

Security Bootstrapping over IEEE 802.15.4 in selective order

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kumar-6lo-selective-bootstrap-00

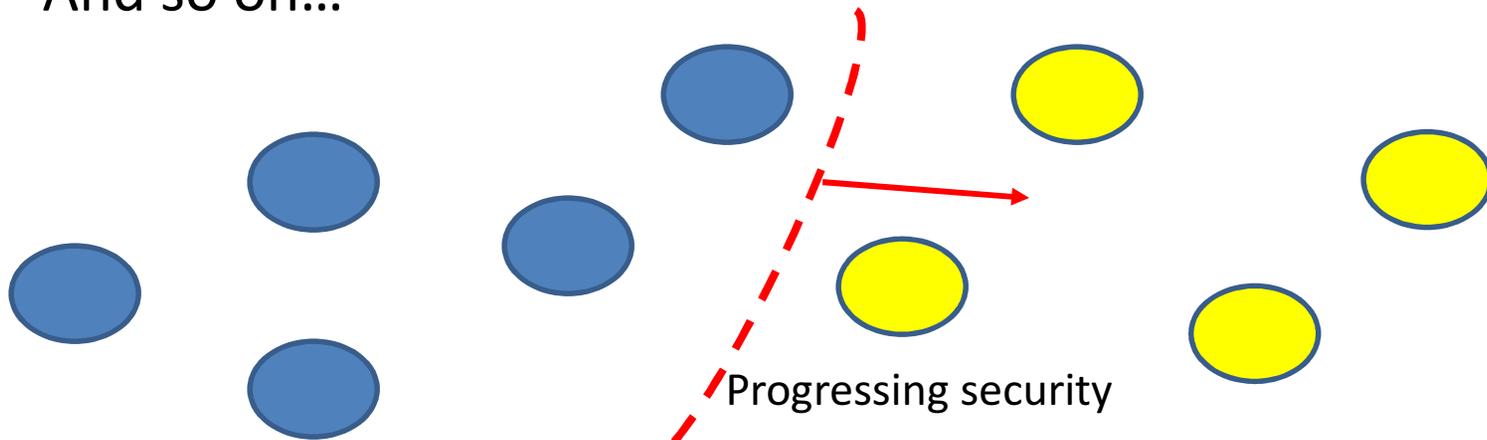
The Issue

- Distinguishing aspects of professional IoT scenarios are
 - Large number of devices
 - Reducing cost for commissioning important
- Installation of devices handled by an electrician (not a network professional)
 - Often no/incorrect knowledge of which devices have been installed where
- Secure Network Bootstrapping and Commissioning are normally performed in one go by a domain expert
- Devices are commissioned based on their layout within a physical space
 - Not on the wireless network topology

Current bootstrapping technology

PANA-EAP, 6tisch,

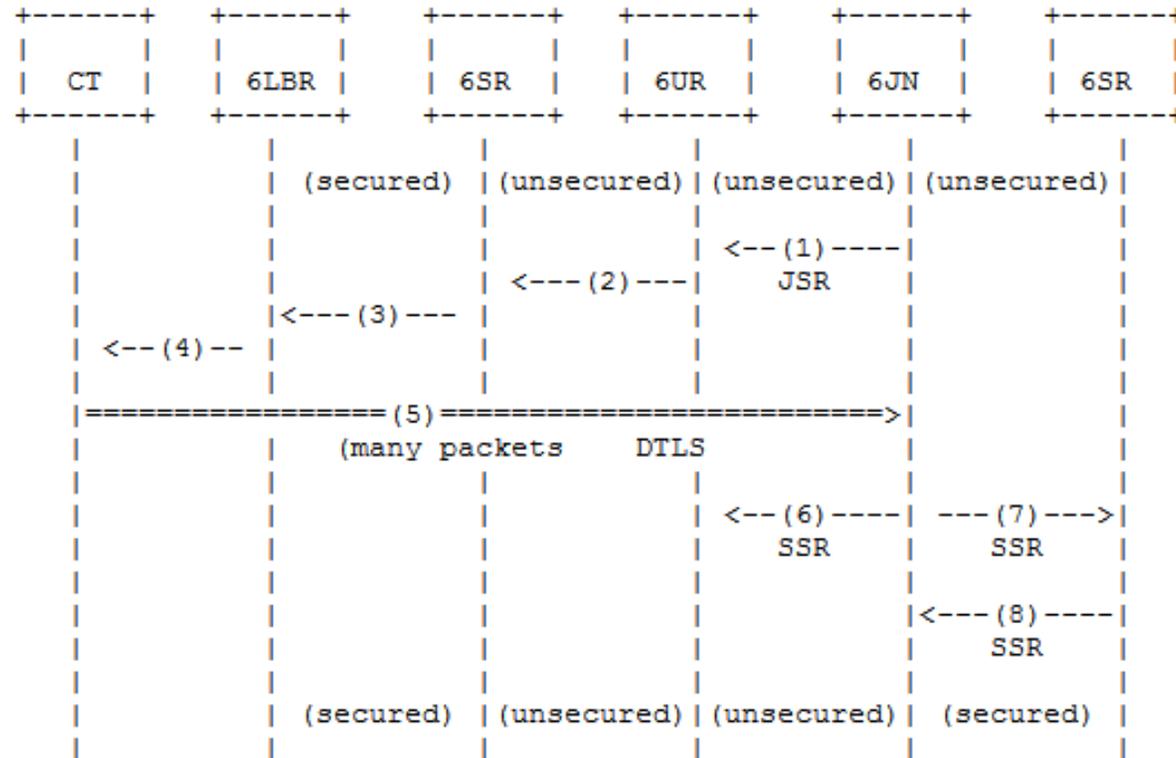
- “Onion style” network bootstrapping based on the wireless network topology
 - First devices one-hop (“onion layer”) to Border Router bootstrapped
 - Then the next one-hop from these devices (next “onion layer”) bootstrapped
 - And so on...



Our Proposal

- Selection of devices in any order for networkbootstrapping
 - selection based on physical location rather than wireless topology
- Domain specific commissioning (e.g naming) to be done in the same step
- The network in a semi-secure state during the bootstrapping phase but locked down to a completely secure state at the end of the process.

Message Flow



- DTLS (with different credentials) as the secure channel
- Read draft-kumar-6lo-selective-bootstrap for details