2019-12

COTS Solution for Adaptive Communications Paths Using Tactical Handhelds

Singh, Gurminder; Prince, Charles; Beverly, Robert

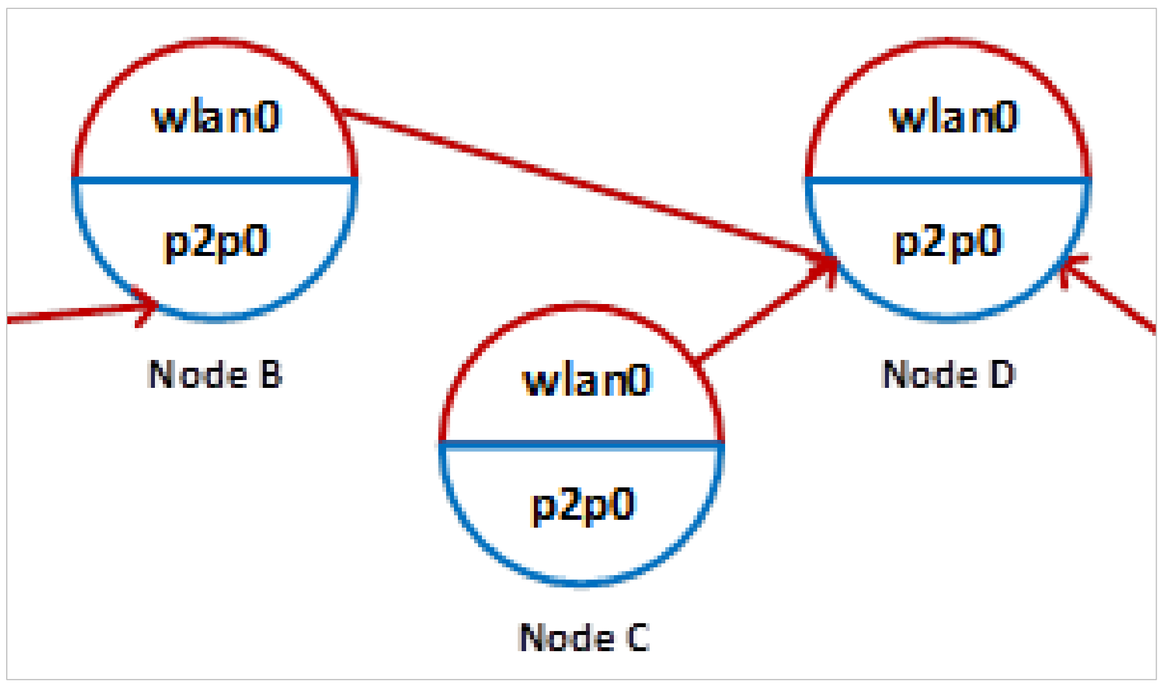
Monterey, California: Naval Postgraduate School

COTS Solution for Adaptive Communications Paths

Naval Postgraduate School

Background

- Military often operates in austere networking environments which lack computing and communication infrastructure
- Tremendous progress has been made in networking, processing and sensing capability of mobile devices
- Exploit these capabilities to enable our military personnel to operate without having to rely constantly on external infrastructure



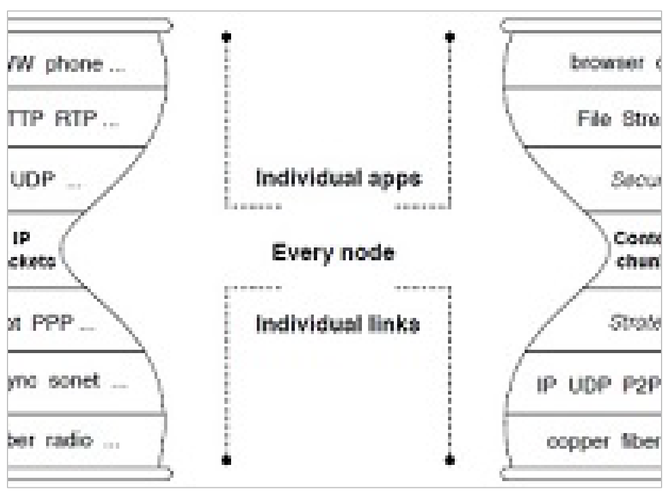
A Homogeneous WiFi Mesh Network

Infrastructure-less Comms

By exploiting such radio waveforms and protocols such as Bluetooth, WiFi Direct, and WiFi, the "tactical handheld" could change the communications domain in a satellite denied, bandwidth limited environment that we expect to see in our next engagement

Named Data Networking (NDN)

- NDN fundamentally changes the network service from delivering packets to a specified destination machine address to fetching data with a specified name
- Content, rather than end hosts, is named
- NDN has many potential benefits, including the ability to support infrastructure-less communication.
- Can operate over a variety of waveforms, radios and network topologies
- Easily exploits the broadcast capabilities of today's networking devices while also avoiding many of the problems that exist within IP networks



NDN for Infrastructure-less Comms

- Link-layer agnostic
- Does not require infrastructure or servers to run
- Can tolerate disruptions
- Is open-source licensed
- Supports many existing useful applications

Researchers: Prof. Gurminder Singh, Prof. Robert Beverly, Mr. Charles Prince, Mr. Shru Musukula, Mr. Daniel Duan, and Ms. Samantha Batson
Graduate School of Operations and Information Science
Topic Sponsor: Marine Corps Tactical Systems Support Activity (MCTSSA)

NRP Project ID: NPS-19-M244-B