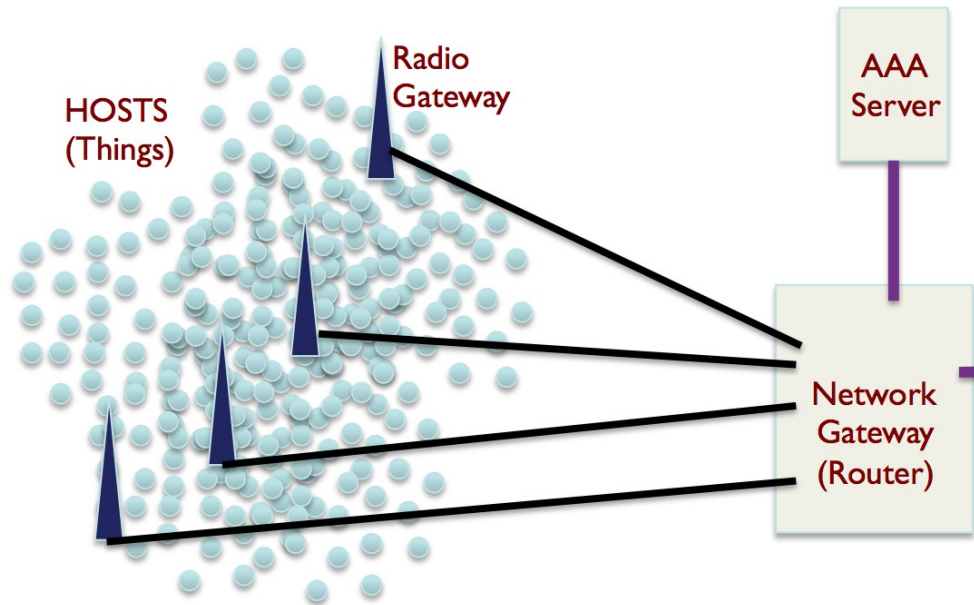


LPWAN IPv6 fragmentation

- [draft-ietf-lpwan-ipv6-static-context-hc](#)
- Efficient fragmentation on very small payloads
 - complements compression
- Goals
 - prove algorithm
 - provide reference code
 - allow perf. evaluation



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- The diagram illustrates the state transitions for a two-process dining philosophers problem. It features three main states: **Init**, **Rev window**, and **Wait Next Window**, and two transitions: **Wait Next Window** and **Wait End**.
- Init State:**
 - Local bitmaps: `revset = "w=notAll"`, `set local.bitmap()`, `send local.bitmap()`
 - Transition to **Rev window** is labeled `expected=0` and `Clear local.bitmap()`.
 - Rev window State:**
 - Local bitmaps: `w=not expected`, `discard`
 - Transition to **Wait Next Window** is labeled `wait=0 & w=not expected` and `set local.bitmap()`.
 - Transition to **Wait End** is labeled `wait=0 & w=not expected` and `set local.bitmap()`.
 - Wait Next Window State:**
 - Local bitmaps: `w=not expected & notAll`, `set local.bitmap()`, `if local.bitmap() full send local.bitmap`
 - Transition to **Rev window** is labeled `w=not & notAll` and `expected = not window`.
 - Transition to **Wait End** is labeled `w=not & notAll` and `expected = not window`.
 - Wait End State:**
 - Local bitmaps: `w=not expected & MIC wrong`, `set local.bitmap()`
 - Transition to **Rev window** is labeled `w=not & notAll` and `expected = not window`.
 - Transition to **Wait Next Window** is labeled `w=not & notAll` and `expected = not window`.
- Transitions are labeled with conditions and actions:
- Wait Next Window:**
 - From **Rev window** to **Wait Next Window**: `wait=0 & w=not expected`, `set local.bitmap()`
 - From **Wait Next Window** to **Rev window**: `w=not & notAll`, `expected = not window`
 - Wait End:**
 - From **Wait Next Window** to **Wait End**: `w=not & MIC wrong`, `set local.bitmap()`
 - From **Wait End** to **Wait Next Window**: `w=not & MIC right`, `set local.bitmap()`



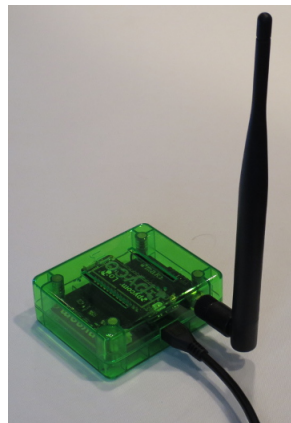
IETF100 hackathon team

- 3 academics/govt:
 - Laurent Toutain: IMT-Atlantique
 - Cedric Adjih: INRIA
 - Sandoche Balakrishnan: AFNIC
- 3 companies:
 - Alexander Pelov: Acklio
 - Soichi Sakane: Cisco
 - Dominique Barthel: Orange



Achieved at this Hackathon

- Source code available at <https://github.com/ltn22/SCHC>
- Implementation
 - Developed fragm/assbly Python3 code on Server and End-Device (Pycom)
 - Updated compression code
- Testing
 - over LoRaWAN, over UDP



End-Device

Server



What's next

- Provide food for thought at side meeting
 - Tuesday 9:30-12, Butterworth
- Integration of fragmentation and compression
- Converge on draft
 - [draft-ietf-lpwan-ipv6-static-context-hc](#)
- Performance evaluation on real payloads
 - CoAP, ICMPv6

Thank you!