TrellisWare Demonstrates 815 Node Network Scalability for Simultaneous PLI/Voice/C2 Service in 1.2 MHz

SAN DIEGO, CA, USA, December 7, 2022 /EINPresswire.com/ -- TrellisWare Technologies, Inc., a global leader in resilient communications solutions, today announced the successful completion of two major scalability events that highlighted new capabilities to provide customers with even greater network performance, resiliency, interoperability across multiple vendor platforms, and ease of deployment for their tactical networks. The events focused on the company's most significant customer use cases:

> "
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>
> *Jonathan Cromwell, VP of Engineering*

• Flattening command and control (C2) by providing extremely high scalability, thereby enabling a flat battalion network fielding at the individual soldier level in a single 1.2 MHz radio frequency (RF) channel
• Maximizing efficiency for practical operational use in areas where radio frequency (RF) spectrum availability is congested or limited
• Supporting advanced tactical services on a large-scale network that leverages a cloud-based client-server architecture

Leveraging the recently released TSM® waveform version 6.2.1 firmware running on radios deployed around their San Diego, CA campus, the TrellisWare engineering team demonstrated a sizeable flat network consisting of 815 nodes, all operating in a single 1.2 MHz RF channel. The significant capabilities simultaneously demonstrated include:
• The resilient network was rapidly formed consisting of 815 real TrellisWare® radios
• The TrellisWare radio platform deployed supported 225 MHz to 2600 MHz spectrum in one piece of hardware
• The Position Location Information (PLI) of every radio was updated at an average of less than 10 seconds for all 815 nodes
• 100% of the radios and their associated PLI were viewable by every radio in the network

- Voice communications were supported with 32 talk groups available
- IP-data C2 services were supported, including the TAK application

"To make large node-count scalability events operationally relevant, it is important to build the network with multi-hop topology over diverse terrain, and with highly dynamic mobility, as opposed to just turning on a bunch of radios in a large room or parking lot statically," said Jon Cromwell, vice president of engineering at TrellisWare.

TrellisWare has demonstrated 800+ nodes to US and international government customers during the last few years with pre-released firmware. The release of their newest TSM 6.2.1 firmware incorporates optimized improvements supporting massive scalability objectives. "This test was to validate further the impact of those improvements at a Technology Readiness Level (TRL) 9 maturity with production-released software," added Cromwell.

In the second event, TrellisWare teamed with US Department of Defense (DoD) customers to optimize how the TSM waveform could better support their operations, including advanced tactical services such as video and heavy transmission control protocol (TCP) server-centric dependency. That effort highlighted the benefit of cross-layer optimization between the applications and network services. As a result, new capabilities in the TSM 6.2.1 firmware, combined with minor configuration changes to the application software, enabled a 300% increase in client scalability while maintaining full network visibility and availability of services.

"In collaboration with users and application developers, we optimized the TSM network to improve the users' current ATAK deployment while also demonstrating valuable application layer improvements," stated Haidong Wang, vice president of product management and strategic partnerships. "Availability of uncontested and contested spectrum is considerably scarce, so an efficient application layer delivering the same services with lower bandwidth required will result in increased network resiliency."

TrellisWare has designed this high-scalability testbed to continuously collaborate with customers and partners to benefit future tactical networks. Contact your TrellisWare business development director or account manager to schedule an in-person testing demonstration, or contact sales@trellisware.com.

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