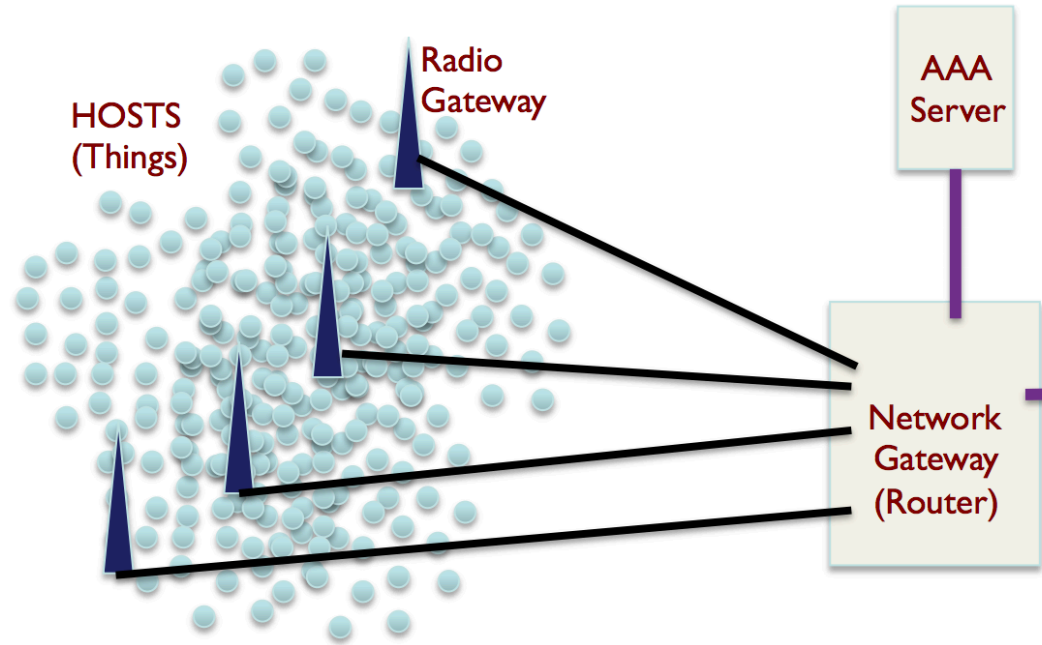


# LoRaWAN Wireshark dissector

- LoRaWAN is one link technology of interest to LPWAN WG
- We want to
  - check live LoRaWAN traffic
  - dissect encapsulated protocols



# What we achieved

- Source code available at <https://github.com/ltn22/LoRaWAN-Wireshark-Dissector>
- Team of 5, two Master's students (first-time IETFers)
- Traces captured remotely at Grenoble, France
- Able to dissect all LoRaWAN frame headers, MAC commands codes

11:44:02.591882	14	FrameProduce	[Node 14](LoRa Stack) :: 80:31:12:11:15:02:
11:44:16.473986	14	FrameProduce	[Node 14](LoRa Stack) :: 80:31:12:11:15:02:
11:44:18.825737	14	FrameRX	[Node 14](LoRa Stack) :: 60:31:12:11:15:25:
11:44:30.310645	14	FrameProduce	[Node 14](LoRa Stack) :: 80:31:12:11:15:02:
11:44:32.664357	14	FrameRX	[Node 14](LoRa Stack) :: 60:31:12:11:15:25:
11:44:44.147169	14	FrameProduce	[Node 14](LoRa Stack) :: 80:31:12:11:15:02:
11:44:46.500398	14	FrameRX	[Node 14](LoRa Stack) :: 60:31:12:11:15:25:
11:44:57.985166	14	FrameProduce	[Node 14](LoRa Stack) :: 80:31:12:11:15:02:

Frame ID: 0x0d	0000	0e 00 00 00 30 00
Frame Data Length: 24	0010	0d 00 05 00 02 01
▶ Properties Count: 2	0020	1f a8 01 0a 00 05
▼ Frame Data: 8031121115020d0005000201c63c465de1c8	0030	6f 77 65 72 14 04
▼ LoRaWAN 1.0.2	0040	6e 6b 44 61 74 61
▼ MHDR: 0x80		
100. .... = MType: Confirmed Data Up (0x4)		
...0 00.. = Reserved: Not set		
.... ..00 = Major: 0		
DevAddr: 0x15111231		
▼ FCtrl: 0x02		
0... .... = ADR (Adaptative Data Rate): Disabled		
.0.. .... = ADRAckReq: Not set		
..0. .... = ACK: Nack		
...0 .... = RFU: Not set		
.... 0010 = FOptLen: 2		
FCnt: 13		
▼ FOpt: 0500		
▼ FOption: 0500		
CID: RxParamSetupAns (0x05)		

# What's next

- Dissection of the full LoRaWAN MAC command parameters
- MIC validation and payload decryption of LoRaWAN frames
  - Best way to convey the session keys to the dissector?
  - Expert advice appreciated
- Write dissector for Static Context Header Compression
  - [draft-ietf-lpwan-ipv6-static-context-hc](#)
  - By IETF99 at Prague, be able to dissect the full IPv6/LoRaWAN stack being worked on at the LPWAN Working Group
  - Contributions appreciated
  - We intend to bring a live LoRaWAN network to Prague

Thank you!