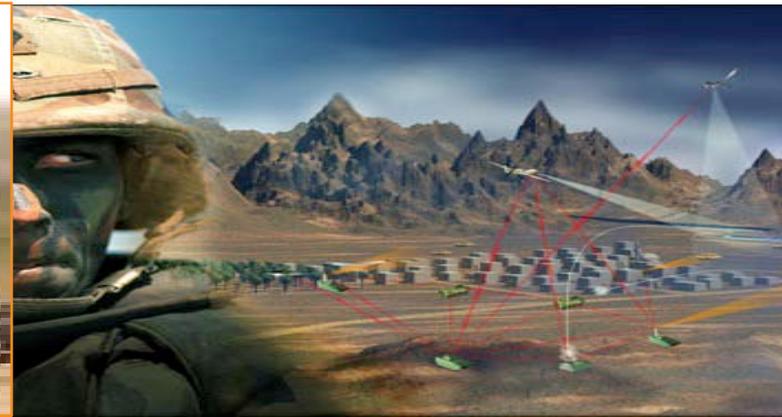




# The Modern Army & Tactical Collaboration

Derrick Hirschhorn  
Ankara Expo  
09 Oct 2012





It's about getting the right information to the right person on the right device at the right time!



# “Information + Collaboration”

equals

It's about using that information in a Collaborative manner in making the best decisions at that time!

**“Force Multiplier”**



Communication & Collaboration was very different in our recent past...



# Communities must range





# PONY EXPRESS

St. JOSEPH, MISSOURI to CALIFORNIA  
in 10 days or less.

**WANTED**

**YOUNG, SKINNY, WIRY FELLOWS  
not over eighteen. Must be expert  
riders, willing to risk death daily.**

**Orphans preferred.  
Wages \$25 per week.**

**APPLY, PONY EXPRESS STABLES  
St. JOSEPH, MISSOURI**

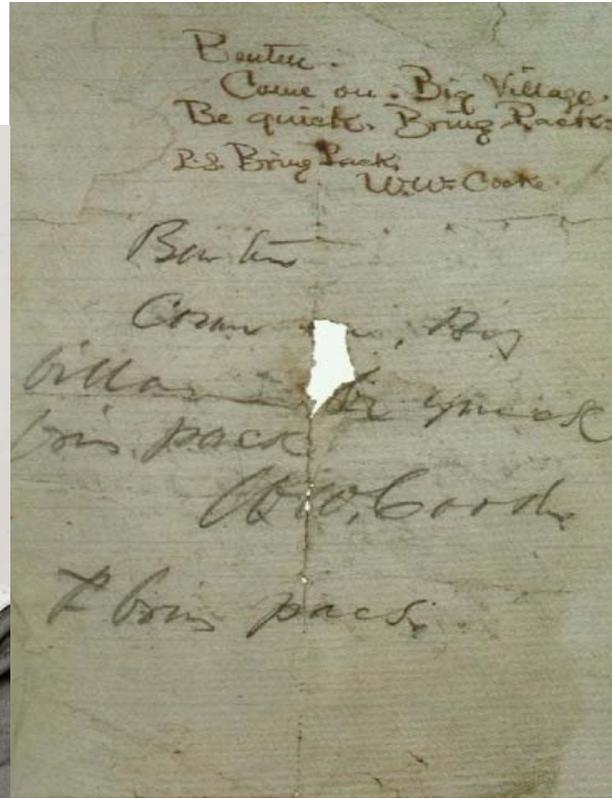
tions must  
mobile



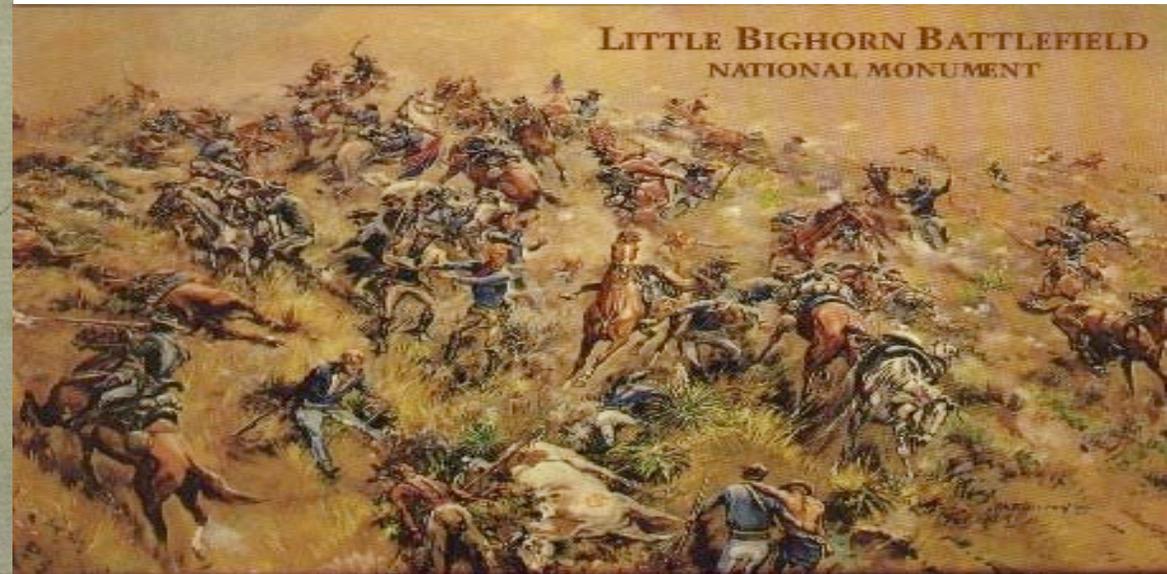
# Communications must be Dependable

Message sent for Reinforcements

General George Custer

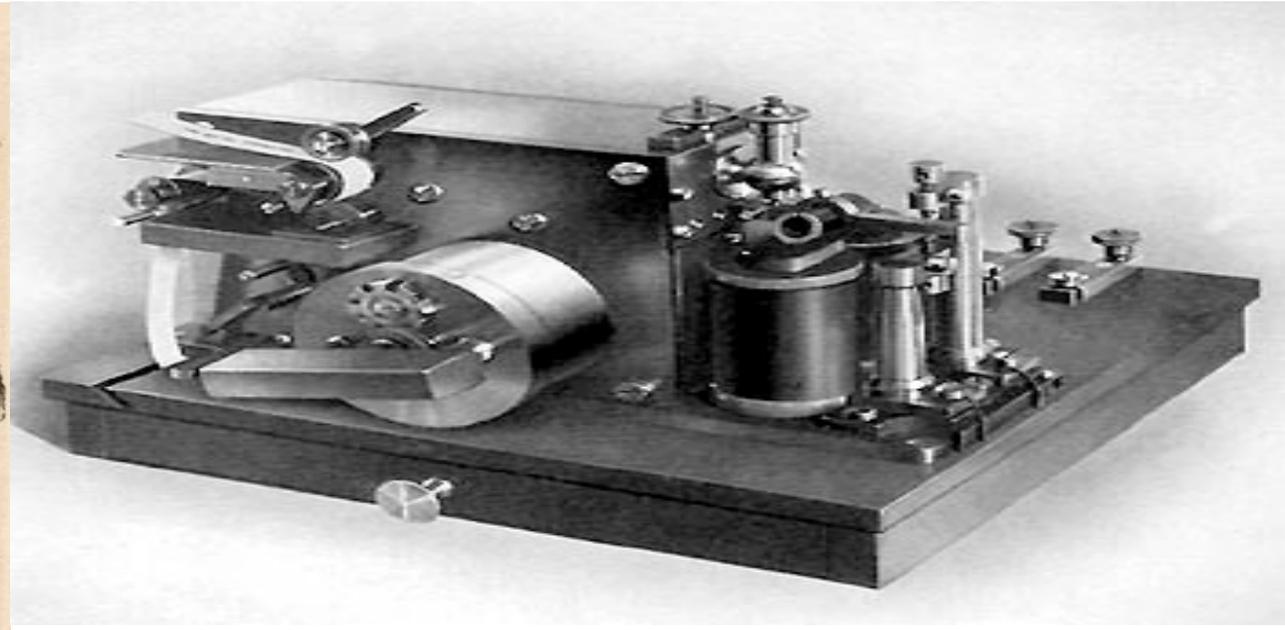


Battle of the Little Bighorn Known as Custer's Last Stand



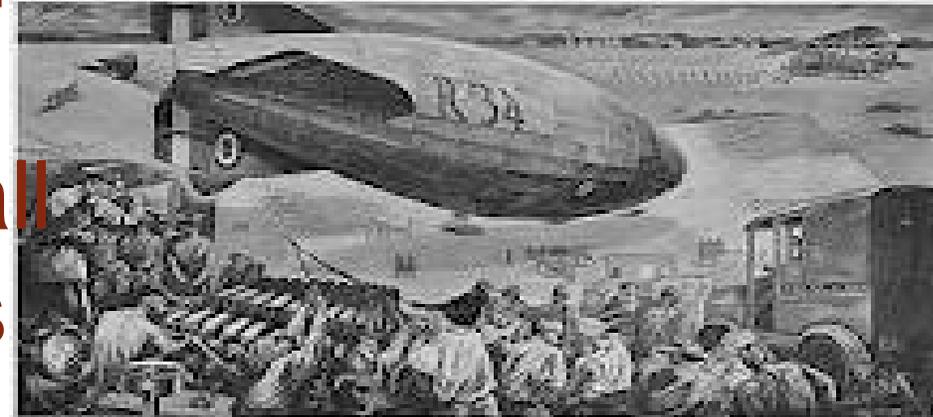
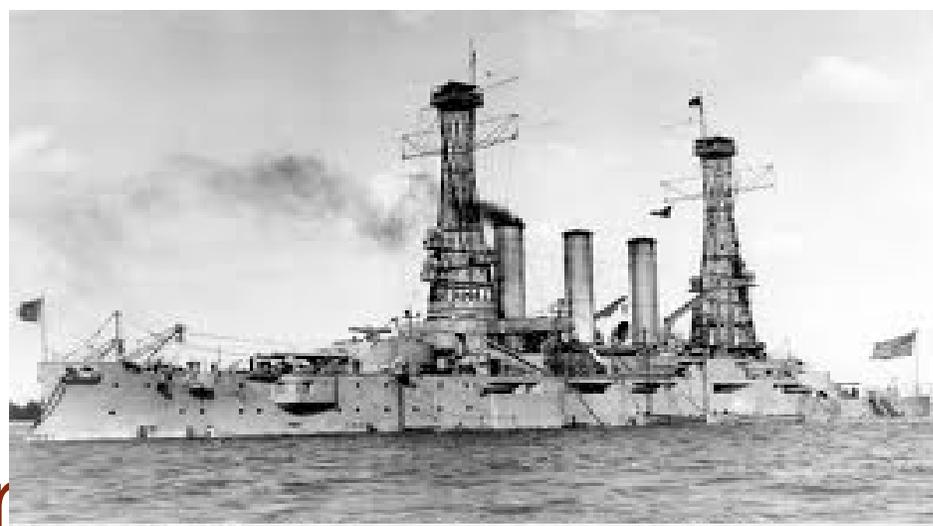


## Telegraph Machine



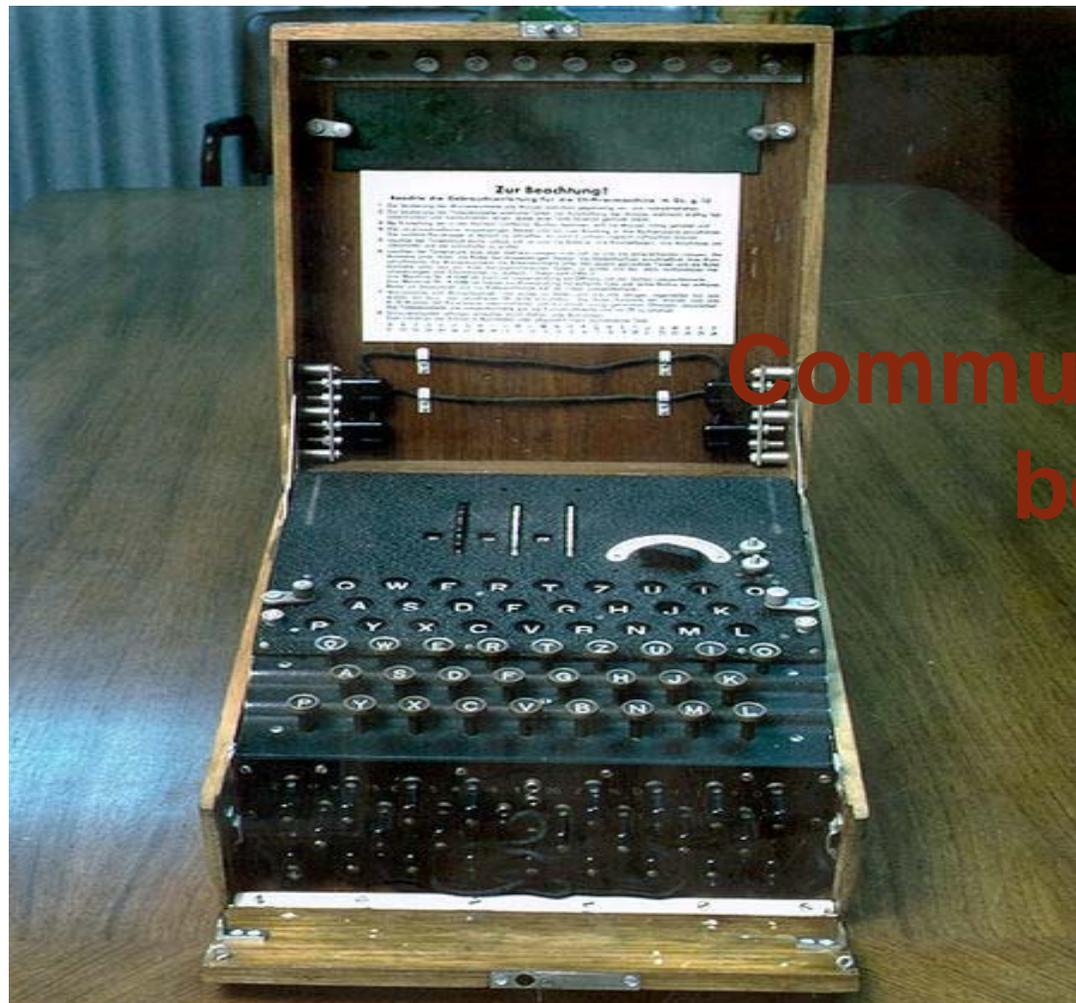
**Communications must  
be fast**

Communications r  
scale and be  
accessible in all  
environments





# Enigma Machine



**Communications must  
be Secure**



# Fast Forward today...



# Today's Defence Forces rely on the "Power of Information" More then ever...





# The battle landscape has changed...





# Video



# Collaboration in the Tactical



Mobile

**Dynamic RF Links**

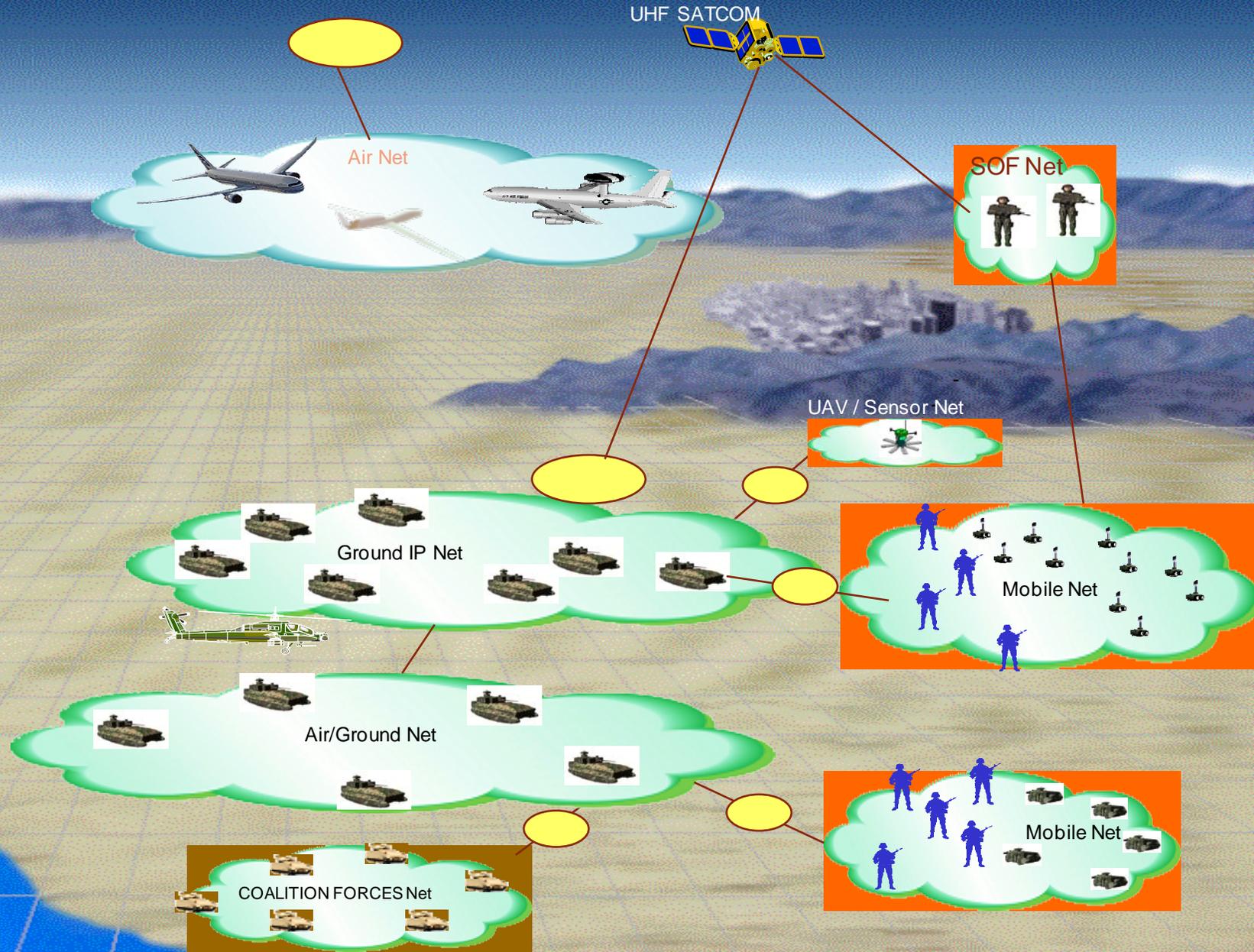
**Rapid Topology Changes**

**Wide Range of Radios**

**Routing Protocols**

**Size, Weight, & Power**

**Distributed Services  
(QoS, Security)**





# Vehicle Communication Package Challenges



- Overcrowded Crew Compartments
- Redundant Hardware
- Complex Non- Standard Cabling
- Increased Power Consumption and Cooling costs
- Longer System re-set and Life Cycles Increases Total Costs of Ownership



# Challenges with MANet

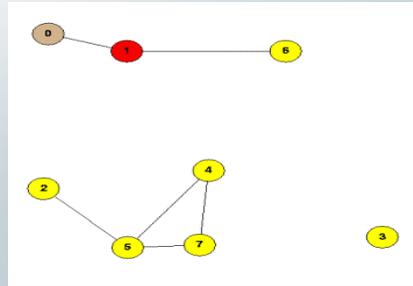
- Moving nodes with no Fixed Communication infrastructure
- Problems with radio bearers
- Plug 'n play
- Multiple exits from the mobile cloud
- Multiple radios and overcrowded crew compartments



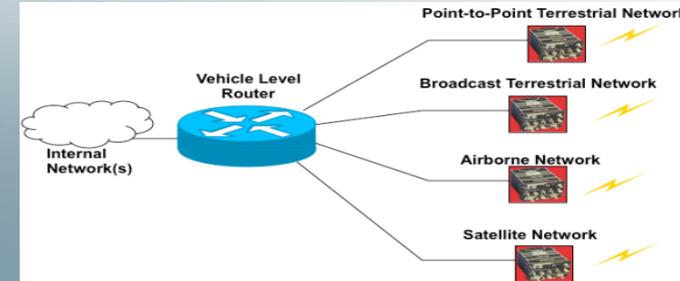
# Introducing Cisco's Mobile Ready Net

## Anything that Drives, Walks, Flies, Sails

### Ad Hoc Mobility



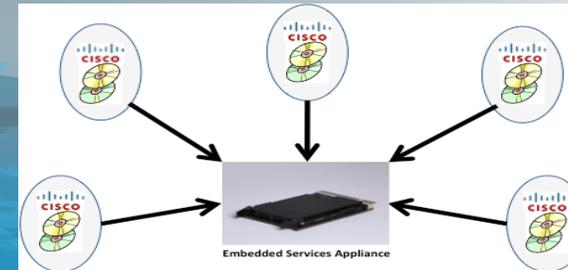
### Radio Aware Routing



### Platforms



### Applications & Services



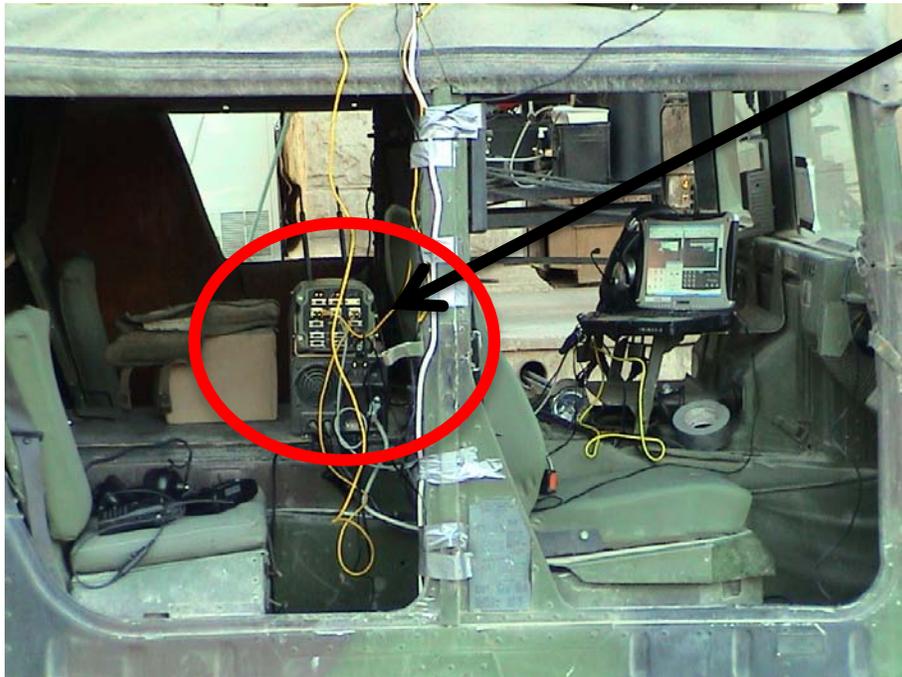
## Vision: Mobile Networks of the Future

Enables people to **connect and communicate** how, when and where they want with no limitations on location, and continuously adapts to their needs without a reliance on pre-defined fixed infrastructure.



# Networking On The Move

5 years ago  
Mobile Stand-alone Router



Today  
Embedded Routers





# Networking On The Move

**Software Routers**

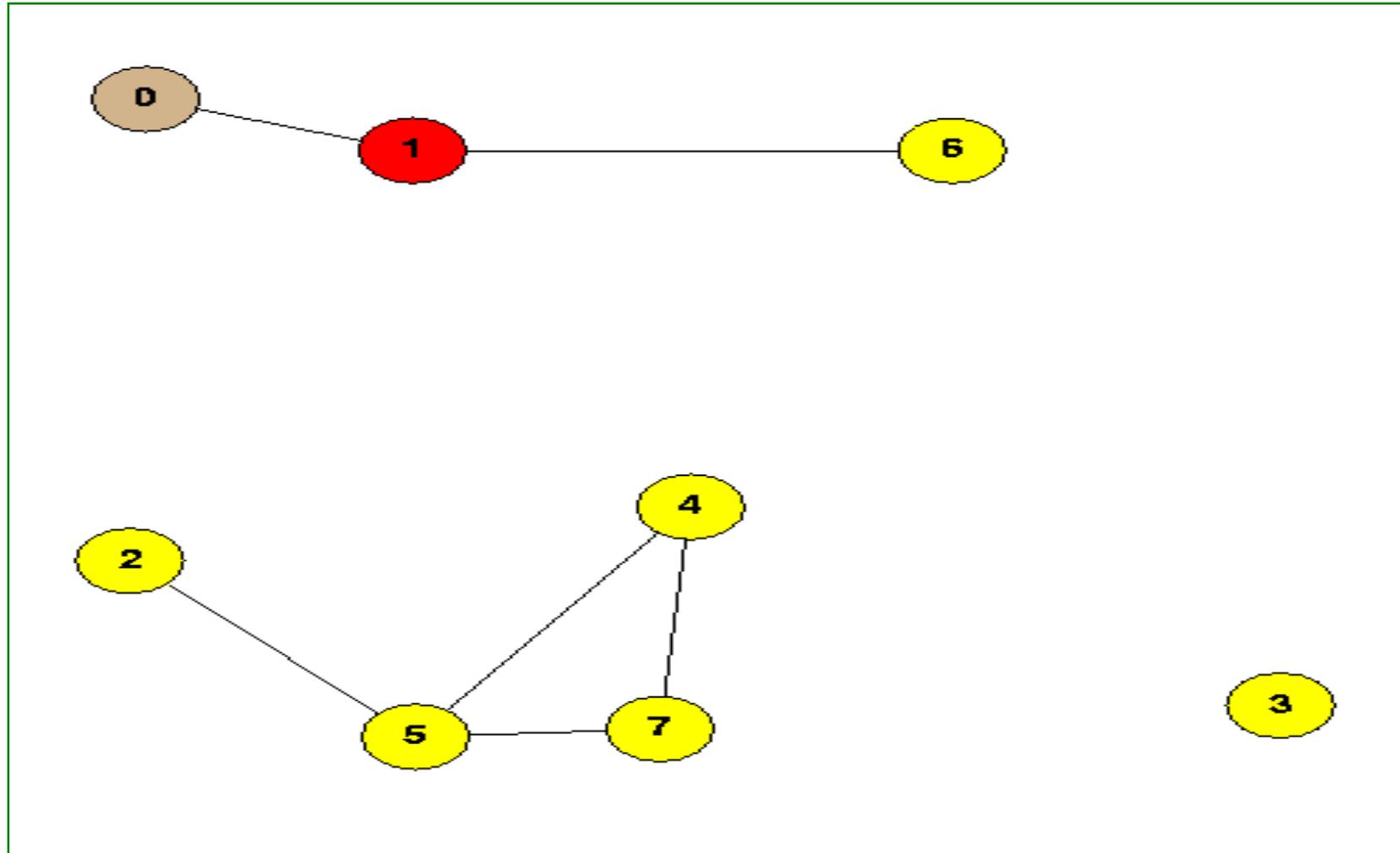


**00110101010101010**

**Coming soon – “Mid Year 2013!”**



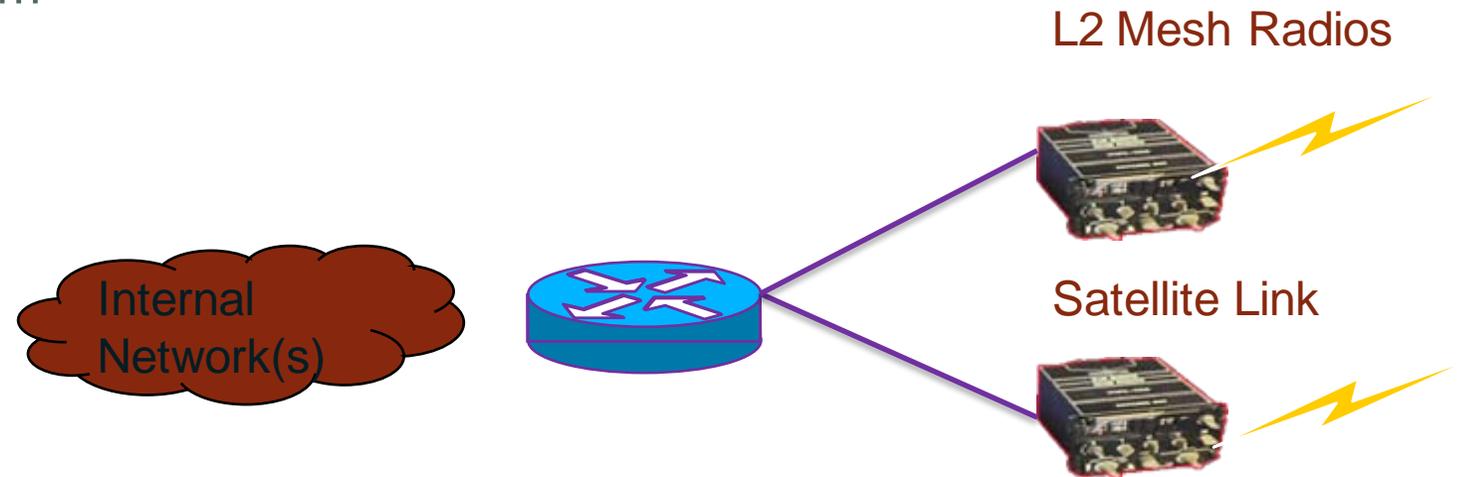
# OSPFv3 – MANet Extensions





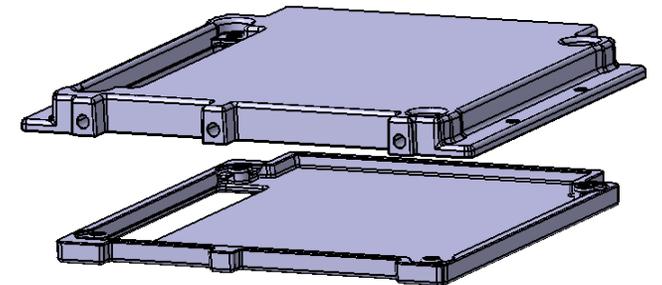
# Radio Aware Routing

- IP Communications systems are built with a growing number of radios.
- Radio link conditions (bandwidth and availability) can change frequently
- To effectively manage these conditions while enforcing routing and QOS policy, routers need visibility into radio conditions.
- DLEP designed to address the problem



# Applications & Services

- Standard Services are included with the Cisco's IOS. i.e. RAR,
- Applications run on an appliance and included with the same enclosure as ESR:
  - Compliant with Industry standards
  - Reducing SWP-C
  - Complimenting ECO system of all products & apps being used for the mission



*Teşekkürler!*



*Thank you!*



# Back-up Slides