



Aalto University

Researcher's Virtual Desktop using OpenVPN Tunneling

Future Internet SHOK results seminar 15.2.2011

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2011-02-15

Content

WP4: Testbed

Connectivity improvement by tunneling

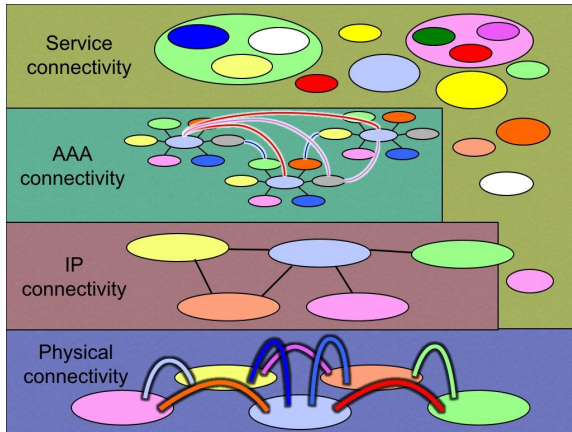
Virtualized research environment



Common problems for network researcher

- Local network challenged when one wants
 - to use multicast
 - ... IPv6
 - access some other in addition to TCP port 80...
 - accept incoming connection
- Test network interconnection at L3
- Test network interconnection at L2
- Test network interconnection at L1
- Local CERT approaches testing prototype with side cutters

Testbed architecture



Interconnect services

- Physical connections
 - dark fiber, mainly in campus areas
 - CWDM, metropolitan area
 - DWDM, depends on line protocol used
- IP connectivity services, routed
- Tunneled connections
 - most lightweight service
 - in many cases sufficient: performance is not critical
 - underlying network can be any IP supporting network

Tunneling for better connectivity

- Normal office networks
 - conservative services, firewalled
- \$RANDOM WLAN and mobile networks
- Home networks (ADSL, Cable modem)
 - researcher
 - student
- Many of these are behind NAT

Research network connectivity

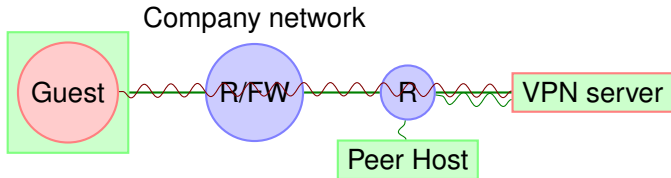
- Host (virtual) computer at research network
 - good for many uses
 - may have problems with display, sound and system administration
- VPN gateway with connection to research network
 - improved connectivity for set of computers
 - e.g. WLAN AP
- Virtualized research computer to PC
 - no additional boxes

Virtualized research computer

- VPN connection to host system
 - no address allocated for host system
 - is the only network interface the guest sees
 - local network is not visible to guest
- Possible to have multiple VPN connections to different networks
- Normal office computer: installation and basic config for OpenVPN client by IT administration
- Personal OpenVPN certificates via PurpleNet
- Demo LiveCD (based on Ubuntu 10.04)



Virtualized research computer



Conclusion

- WP4 has made possible co-operation of networks
- Connectivity at different layers
- OpenVPN as light-weight solution for connecting to testbed
- Lots of things can be made with virtualized setups
- At demo desk:
 - OpenVPN Box
 - OpenVPN Virtual Desktop

