Industry engagement – June to August 2025

Satellite Services questions for consideration

Overview

On 4 & 5 June, 2025 NEMA held industry briefings to update providers on the PSMB program. As part of this, NEMA outlined the intent to discuss satellite service in more detail, with satellite service providers. The questions included in this document are intended to stimulate discussion. These questions (or part there of) can be discussed in a 1:1 with NEMA (please advise via psmb@nema.gov.au) or alternatively, responses to relevant questions can be sent to the psmb@nema.gov.au email.

To note:
All information provided to the National Emergency Management Agency (NEMA) will be treated as commercial in confidence.

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Proposed PSMB Satellite Services

The PSMB Taskforce is considering satellite services relating to the following three solution types to form part of a nationwide PSMB solution:

1. **Mobility backhaul** to vehicles, Vehicle As A Node (VAAN), and mobile connectivity kits (backpack or suitcase solutions) that are on the move or at rest.
2. **Fixed backhaul** to deployable mobile coverage solutions which are temporary mobile network (4G/5G) coverage solutions including cell on wheels, cell on wings, and fixed Mobile Network Operator (MNO) sites.
3. **Direct-to-Device (D2D):** 3GPP standards-based satellite to mobile device (e.g. smartphone) communications.

In addition to the above, the PSMB Taskforce is open to discussions about other satellite-based services that would enhance and improve communications capability within the public safety sector.

Questions

General – All Solution Types

1. Briefly describe the characteristics of your satellite constellation (LEO, MEO or GEO) that deliver the satellite services proposed including the ground station component.
2. How is satellite capability expected to evolve over the next 1, 3 and 5 year horizons to support each use case?
3. What is the expected coverage for each type of service? Do they differ at all?
4. Will the services be always available and provide continuous coverage or will the service be intermittent due to coverage gaps caused by the satellite constellation and/or other limitations? If intermittent, please describe the characteristics.
5. Can prioritisation be achieved where PSMB users (i.e. emergency services personnel with PSMB SIM cards) and their traffic is prioritised over regular consumer traffic e.g. can something similar to 3GPP Quality of service, Priority and Pre-emption (QPP) be achieved?
    a. Can the vendor prioritise traffic to ensure that PSMB SIMs are treated preferentially under congestion or during high-demand periods?
    b. How is traffic differentiated between PSMB and non-PSMB users, and between different categories of PSMB users?
    c. Is a tiered priority system available for different categories of PSMB users?
    d. Can prioritisation be implemented in different geographical regions of Australia, by dynamically favouring specific regions (e.g. incident zones) for PSMB traffic? If so, how are these functions triggered, managed, and monitored — and are they configurable by satellite provider and/or the satellite user?
6. Do you have a definition and a current measure of availability for your network for Australia?
7. Are services supported by guaranteed Committed Information Rate (CIR) and robust Service Level Agreements (SLAs), providing assurance of network performance, restoration of service and service availability?
8. What caveats or conditions apply?
    a. How is any over commitment to CIRs for different customers/users/use cases handled? e.g. in a concentrated geographical area of PSMB users and a top tier enterprise customer such as defence
9. Describe the tools provided for supporting the satellite service in term of self-service configuration and monitoring of the service?
10. Is 24/7 Network Operations Centre (NOC) support provided and also a network transparency tool to allow Public Safety Agency's in real time to monitor the performance and availability of the satellite service on a link-by-link basis? What additional support services can be provided?
11. How can the satellite service be procured by PSMB, direct via the satellite service provider, or via resellers, aggregators, or MNO partnerships? Who are the planned and potential suppliers of these services including satellite providers and resellers in Australia?
12. Describe the data sovereignty aspects of the satellite service proposed including:
    a. Is data stored? And, if so, is it only stored in Australia?
    b. Do all data transmissions remain within Australia's borders?
    c. Security and privacy aspects that protect the integrity of the data and solution

d. Does the satellite service and all data handling and transmission comply with the laws and regulations of Australia?
e. Does all support staff reside in Australia? If not what types of support staff are outside of Australia and which ones will have access to the data from outside of Australia?
f. Does anyone have access to the satellite service outside of Australia?

13. Any cost detail that can be provided is welcomed for any or all satellite services described.

Specific to Solution Type

Mobility Backhaul

Solution

14. What are the current user antenna sizes and power consumptions?
15. What is the roadmap to further reduce antenna sizes and lower power consumption?
16. Are antennas proposed to always be proprietary or is there a likelihood that antennas can be 'unlocked' and access connectivity from any satellite network constellation creating a 'roaming-like' scenario between satellite networks?
17. What are the environmental and temperature ratings for the elements of the antenna and power solution that are installed on outside of vehicle
18. How are the antennas secured to the roof and can they be easily swapped between vehicles

Capacity

19. What areas within Australia are at or close to at capacity and are there plans to increase capacity in these areas?
20. What is the average and maximum throughput of a single connection assuming no other users in area?
21. What are the capacity and performance constraints of this type of services? How does the satellite service handle a high number of PSA devices in a confined area (e.g. 50+ users in a 2–5 km radius)?
22. What is the expected impact on throughput per user in such a scenario?
23. Will there be traffic shaping or prioritisation mechanisms in place to preserve PSMB user performance?
24. Would capacity or performance constraints be region/state/geography specific? How would these be identified?
25. What would be the maximum number of PSA users in a 10km radius in terms of connections and usage?

Fixed Backhaul

Solution

26. What are the current user antenna sizes and power consumptions

Capacity

27. What is the maximum possible throughput of a single connection assuming no other users in area?
28. What are the capacity and performance constraints of this type of services?

29. Would capacity or performance constraints be region/state/geography specific? How would these be identified?

Direct to Device (D2D)

Solution

30. Please provide an overview of expected/planned roll out of services/capabilities internationally and in Australia.
31. What capabilities are on the roadmap? Please provide timing for the following functions: narrow band data (incl. messaging & emergency notification), voice, broadband data (incl. image & video)?
32. What are the limitations of providing a prioritised emergency message service via D2D satellite service? Please provide the nominal message delivery times.
33. What devices are and will be supported?
34. How can interoperability and/or roaming and/or aggregation (e.g. bonding of satellite bandwidth) and/or fallback between multiple D2D satellite constellations be achieved? Can a user device access different multiple satellite D2D networks? If so, please describe the relationship and arrangements that would be needed between the satellite provider, device manufacturer and MNO that would enable access and connection to different satellite D2D networks.

SIM based access and integration between Mobile and D2D Satellite Networks

35. Can the vendor's service be delivered using a unified SIM or eSIM profile that works seamlessly across both mobile and satellite networks, using the same identity, security settings, and user priority levels?
36. How would the D2D satellite service integrate into a mobile network?
37. How would the D2D satellite service support automatic handover between mobile and D2D satellite networks via network and/or device-triggered mechanisms? Is the handover mechanism make before break if connection is lost due to poor coverage and/or network failure? If so, please describe whether a voice or data connection is interrupted as perceived by the user and if so, for how long when a handover occurs?
38. Does the vendor service support secure authentication, control and user data traffic encryption via a unified SIM that works across both mobile and satellite networks?

Capacity

39. What are the capacity and performance constraints of this type of the D2D satellite service? How does the D2D satellite service handle a high number of PSA devices in a confined area (e.g. 50+ users in a 2–5 km radius)?
    a. What is the expected impact on throughput per user in such a scenario?
    b. Will there be traffic shaping or prioritisation mechanisms in place to preserve PSMB user performance?
40. Would capacity or performance constraints be region/state/geography specific? How would these be identified?