Overview of IETF Network Management Activities

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Context

- We (IETF) are not here to endorse or critique NGN
- We want to support any technology that can be built with/on top of IETF technology
- We like to understand requirements to improve that IETF technology for NGN and ANY OTHER technology
- We want to understand such technologies to ensure the core IP/Internet network does not break
- So we present what we have and we want to hear what you need in addition and invite to work with us on the IETF protocols (in the IETF)

NM Protocols

- Main Protocols:
  - SNMPv3 – full Internet Standard (STD 62)
    - SNMPv1 and SNMPv2c are now HISTORIC
  - NetConf – Network Configuration Protocol
    - Close to completion and ready for Proposed Standard (PS)
- Others:
  - COPS – Proposed Standard (PS)
    - Outsourced Policiy Decisions
  - COPS-PR – Proposed Standard (PS)
    - Policy Provisioning
  - GSMP – Proposed Standard (PS)
    - General Switch Management Protocol

Information/Data Modeling

- SMIv2 – full Internet Standard (STD)
  - Many MIBs defined (PS, DS, STD)
  - Many MIBs defined outside IETF
  - Used with SNMP
- No standards work on NetConf XML data modeling (yet)
- SPPI – Proposed Standard (PS)
  - A few PIBs defined (Informational)
  - A few PIBs defined outside IETF
  - Used with COPS-PR
- PCIM – Proposed Standard (PS)
  - A few “modules” defined
  - Used with LDAP

Focus on Element Management

- typically working on instrumentation of protocols stacks, applications, services
- typically working on instrumentation of Network Elements and Interfaces
- Most IETF protocols will come with one or more MIB module(s) for it
- Not working much (if any) on NM applications or interfaces (APIs) for such applications

Monitoring vs Configuration

- Majority of focus has been on monitoring with SNMP and MIB modules.
- Configuration (write access) has been claimed to be difficult/problematic
- Although there are success stories of using SNMP for configuration
- NetConf is intended to address SNMP shortcomings for configuration

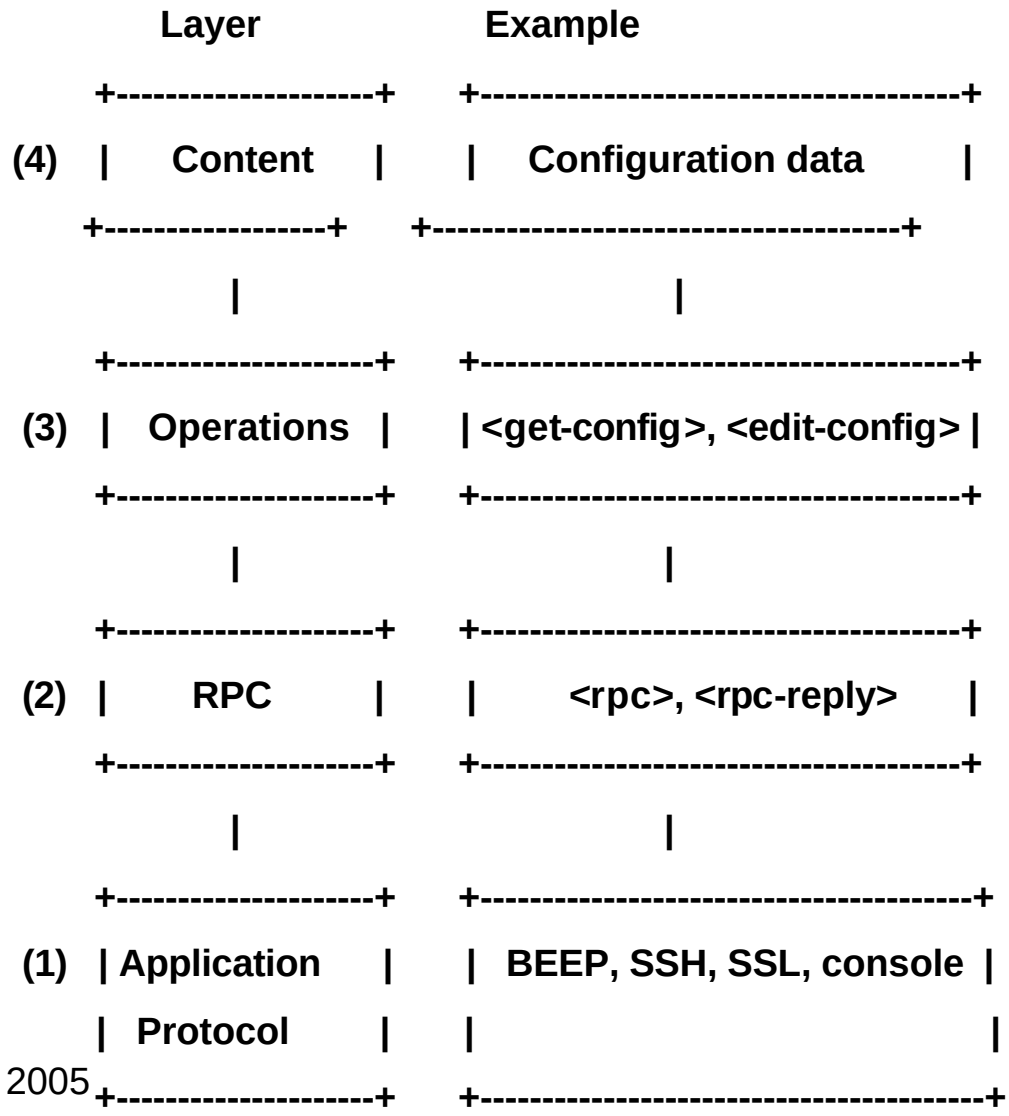
SNMPv3 and Security

- SNMPv3 has “embedded” security
- SNMPv3 has detailed Access Control Model
- SNMPv3 needs separate configuration of the security and access “parameters”
- That is claimed to be too much of a burden
- Need/requirement to integrate with existing mechanisms/protocols
- Hence ISMS WG

(Internet) Operator Requirements

- See RFC3535 (report on IAB NM Workshop) for details of Operator Requirements
- We had Operators from Telco, IP and Enterprise
- Direct result was/is NetConf WG in IETF

Conceptual NetConf Layers



NetConf concepts

- Configuration viewed as an XML document
- Configuration changes via "patches" to the XML document
- Information retrieval with filtering capability
- Support for multiple configuration "datastores"
- Locking on the datastore level
- Commit/rollback support (capability)
- Authentication and encryption left to the transport (ssh default)
- Extensible for new operations via capabilities
- network wide configuration change transactions

Relevant for NGN

- IPPM WG
  - IP Performance metrics
  - IANA maintained registry
- RMONMIB WG
  - widely used monitoring MIB modules
  - Application performance monitoring MIB
  - Real-time Application Quality of Service Monitoring (RAQMON) MIB
- SYSLOG WG.. others

Conclusions/Discussion

- In principle there NGN NM work seems to be able to use existing and upcoming IETF NM protocols and Data Models
- We need to (continue to) exchange needs and requirements and keep each other up to date on developments
- NGN NM should study NetConf Work and probably also ISMS work/discussions