The VLAN Model for Applications
draft-ninomiya-netappvlan-02

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Abstract

This document describes the model for application and network interaction in reaction to Application Area Architecture Workshop held on February 11 and 12, 2008. There is not completed mechanism for collaboration between application and network yet even though a solution is required. The model proposed in this document is designed without a layer violation. This document propose the VLAN model for the application users.

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1. Introduction

This document describes the model for application and network interaction in reaction to Application Area Architecture Workshop held on February 11 and 12, 2008. There is not completed mechanism for collaboration between application and network yet even though a solution is required. The model proposed in this document is designed without a layer violation. This document propose the VLAn model for the application users.

1.1. Requirements notation

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 [RFC2119].
2. VLAN Model

The VLAN is one of technologies to implement the L2 layer closed network. Since VLAN configuration is proprietary parameter and interface, it is useful to provide a common model and schema for the application users.

This model is the primitive data model involved by usage scenario corresponding to requirements. This kind of primitive data model is required to be standardized because it should be common for the application and user. Application and user don't need to use CLI level configuration using this model.

We designed the common VLAN model as below.

```
+-------------------------------------------------+        
|                Network Device                   |        
+-------------------------------------------------+        
  port 0/7   port 0/11      port 0/15  port 0/17
    |          |              |          |
  VLAN100   VLAN100         untag      untag
    |          |              |          |
  port 0/1   port 0/1     port 0/1    port 0/1
  +---------+ +---------+   +---------+ +---------+
      |   |         |   |         | |         |
      +---+ +---+   +---+ +---+ +---+
      | ServerA | ServerB | ServerC | ServerD |
    +---------+ +---------+   +---------+ +---------+
```

2.1. VLAN Schema

This section describes the VLAN Schema. This schema can describe both tagged vlan and untagged vlan. Tagged vlan id is managed to keep uniq and not exceed to 4096.

```xml
<?xml version="1.0" encoding="utf-8" ?>
<xsd:schema elementFormDefault="qualified"
  targetNamespace="http://siesta.iij.ad.jp/L2_domain"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:L2_domain="http://siesta.iij.ad.jp/L2_domain">
  <xsd:element name="root">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="tagged_vlan_domain" maxOccurs="unbounded">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="root"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```
<xsd:complexType>
  <xsd:sequence>
    <xsd:element name="tagged_vlan_domain_id" type="xsd:string" />
    <xsd:element name="tagged_vlan" maxOccurs="4096">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="vlan_id">
            <xsd:simpleType>
              <xsd:restriction base="xsd:integer">
                <xsd:minInclusive value="1" />
                <xsd:maxInclusive value="4096" />
              </xsd:restriction>
            </xsd:simpleType>
          </xsd:element>
          <xsd:element name="vlan_name" type="xsd:string" />
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="network_interface_list">
                <xsd:complexType>
                  <xsd:sequence>
                    <xsd:element name="network_interface_location" type="xsd:string" maxOccurs="unbounded">
                    </xsd:element>
                  </xsd:sequence>
                </xsd:complexType>
              </xsd:element>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="untagged_vlan_domain">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="untagged_vlan_domain_id" type="xsd:string" />
          <xsd:element name="untagged_vlan">
            <xsd:complexType>
              <xsd:sequence>
                <xsd:element name="untagged_vlan" type="xsd:string" fixed="untag" />
                <xsd:element name="network_interface_list">
                  <xsd:complexType>
                    <xsd:sequence>
                      <xsd:element name="network_interface_location" type="xsd:string" maxOccurs="unbounded" />
                    </xsd:sequence>
                  </xsd:complexType>
                </xsd:element>
              </xsd:sequence>
            </xsd:complexType>
          </xsd:element>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
This section describes the VLAN XML example.
3. Security Considerations

TBD
4. Normative References

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