MEDIATEK

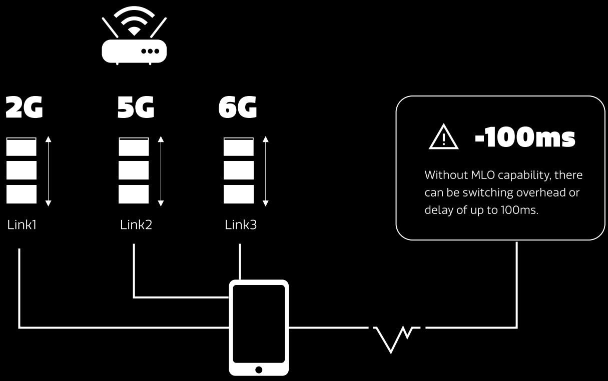
MLO

Why Multi-Link Operation (MLO) innovation is a key driver of Wi-Fi 7 performance

Multi-Link Operation (MLO) enhancements are a major reason why the soon-to-be released Wi-Fi 7 can achieve and maintain 1ms latency requirements for even the most data-demanding, real-time applications.

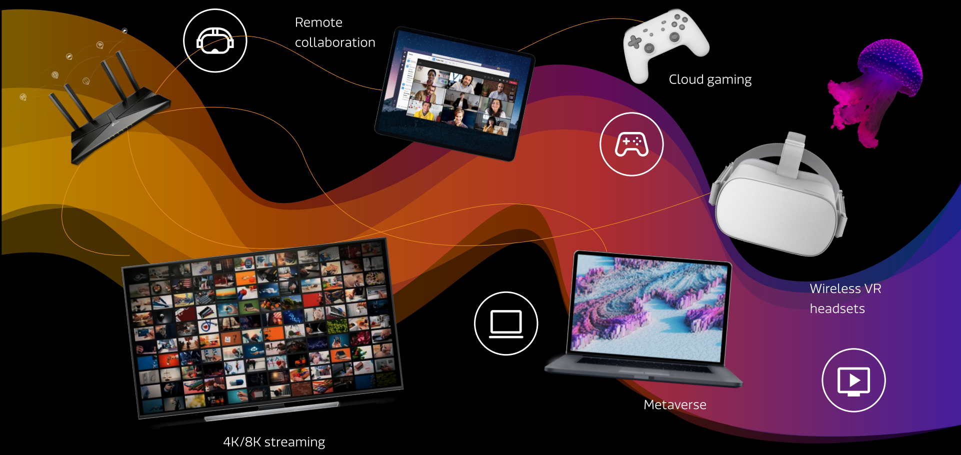
What is Multi-Link Operation (MLO)?

Multi-Link Devices (MLD) allow concurrent data transmission and reception in multiple channels across a single or multiple frequency bands in

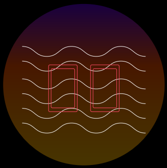


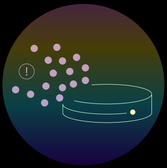
Without MLO capability, there can be switching overhead or delay of up to 100ms.

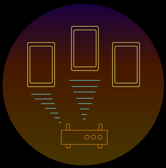
Enhanced MLO reliability is critical for keeping up with real-time and latency-sensitive applications



New MLO modes prevent common transmission challenges


In-device coexistence (IDC) interference


Network congestion


Running out of spatial streams

By performing load balancing according to traffic requirements, MLO helps heavily loaded networks achieve:

- Significantly higher throughput
- Lower latency
- Enhanced reliability

Introducing: Types of MLO modes

Multi-Link Multi-Radio (MLMR) modes

Links are statically assigned and cannot switch to other frequencies dynamically.

STR

Simultaneous Transmit and Receive (STR) mode
For when there is sufficient isolation that links can operate independently without loss from IDC interference.

NSTR

Non-STR (NSTR) mode
Defined to coordinate across the links to achieve synchronous transmission.

Enhanced Multi-Link Single Radio (MLSR) modes

Links can switch to other frequencies dynamically.

EMLSR

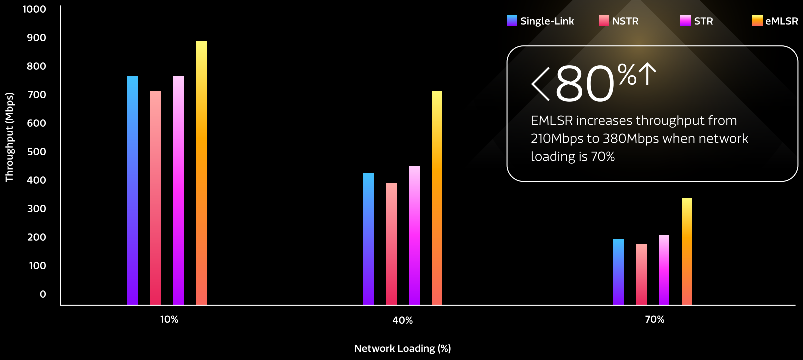
Enhanced Multi-Link Single Radio (EMLSR) mode
Defined to dynamically switch all multi-link capable radios and antennas to a single link.

Choose the right MLO mode

for your network loading needs

When you need high throughput

Comparison of Throughput



<80%↑

EMLSR increases throughput from 210Mbps to 380Mbps when network loading is 70%

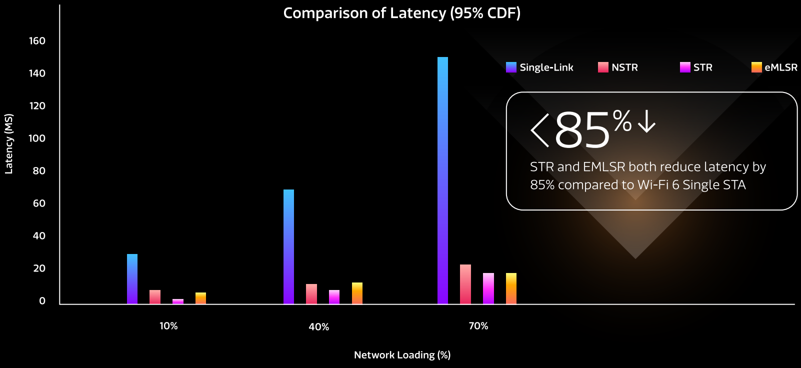
Slower throughput performance: NSTR

This is because it is difficult to perform simultaneous transmission in the UL direction on both links when one of the MLO link is busy.

Fastest throughput performance: EMLSR

This is because EMLSR can utilize all NSS for transmission using the link with the least wireless contention.

When you need low latency



<85%↓

STR and EMLSR both reduce latency by 85% compared to Wi-Fi 6 Single STA

Higher latency: NSTR

NSTR has higher latencies as transmission may be blocked by IDC interference or running out of spatial streams.

Lower latency: STR and EMLSR

STR has the lowest latency overall because the two links do not interfere with each other.

Get ready for Wi-Fi 7 with the latest in MLO innovation from MediaTek

MediaTek's innovations and product platforms are ready to support next-generation MLO reliability using our just-announced Filogic 880 and Filogic 380 high performance, power-efficient and reliable Wi-Fi solutions.

Prepare for the future with MediaTek Filogic

Whether you are ready to deploy Wi-Fi 6/6E solutions today or are planning for Wi-Fi 7, you can count on Filogic to keep you connected.

Discover MediaTek Filogic

MediaTek
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Filogic 880

About MediaTek

MediaTek is the world's largest supplier of Wi-Fi solutions and the fourth largest global fabless semiconductor company, powering more than two billion devices a year. We build chips that are less about connecting people to their devices and more about connecting your devices to what matters.

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