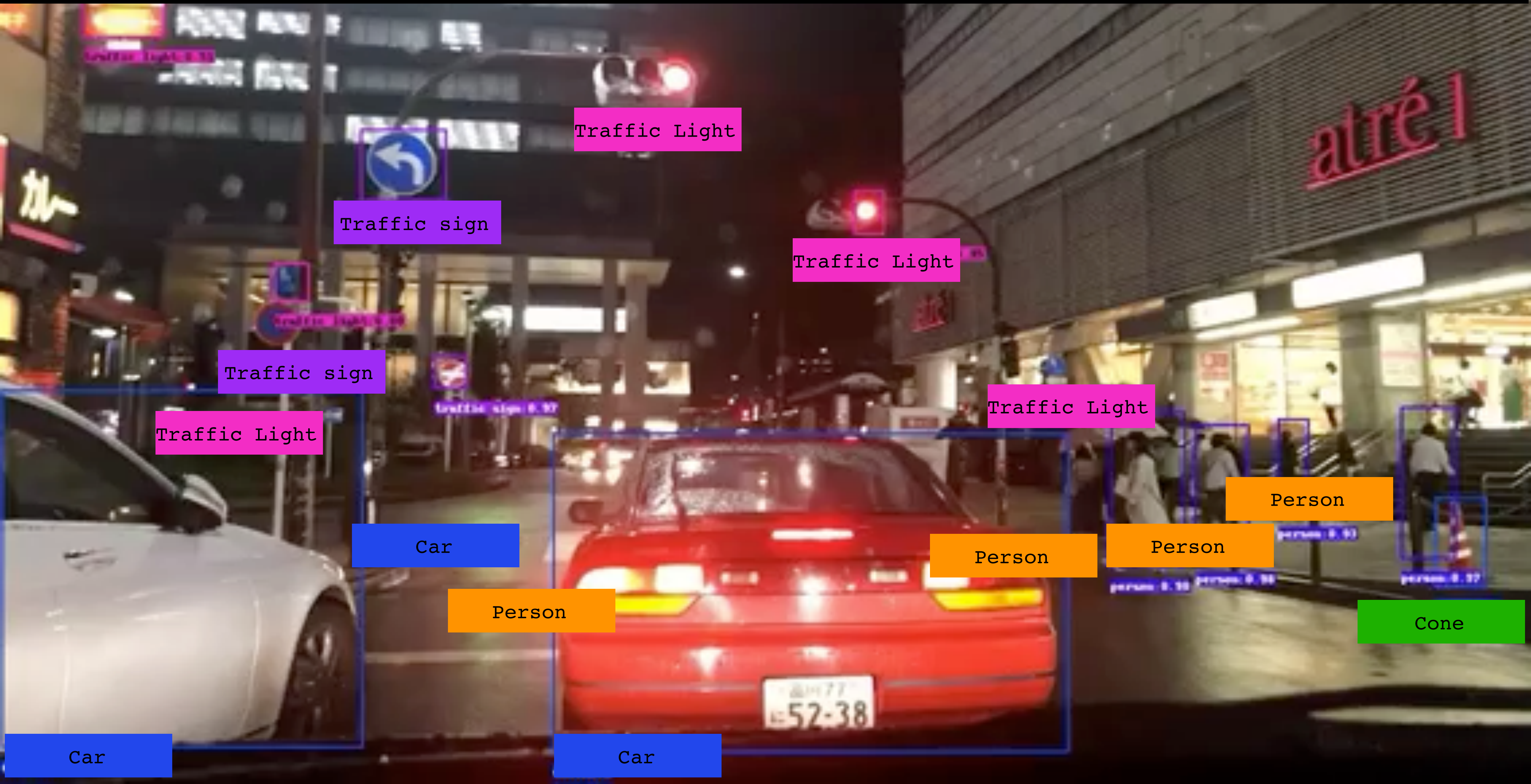


H3-LISP Draft-Nexagon

Content

1. EID addressable-routable geo-state
2. Updates to the draft since ietf105
3. Value of the network / EID routing
4. Ask for workgroup adoption

Pervasive Modern Sensors Enumerate The Public Space in Near Realtime

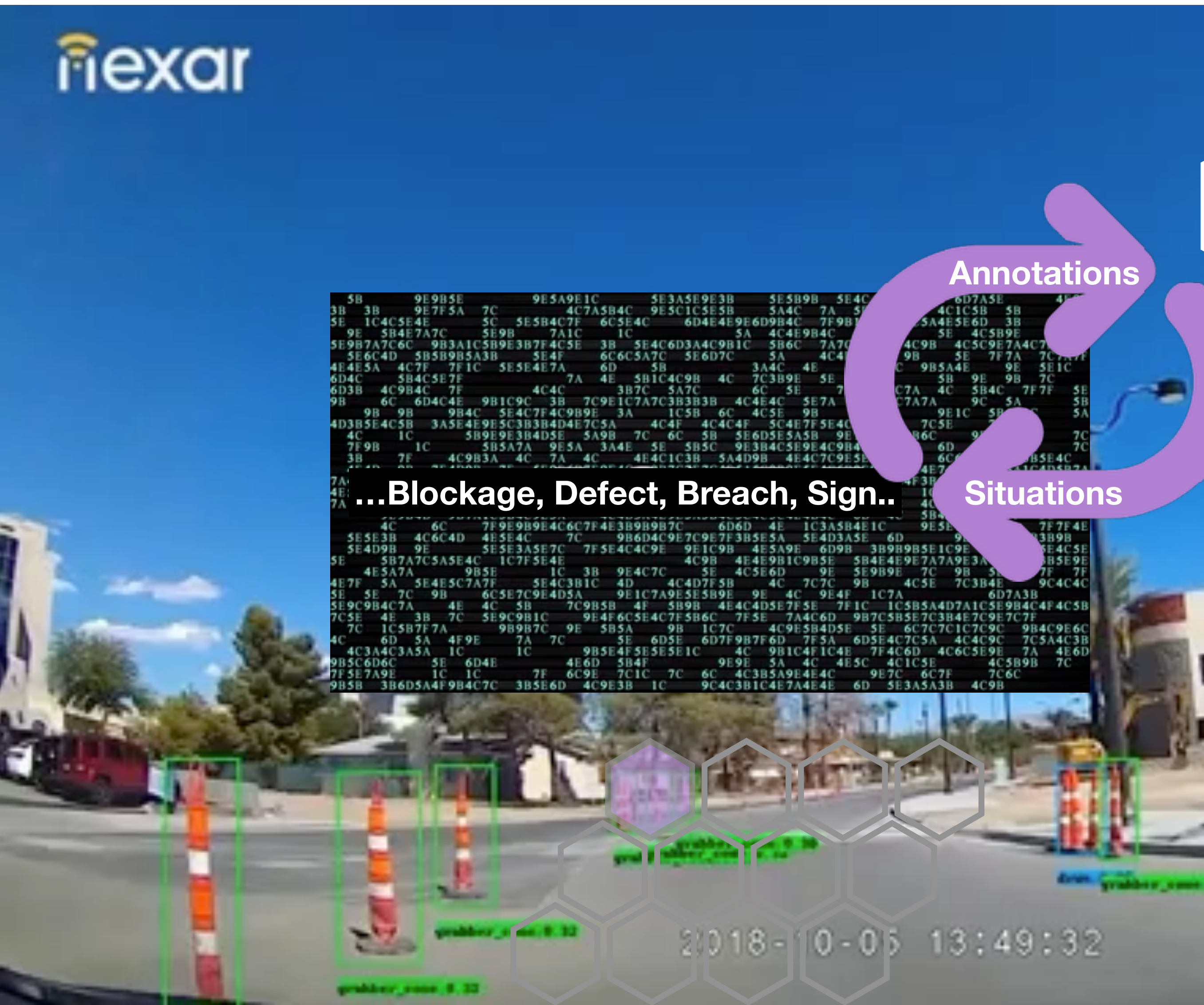


Car

H3

Hierarchical Geo-Grid

EID Addressable LISP Routable Ucast Publish - Mcast Subscribe



H3-LISP

Annotations

Situations

Annotations

Situations

3B 9E9B5E 2E5A9E1C 3E3A5E9E3B 5E5B9B 5E4C 6D7A5B 4F5A9E1C
3B 9E9B5E 7E7F5A 7C 4C7A5B4C 9E3C1E5E5B 5A4C 7A 5E 4C1C5B 3B
5E 1C4C5E4E 5C 5E5B4C7F 6C5E4C 6D4E4E9E6D9B4C 7F9B9E 5A4E5E6D 3B
9E 5E4E7A7C 5E9B 7A1C 1C 5A 4C4E9B4C 5E 4C5B9E
5E9B7A7C6C 9B3A1C5B9E3B7F4C5E 3B 5E4C6D3A4C9B1C 5B6C 7A7C 4C9B
5E6C4D 5B5B9B5A3B 5E4F 6C6C5A7C 5E6D7C 5A 4C4E 9B 5E 7F7A 7C7A
4E4E5A 4C7F 7F1C 5E5E4E7A 6D 5B 3A4C 4E 5E 9B 5A4E 9E 5E1C
6D4C 5B4C5E7F 7A 4E 5B1C4C9B 4C 7C3B9E 5E 7F 5C 9B5A4E 9E 9B 7C
6D3B 4C9B4C 7F 4C4C 4E 3B7C 5A7C 6C 5E 7F 7C7A 4C 5B4C 7F7F 5E
9B 6C 6D4C4E 9B1C9C 3B 7C9E1C7A7C3B3B3B 4C4E4C 5E7A 7C7A7A 9C 5A 5B
9B 9B 9B4C 5E4C7F4C9B9E 3A 1C5B 6C 4C5E 9B 9E1C 9C 5B 5A
4D3B5E4C5B 3A5E4E9E5C3B3B4D4E7C5A 4C4F 4C4C4F 5C4E7F5E4C 7C5E 9E
4C 1C 5B9E9B3B4D5E 5A9B 7C 6C 5B 5E6D5E5A5B 9E 9B6C 9E 7C
7F9B 1C 5B5A7A 9E5A 3A4E 5E 5B5C 9E3B4C5E9E4C9B4C 6C 9E 7C
3B 7F 4C9B3A 4C 7A 4C 4E4C1C3B 5A4D9B 4E4C7C9E5E 6D 9E 5B5E4C
7A 4E7F 7C4D5B7A 4F3B 4F3B 4F3B 4F3B 4F3B 4F3B 4F3B 4F3B 4F3B 4F3B
4E 1C
7A 5B4 9E5E 7F7F4E 9E5E 9E5E 7F7F4E 9E5E 9E5E 7F7F4E 9E5E 9E5E 7F7F4E

...Blockage, Defect, Breach, Sign.. Situation

-0-	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-A-	-B-	-C-	-D-	-E-	-F-
H3 Hexagon ID Key															
-0-	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-A-	-B-	-C-	-D-	-E-	-F-
H3 Hexagon State-Value															

H3-LISP

AI Rendering

H3ServiceEIDs

H3.r9

sXTR

EdgeRTR

H3ServiceEIDs

H3.r9

sXTR

EdgeRTR

AI Rendering

Routing - Privacy- Subscription

```

      = = = = =
      ||
    EdgeRTR
      ..      ..
      ..      ..
  ((((|)))  ((((|)))
   /|\      RAN /|\
   ..
   ..
   ..      ..... /  \  \
   ..      H3.r15  H3.r15
MobilityClientA::cXTR >> \  /

```

H3

```

      = = = = =
      ||
    EdgeRTR
      ..      ..
      ..      ..
  ((((|)))  ((((|)))
   /|\      RAN /|\
   ..
   ..
   ..      ..... /  \  \
   ..      H3.r15  H3.r15
MobilityClientA::cXTR >> \  /

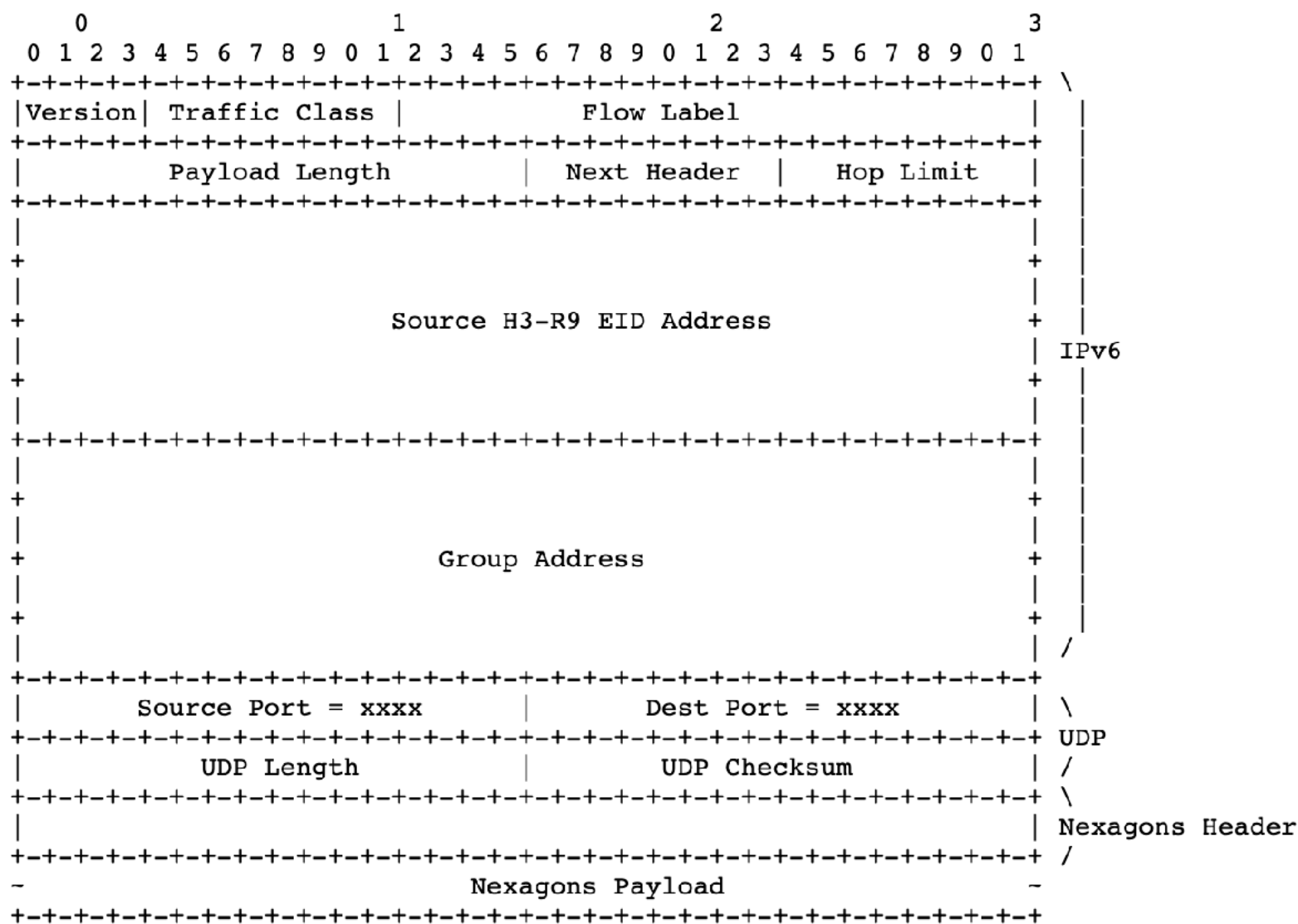
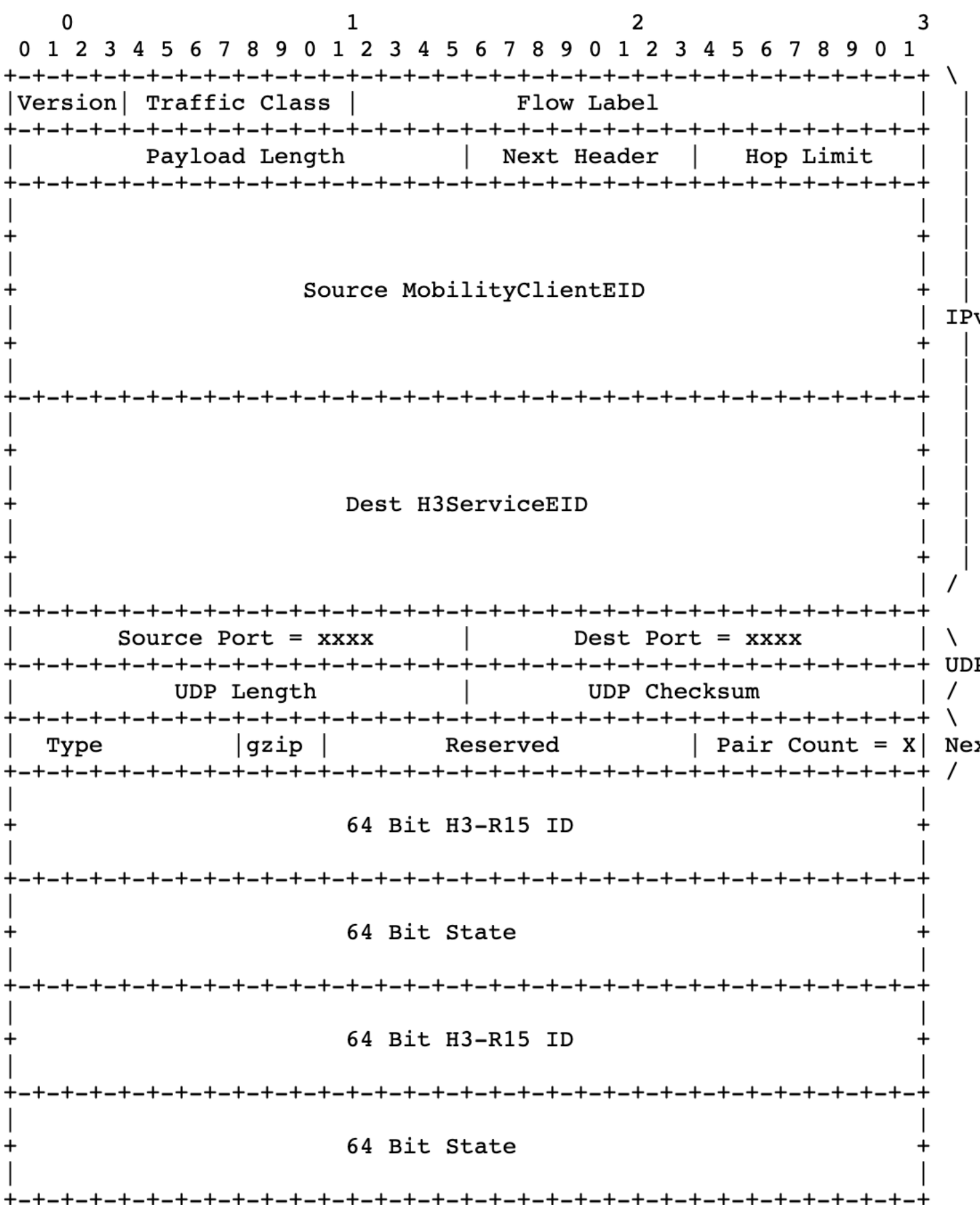
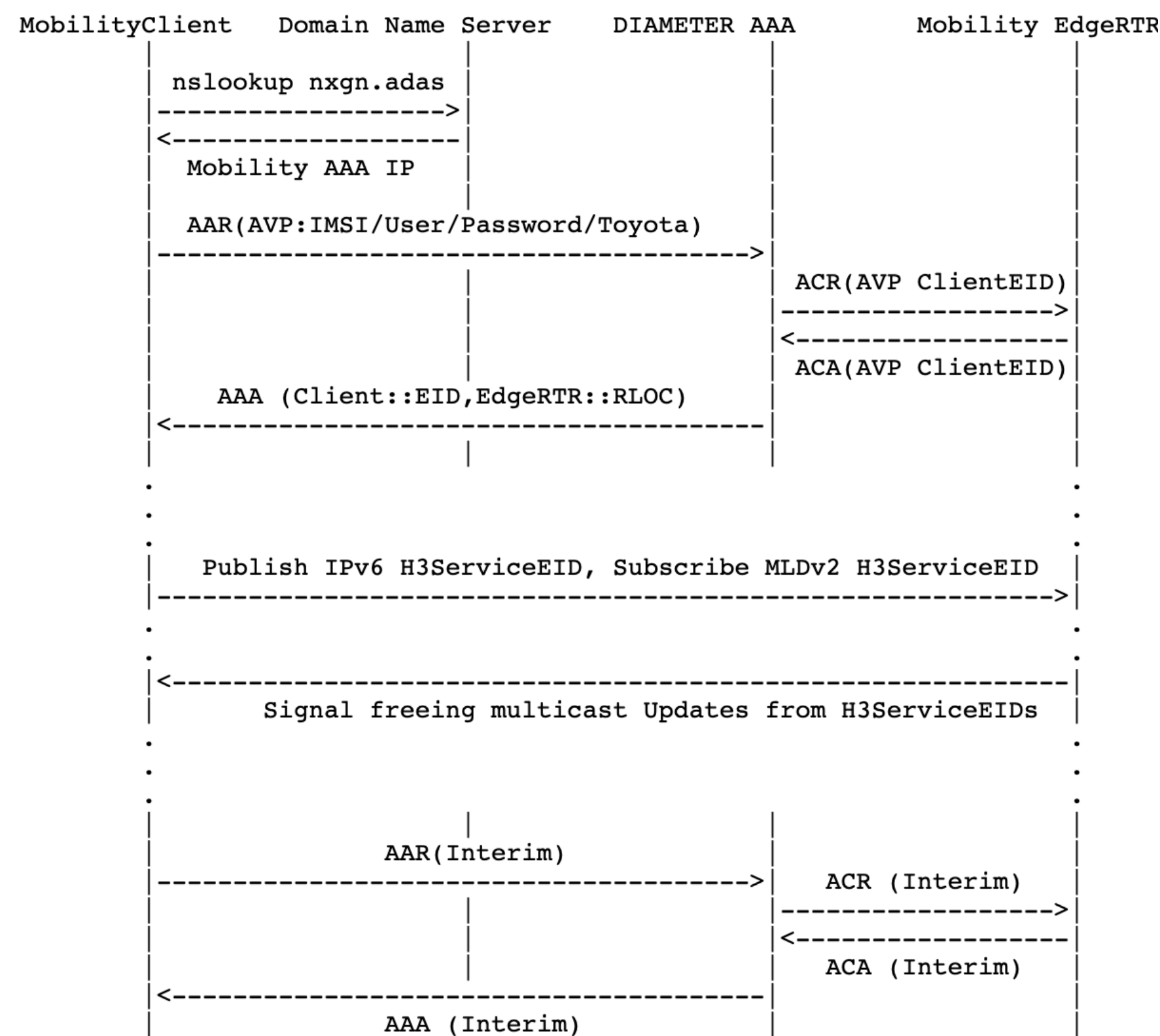
```

< cXTR::MobilityClientB



Standard Open-Source Snap-Pub-Sub Grid

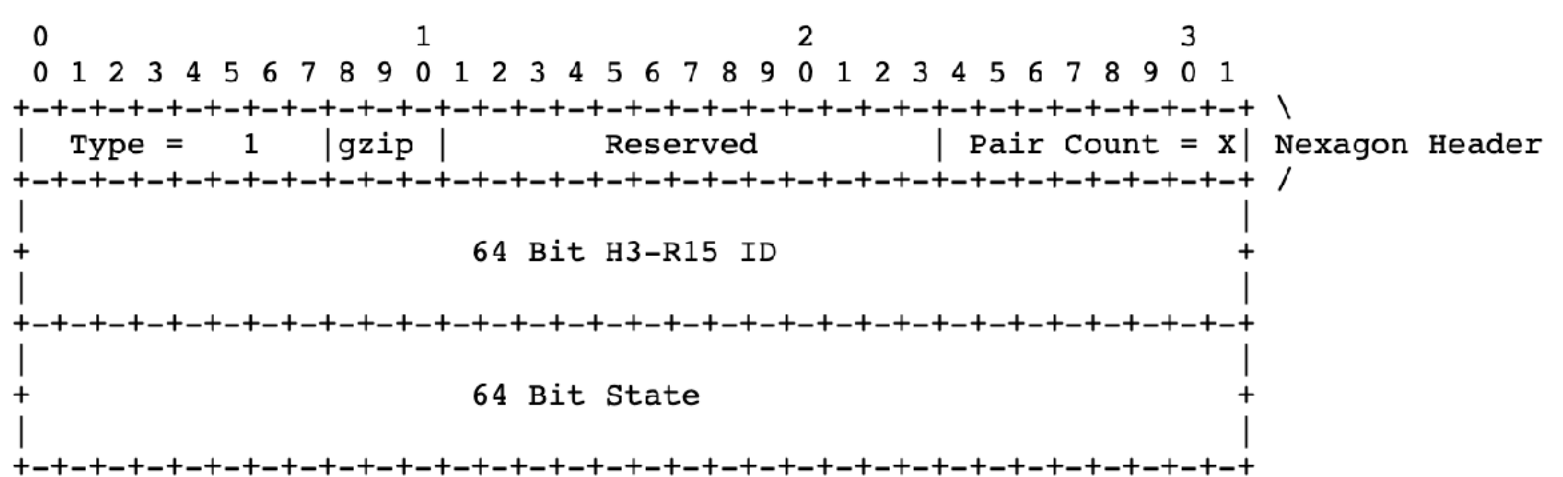
Since 105



Outer headers = 40 (IPv6) + 8 (UDP) + 8 (LISP) = 56
Inner headers = 40 (IPv6) + 8 (UDP) + 4 (Nexagon Header) = 52

1500 (MTU) - 56 - 52 = 1392 bytes of effective payload

Type 1:key-value, key-value.. 1392 / (8 + 8) = 87 pairs
Type 2:value, key,key,key.. (1392 - 8) / 8 = 173 H3-R15 IDs



AAA Procedure for getting MobilityClient EID EdgeRTR RLOC
Ucast/Mcast Frames for Interoperability Without Additional Docs/Libs

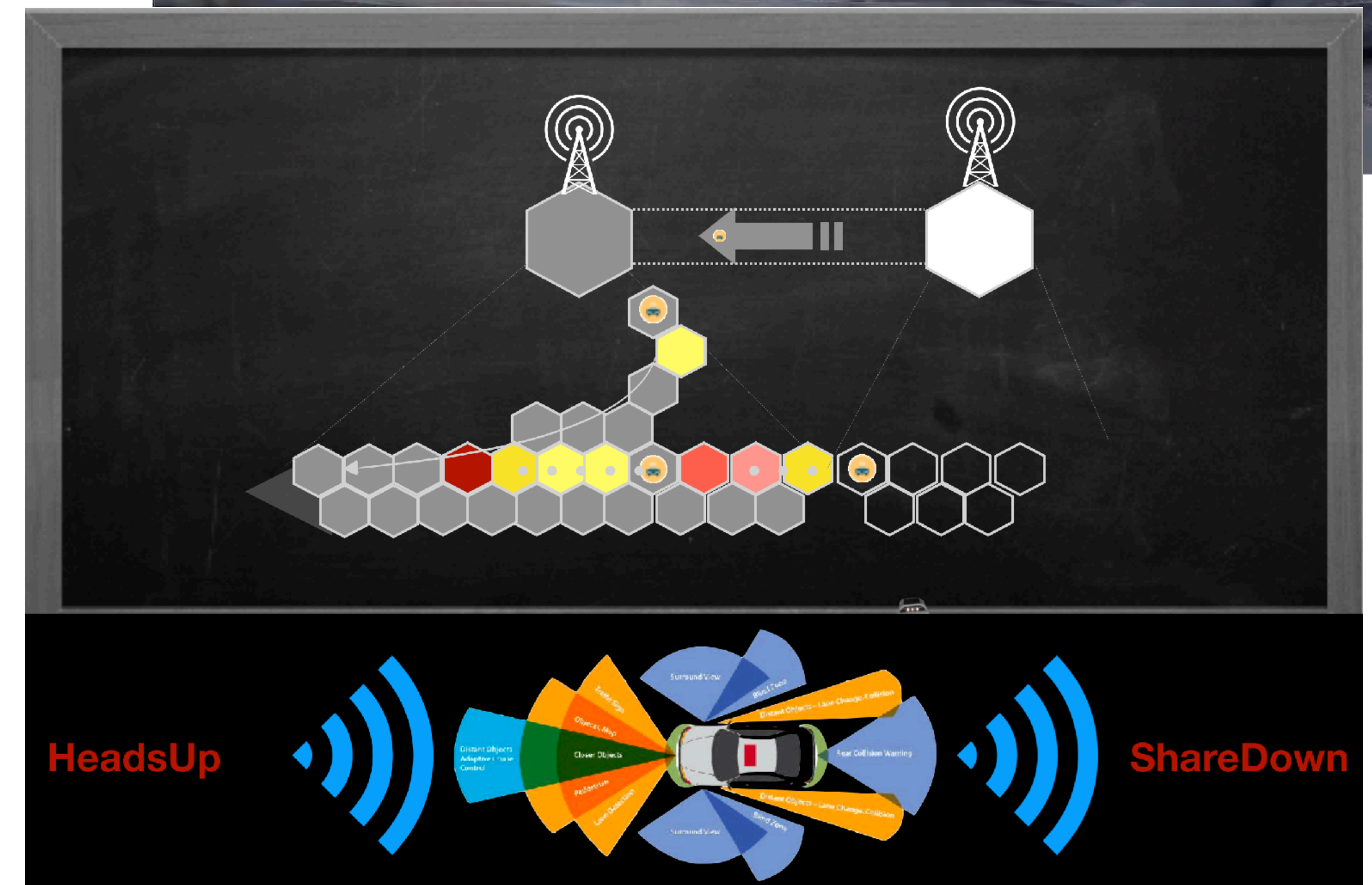
Also Since 105

README.md	
<h2>nexagons-go</h2>	
<p>nexagons-go contains a basic server and client implementation of the in progress IETF RFC draft for a H3-LISP based Mobility Network (https://datatracker.ietf.org/doc/draft-barkai-lisp-nexagon/)</p>	
<h3>whats inside</h3>	
package	description
bundle	an all-in-one server binary (including AAA server, EdgeRTR and H3Server)
client	nexagon MobilityClient SDK code
edgertr	nexagon EdgeRTR library code
internal	internal helper libraries
networking	networking libraries
nexagons	libraries for reading and writing nexagon packets
stress	a binary for stress-testing a nexagon setup

**OpenSource Client SDK Based On Diameter, H3, LISP, GZIP, WireGuard
OpenSource Stacks + All In One Edge for Client Debug**

Value to Customers

- Muni-Dot: cheaper-fresher surveys of signs, lights, marks, rails, holes, stopped vehicles, construction, ...
- OEM-Drivers: park-assist, blockages, slow-downs, hard-breaks, sharp-turns.. beyond line-of-site
- Enterprise: curb-side conditions, track-routes, ped-vehicle traffic, store-fronts, cams-complied..



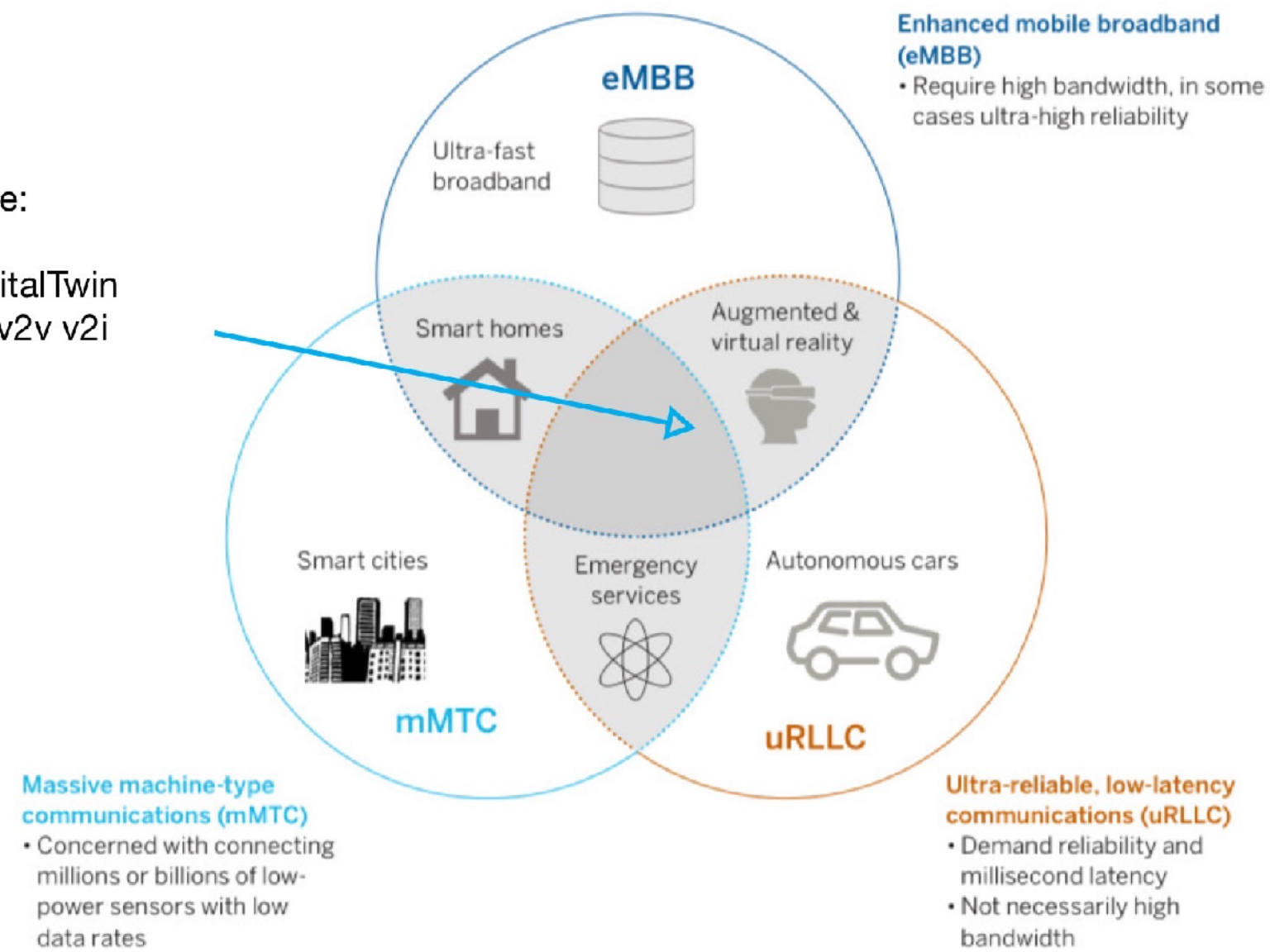
Value To The Edge

DigitalTwin Ground-Truth v2v v2i Interoperable L3 Broker

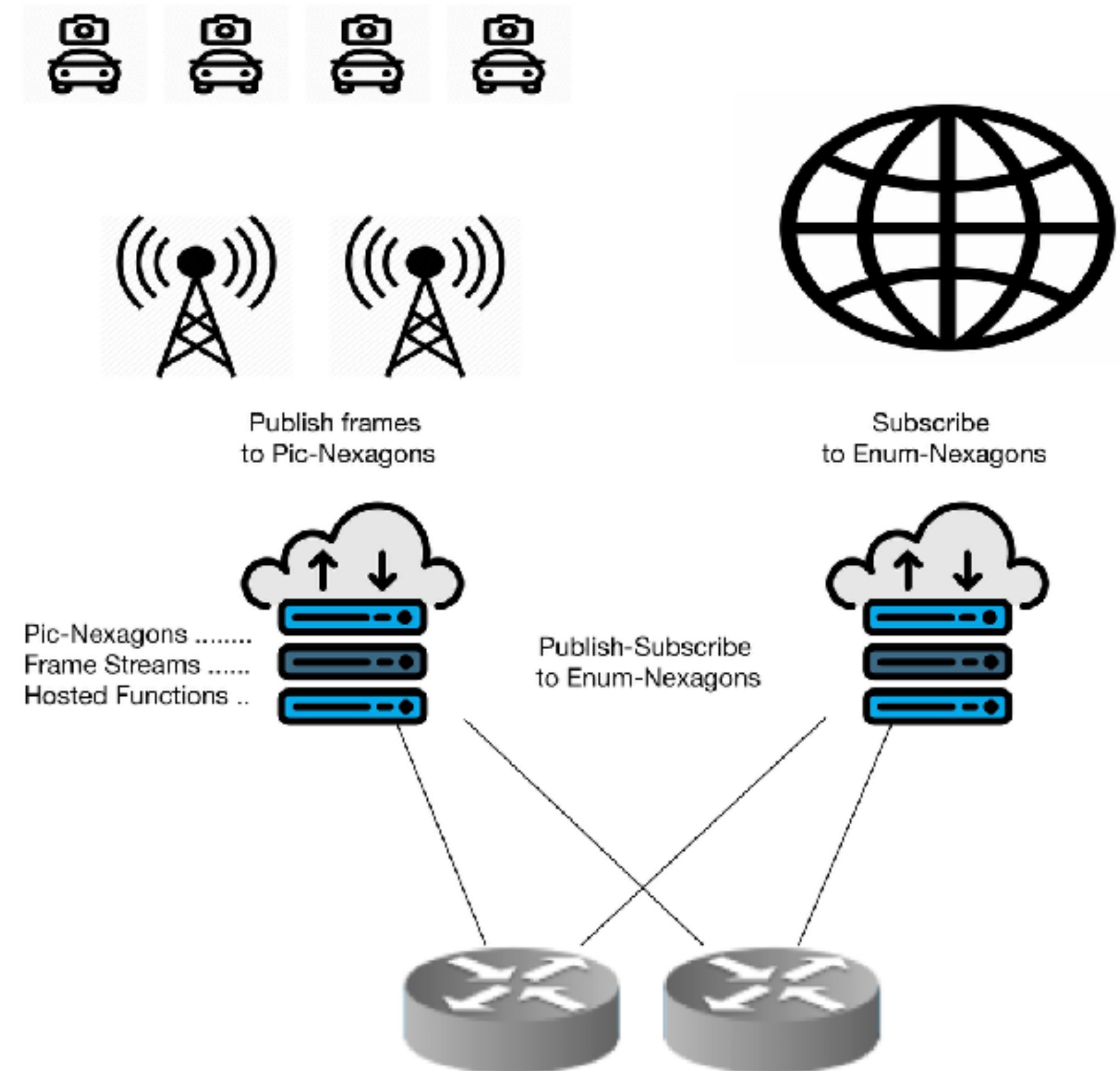
WELLINGTON
MANAGEMENT®

Nexagon Client-Edge Interface:

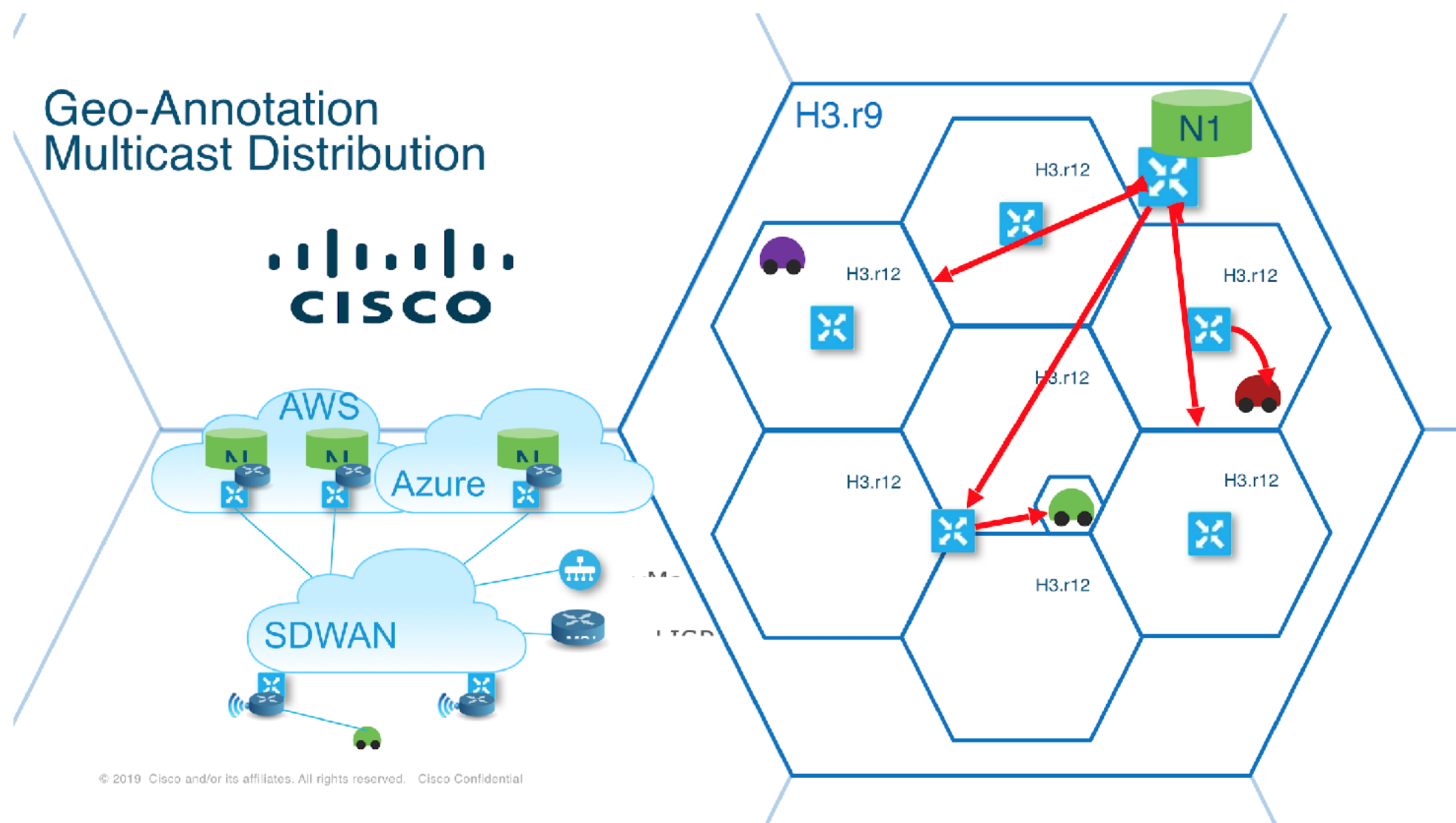
1. Ground-Truth for Roads DigitalTwin
2. L3 Interoperable Broker for v2v v2i



Sources: EY, ITU, TM Forum



Value of The Network



As part of ongoing Innovation work around Edge cloud we are looking into this Draft and supporting it.

- in the effort of CSP network to support smart-sensor data-sharing:
 - safety, predictive-maintenance, logistics, business-intelligence
 - on behalf of gov-muni, enterprises, and connected-car customers
 - CSPs faced two extreme options:
 - specialized narrow-focused, purpose-built DSRC/C-V2X mobility infrastructure
 - commodity hosting-connectivity of proprietary-fragmented per brand backends
 - nexagon geo-state-network standard allows us to offer stable 5G/LTE edge interface:
 - compile interoperable fresh-data from multiple sources per geo-state
 - streamline as-as-service to gov/ent/oem subscribers per application
1. We are working with both tech-companies / customers to position use-cases
 2. We have been show-casing low-latency brokered solutions offering safety
 3. Proving network-brokered edge relays alerts of breaches in sub 20 msec
 4. We support adoption of the nexagon draft as part of lisp virtual-ip standard
 5. Leverage ots edge routers for geo-state privacy, latency, security, subscription

Thanks,

Nir Hen
Lead Innovation Coach

**Privacy, Latency, Security, Subscription by OTS Routers / Best Practices
L3 Alternative to Extremes: L1-7 Dedicated Network, Proprietary Backends**

Motion to Adopt as WG Draft