

BAE Systems, CNIR Saves 6 to 12 Months of Development Time Using MÄK Tools

BAE Systems, Communication, Navigation, Identification and Reconnaissance (CNIR) is using a suite of tools from MÄK Technologies on various Internal Research and Development (IRAD) projects and in support of major defense programs such as Joint Tactical Radio System (JTRS), Warfighter Information Network — Tactical (WIN-T), Future Combat Systems (FCS) and Airborne/Fixed/Maritime (AMF) — JTRS .

To simulate intelligent defense systems that are network centric and contain large scale sensor networks, BAE models and simulates different parts of these systems using a variety of different tools that combine the affects of battlefield communications networks, mobile ad-hoc networks (MANETs), UAV relays, etc. on traditional theatre of engagement scenarios. Their biggest challenge was integrating the diverse tools to create a comprehensive simulation. CNIR chose VR-Link®, the MÄK RTI, VR-Forces®, the MÄK Stealth, and the MÄK Data Logger to build the simulation and visualization solution they needed.

“MÄK’s products saved us the time of building our own custom applications without sacrificing any of our simulation requirements,” said *Walter Whimpenny, Project Lead, Modeling & Simulation*. “It would have taken anywhere from six months to a year to develop the capability we wanted on our own. MÄK’s off the shelf products have provided a well developed solution that still allows us the flexibility to customize it as we see fit.”

Using OPNET to model communications effects with VR-Forces, BAE is able to simulate the effects of communications on the result of a battle. For example, when an entity modeled in VR-Forces needs to issue a call for fire to another entity, instead of just passing the call for fire message directly to the intended recipient, it sends a

query to OPNET, through HLA. OPNET receives this query and calculates whether the message arrives at its intended destination and if so when depending on modeled factors which may affect the communications (e.g., distance, weather, terrain, line of site, routing algorithms, jamming, presence of relays, etc.).

“MÄK’s products were by far the most flexible and easily integrated tools we found,” said *Matthew Boyer, Modeling & Simulation Engineer*. “The products provided us with the simulation and visualization solution we needed. The robustness of the tools, and the ease with which they were integrated with other tools was a huge time saver.”

“With MÄK’s tools, we had immediate out of the box capability, but retained the flexibility we need to customize the software to fit our needs,” said *Walter Whimpenny*. “With their quality technical support, we knew we had someone to turn to when integrating all the diverse tools we chose.”

On multiple occasions BAE turned to MÄK’s technical support for help integrating the products with other simulation tools in their custom environment. MÄK also provided technical experts at the BAE facility to both train and work with BAE engineers to address specific technical hurdles.

BAE Systems, Communications, Navigation, Identification & Reconnaissance (CNIR) is a unifying force with technically superior solutions that transform the armed forces’ communication, situational awareness, mobility, and mission expertise. Their technical expertise includes: C3I systems, communications systems integration, guidance and navigation, electronic identification, airborne ground-based software development, and modeling & simulation. CNIR is at the forefront of innovation, working to develop the next generation of intelligent systems.