Virtual Metropolitan Internetworks (VMI)

draft−senevirathne−vmi−00.txt

Tissa Senevirathne (Nortel Networks)
Waldemar Augustyn (Nortel Networks)
Pascal Menezes (TeraBeam)
Marc Lasserre (RiverStone)
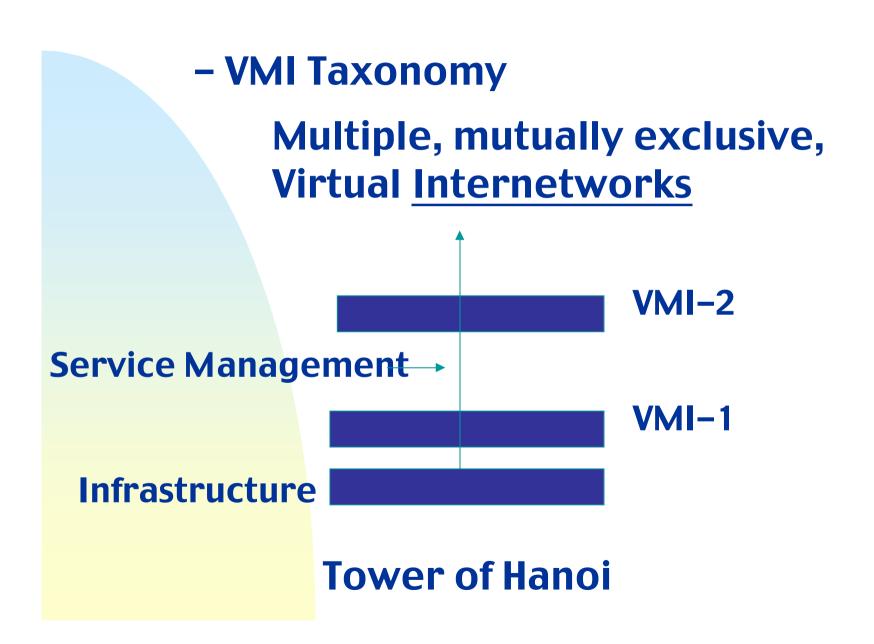
vmi@metrolan.org

50th IETF − March 2001

Agenda

What is VMI

WAN Services vs. LAN Services

VMI Requirements

VMI Issues

Advantages

What Is VMI

– **It is a Provider Provisioned**

– **VMI Service is "LAN–Like"**

– **VMI Models**
  Point–to–point
  Point–to–Multi–Point
  Multi–Point–to–Multi–Point
  Hierarchical, multi domain (AS Spanning) (section 5.3)

– VMI Taxonomy

Multiple, mutually exclusive, Virtual <u>Internetworks</u>

VMI–2

Service Management

VMI–1

Infrastructure

Tower of Hanoi

WAN Like Services vs.
LAN Like Services

WAN Service (Traditional VPN)

Mostly Frame Relay Model

Point-to-Point or Point-to-Multi

Routable Model

LAN Like Services

Common Broadcast Medium – Ethernet model

Layer 2 MAC Learning/forwarding

VLAN Oriented

VMI Requirements

– Protocol Agnostic
    IP–Sub service

– LAN Like
    All end points are in same
    Broadcast domain, learning MAC

– Ability to Scale

– Scalable Service Provisioning
Automatic Service Provisioning v:
End–to–End Manual Provisioning

– Unrestricted multi–site VLAN span
Customers ability to configure
Private VLAN is not restricted by
Service Provider Configuration

– Security

Traffic Separation

Traffic Encryption and Authentication

Protection Against DOS and Replay

Protection of VMI Infrastructure from misbehaving VMI

Back–haul tunneling protocols MAY ne have security features

Issues

Broadcast, Multicast, Unknown Forwarding

Layer 2 Forwarding vs. Routing

Choice of proper back–haul Tunneling Protocol

Address Learning

Issues – contd..

Re–convergence, Recovery etc.. MUST be like in LAN

Providing Scalable Security Solutio (Some work from MSEC WG)

Advantages

Forwarding is based on Layer–2

   – Scales better than IP based Routed VPN environment

Transparent to the User

   – drop of a cable (no different to Local LAN)

Advantages (contd..)

New market opportunity for enormou
Bandwidth in the optical core

Q&A