

Network Centric Forces (NCF)

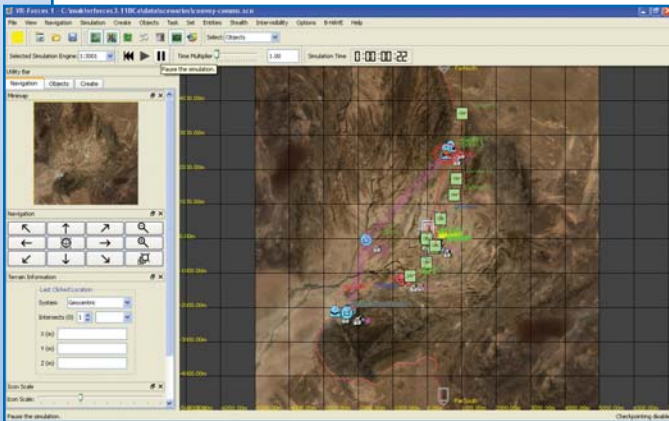
Battlefield Scenarios and **Network Conditions**

Combined to Accurately
Simulate Network Centric Warfare

AN OVERVIEW

Network Centric Forces is a comprehensive network centric warfare simulation package that realistically models the interrelation of network conditions and the virtual battlefield to predict battle outcomes. NCF includes QualNet®, SNT's simulation engine for predicting network performance, and VR-Forces®, MÄK's toolkit for generating and executing battlefield scenarios — all the tools a customer needs to get started quickly.

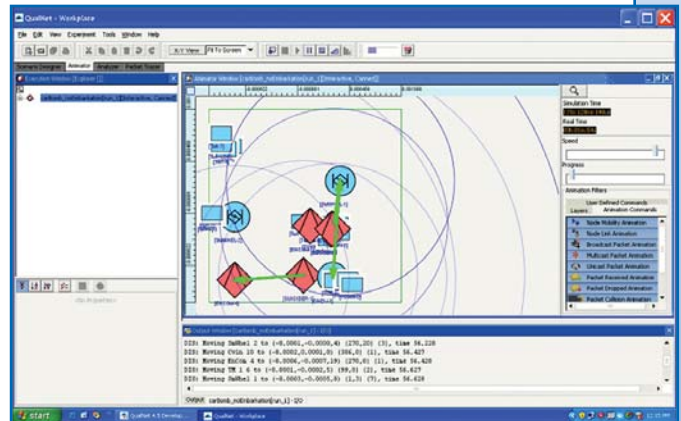
VR-Forces by VT MÄK



VR-Forces provides an intuitive and easy-to-use GUI that allows non-programmers to build battlefield simulations by dragging and dropping entities, drawing lines to create routes, and assigning tasks and plans with a mouse click. During scenario execution, VR-Forces entities send and receive radio communications, interact with the terrain, follow roads, avoid obstacles, and detect and engage enemy forces.



QualNet by Scalable Network Technologies



QualNet is high-fidelity simulation software for predicting network performance. It performs accurate simulation of network devices, transmitters, antennas, terrestrial characteristics, and human interactions, all at real time speed. Because of QualNet's super-efficient parallel kernel, it can support high fidelity network models while still maintaining fast simulation speeds, even for large-scale networks.



Network Centric Forces simulation improves warfighter and commander training and operational readiness in three ways:

WAR GAMING

Most war gaming systems assume perfect communications, meaning that a message sent by entity A to entity B is assumed to be received instantaneously and with 100% reliability. Anyone who uses a cell phone knows that's a myth. By modeling the communications infrastructure, NCF can show the realistic effects of on-the-move communications on the battlefield.

PROFICIENCY TRAINING

When you're on the move, your communications infrastructure is dynamically changing. NCF allows you to model this dynamic environment so that signal officers and warfighters can learn the capabilities of the communications infrastructure as well as how to handle performance degradations and system failures. Exposing warfighters to these frustrations and threats in a virtual context enables development of strategies to cope with these situations and mitigate their impact in advance of actual deployment.

UPDATING TT&PS

In network centric warfare, the warfighter is the network. By simulating a highly realistic communications environment, NCF gives military planners the detailed information they need to modify their Tactics, Techniques, and Procedures (TT&Ps) for network-centric operations. In a network-centric communications-chain, each entity in the chain of command assumes new communication-specific TT&Ps in addition to existing TT&Ps. For instance, once a target has been spotted by a man on the ground, the commander might request visual confirmation from an intelligence satellite or UAV, all within minutes or seconds.

Case Study

Battle is being waged in VR-Village. Blue Forces and Red Forces have limited effectiveness because their radios require line of sight links and the urban environment limits how much communication gets through. A Blue Force UAV flies over the streets approaching VR-Village, looking for a particular Red Force Command and Control vehicle. The UAV spots the vehicle, and because of behavioral rules defined in VR-Forces, it relays this information up the command chain to a helicopter a few miles away. The helicopter is armed with hellfire missiles and takes out the Red Force Command and Control vehicle.

With NCF, warfighters and commanders can train to operate under optimal and suboptimal communication environments and leverage the power of network-centric systems in ways previously unimaginable.

NCF with B-HAVE®

(OPTIONAL UPGRADE)

NCF with B-HAVE provides more complex and realistic behaviors to VR-Forces entities to deal with complex terrain, like urban environments. With the B-HAVE AI module for VR-Forces, entities can analyze terrain topology, intelligently navigate through complex urban environments, automatically plan and follow paths through 3D building interiors, dynamically avoid collisions with obstacles or other entities, and flee from threats. B-HAVE adds more intelligent navigation to VR-Forces by extending the set of tasks available to VR-Forces users out of the box.

NCF with EXata®

(OPTIONAL UPGRADE)

Snap out QualNet and snap in EXata as your communications effect server and add hardware- and Internet-in-the-loop to NCF. EXata is the only network evaluation tool that can create "software virtual networks" — exact digital replicas of physical networks in virtual space that are indistinguishable to applications, devices, or users. For instance with EXata, you can send a real VOIP call through the NCF platform, experiencing first hand what the call sounds like at the other end of the network.



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