Soldier Node

Secure Tactical Communications for Swedish Soldiers

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 batallion communication networks**

Soldier Node in context

Headset

Platoon Radio

Soldier Node

Personal Role Radio

Soldier BMS

Vehicle intercom/ communications

Bild 4

2013-06-12

BURET KRYPTO

FMV

Functions

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

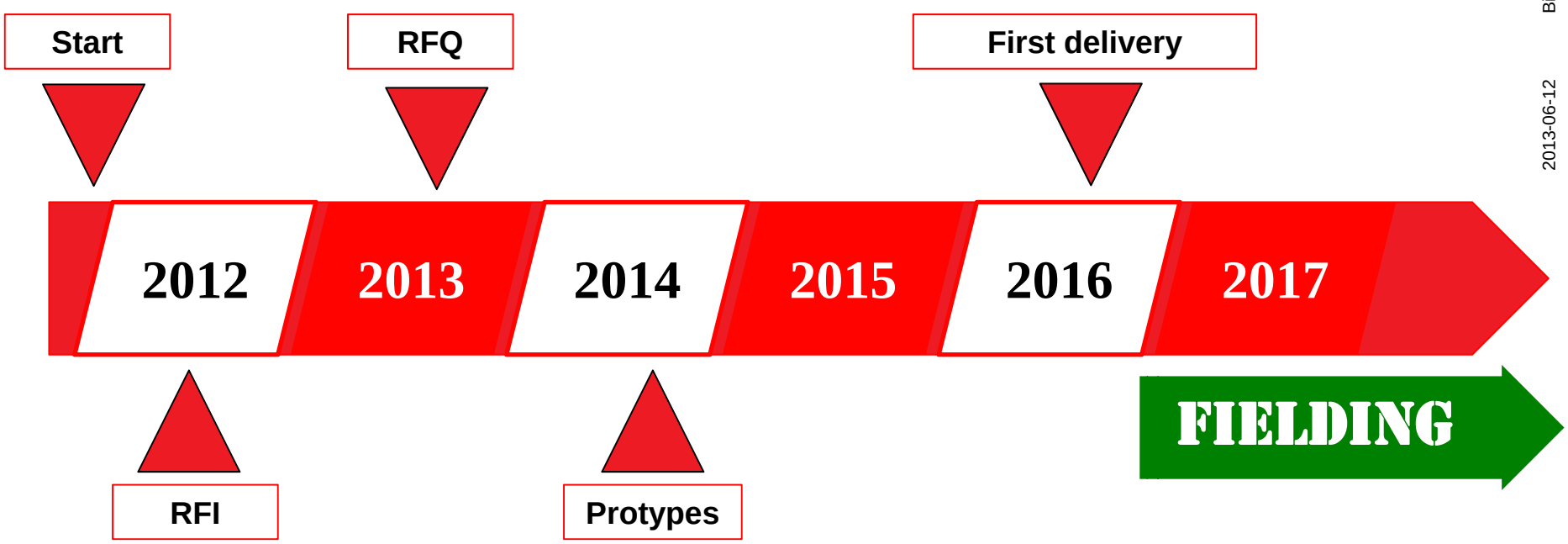
Basic requirements

- ***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.



Challenges for the radio

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

…1011101010

…0010110

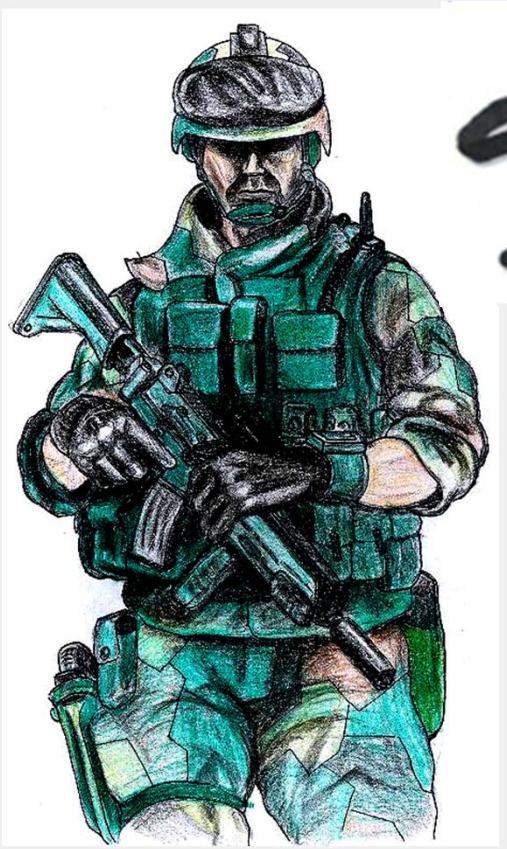
Data radio!

FOI

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



headset

Soldier Node

IP

Personal role radio

IP

Soldier BMS

Dismounted soldier

headset

Soldier Node

IP

Personal role radio

IP

Soldier BMS

Simultaneous transmit and receive BMS data and voice

FOI

Use case - dismounted squad leader

headset

IP

Personal role radio

Soldier Node

IP

Platoon Radio

IP

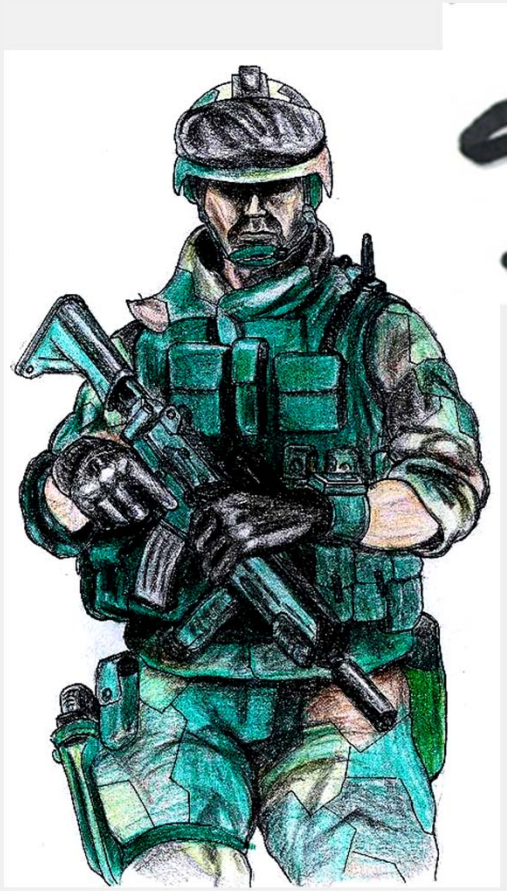
Soldier BMS

FOI

Dismounted squad leader

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

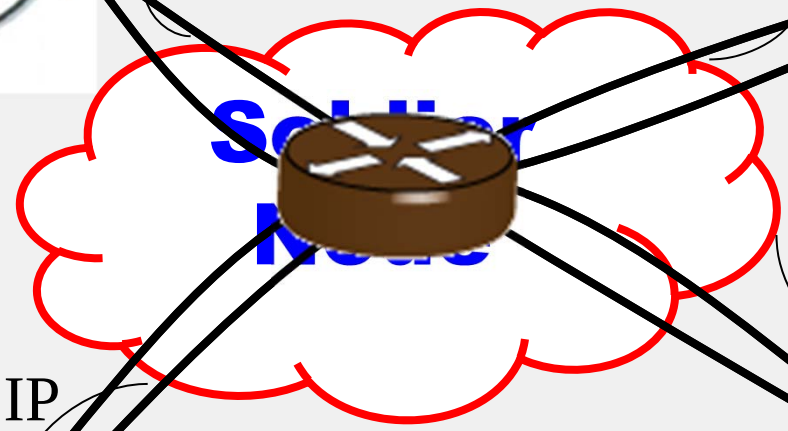
Routing needed for the dismounted squad leader



headset

IP

Personal role radio



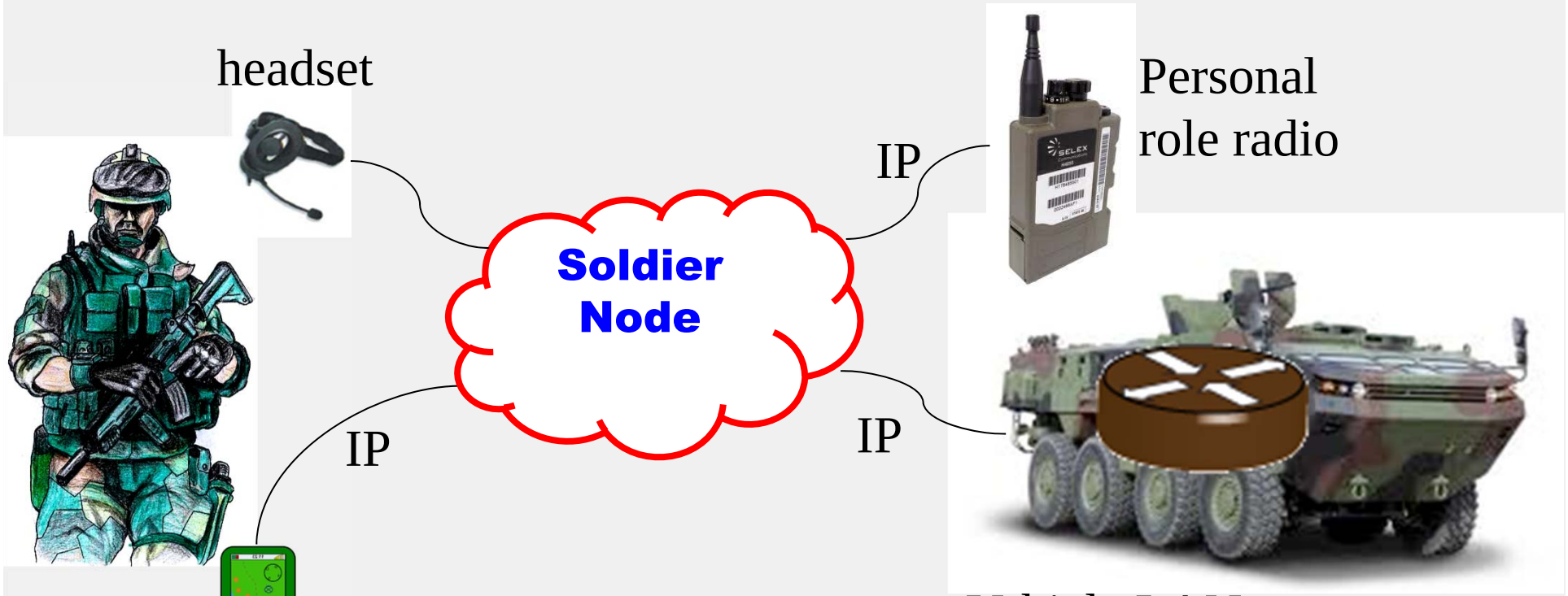
IP

Platoon Radio

IP

Soldier BMS

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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