YANG Schema Mount

draft-ietf-schema-mount-06

Martin Björklund
⟨mbj@tail-f.com⟩

Ladislav Lhotka
⟨lhotka@nic.cz⟩

19 July 2017
Main Changes since -04

- A new mechanism for referencing instances in the parent tree.
- The option of making the mounted schema conditional was removed.
  
  With the new parent references, this can be achieved via normal **when**.
Parent Tree References – Motivation

- **inline** – no escape from “mount jail”
- **use-schema** – it is often useful to be able to reference instances of the parent data tree.

**Example:**

Network instances [draft-ietf-rtgwg-ni-model] need to refer to interfaces in the global list of *ietf-interfaces*.

```
+-rw interfaces
 |  +-rw interface* [name]
 |      ...
+-rw network-instances
    +-rw network-instance* [name]
       +-rw name
       +-rw root
          +-rw routing
             ...
```
Parent Tree References – Mechanism

```yaml
+-ro use-schema* [name]
  +-ro name -> /schema-mounts/schema/name
  +-ro parent-reference* yang:xpath1.0
```

For any XPath evaluation (including leafref and instance-identifier) inside the mounted tree, all parent-reference expressions are evaluated and the resulting union of nodesets is added to the available tree.

The context node for parent-reference is the root of the parent tree, namespaces/prefixes are specified as state data under schema-mounts.

**Note:** The nodes are added only for XPath evaluations, e.g. the added nodes are not protocol-accessible inside the mounted tree.

**NI example:**

```
"use-schema": [
  { "name": "ni-schema",
    "parent-reference": ["/if:interfaces"] }
]
```
Parent Tree References – Open Issues

1. context node for the evaluation of parent-reference
2. parent-reference as a YANG extension?
Open Issue

Context node for `parent-reference`:

Options:
1. root node of the parent data tree (current choice)
2. instance of the node containing the mount point (alternative)

With #2, the result of `parent-reference` may be different for each mount point instance.

**NI example:**

```
+-rw network-instances
  +-rw network-instance* [name]
    +-rw name
    +-rw root
      +-rw routing
      ...
```

Drawback of #2 is additional complexity: result of `when` may now depend on instance data of the parent tree.
Open Issue ②

Alternative:

```yang
yangmнт:mount-point root {
    yangmнт:parent-reference "\!/if:interfaces";
}
```

Advantage:

- namespace/prefix definitions can be inherited from the YANG module.

Drawbacks:

- **mount-point** extension is used for both *inline* and *use-schema* method, parent references are only intended with *use-schema*

- Extensions affecting the data model create a new YANG version.