



Center of Excellence

in Battlefield Communications Research


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PURPOSE OF THE CENTER:

To develop the center to address state-of-the-art research, create innovating educational programs, and support technology transfers using commercially viable results to assist the Army Research Laboratory to develop the next generation Future Combat System in the telecommunications sector that assures prevention of perceived threats, and Non Line of Sight/Beyond Line of Sight lethal support.

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SCOPE AND OBJECTIVE OF THE CENTER TO SUPPORT ARL (2004 – 2009):

SCOPE: To develop enabling technologies for the Digital Battlefield Communications for the next generation based on Ad Hoc Wireless Networking. The research will address the critical problems of (1) bandwidth limitation of ad hoc wireless networks; and (2) power limitation of the smart appliances used in the battlefield.

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OBJECTIVE: The objective is to develop a novel battlefield communications network architecture that supports multi-service applications (voice, data and video) using a seamless Internet Protocol (IP) transport, where each application is autonomously managed with minimal or no overhead bandwidth used, while achieving efficient power savings in transmission. Autonomous management includes specific algorithms that involve self embedded error correction and Quality of Service assurance management. Power savings is achieved using optimal power to efficiently exchange information globally.

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THE CENTER'S EXPERTISE IN RESEARCH:

Network Architecture Design, Analysis and Emulation (wired, wireless and ad hoc wireless sensor networks); Multi-Service Application Quality of Service (QoS); Dynamic Routing and Network Scalability; Security Management; Power Efficiency and Control in Transmission; Embedded Error Correction; Embedded Systems Design; and Performance Analysis and Network Management & Control.

THE CENTER'S CURRENT FUNDING:

Army Research Laboratory Seed Funding: \$ 2.42 Million.

THE CENTER'S FACILITIES:

- Packet Storm Network Emulation Facility
- Linux and Windows Servers
- Linux and Windows Clients
- Sensors and Sensor Network
- OPNET and MATLAB Simulation Facility
- Network Elements and Multi-service Traffic Generators
- IEEE 802.11 based Wireless Network Facility

Supported by ARL/ARO



Any opinions, findings, and conclusions or recommendations



expressed in this material are those of the authors and do not necessarily reflect the views of the ARL or the US government.

CeBCom at PVAMU

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