

# SUPPORTING PUBLIC SAFETY IN TAIWAN

**Industry**

Cloud

**Location**

Taiwan

SES and Microsoft tap private 5G  
for disaster recovery



# ENSURING CLOUD CONTINUITY

Taiwan's beaches, mountains and skyline make it one of the world's most beautiful countries, but its location in an active tectonic region that is on the major tracks of typhoons and monsoons means it's also a dangerous one.

The cloud can allow governments to secure critical data, mitigate supply chain interruptions and enable collaboration among various entities in an emergency situation

According to a 2005 World Bank report ("Natural Disaster Hotspots: A Global Risk Analysis," World Bank 2005), 73% of the Taiwanese population is exposed to three or more natural hazards, including earthquakes, landslides and flooding, and climate change is expected to intensify the prevalence and impact of those events.

Given this reality, the Taiwan government has taken proactive steps to mitigate the impact of natural disasters. The Disaster Prevention and Relief Act, passed in 2000 in response to a major earthquake the year before that killed and injured thousands, delegates authority to various agencies in the event of a disaster. Taiwan's National Fire Agency – part of the country's Ministry of the Interior - plays a major role in disaster management under the DPRA, providing emergency medical, fire prevention, firefighting and disaster rescue services.

The cloud can play an invaluable role in emergency situations, allowing governments to access critical data, mitigating supply chain interruptions and enabling collaboration among

agencies, volunteer organisations and private entities. Recognising that fact, the NFA requested a solution that would rapidly restore cloud services in a disaster scenario. Open RAN vendor Pegatron and system integrator Wave-In Communication responded to that request, collaborating with Microsoft on a trial that demonstrated access to cloud services via a private 5G network. Microsoft then asked SES to act as the connectivity fabric for the trial.

## **Demonstrating Private 5G at the Edge**

The trial participants wanted to demonstrate continued 5G access to cloud services during an emergency – specifically, enabling real-time Microsoft Teams communication between emergency vehicles and the local fire station and supporting 4K video transmission from the vehicles to City Hall via the cloud for command and control purposes. This necessitated non-terrestrial connectivity with the level of throughput and latency required to handle these mission-critical cloud workloads plus the geographical reach to access cloud resources well outside the compromised area.

# A CLOUD-ENABLED 5G BUBBLE

SES and Microsoft enabled the government to establish 5G services "on the pause" during a disruption of terrestrial connectivity

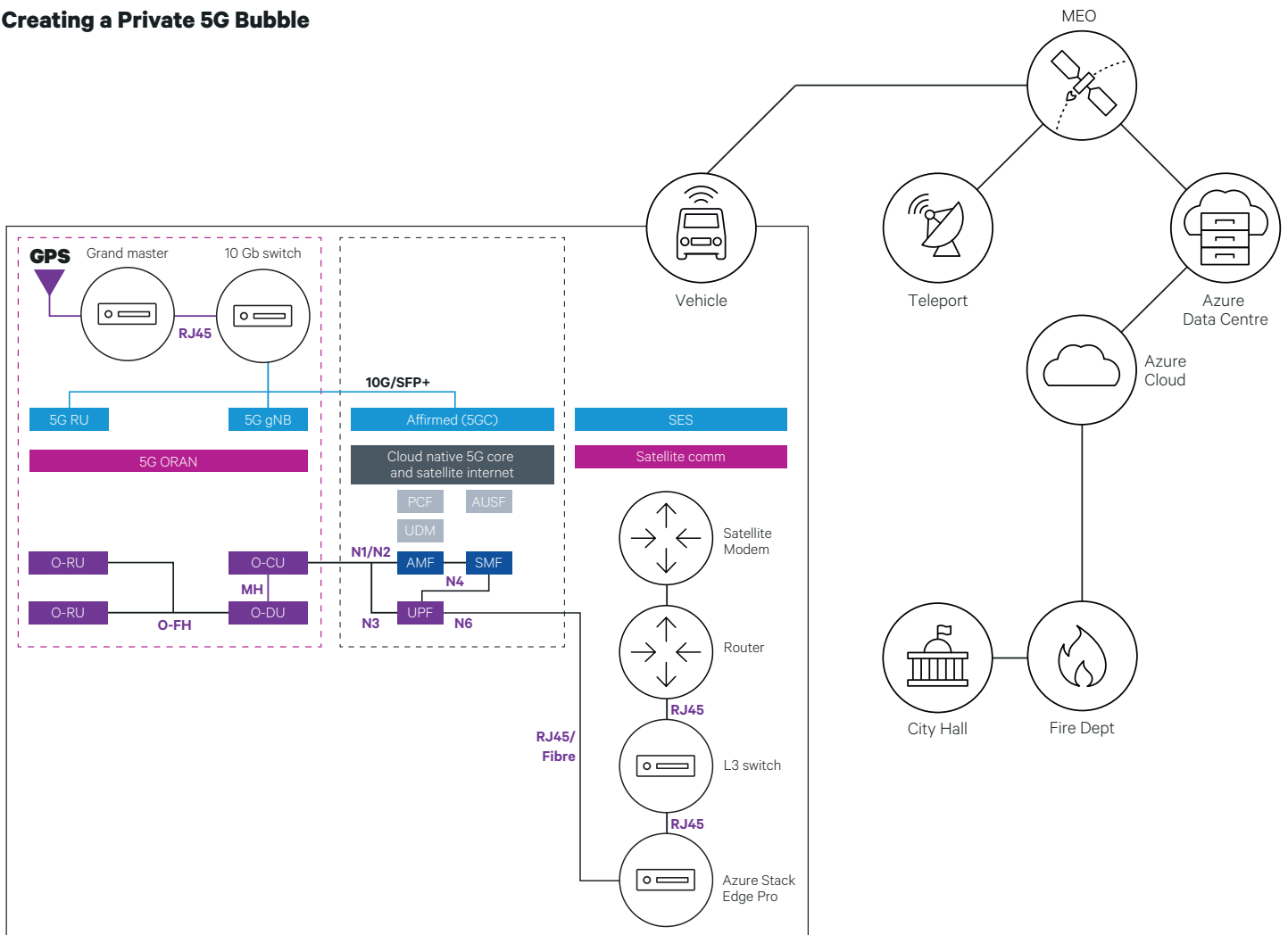
Microsoft and Pegatron created a private 5G network by combining Pegatron's O-RAN technology and Microsoft's Azure for Operators Private 5G Core solution, both hosted on an Azure Stack Edge Compute platform. The platform was then deployed on a mobile truck alongside other networking functions such as routers and global positioning system devices, as well as SES MEO terminal technology, enabling the government to establish 5G services "on the pause" during a disruption of terrestrial connectivity.

SES collaborated with Microsoft to deliver a jointly-created solution to

connect that network to the Azure cloud. Two AVL MEO terminals were provided to Microsoft for a proof-of-concept (POC) service using O3b MEO satellite service between Taiwan and the Microsoft Azure data centre in Sydney, Australia.

To demonstrate the O3b MEO service, each terminal was configured to support aggregated service throughput rates of 200 Mbps (100/100), split between the two terminals. SES also provided an IP transit link between the SES gateway in Dubbo and the SES PoP in Sydney to connect to the Azure data centre service over the internet.

## Creating a Private 5G Bubble





# SUPPORTING MISSION-CRITICAL DISASTER RECOVERY

The demo successfully spotlighted the performance of cloud applications over the MEO trunk links, accessed at the remote sites via the 5G network, cable, and Wi-Fi connections.

Both O3b MEO and O3b mPOWER feature a broad geographic reach that enables access to alternative data centres, ensuring consistent access to cloud services

SES connected the Azure Stack Edge device in Taiwan to the Azure Cloud in Sydney – over 7000 km away – via the SES gateway in Dubbo, with the data throughput and network latency required to support all necessary applications.

These results confirmed the value of satellite technology as a key component of a private 5G network solution. The dedicated bandwidth and infrastructure of private 5G networks makes them ideal for enterprises and institutional agencies with highly specific performance and security needs. The O3b MEO network was able to address

those requirements and deliver the resilience needed to support operations in the event of a terrestrial network disruption, ensuring the safety of citizens and emergency personnel and facilitating response efforts. Both O3b MEO and the upcoming O3b mPOWER system feature the high-speed return paths needed for 5G services such as live mobile video capture and video surveillance, as well as a broad geographic reach that enables access to alternative data centres as needed, ensuring consistent and resilient access to the cloud services that are critical to a devastated region's recovery.







For additional information  
on this project, please  
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**SES HEADQUARTERS**

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