Gap Analysis of YANG for I2RS

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v0.5

Agenda

- Case for using YANG (RFC 6020) as the data modeling language for the I2RS protocol
  - Pros
  - Cons
  - Gaps

YANG Pros

- IETF standards track data modeling language
- Widely implemented for NETCONF
  - http://trac.tools.ietf.org/wg/netconf/trac/wiki
- Easy to use for readers and writers
- Capable of modeling complex data structures
- Very extensible by vendors or SDOs
- Reusable user-defined types and data structures
- Standard YANG comparable to I2RS model complexity
  - http://tools.ietf.org/id/draft-clemm-netmod-yang-network-topo-00.txt
  - http://www.ietf.org/id/draft-huang-netmod-acl-03.txt

YANG Cons

- Written to be NETCONF and XML specific
  - Can be adapted for RESTCONF and I2RS, but will require some changes to RFC 6020, such as:
    - Use of XML attributes for insert operations
    - XPath mapping definitions are NETCONF-specific
- Not object oriented
  - No resource-specific notifications and methods
    - YANG rpc-stmt and notification-stmt are global and not associated with any specific data hierarchy
  - No derived complex types

YANG Gaps

- Identification of Editable Operational State
  - YANG config = true or false and no in between
  - May need to identify limited access from set:
    - create, insert, update=(replace,merge,move), delete
- YANG extension is needed to identify this data in a protocol-independent manner. E.g.:

```
list some-state {
    config false;
    i2rs:editable-state;
    ...
}
```

  - NETCONF will treat this data as read-only