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

```
+--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

❶ context node for the evaluation of `parent-reference`

❷ `parent-reference` as a YANG extension?

Open Issue ❶

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          ⬅ context node
         +--rw routing
            ...
/if:interfaces/if:interface[ni:bind-network-instance-name = current()/../ni:name]
```

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

Open Issue ❷

Alternative:

```
yangmnt:mount-point root {
    yangmnt: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.