When was Overland Telegraph 1871 Adelaide Darwin replaced

The original Australian Overland Telegraph Line connecting Adelaide and Darwin was officially decommissioned and **replaced in the early 1970s by a chain of microwave radio relay stations**.

Its replacement occurred in stages over the 20th century as technology advanced:

- **1935:** The line stopped carrying international traffic.
- **World War II:** The line was cut for its original purpose and modified with extra crossarms and wire to serve as a telephone line.
- **Early 1970s:** High-capacity **microwave radio links** fully took over the communication route.
- **1980s:** A combination of modern **fibre-optic cables** and microwave links entirely succeeded the corridor, prompting the final removal of the remaining historical poles and wires.

If you are looking into the history of this route, let me know if you would like information on the **locations of the preserved repeater stations** (like Alice Springs or Barrow Creek) or details about the **modern fibre and telecommunication networks** that follow the Stuart Highway today.

In WW2 it was only single iron wire in 1871, so how was telephone anything but noisy. Had it been upgraded?

You are exactly right—trying to run a voice telephone call over thousands of kilometres of a single 1871-style iron telegraph wire using the ground as a return path would have been a noisy, attenuated, and completely unreadable mess.

The line **had been massively upgraded** long before World War II. The transformation of the 1871 single-wire Morse system into a functional military telephone network relied on three major advancements:

1. The Switch to Copper

A single galvanized iron wire is fine for low-frequency telegraph pulses, but its high electrical resistance ruins voice frequencies.

- **1899:** The Postmaster-General's Department (PMG) added a **second wire made of copper**.
- **1941:** As war loomed in the Pacific, the PMG systematically stripped out the original 1871 iron wire entirely and **replaced it with high-grade copper**.

2. Physical Crossarms and Paired Lines

A single wire using the earth as a circuit (ground-return) picks up immense atmospheric and static noise. To make a telephone call clear, you need a balanced, two-wire "metallic circuit." During WWII, the Australian Army and PMG linesmen installed **wooden cross-braces (crossarms)** onto the existing Oppenheimer iron telegraph poles. This allowed them to string multiple parallel copper lines side-by-side.

3. Multi-Channel Carrier Networks & Repeaters

Even with copper wires, a voice signal fades out over the massive 3,200 km distance between Adelaide and Darwin.

- **Carrier Systems:** In mid-1941, the military deployed a state-of-the-art **three-channel telephone carrier system**. This technology modulated voice signals onto higher frequencies, allowing multiple clear conversations to happen over the same physical pair of wires simultaneously.
- **Amplified Repeater Stations:** The old telegraph stations (like Alice Springs, Barrow Creek, and Tennant Creek) were converted or expanded to house electronic **vacuum-tube telephone repeaters**. These acted as amplifiers, boosting the fading voice signal at regular intervals through the desert to ensure it arrived in Darwin crisp and audible.

When the Japanese bombed Darwin in February 1942, this newly completed, highly sophisticated copper-and-carrier network was the vital lifeline that kept the frontline Top End military command connected to the Australian government down south.

Would you like to know more about how **Army Signals personnel and local bushmen** managed to string these lines across the harsh outback under wartime pressure, or about the **Adelaide River Military Telephone Exchange** that was built to protect the system from air raids?

And between 1899 and 1941, was that copper line mostly used for Telegraphy

Yes, between 1899 and 1941, that copper line was primarily used for high-speed telegraphy.

While the high-grade copper allowed for vastly better electrical conductivity than the original 1871 iron wire, the infrastructure along the 3,200 km route was still entirely geared toward Morse code and telegrams rather than voice.

The nature of the copper line's usage during this 42-year window can be broken down into a few distinct phases:

High-Speed Multiplex Telegraphy

Throughout the early 20th century, Australia’s domestic and international telegram traffic skyrocketed. The single copper line allowed the Postmaster-General's Department (PMG) to introduce **Wheatstone automatic telegraphy** and **multiplex systems** (like duplex and quadruplex circuits). This meant operators could send multiple telegraph messages in both directions *simultaneously* over that same single copper wire, greatly increasing the line’s traffic capacity without needing to build an entirely new physical network.

The 1925 "Partial" Telephone Experiment

A very limited change occurred in **1925 when the PMG introduced a "partial" telephone service** over the line.

- Because it was still just a single wire using a noisy ground-return (rather than a proper two-wire paired telephone circuit), it could not support a regular long-distance call from Adelaide to Darwin.

- Instead, it was used locally. Isolated cattle stations, outback travelers, and maintenance linesmen could connect portable telephone handsets to the wire to speak directly to the nearest repeater station (such as Alice Springs or Barrow Creek) in an emergency.

The Shift of International Traffic

By the early 1930s, the line's role shifted dramatically. Underwater submarine cables on other oceanic routes and the introduction of Shortwave "Beam Wireless" radio began carrying Australia's international traffic to Europe. As a result, the Overland Telegraph Line transitioned from being Australia's primary international gateway to functioning strictly as a **domestic backbone** connecting the Northern Territory to the southern states.

It wasn't until the mass military overhaul in **late 1941 and early 1942**—when the second copper line was added to create a balanced pair, and multi-channel vacuum-tube carrier systems were installed—that true, clear commercial and military voice telephone calls became a reality on the route.

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