**Bridge Mode vs. Repeater Mode**

Both **Bridge Mode** and **Repeater Mode** are used to extend a network, but they function differently.

**1. Bridge Mode**

Bridge Mode allows an **Access Point (AP) or router** to connect two separate networks by forwarding data between them. It acts as a **bridge** between a wired and a wireless network or between two wired networks.

**Working:**

* The AP connects **two distinct networks** (e.g., LAN1 and LAN2) by forwarding traffic between them.
* It **disables NAT (Network Address Translation)** in routers to avoid double NAT issues.
* Devices behind the bridge appear as part of the **same subnet** as the main network.

**Use Case:**

Connecting a **Wi-Fi router to another router** without creating a separate subnet.  
Bridging a **wired network (Ethernet) to a wireless network**.  
Used in enterprise networks for **point-to-point or point-to-multipoint** connections. **Example:** A second router in bridge mode connects wirelessly to the main router, allowing wired-only devices (like desktop PCs) to access the main network.

**Repeater Mode**

**Definition:**

Repeater Mode extends the **range of an existing Wi-Fi signal** by receiving and rebroadcasting it. It **does not create a separate network**, but **extends the same SSID** to cover a larger area.

**How It Works:**

* The repeater **receives** Wi-Fi signals from the main AP.
* It then **retransmits** the signal to reach further areas.
* Devices connect to the repeater as if they were connected to the main AP.

**Use Case:**

Extending Wi-Fi coverage in **large homes, offices, or outdoor areas**.  
 Boosting signals in **dead zones** where the main router’s signal is weak.  
 Increasing coverage **without running additional Ethernet cables**.

**Example:** A repeater placed midway between the router and a weak-signal area **boosts Wi-Fi**, ensuring seamless connectivity for devices further away.

**Key Differences:**

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| Feature | Bridge Mode | Repeater Mode |
| Purpose | Connects two networks | Extends Wi-Fi coverage |
| IP Addressing | Devices share the **same subnet** as the main network | Devices stay in the **same subnet** |
| Function | Forwards network traffic between different network segments | Re-broadcasts Wi-Fi signals |
| Connection Type | Can connect via **wired or wireless** | Works **wirelessly** |
| Performance | No speed reduction | Can reduce bandwidth (50% drop due to retransmission) |
| Use Case | Connecting two networks (wired to wireless, or wireless to wireless) | Extending Wi-Fi coverage |

* **Use Bridge Mode** when connecting two networks while keeping them on the same subnet.
* **Use Repeater Mode** when you just need to **extend Wi-Fi** coverage without modifying the network structure.