

C3IA provides a Network as a Service (NaaS) for an augmented reality training solution.



Background

Augmented reality (AR) is a live direct or indirect view of a physical, real-world environment whose elements are "augmented" by computer-generated sensory input such as graphics or GPS data. In order for soldiers to 'train as they fight' in a complex, multi-asset battlefield, whilst also keeping costs down to minimal levels, AR solutions are being introduced to deliver realistic holistic training scenarios.

The Challenge

C3IA was contracted to provide a low-latency, low-packet loss network in an austere RF environment for an concept demonstration of an AR solution for live JTAC training in a realistic environment.

The AR user, remote from the control station, was to be able to receive simulated friendly and enemy troop movements, simulated buildings and battlefield events, such as artillery and airdropped ordnance impact. The remote user and the control point also needed to be able to communicate over a VoIP radio system.

The area being used for the AR demonstration was open, rolling countryside adjacent to a number of high-powered, broadband transmitters all of which raised a number of potential issues. The countryside lacked the reflective surfaces that would've provided an ideal environment to exploit the MIMO functionality of the StreamCaster radios, but the Eigen beamforming capability provided enhanced gain and throughput even in these conditions



Figure 1. Comparison of Google Earth view and AR representation



Figure 2. The mobile unit with StreamCaster radio circled

The C3IA Solution

Using the latest StreamCaster 4200 radios, a fixed network was deployed with several fixed nodes providing a comprehensive coverage of the training area in which the AR system was to be deployed. The mobile user was then able to traverse through this fixed network, with a StreamCaster radio integrated with the AR client, and visualise the simulated environment

Summary

The self-forming, self-healing capability of the StreamCaster radios enabled the mobile user to seamlessly traverse through the fixed network whilst the radio routing table constantly updated to identify the optimal data path.

The delivered network, enhanced by the Eigen beamforming feature of the radios delivered the low-latency, high-throughput, low loss network required to enable the AR training solution to be demonstrated effectively and in challenging conditions.