



Soldier Node

Secure Tactical Communications for Swedish Soldiers



BURET KRYPTO



Agenda

- **Why Soldier Node?**
- **Soldier Node in context**
- **Functions**
- **Requirements**
- **Challenges**
- **The Project**



Why Soldier Node?

- **No military radio manufacturers in Sweden**
- **Difficult to gain sufficient information about crypto implementation in COTS/MOTS products**
- **Create ONE network by joining battalion communication networks**



Soldier Node in context



Headset

**Soldier
Node**



Soldier
BMS



Platoon
Radio



Personal
Role Radio



Vehicle intercom/
communications



Functions

- ***Voice*** (multicast, tactical)
- ***Data*** (2 Mbit/s, IP)
- ***Headset adaption***
- ***Router for transmission***
- ***Crypto*** (Swedish Restricted)



Basic requirements

- ***500 grams maximum***
- ***16 h battery life***
- ***Field programmable***
- ***Listen to/decrypt three voice sources***

Availability is of high priority!



The Project

Procure development and series delivery of Soldier Node.

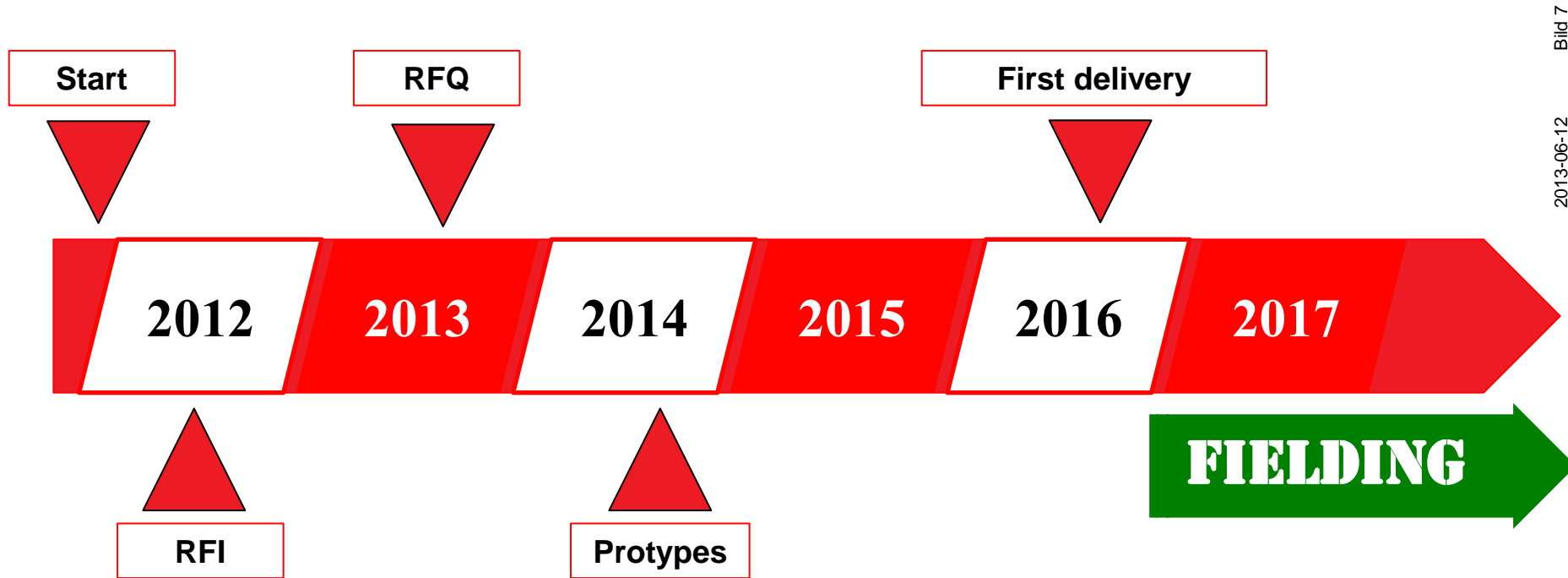


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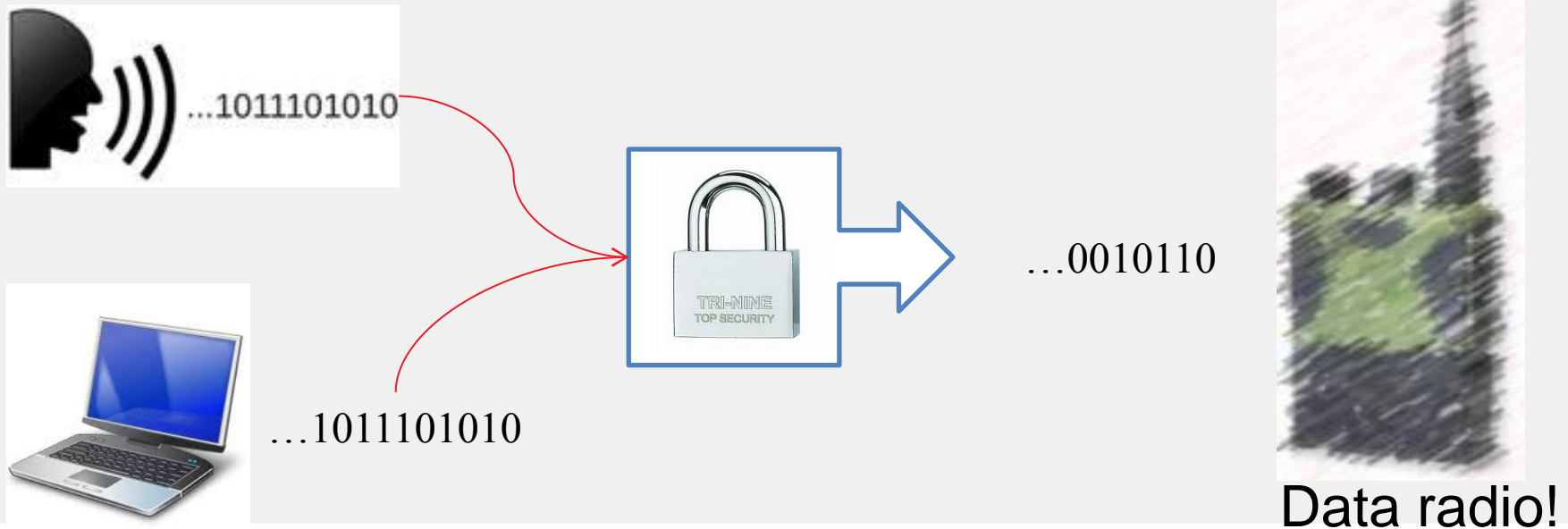
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FMV



Challenges for the radio

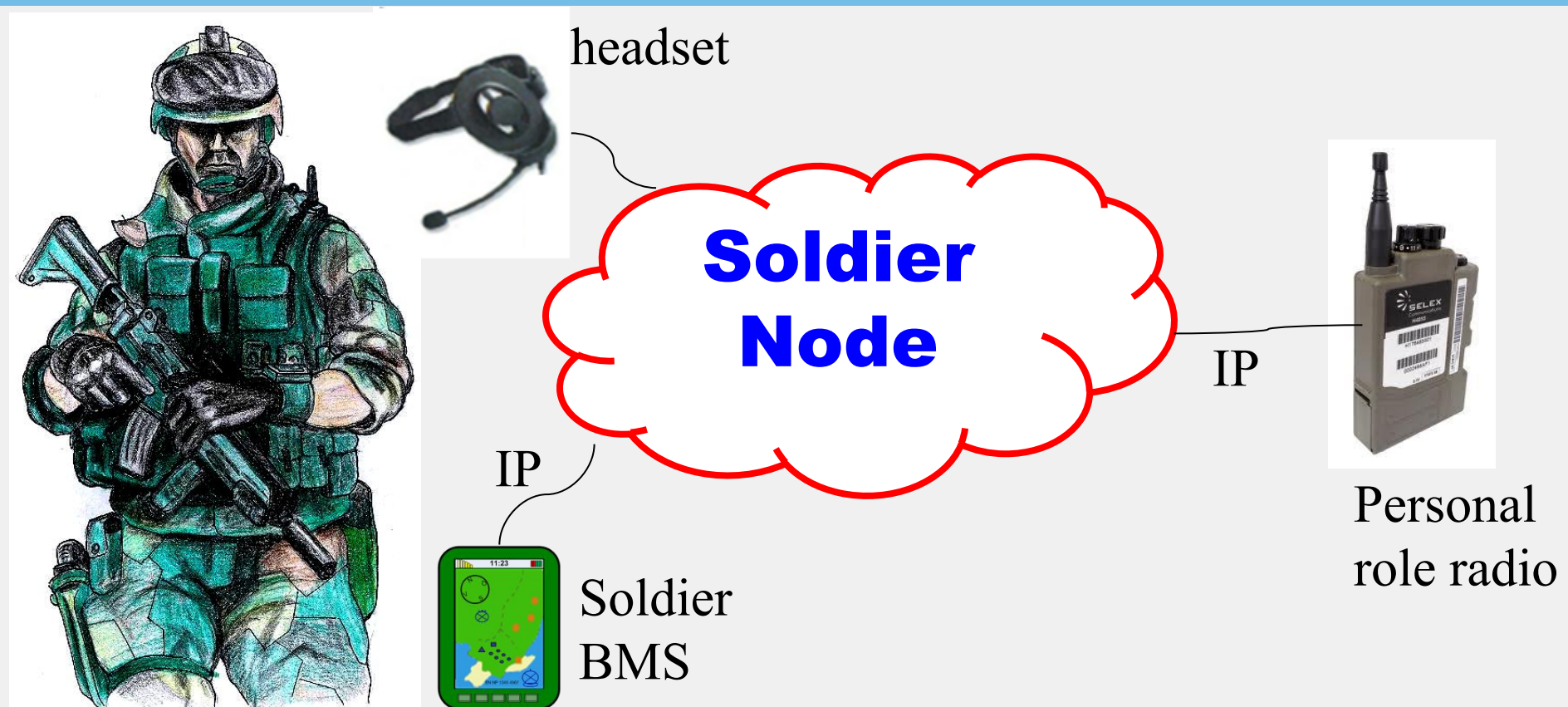
- Encrypted voice is data
- Requirement of IP data radios capable of transmitting externally generated encrypted VoIP



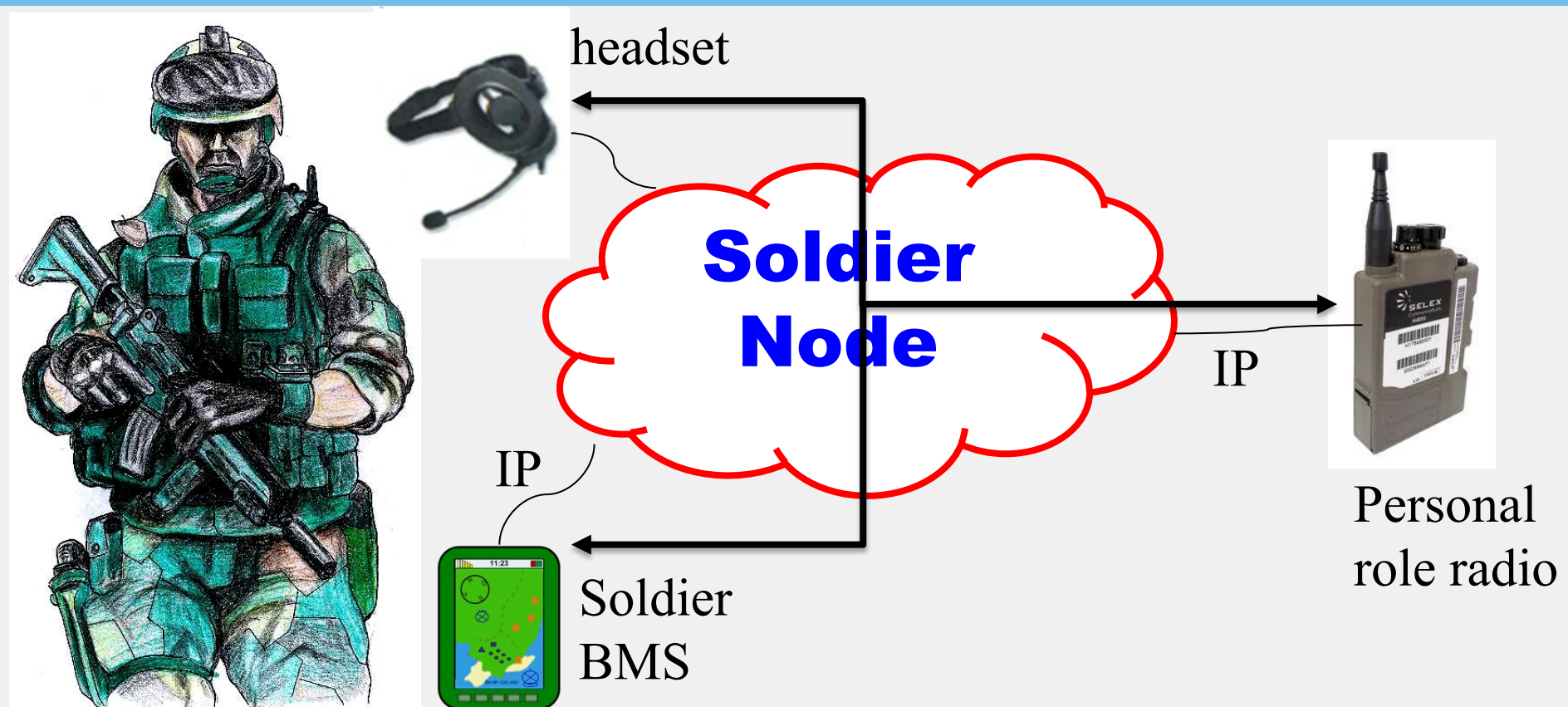
Consequences for the radio

- Need to support standard IP protocols
- Additional overhead for voice
 - 2.4 kbps SCIP over RTP -> about 6 kbps per voice session
- The bandwidth is limited
 - 25 kHz for narrowband waveforms
- Header compression
- Quality of Service functionality to prioritize VoIP
- Embedded COMSEC in the radio need to be bypassed

Use case - dismounted soldier

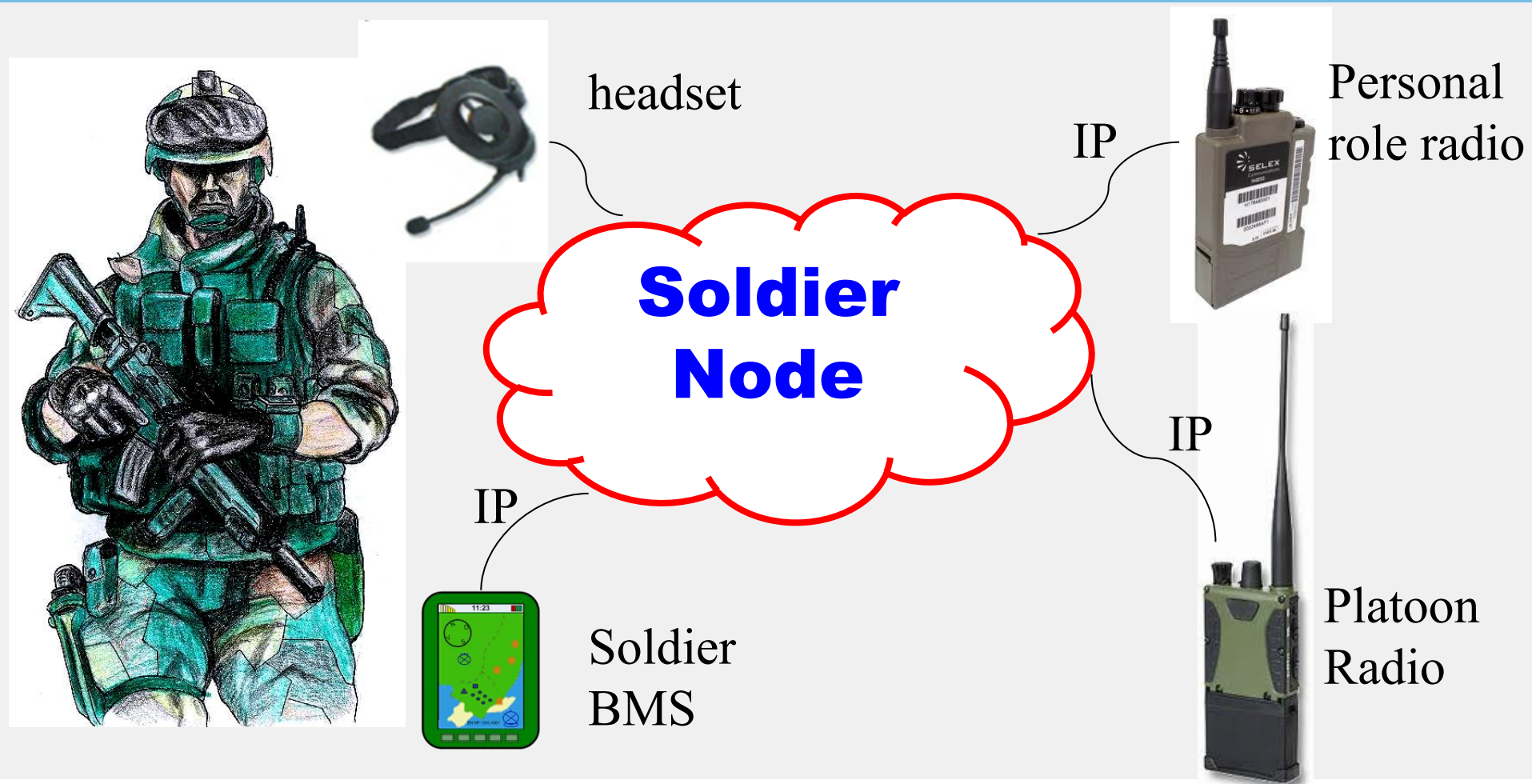


Dismounted soldier

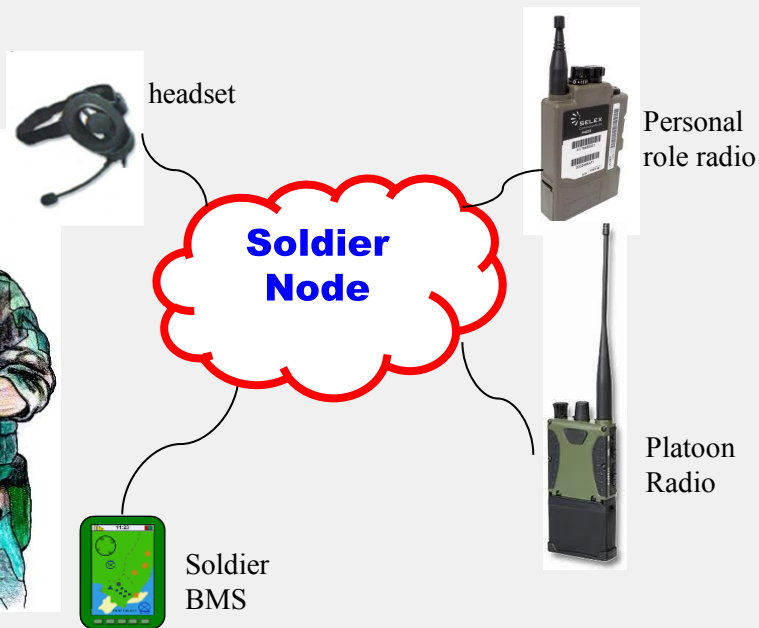


Simultaneous transmit and receive BMS data and voice

Use case - dismounted squad leader

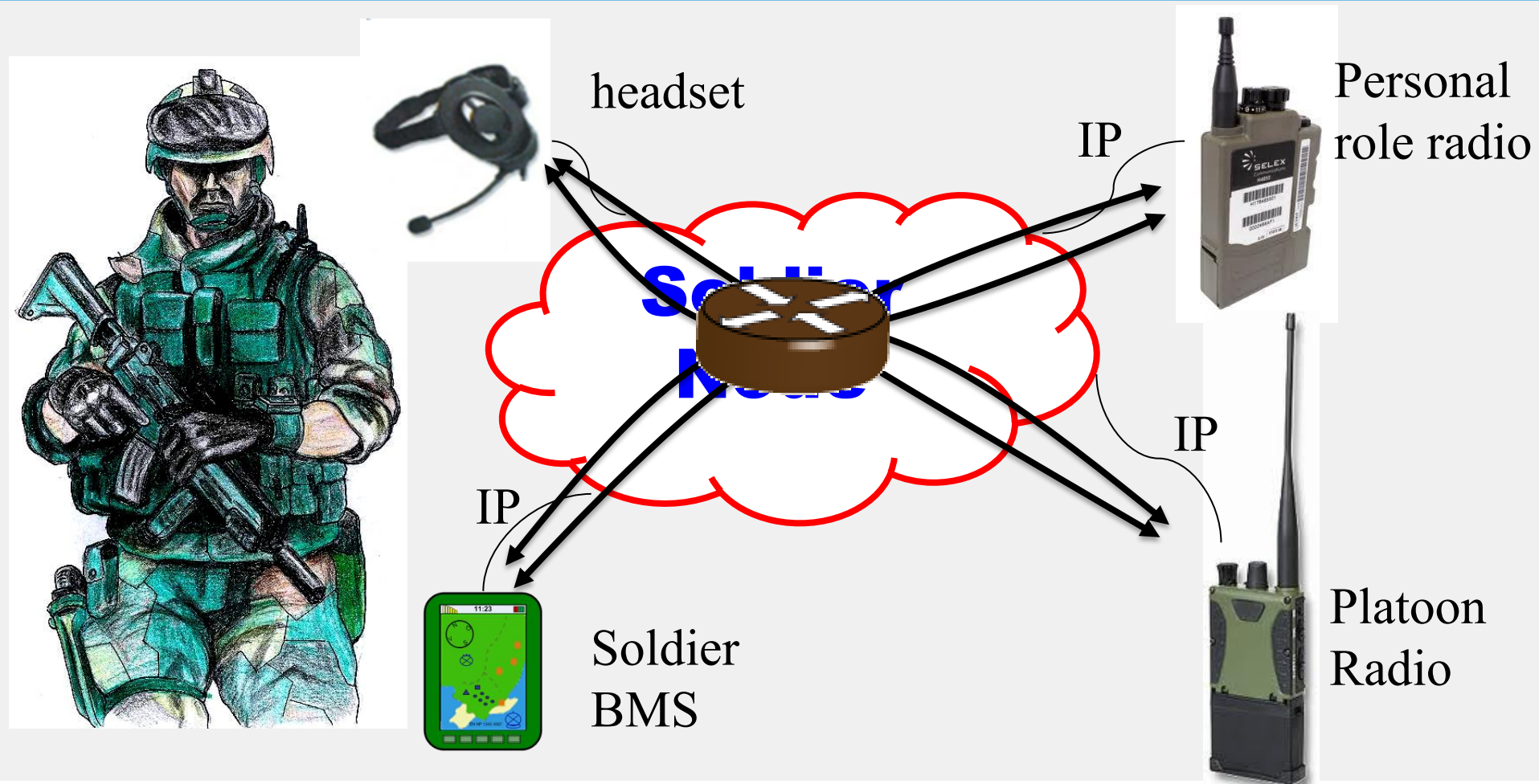


Dismounted squad leader

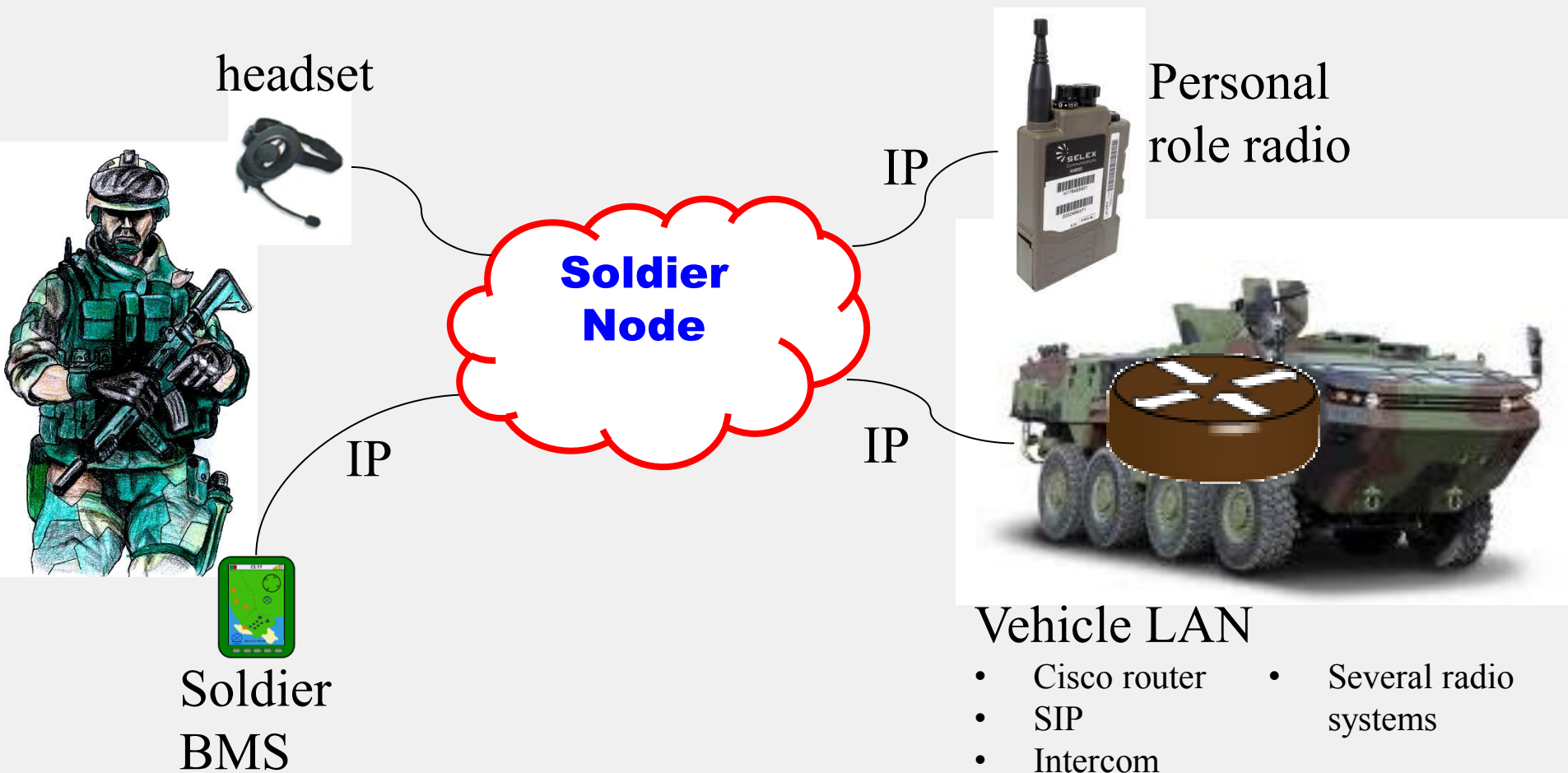


- Simultaneous transmit and receive
 - 2 voice sessions on different radios
 - BMS data on 2 different radios

Routing needed for the dismounted squad leader



Use case - mounted soldier



Summary

- Soldier perspective
 - Personal equipment
 - Training
- Battalion network perspective
 - IP down to soldier level
 - End-to-end encryption
- Approval perspective
 - Opens up for wider radio selection

QUESTIONS?



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