

YANG Data Model for DHCPv6 Configuration

draft-cui-dhc-dhcpv6-yang-01

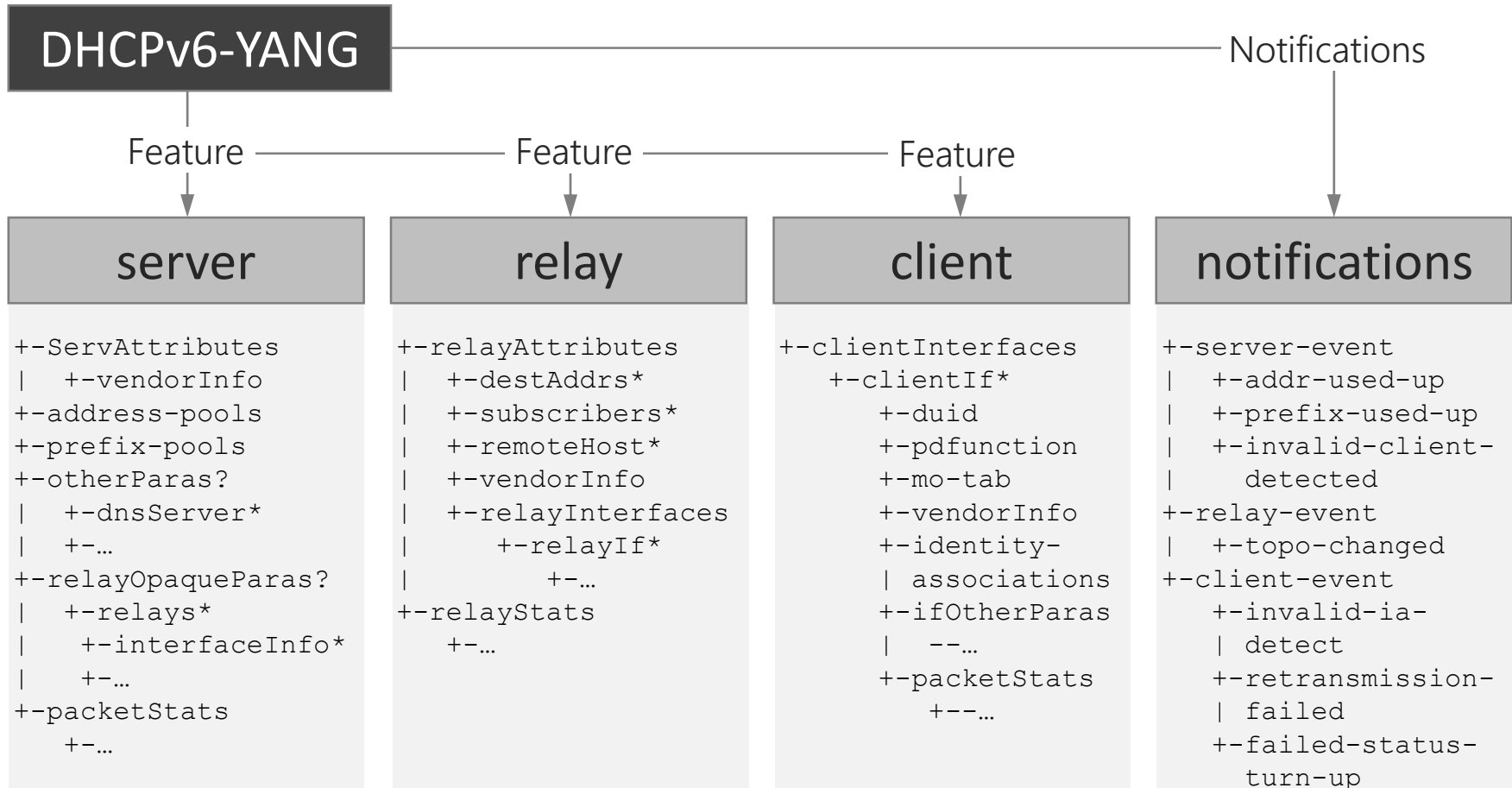
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Motivation

- To provide a unified method to configure DHCPv6 servers, relay agents and clients.
- Better for ISP to configure and manage various DHCPv6 entities in a vendor-neutral way.

Model Structure



- Brief nodes of the YANG model, details in the end.

DHCPv6 Server Sub-Model

```
+--rw server {dhcpv6-server}?
```

→ *Feature*

```
+--rw servAttributes
```

```
| +--ro duid
```

```
| +--...
```

```
| +--ro vendorInfo
```

Basic attributes of a DHCPv6 server, such as duid, name, vendor information...

```
+--rw address-pools
```

```
| +--rw address-pool* [pool-name]
```

```
| +--ro bindingInfo* [cliDUID]
```

Describe the DHCPv6 server's address pools.

```
+--rw prefix-pools
```

```
| +--rw prefix-pool* [pool-name]
```

```
| +--ro bindingInfo* [cliDUID]
```

Define the delegating router's prefix pools (If server support PD function).

```
+--rw otherParas?
```

```
| +--rw dnsServer* [dnsName]
```

```
| +--rw domainSearchList
```

```
| +--...
```

Define extra configuration parameters provided by the DHCPv6 server.

```
+--rw relayOpaqueParas?
```

```
| +--rw relays* [relayName]
```

```
|   +--rw relayName
```

```
|   +--rw interfaceInfo* [ifName]
```

```
|   +--rw subscribers* [subscriberName]
```

```
|   +--rw remoteHost* [entNum]
```

Contain some opaque values in Relay Agent options that need to be configured on the server side only for value match.

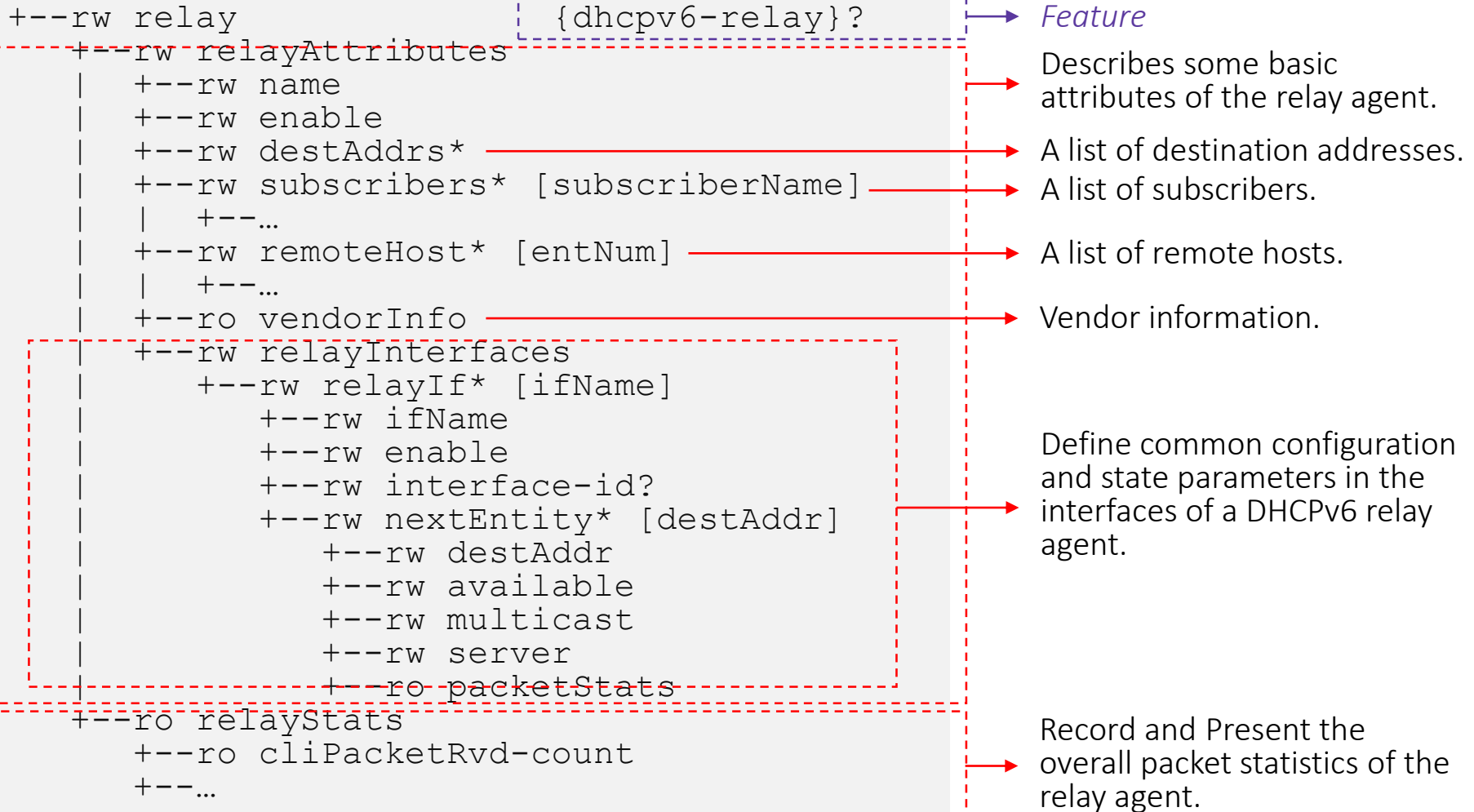
```
+--ro packetStats
```

```
  +--ro solicit-count
```

```
  +--...
```

Present the packet statistics related to the DHCPv6 server.

DHCPv6 Relay Sub-Model



DHCPv6 Client Sub-Model

```
+--rw client {dhcpv6-client}?
```

Feature

```
+--rw clientInterfaces
```

Include configuration and state data of a DHCPv6 client in a per-interface manner.

```
| +--rw clientIf* [ifName]
```

```
|   +--rw ifName
```

```
|   +--ro duid
```

```
|   +--rw enable
```

```
|   +--rw cliFQDN?
```

Fully Qualified Domain Name

```
|   +--rw pd-function
```

Client can act as a requesting router to request prefixes using prefix delegation.

```
|   +--rw rapidCommit
```

```
|   +--rw dual-stack
```

```
|   +--rw mo-tab
```

Indicate the operation mode of the DHCPv6 client.

```
|   +--ro vendorInfo
```

```
|   +--ro identity-associations
```

IA is a construct through which a server and a client can identify, group, and manage a set of related IPv6 addresses.

```
|     +--ro identity-association* [iaid]
```

```
|       +--ro iaid
```

```
|       +--...
```

```
|     +--ro ifOtherParas?
```

```
|       +--ro dnsServAddr*
```

```
|       +--...
```

```
+--ro packetStats
```

Record all the packet status information of a specific interface.

```
  +--ro solicit-count
```

```
  +--...
```

DHCPv6 Notifications Sub-Model

```
+-n notifications
```

```
+-n dhcpv6-server-event {dhcpv6-server}? → Feature
```

```
| +-n addr-used-up → Address pool has run out all its  
| | +-ro ... addresses.
```

```
| +-n prefix-used-up → Prefix pool has run out all it prefixes.
```

```
| +-n invalid-client-detected → Server found a client which can be  
| +-ro ... regarded as a potential attacker.
```

→ DHCPv6 server event model

```
+-n dhcpv6-relay-event {dhcpv6-relay}? → Feature
```

```
| +-n topo-changed → Topology of the relay agent changed.
```

```
| +-ro ...
```

→ DHCPv6 relay event model

```
+-n dhcpv6-client-event {dhcpv6-client}? → Feature
```

```
+-n invalid-ia-detected → Identity association of the client  
| +-ro ... invalid.
```

```
+-n retransmission-failed → Retransmission mechanism failed.
```

```
| +-ro ... Client receives a message includes an  
+-n failed-status-turn-up → unsuccessful Status Code option.
```

```
+-ro ...
```

→ DHCPv6 client event model

Next Steps

- Update the tree diagrams with comments.
- Welcome your advise?
- Move forward in the WG?