Configurable Network Design and Testing Lab

Mathematical and Natural Sciences@ New College

Keith Cumiford

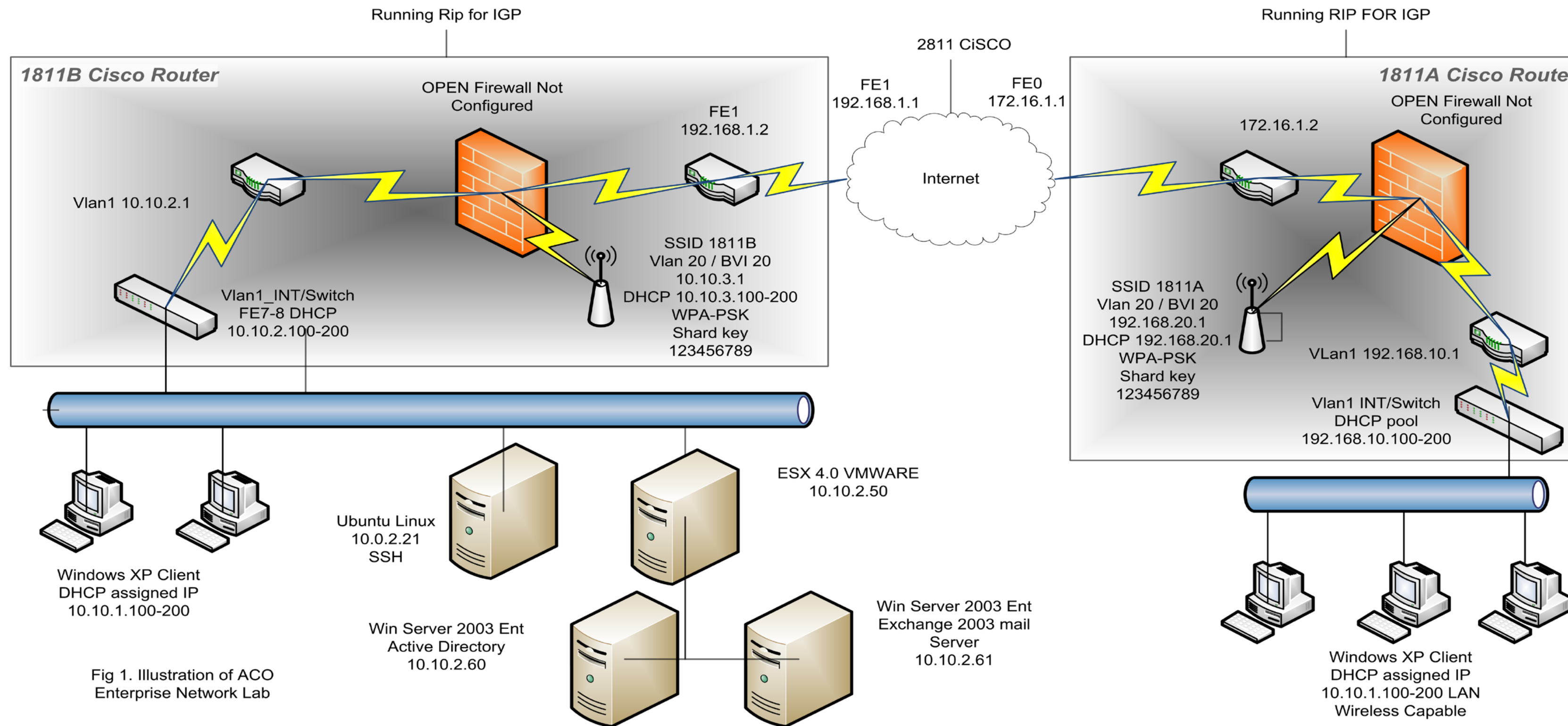Keith.Cumiford@asu.edu

Faculty Adviser Dr. Feng Wang

Applied Computing Lab Topology

Fig 1. Illustration of ACO Enterprise Network Lab

Network Analysis Tools

-Wireshark LAN packet level parser
-ACO network management packages
-Omnipeek WLAN packet level capture
-Cisco Sight Survey
-Cisco NetFlow SNMP interface management/measurement

Virtual Servers

-VMware ESX 4.0

Enterprise Level Domain Architecture
Windows 2003 Active directory server
Windows 2003 with Exchange 2003
VMware Image repository for lab environment
templates

-VMware server

Host Linux client/server OS configurations

Fig 3. VMware Sphere client console connected to Windows 2003 server running telnet connection to Cisco 1811 router

Enterprise Network

The ACO lab has the capabilities to mimic enterprise level networking and application infrastructures with technologies such as:

Interconnect:
-VPN, SSH, IPSEC, HTTP, DNS, DHCP, Firewall, Intrusion detection/prevention, Site to Site VPN, Wireless A/B/G communications

Client/Server and Peer to Peer application models
-Enterprise level domain infrastructure, LDAP (AD), SMTP (email), Web/FTP servers, remote invocation, network monitoring.. Etc.

Wireless Network

-WLAN Network:

802.11a,b,g, handoff, WPA/WPA2, WEP
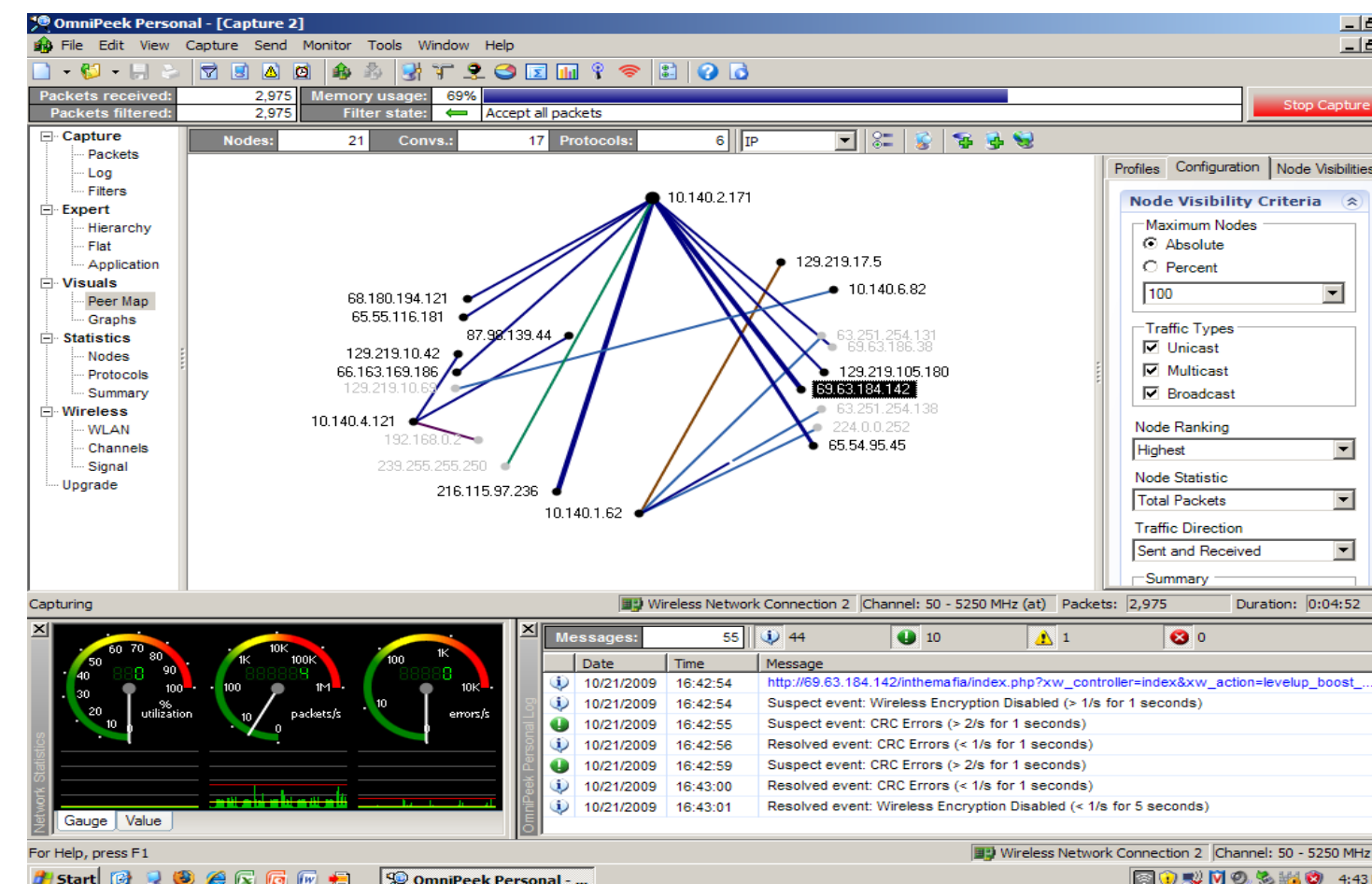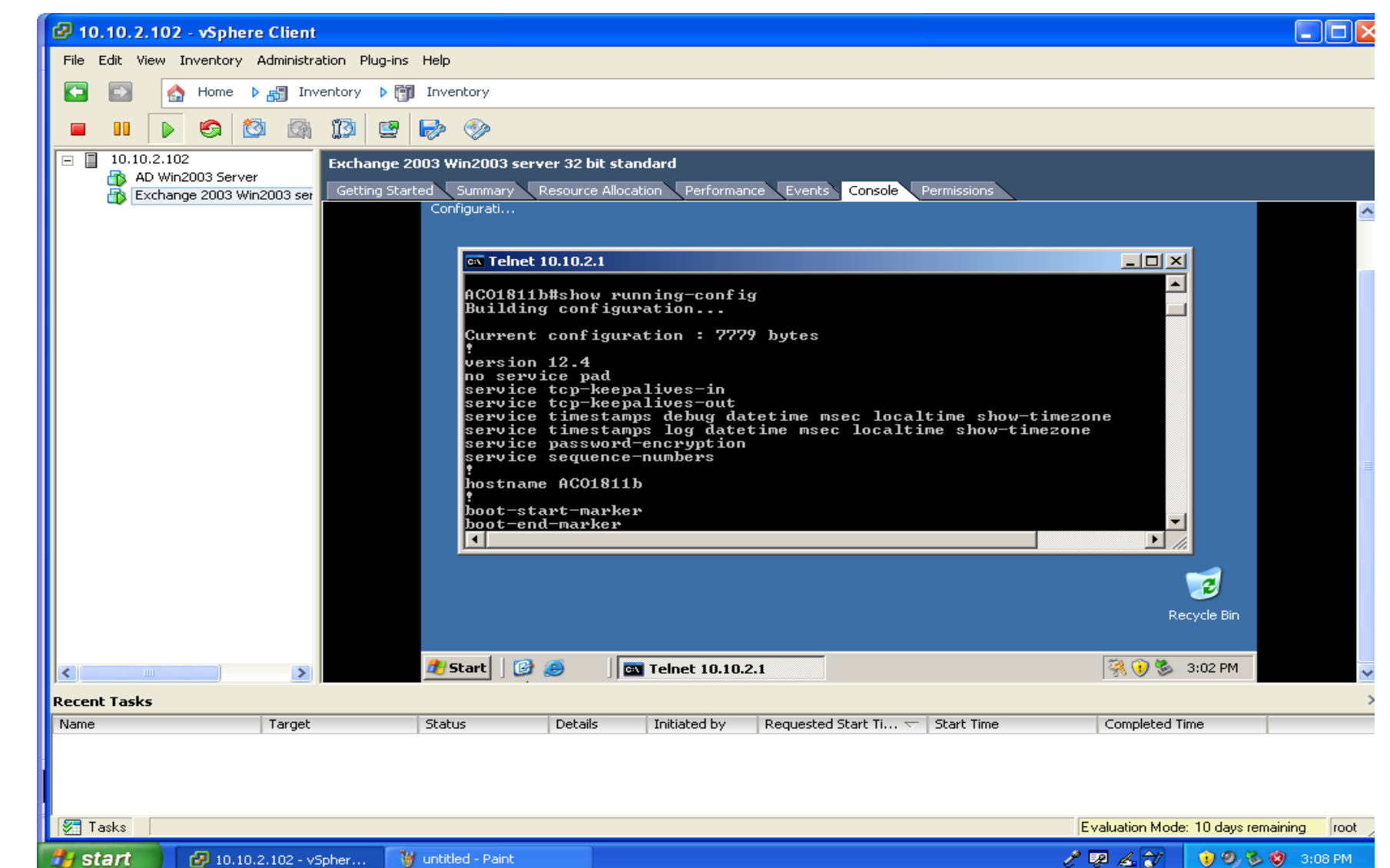
-Sensor Network:

MOTES, Programmable interface

Fig 2. Wireless packet analyzer