Case Study

Public Safety Network Replaces Legacy Analog Radio Lines with Starlink and the IP-Tube VF's RDP Option

The Challenge:
Unreliable Aging Communication Services

The rural community of Big Sur in the County of Monterey was faced with an unreliable aging emergency communications system located in challenging topography of mountains, canyons, redwood forests, creeks and beaches covering 234 square miles along California's Central Coast. Public Safety is responsible for over 2,000 year round residents and over 5 million tourists annually. Aging analog lines across the network had begun to deteriorate, leading to signal degradation, unwanted crosstalk, and frequent disconnections that compromised communication reliability and safety.

STARLINK

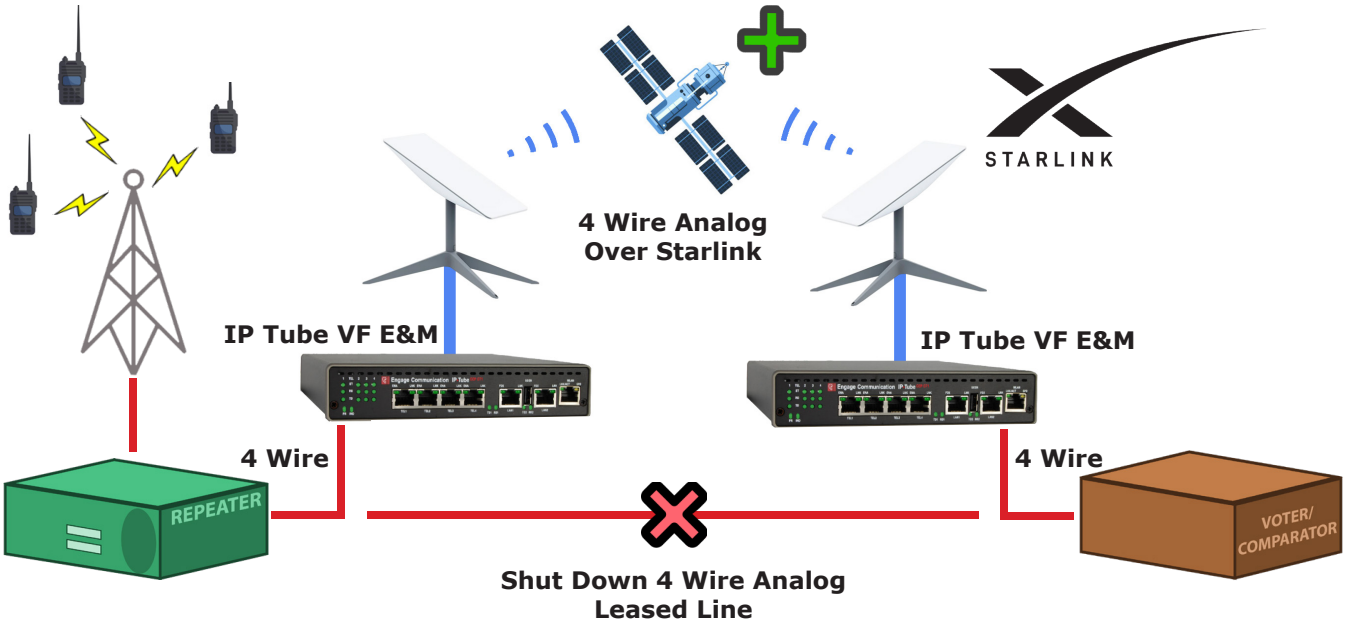
The Solution:
IP-Tube VF E&M with Starlink Integration

Engage Communication provided an IP-Tube VF E&M configured for 600-ohm analog over IP, which demonstrated exceptional performance and reliability. However, Starlink's inherent latency variations and packet loss required Engage Communication to develop an innovative solution. Engage Communication invented a software option that mitigates the Starlink data loss by providing backup packets that compensate for missing or delayed transmissions. Engage released the version of this software option under the name: **R**edundant **D**elayed **P**ackets (**RDP**).

The IP-Tube product line, paired with **R**edundant **D**elayed **P**ackets (**RDP**), ensures reliable transmission over Starlink to meet the real-time operational needs while upholding stringent expectations for continuous service availability. This combination offsets latency shifts and packet loss, maintaining smooth voice, video, and telemetry. Ideal for public safety, defense, and industrial sectors, it delivers resilient connectivity in demanding satellite environments.

Once the solution was formally approved, it was deployed on site. As a result, voice communications were stabilized, and the longstanding disruptions affecting emergency response operations were fully resolved.

Diagram of IP Tube VF E&M with Starlink Integration:



Key Benefits
Redundant Delayed Packets in Starlink Networks:

Enhanced Reliability: Mitigates data loss by providing backup packets that compensate for missing or delayed transmissions.

Reduced Latency Spikes: Smooths out performance inconsistencies caused by satellite transitions.

Seamless Satellite Handoffs: Ensures continuous data flow, preventing interruptions in live streaming applications.

Improved Quality of Service (QoS): Critical for VoIP, video conferencing, and telemetry-based communications.

Who would benefit from this application:

Public Safety Radio
Ensures continuous radio dispatch and emergency coordination during satellite transitions. Improves reliability for rural and remote first responder networks.

Telecom Service Providers
Preserves TDM circuit integrity over satellite by minimizing packet dropouts
Enables transparent transport of legacy voice services across modern IP/SAT backbones.

Utilities/Oil and Gas
Enables real-time SCADA and telemetry over satellite at remote sites, replacing aging copper infrastructure. Improves operational visibility and control for pipelines, substations, and offshore facilities where terrestrial networks are impractical or obsolete.

Other products that work with RDP
The RDP option is compatible with a wide range of IP-Tube models and interfaces:

SERIAL	TDM	ANALOG
RS232	T1 / E1	Bell 202T Modem
RS530	T3 / E3	2/4 Wire Voice
V.35	DDS / DS0	E&M PTT

Engage Communication

Founded in 1989 and headquartered in Aptos, California, Engage Communication is a U.S. based technology company specializing in secure and reliable network communication solutions for high-stakes environments. Our core capabilities include the transport of both legacy and modern voice, video, and data across IP and satellite networks—trusted across defense, public safety, energy, and telecommunications sectors.

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If you are considering a Starlink Services solution please contact Engage Communication Inc. 831-688-1021 sales@engageinc.com