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DATA SHEET

Hughes Terminal Management Agent

The Terminal Management Agent (TMA) from Hughes is a ground-breaking, custom-developed software feature within a satellite terminal that interconnects seamlessly with various satellite modems, regardless of manufacturer or satellite system. TMA overrides stove-piped systems to enable user access to diverse platforms from a single terminal–ensuring the reliability and resiliency that are essential for defense communications networks. For the U.S. Department of Defense (DoD) and critical infrastructure operators, reliable, high performing SATCOM networks, including flexible terminals are nothing short of essential to meet warfighter readiness around the world.

Delivering interoperability DoD terminals across defense SATCOM networks

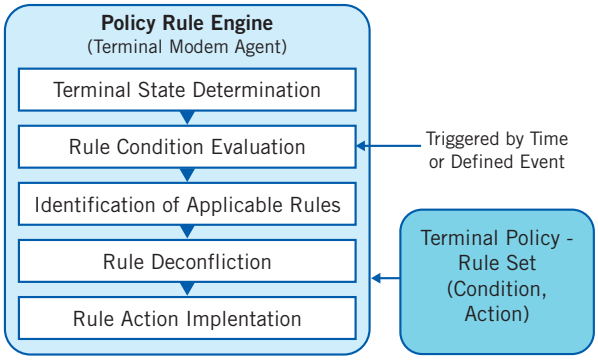
The DoD has more than 17,000 terminals deployed across this enterprise, many of them single-threaded. These stove-piped satellite systems are vulnerable to interference due to many factors, including malicious actors, poor antenna angles, misaligned directional pointing, and more. Now, instead of having to change communications elements manually when original operational configurations fail, the Hughes TMA ensures continuous connectivity to meet mission requirements. The TMA supports existing SATCOM infrastructure so both legacy and new modems can use their waveforms and be managed by their respective service providers. The TMA can autonomously select a specific modem, service, waveform, gateway, satellite, or service provider to help orchestrate tactical terminal reconfigurations in just a few seconds or minutes, instead of today's lengthy, manual process.

Bringing critical advances to the tactical edge

The TMA software from Hughes integrates Artificial Intelligence (AI) for rules-based processing of situational data–including the operational environment, mission plans, potential satellite access issues, and mission priority based on available services–to make autonomous decisions about its host terminal's use of diverse resources.

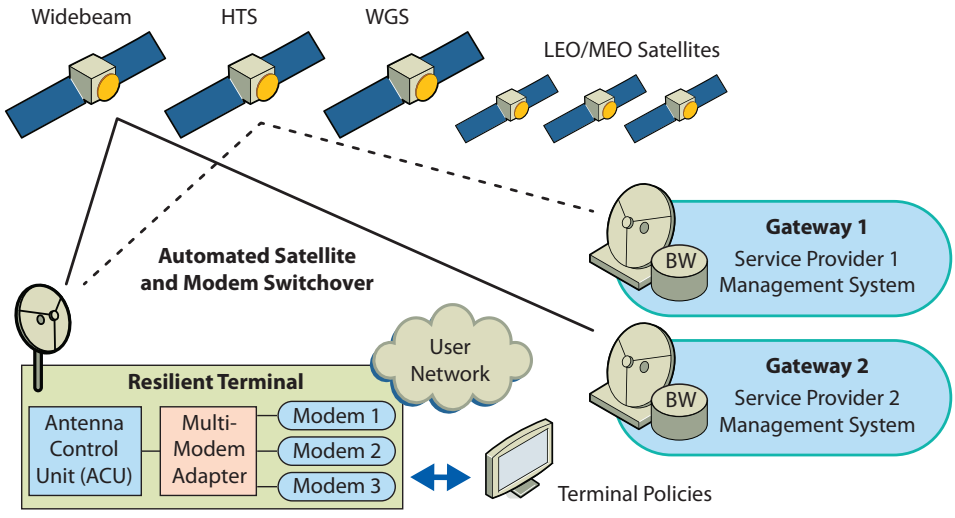
Changing configuration in near real-time:

- Autonomous satellite terminal control
- Self-healing capabilities
- Implementation of full PACE (primary, alternate, contingency, and emergency) plans
- Collection of RF, networking, and cybersecurity situational awareness information for data analytics



Ensuring continuous connectivity across:

- Orbits: GEO, MEO, and LEO satellites
- Bands: Ku-, Ka-, Mil Ka-, X-, and C-band transmissions
- Manufacturers: Hughes, Comtech, iDirect, etc., using various waveforms
- Service providers: Commercial and defense providers



Responding to the needs for resilient networks

Since 2017, Hughes has been working with DoD to develop the ultimate SATCOM flexibility. Now available for wider use, TMA can be incorporated into any terrestrial or aeronautical SATCOM solution for the DoD and critical infrastructure.

2017

Hughes tapped by DoD to help assess the ideal hybrid SATCOM architecture with diverse systems working together. Hughes recommended a SATCOM strategy that supports interoperability for wideband applications to enhance communications infrastructure and reduce acquisition and operations costs.

2018

In a second phase study, Hughes explored how an interoperable system solution can be implemented effectively. As part of this phase, Hughes produced a new TMA software implementing Flexible Modem Interface (FMI) standard for demonstration and evaluation.

2019

Hughes and NASA together tested the TMA/FMI technology in a demonstration with the International Space Station (ISS), autonomously switching a communications signal from the FMI-outfitted ground terminal, between different modems aboard the ISS.

2020

Hughes demonstrated the TMA/FMI and Enterprise Management and Control (EMC) technologies with full PACE planning and Situational Awareness using a Hughes software-defined HM400 modem and a GetSat Ku-band aero antenna with a video sensor and a Comtech DMD-2050E. Hughes participated in a multi-vendor demonstration of Flexible Terminal Interface (FTI), draft standard for terminal and EMC interface, using gRPC/protobuf protocols.

Proprietary Statement

For additional information, please visit defense.hughes.com.

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11717 Exploration Lane
Germantown, MD 20876 USA

www.hughes.com