

Study - Mobile Ad Hoc Wireless (MANET)

The Client: Defense R&D Canada (DRDC)

Client Challenge: The client was interested in studying the viability of dynamic peer-to-peer secure wireless groups formed in areas with limited wireless network infrastructure.

Outcome: Solana conducted multiple simulation studies of service overlay networks (SON) for mobile ad hoc wireless networks (MANET). The project also conducted performance studies regarding the viability of supporting applications such as PTT (Push-To-Talk) voice over a MANET SON infrastructure. Recommendations were provided to the client and part of the work was published in a peer reviewed conference.

Solution: The study examined issues associated with using dynamically created overlay network topologies (peer-to-peer) for creating secure groups in a mobile ad hoc wireless network. As part of the project Solana developed new modules for industry standard QualNet wireless simulator containing service overlay support. The team implemented a peer-to-peer overlay for MANET based on the Spanning Tree Protocol (STP). The team also developed a network location mapping application to run over the secure wireless service overlay as well as a Push-To-Talk application. Detailed performance studies were conducted on the accuracy and quality of the two applications as affected by different factors.