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 is 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