IAB Workshop: Next Era of Network Management Operations (NEMOPS)

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Internet Engineering Task Force
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RFC 3535, Overview of the 2002 IAB Network Management Workshop

The IAB organized a workshop in June 2002 to establish a dialog between network operators and protocol developers, and to guide IETF when working on network management protocols.

3. Operator Requirements

During the breakout session, the operators were asked to identify needs that have not been sufficiently addressed. The results produced during the breakout session were later discussed and resulted in the following list of operator requirements.

1. Ease of use is a key requirement for any network management technology from the operators point of view.

2. It is necessary to make a clear distinction between configuration data, data that describes operational state and statistics. Some devices make it very hard to determine which parameters were administratively configured and which were obtained via other mechanisms such as routing protocols.

3. It is required to be able to fetch separately configuration data, operational state data, and statistics from devices, and to be able to compare these between devices.

4. It is necessary to enable operators to concentrate on the configuration of the network as a whole rather than individual devices.

5. Support for configuration transactions across a number of devices would significantly simplify network configuration management.

6. Given configuration A and configuration B, it should be possible

RFC 3535, Overview of the 2002 IAB Network Management Workshop

6. Recommendations

1. The workshop recommends that the IETF stop forcing working groups to provide writable MIB modules. It should be the decision of the working group whether they want to provide writable objects or not.

2. The workshop recommends that a group be formed to investigate why current MIB modules do not contain all the objects needed by operators to monitor their networks.

3. The workshop recommends that a group be formed to investigate why the current SNMP protocol does not satisfy all the monitoring requirements of operators.

4. The workshop recommends, with strong consensus from both protocol developers and operators, that the IETF focus resources on the standardization of configuration management mechanisms.

5. The workshop recommends, with strong consensus from the operators and rough consensus from the protocol developers, that the IETF/IRTF should spend resources on the development and standardization of XML-based device configuration and management technologies (such as common XML configuration schemas, exchange protocols and so on).

6. The workshop recommends, with strong consensus from the operators

RFC 3535 (In)Direct Outcomes

NETCONF
RESTCONF
CORECONF
YANG data modeling language
Etc.

In NETCONF, NETMOD, and other WGs

In summary: Resulted in the entire data modeling-driving management

RFC3535, 22 Years Later

NMOP Working Group: 4 Experiments

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)

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Objectives:

- ***Review the outcomes*** and results of the 2002 workshop (current deployments, state of the art) and ***identify any operational barriers*** that prevent these technologies from being widely implemented (limitations, hurdles).
- ***Sketch new requirements*** for future network management operations in a collaborative manner with the industry, network operators, and protocol engineers.
- Develop a ***plan of action and recommendations*** for the IETF.

Interested participants in this area are invited to submit position papers on the workshop topics.

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IAB Workshop Proposal: Topics

Discussion topics will include, but are not limited to:

- Tooling, opensource, experimentation, proof of concept, multi-vendor interoperability test (e.g., EANTC), and system integration
- Data consistency to support richer observability (Data & Knowledge)
- Integration issues with the business layer
- Automation, orchestration, and autonomy

An outreach effort to attract opinions and interest by visiting these other venues and running information and requirement gathering sessions.

RIPE, NANOG, APRICOT, AutoConn, etc.

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Currently Finalizing the Details

- Finalizing the last details: will be announced soon
- nemops-interest@iab.org will be used for outreach events at other conferences, general announcements, and related discussions before (and after) the workshop

- This workshop will be held online.
- Workshop Dates (TBD): 2024-12-03, 2024-12-04, 2024-12-05
- Program Committee (TBD): Wes Hardaker, Qin Wu, Suresh Krishnan, Benoît Claise, Mohamed Boucadair, Mahesh Jethanandani, Dhruv Dhody
- https://github.com/intarchboard/workshop-nemops/blob/main/IAB-Workshop.md

Feel free to contact the Program Committee with any further questions: nemops-workshop-pc@iab.org.

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