OSCAR-Mike: Why not ATAK?

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Background

The Office of Nuclear Smuggling Detection and Deterrence (NSDD) is evaluating methods to increase the probability that international partners will detect radioactive materials. One proposed method to accomplish this goal is to improve communications within teams operating in challenging environments. The goal of these improvements would be to enable remote monitoring of detection equipment, share data among end users in the field and subject matter experts, and integrate data from radiation detectors with other types of sensors and camera systems. Accomplishing this goal has the potential to improve the capabilities of currently deployed NSDD equipment.

ATAK Study

During FY 2021, Oak Ridge National Laboratory demonstrated some core and expanded capabilities of the Android Team Awareness Kit (ATAK), a situational awareness application developed by the US Department of Defense, to enable precision targeting, navigation, and data sharing. During FY 2022, Oak Ridge National Laboratory developed software requirements for an NSDD team awareness kit–based system. The requirements were developed by liaising with NSDD management and subject matter experts to determine NSDD's needs and by reviewing available software and hardware solutions with US Department of Defense team awareness kit program managers and developers and radiation detection equipment vendors.

Standalone App instead of ATAK

In FY 2023, NSDD developed a minimal, viable product based on the software requirements document that was produced in FY 2022. During that development process, the team determined that it was prudent to develop a stand-alone app instead of a plugin for ATAK. This decision was made because all the NSDD requirements could be met with a single stand-alone app at a lower development and sustainment cost than meeting those requirements with an ATAK plugin–based system. The ATAK plugin system requires that a plugin be installed on the user's phone to match the version of ATAK that is also installed on the user's phone. Because the users, in many cases, will upgrade their device whenever a new version of ATAK is uploaded to the Google Play Store, NSDD would, at a minimum, always need to have a version of the plugin that matches the latest version of ATAK in the store. A new version is released every 120 days, which would likely lead to complex configuration management issues. Most of the requirements would have to be addressed with the application that NSDD was already developing to support the plugin. ATAK was primarily going to be used as a visualization platform with all the data acquisition, transmission, and manipulation handled by the NSDD-developed software. The extra complexity of ATAK was not deemed necessary because it was unlikely that NSDD users would benefit from the team awareness kit platform outside of the NSDD functionality. The stand-alone platform that NSDD ultimately developed for monitoring mobile assets was called OSCAR-Mike, short for "OSCAR on the move."

Future Return to TAK

Integration with the TAK platform may be pursued by NSDD in the future because the Office is partnering with foreign agencies that have been given toolsets by other United States Government organizations that utilize ATAK. Making NSDD software tools that offer some level of support for the TAK platform would present a unified United States Government approach to foreign partners. The technical issues outlined in the previous sections present obstacles to deploying a NSDD Android based ATAK plugin that directly interfaces with equipment. To overcome these issues, NSDD could create a server application that would communicate information between NSDD's OSCAR server software and a TAK Server. This solution would bypass the need to match the ATAK version installed on the user's mobile device. TAK Server software is less frequently updated and the communication protocols between the proposed NSDD Tak application and the TAK Server would remain unchanged for multiple TAK Server versions. This could reduce the development, deployment and maintenance costs.