centres, voice?
- ✓ Can my ISP deliver that — and connect me directly to AWS, Azure, Google?
- ✓ How much bandwidth do I actually need? (Usually less than the salesperson says.)
- ✓ Is the cheap option congested at peak — and is the support any good?
- ✓ How resilient is the service to my building? Separate routes? Separate nodes/PoPs?
- ✓ How resilient is the ISP itself? Multiple core nodes? Multiple upstream connections?

— CONFUSED OR ENLIGHTENED?

# We can hold your hand through the process.

Hopefully you're now enlightened — ready to think about your needs and write a specification to put to potential ISPs, then judge their responses.

But if you're not technical and won't feel confident assessing your current bandwidth, whether you need low-latency links to cloud providers, or whether an ISP's proposal is truly diverse and resilient — that's exactly what we do.

[sicom.uk](https://www.sicom.uk)

Or call Richard on 07803 737321

# Glossary of terms

## Bandwidth

The data rate the line can carry, in Megabits per second (Mbps). This is the line's maximum; real throughput can be lower due to factors across the internet.

## Cloud

Large data centres worldwide hosting applications, services and storage — drawn as a cloud on diagrams. You don't know exactly where you're connecting.

## Contention

Where users share a link. They aren't all using it at once, but if they did there might be congestion.

## Diverse connections

Two or more connections that don't share the same cable or route — fibre routes at least 5m apart, not sharing a PoP or core node.

## Fibre-to-the-Cabinet (FTTC)

Fibre to the street cabinet, then copper to your building. Up to 80Mbps down / 20Mbps up, falling with distance from the cabinet.

## Broadband

An old term for internet links greater than 1Mbps.

## Congestion

When a contended service is used too heavily at once, everyone gets a slower service — like everyone in a street running their taps at the same time.

## Core nodes

The two or more main nodes where an ISP connects to the global internet via IP transit and peers — usually in major data centres (London Docklands, Slough, Manchester).

## Fibre-to-the-Premises (FTTP)

Fibre all the way from the PoP or exchange to your building. Up to 1Gbps, but usually a lower-cost contended service that can congest at peak.

## IP Transit

Wholesale global internet access an ISP buys at its core nodes from different global networks.

# Glossary of terms

## IPv4 / IPv6

Internet Protocol addressing schemes. IPv4 has run out of new allocations (some ISPs hold spares); IPv6 is the newer scheme with vastly more addresses, offered by most but not all ISPs.

## Leased line

A quality, symmetric, uncontended (between you and the PoP) connection with high availability over direct fibre. 100Mbps to 100Gbps. Spec 1Gbps on a 10Gbps bearer and you can flex up without changing the bearer.

## Mobile (4G/5G)

Cellular connectivity. 5G can reach hundreds of Mbps, typically asymmetric and variable. Rural areas often have lower backhaul and more congestion.

## Resilient connections

Two diverse connections plus dual routers — no single point of failure. Should provide 99.999% availability: ~5.25 minutes downtime a year.

## SD-WAN

Software-Defined Wide Area Network — local ISP links with clever software in the box. Quality still matters and affects performance.

## Latency

The round-trip time for a signal to reach the server and back. Higher latency means delays; very high latency can make a system almost unusable.

## Mbps vs MBps

Megabits vs Megabytes per second. Bandwidth is measured in Megabits; file sizes in Megabytes. There are 8 bits in a byte.

## Point-of-Presence (PoP)

The local point where customers in a town are connected — in data centres or Openreach exchanges where the ISP rents space and links back to its core.

## Service availability

99.9% sounds good but means ~9 hours down a year. Two diversely-routed, resilient circuits give at least 99.99% — under an hour a year.

## Throughput

How much data you can actually transfer per second. A 1Gb link won't move a 1GB file in a second — a GB is 8x a Gb, and routers negotiate stable transfer rates. For large transfers, consider a dedicated point-to-point link.