Data Models for SCHC

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Why?

Rule N

Rule i

(FID)

Rule 1

Field 1 | FL | FP | DI | Target Value | Matching Operator | Comp/Decomp Act

Field 2 | FL | FP | DI | Target Value | Matching Operator | Comp/Decomp Act

... | ... | ... | ... | ... | ... | ...

Field N | FL | FP | DI | Target Value | Matching Operator | Comp/Decomp Act

IPv6.version

CoAP.URI

Bi-Up-Down-

equal

ignore

MSB

match-mapping

not-sent

value-sent

...

Data Models
How will this work?
How will this work?

- Pre-provisioned
- Discovered
- Runtime modifications
- + More

Device

Context

Client

Context
How will this work?

- Pre-provisioned
- Discovered
- Runtime modifications
+ More

Schema for the context representation

Context

Device

Protocol

Client

Data Models for SCHC
Data model as contract

- Device
- YANG
- Client
And the interaction model!

Rich interaction model
And the protocol bindings!

Data Models for SCHC
And the protocol bindings!

- YANG
- RESTCONF
- Device
- Client

Protocols:
- TCP/IP
- HTTP
- XML
- RPC
- JSON
- REST / RPC
- NETCONF
- IP
And the protocol bindings!

Super-efficient (compress even identifiers)
Why YANG+CoMI?

- Compact and unique representation for:
  - Well-known Field ID, MO, CDA

- Compact exchanges between SCHC C/D
  - Prefix assignment
  - Setup port numbers, destination addresses,…
  - Compresses well with SCHC!

- Protocol bindings defined
Not starting from scratch...

draft-toutain-lpwan-yang-static-context-hc-00 (expired Jan 2017)

module: ietf-lpwan-schc
  +--rw context* [rule-id]
    +--rw rule-id uint8
    +--rw rule-fields* [field-name field-position direction]
      +--rw field-name field-name-type
      +--rw field-size? uint8
      +--rw field-position uint8
      +--rw direction direction-type
      +--rw target-value? lpwan-types
      +--rw matching-operator? matching-operator-type
      +--rw matching-operator-parameter? lpwan-types
      +--rw compression-decompression-action? compression-decompression-action-type
      +--rw compression-decompression-action-parameter? lpwan-types
Alternatives?

• Raw JSON / CBOR / Binary encoding
  – No Schema / CDDL
  – Define our own protocol for the exchanges

• Others?
Thanks !