



5G ROUTER FOR PORT CONNECTIVITY CHANNEL BONDING

HIGHLIGHTS

- ✔ Sea freight plays a pivotal role in driving the global economy by enhancing efficiency, reducing costs, and developing local market supply chain.
- ✔ To avoid unnecessary and costly Internet downtime and ensure seamless connectivity, a reliable connectivity device was needed to enable SD-WAN network load balancing capabilities and allow channel bonding.
- ✔ The RUTX50 was a great choice for this connectivity solution – it's equipped with failover functionality, resistance to environmental conditions, and supports 5G NSA.

THE CHALLENGE – SWIMMING IN NEED FOR SEAMLESS CONNECTIVITY

Sea shipping, which accounts for [around 90% of global trade by volume](#), is the lifeblood of the world economy, connecting continents and cultures through vast networks of maritime routes. The largest container ships today can carry nearly [24,000 TEUs \(Twenty-Foot Equivalent Units\)](#), enhancing the efficiency of global trade and reducing shipping costs per unit.

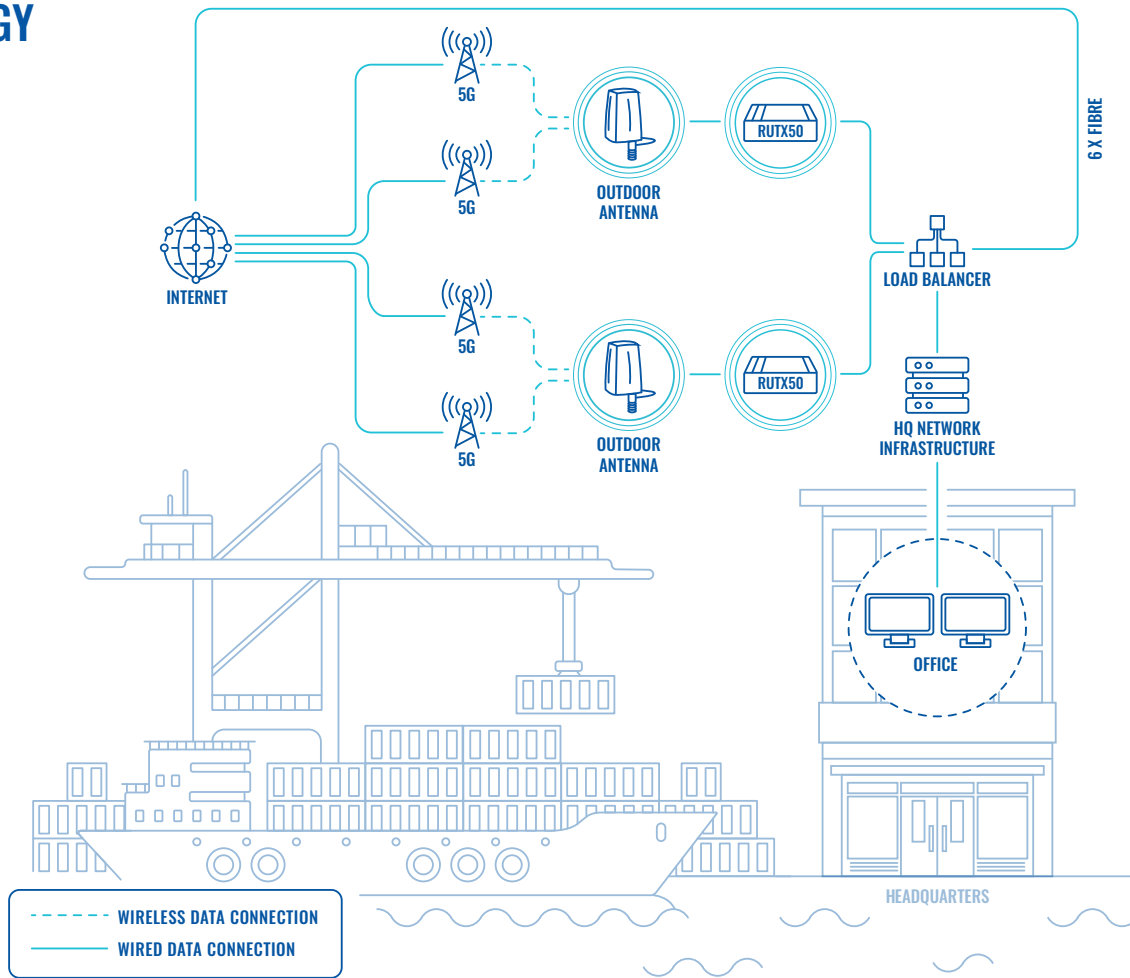
These large ships require large ports that need an immense level of internal organisation enabling all operations to go smoothly. The data sent from the headquarters of the port must be able to reach needed departments quickly and efficiently, ensuring that every step of the complex logistics chain, from cargo handling to scheduling is meticulously coordinated to prevent costly delays.

For that, a connectivity device was needed to provide reliable and redundant Internet connection, ensuring seamless Internet access for office workers, smart cranes, CCTV, automated vehicles, environmental sensors, and access control system.

This solution also required a backup Internet source for simultaneously powering the [SD-WAN](#) network load balancing device, perfected for providing a reliable WAN for corporate headquarters.

That's where our 5G router, the [RUTX50](#), dropped its anchor.

TOPOLOGY



THE SOLUTION – A 5G ROUTER LIFEBELT

The RUTX50 5G router is installed inside each of two [Teltonika's 5G outdoor antennas](#), which require minimal installation effort: after mounting the antenna, it's ready to receive signals from every direction.

Both routers and six fibre-optic cables are connected to an SD-WAN network load balancer. The load balancer is connected to the headquarters network infrastructure, distributing Internet connectivity to the whole setup. This way, the deployment and management of WAN connections are simplified by centralising configuration management and monitoring the network's health and performance.

The SD-WAN network load balancer is used for [channel bonding](#), allowing more data to flow through at once by combining multiple network connections and increasing the overall network capacity. The primary benefit of channel bonding is a significant increase in bandwidth, allowing for faster download and upload speeds.

To avoid potential downtime, our 5G router's [failover](#) feature came in handy, allowing to maintain Internet connectivity in case of primary network source disruptions. The failover feature and backup WAN function maintain steady connection and redundancy necessary in industrial settings.

Another fantastic feature of this cellular 5G router is its ability to withstand adverse environmental conditions. It can operate in temperatures up to 75 °C, exceeding the equatorial Malaysian climate. This cellular 5G router is also able to function in up to 90% non-condensing humidity, making it one of the most reliable and trustworthy connectivity devices for a warm, humid climate.

Let's not forget, this cellular router can reach ultra-high speeds of up to 3.3 Gbps with as low as single-digit latency. It's equipped with two SIM cards, allowing switching scenarios, and is backward compatible with 4G LTE Cat 20 and 3G. Last but not least, our 5G router supports both SA and NSA 5G architectures and is equipped with five Gigabit Ethernet ports.

So, don't wait up until the ship has sailed! Grab your 5G router by Teltonika and enjoy all of its benefits. And as always, if you have any questions – we're here to answer them all.

