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Netconf Architecture Model
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Abstract

For the new network configuration concept discussed at NETCONF, we mention the importance of building new network architecture. We can not develop and discuss the concept using XML because it is only tools but the concept is confusable. The consensus of architecture

is required to clarify the items and technologies that should be discussed and standardized at IETF.

1. Introduction

For the new network configuration concept discussed at NETCONF, we mention the importance of building new network architecture. We can not develop and discuss the concept using XML because it is only tools but the concept is confusable. The consensus of architecture is required to clarify the items and technologies that should be discussed and standardized at IETF.

As such, we will make specific recommendations for all applications. In doing so, we will use the language described in [RFC 2119](#) [[1](#)]. The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [[1](#)].

2. Proposal

In the discussion for XML configuration at NETCONF, a global architecture SHOULD be developed to arrange the technology components and make common image for configuration. Since XML is only tool, it can not be defined concept and architecture. The configuration tool using XML tag without consideration of architecture may be useful at once, it will obsolete by new technology and standard.

It is useful for the network operator to configure network equipments and to see MIB information and network configuration using XML. It is important to discuss SOAP, MIB, security, and so on as tools for configuration, but is difficult to share the whole image of requirements. We need to review the global network architecture to check and confirm the action item.

XML is only tools based on the concept of metadata and RDF, and have many possibilities for network architecture. We are required to understand the concept of XML related technologies and to discuss the application of these technologies for standard. Since XML technologies are originally defined for contents and applications, it is also suitable for contents delivery network. We can describe the network policy using XML. The Distributed Management Task Force, inc. Distributed Management Task Force, inc. [2] (DMTF) discuss the XML mapping tool of Common Information Model (CIM). We develop the whole architecture by including existing concepts and technologies related network configuration and management.

The global architecture including next generation internet technologies such as IPv6 and QoS also involve the new network architecture. The Migration strategy is required for the new architecture. Since XML is developed for contents and application, it has not been considered to apply to the network control. There are not tools and implementations for network. It is required to implement some technologies for network configuration such as tools, APIs, and so on using XML.

3. Current Tools

This is the list for current tools and technologies that is available for network configuration. See reference for details.

- o Resource Description
 - * Resource Description Framework Resource Description Framework [\[3\]](#)
 - * XML Scheme
 - * Metadata work
- o Description of network devices of policies
 - * Distributed Management Task Force, inc. (DMTF), Common Information Model (CIM)
- o Topology
 - * Visual Design Tool
 - * Unified Modeling Language (UML) Unified Modeling Language [\[4\]](#)
- o Configuration Protocol
 - * SOAP
 - * BEEP
- o Security Protection
 - * ssh
 - * SSL
 - * IPsec
 - * XML Signature

4. Architecture

Figure 1 presents a proposed architecture for network configuration using XML and related concepts and technologies.

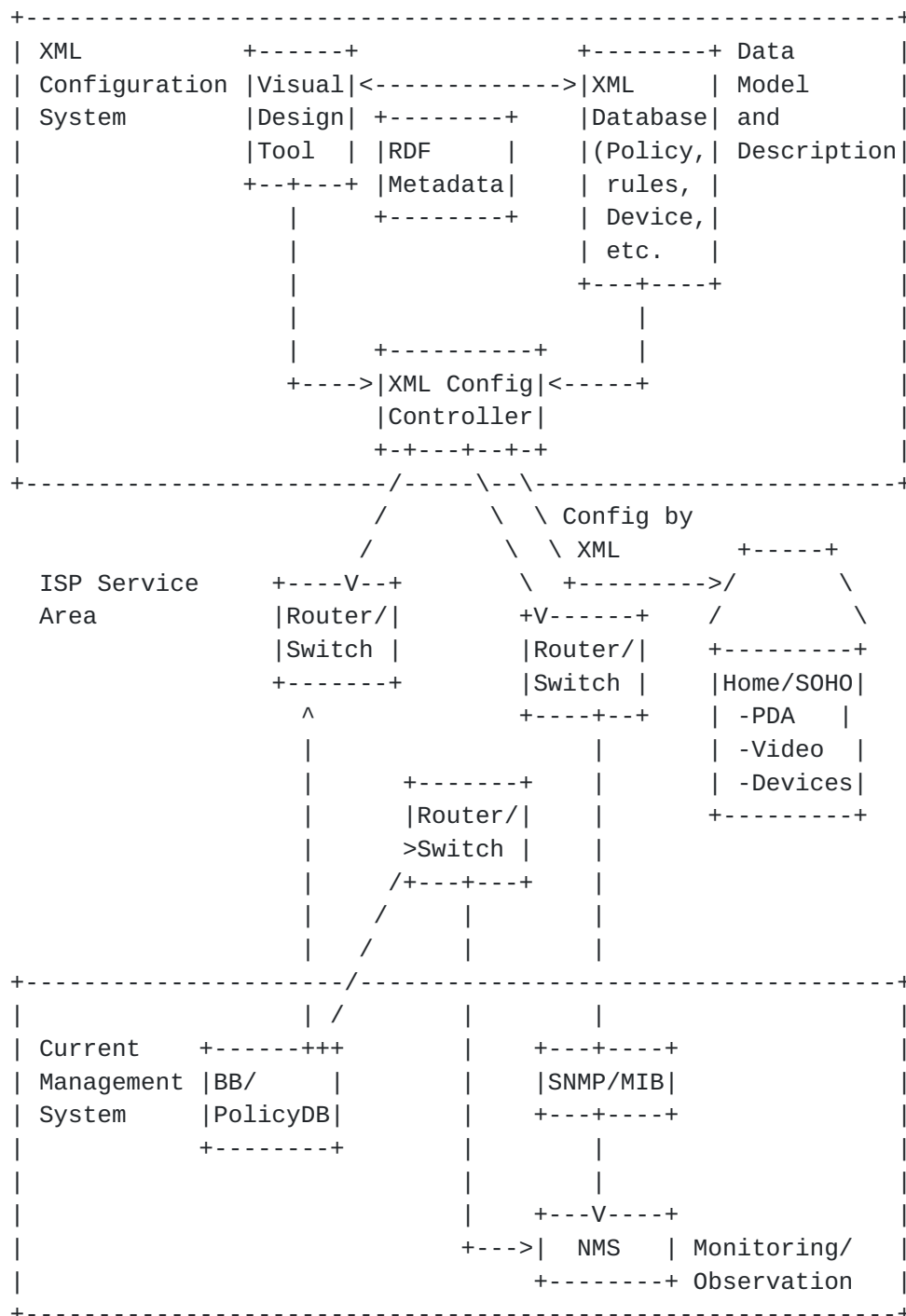


Figure 1: netconf architecture model

5. Deployment Story

The deployment story is required to deploy the architecture. This is our proposal.

- o Phase 1: router and switch conf for ISP/career.
- o Phase 1.5: router and switch conf for enterprise.
- o Phase 2: SOHO home router and appliance control.
- o Phase 3: mobile application and so on.

6. IANA Considerations

No action has been requested of IANA.

7. Security Considerations

This document discusses motivation and architecture of XML network management. If implemented as described, it should ask the network to do nothing that the network has already allowd. If that is the case, no new security issues should arise from the use of such a architecture.

8 References

- [1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [2] <<http://www.dmtf.org/>>
- [3] <<http://www.w3.org/RDF/>>
- [4] <<http://www.omg.org/uml/>>

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