

OPNET Technologies, Inc.

Communications networks and networked applications now play a crucial role in military training and operations. The company provides intelligent software solutions that directly tackle issues faced by network and IT professionals. **Fiona Stoddart** profiles this Bethesda, Maryland company.

Founded in 1986, OPNET Technologies, Inc. has become a leading provider of management software for networks and applications. The company's solutions address application deployment planning, systems capacity planning, network configuration auditing, network capacity and resiliency planning, and network technology R&D. OPNET's modeling platform is capable of accurately simulating communications among thousands of network nodes, including fixed and mobile units using mobile ad-hoc networking protocols, in faster than realtime. Depending on the level of fidelity and performance required, the company uses a combination of highly optimised discrete event simulation, flow-based analytical modeling, parallel simulation, "hybrid" simulation, and co-simulation techniques (including HLA). The result is a family of custom, COTS and GOTS software applications that enable just in time decision making for strategic and operational planners.

OPNET is involved with numerous modeling and simulation projects supporting the network-centric operations and warfare (NCOW) transition, including being prime contractor of the DISAJCS NETWARS program, and providing a standard network modeling environment for the WIN-T program. Recently the company implemented the realtime NETCOP (Network Common Operating Picture) system for the US Central Command Air Forces. This system takes automation to the next level by using models to unify network data from already-deployed network

management systems in a way which facilitates faster decision making.

The company, in partnership with MÄK Technologies, has recently introduced a 3D network visualization technology that allows military planners to understand the effects of communications and terrain. Todd Kaloudis, vice president of Business Development at OPNET explained that there is interest in the area of connecting this capability with force-on-force simulations and realistic combat models.

"Network-centric operations and warfare creates some fundamental challenges that the modeling community has to address," said Kaloudis. "The full impact of C4ISR technologies on lethality and survivability in combat is still not understood as well as it needs to be." For planning and training purposes, models need to balance accuracy with scalability. Both of these areas have been of major importance to OPNET in recent years, and are a driving force behind a lot of the innovation and growth within the defence market.

Kaloudis described another challenge for the modeling community as that of providing operational relevance for models. This includes both interfaces with live data sources, and an interface that makes sense to the warfighter. These are areas that OPNET is pioneering having been pushed into it from many customers. "Our models now understand a broad range of network devices, configuration formats, traffic, performance applications, IERS, and most recently security parameters from the production network."

OPNETWORK 2004 was the company's annual, weeklong user conference. Over 1,500 IT and engineering professionals gathered in Washington, DC from 30 August to 3 September to participate in hundreds of hours of training, user case studies, meetings, social events and partner demonstrations. Attendees from 39 countries represented corporate enterprises, government agencies, service providers, and network equipment manufacturers. OPNET engineers offered previews of the company's upcoming product releases and hands-on tutorials. A keynote speaker, Retired Army CIO and Lieutenant General, William Campbell, now vice president of C4I at BAE SYSTEMS, shared his vision for "Operationalizing Modeling and Simulation" with delegates. The presentation included a 3D demonstration of BAE's military communications planning capabilities, leveraging new software from OPNET and MÄK Technologies.

Kaloudis explained: "The event brings together thought-leaders from the modeling and management communities who don't have many opportunities to meet at other less focused industry events. The focus on technology and methodology, as opposed to abstract theory is unique."

As a company OPNET invests approximately 25% of revenue into R&D, and is constantly building the next generation of network modeling technologies. On the horizon are a new breed of tools that will define the state-of-the-art for fast network simulation runtimes, leverage operational data from an increasingly diverse set of external systems, and visualise the communications domain in three dimensions.

"We are fortunate to have such a passionate and talented group of customers, who have helped us direct our R&D so that we stay on the cutting edge of the markets in which we operate" concluded Kaloudis.

More information about OPNET is available at <http://www.opnet.com> **MS&T**