

COMMUNITY INFORMATION SHEET • CONNECTIVITY

Bandwidth and latency

The two numbers that decide what your connection can actually do

The key idea: capacity and delay are different things

Bandwidth is how much data can flow per second, the width of the pipe (megabits or gigabits per second). **Latency** is how long each piece of data takes to make the round trip, the delay (milliseconds). A connection can have huge bandwidth and still feel sluggish if latency is high and vice versa. Different uses care about different numbers.

What needs what

Streaming video needs bandwidth but tolerates latency. Video calls, gaming and remote machinery control need low latency. Cloud backups need bandwidth; a point-of-sale terminal needs neither, just reliability. AI services vary: training happens inside data centres, while using AI tools needs modest bandwidth and benefits from low latency.

Why distance matters and why infrastructure gets built near you

Data travels at a fixed fraction of the speed of light, so distance sets a floor under latency: a round trip across the Pacific takes far longer than one to a nearby city. This is why some computing must sit close to users (and why data centres appear near population centres), while other work, like AI training, can locate wherever energy is cheap and clean. Subsea cables, fibre routes and interconnectors are all, in part, about managing this geography.

Who decides

No one approves 'latency', but every connectivity project changes it. **Nationally:** market regulation (ACCC) covers speed claims in advertising. **State/local:** planning decisions on cables and data centres shape where low-latency services can exist.

What good practice looks like

- Speed claims that match real, measured performance.
- Proponents explaining what a project does for local users, in these terms.
- Latency-sensitive services (health, emergency) considered in network planning.
- Transparent reporting of outages and performance.

Questions to ask

What bandwidth and latency does my current connection actually deliver (test it)? Will this proposed project change either, for my community? What service does the proponent claim it enables locally and does the maths hold?

Want to know more? The ACCC's Measuring Broadband Australia program publishes real-world performance results by provider. This sheet is general information, not legal or planning advice; a specific proposal is confirmed by qualified assessment.