

An Update of Operators Requirements on Network Management Protocols and Modelling

[draft-boucadair-nmop-rfc3535-20years-later](#)

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Why This I-D?

- RFC 3535 was instrumental in structuring and guiding network management effort within the IETF
 - Catalyst for NETCONF/YANG
- More than 20 years after RFC 3535
 - Despite
 - Many protocols were specified (NETCONF/RESTCONF/COMI)
 - YANG is more and more perceived as a transport independent modeling language
 - Network automation is a trivial enabler in operations
 - There is a need for
 - Deployment reality check
 - Refreshing the deployment assumptions
 - Checking whether new requirements on network management operations are emerging from the operators
 - Assessing whether there are blocking points

Why NMOP?

The current topics of focus for the working group are:

- NETCONF/YANG Push integration with Apache Kafka & time series databases
- Anomaly detection and incident management
- Issues related to deployment/usage of YANG topology modules (e.g., to model a Digital Map)
- Consider/plan an approach for updating [RFC 3535-bis](#) (collecting updated operator requirements for IETF network management solutions)

Excerpt from the NMOP Charter

Proposed Approach

- This is not a –bis!
- Organize the effort into three main tasks
 - Assessment of the recommendation in RFC3535
 - Collect of observations
 - Propose requirements
- Welcome contributions

Sample Observations

- The current YANG device models ecosystem is *fragmented*
 - IETF, OpenConfig, ONF, etc.
- Unlike service and network models, IETF-defined device models *are not widely implemented*
- It takes *too long to produce device models* in the IETF; with many functions not even available: many specs were abandoned
- The rule seems even to be the *prevalence of proprietary YANG Modules, CLI, and limited abstraction*
- Many NETCONF-related tools are (being) specified by the IETF, but these tools are *not widely supported* (e.g., Push vs. gNMI)
- *Lack of agile process* for (the maintenance of) YANG modules
- *Integration complexity*
- YANG-formatted *data manipulation*
- Some networks have specific network management requirements such as the need for *asynchronous operations* or constraints on data compactness
- *Translation and mapping* between service/network and device models
- *Inconsistent data structures* in network protocols for data export
- Etc.

Candidate Direction of Work

- ***Rationalize device models*** space and avoid redundant efforts
 - Clear guidance for the development of device models in the IETF
- More ***agile process*** for developing YANG modules
- ***More Profiling***
 - E.g., A profile with a set of recommendations about core/key NETCONF/RESTCONF features with the appropriate justification will help the emergence of more implementations that meet the operators' needs
 - YANG profiles
- ***Reassess the value of some IETF proposals*** vs. competing/emerging solutions would be useful (e.g., gRPC vs. YANG-Push)

Next Steps

- Welcome more contributions
- Venues to socialize the effort and get more involved
- Questions & suggestions are welcome