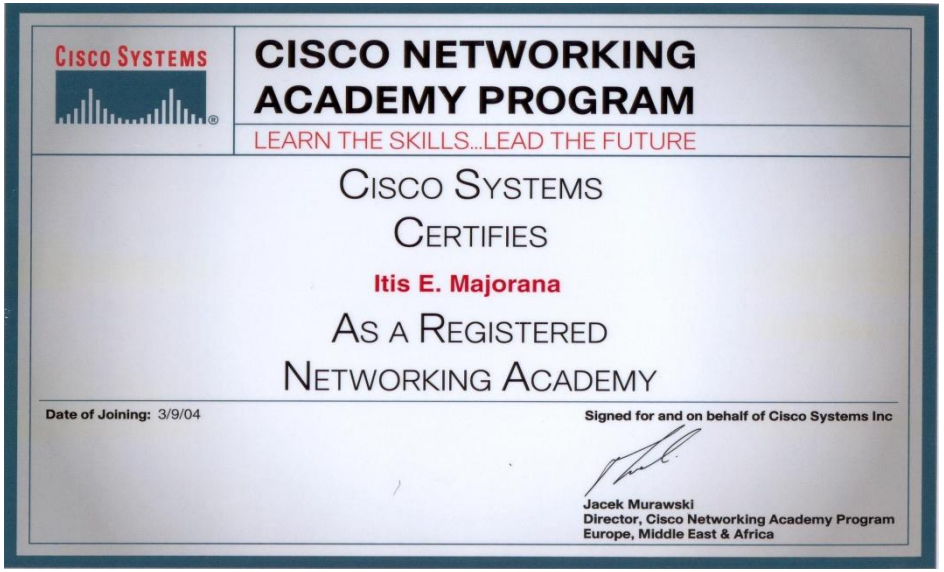
ITIS ETTORE MAJORANA
CESANO MADERNO



CISCO NETWORKING ACADEMY

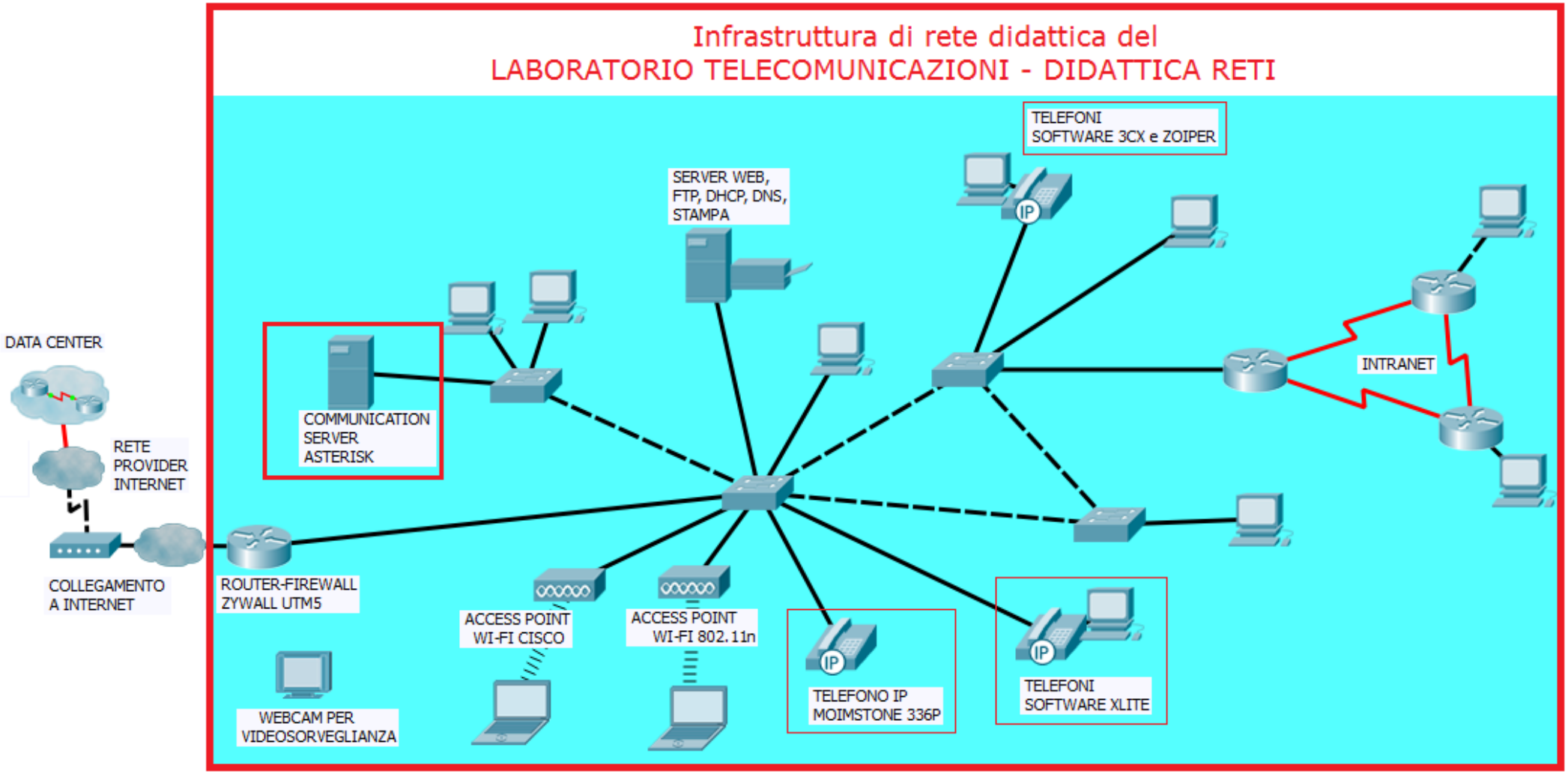
ARTICOLAZIONE TELECOMUNICAZIONI

PROGETTO CISCO

CCENT

Cisco Certified Entry-level Network Technician

Il laboratorio TELECOMUNICAZIONI - DIDATTICA RETI



LABORATORIO TELECOMUNICAZIONI – DIDATTICA RETI

Il Laboratorio Didattica reti è stato attrezzato per affrontare da un punto di vista pratico i diversi aspetti inerenti le reti di computer e l'internetworking.

Nell'ambito dei nuovi ordinamenti ad indirizzo **Informatica e Telecomunicazioni** il laboratorio è attrezzato per le attività laboratoriali di

- **Sistemi e reti**
- **Telecomunicazioni**

La dotazione di laboratorio è completa in quanto comprende:

- sei **router Cisco ISR 1841** e tre **switch Cisco Catalyst 2500**, altri switch,
- software per la progettazione e lo studio delle reti **Cisco Packet Tracer**,
- software per la configurazione di apparati Cisco **Network Assistant (CNA)**, **Cisco Configuration Professional (**CCP)
- **Access Point 802.11n** e **access point/bridge Cisco Aironet 1310** per la realizzazione di connessioni WiFi,
- un **Firewall** hardware **Zyxel ZyWALL** 5 UTM, per lo studio della sicurezza delle reti.
- schede di rete Ethernet e WiFi

Switch Cisco Catalyst

Router Cisco ISR

FIREWALL ZyXEL ZyWALL UTM 5

Access Point **DLink 802.11n**

Access Point/Bridge Cisco Aironet

Launch Introduction to Networks Introduction

Introduction

DOTAZIONE DI LABORATORIO – 2
Computer e Software

- diversi **computer** con installati i sistemi operativi **Windows e** GNU/**Linux** (distribuzione **UBUNTU** per i client);
- Un computer con s.o. LINUX Fedora con installati i **server WEB** (Apache), **FTP** (vsftp), **TFTP,** i **servizi di rete DHCP, DNS, SAMBA** (condivisione di cartelle tra PC Windows e LINUX), **Syslog**;
- software open source e free di analisi e monitoraggio delle reti (**Wireshark**, **ZenMAP/Nmap**, Syslog, PachETH, Netstumbler, ecc.),
- software open source e free per ufficio **LIBREOFFICE**

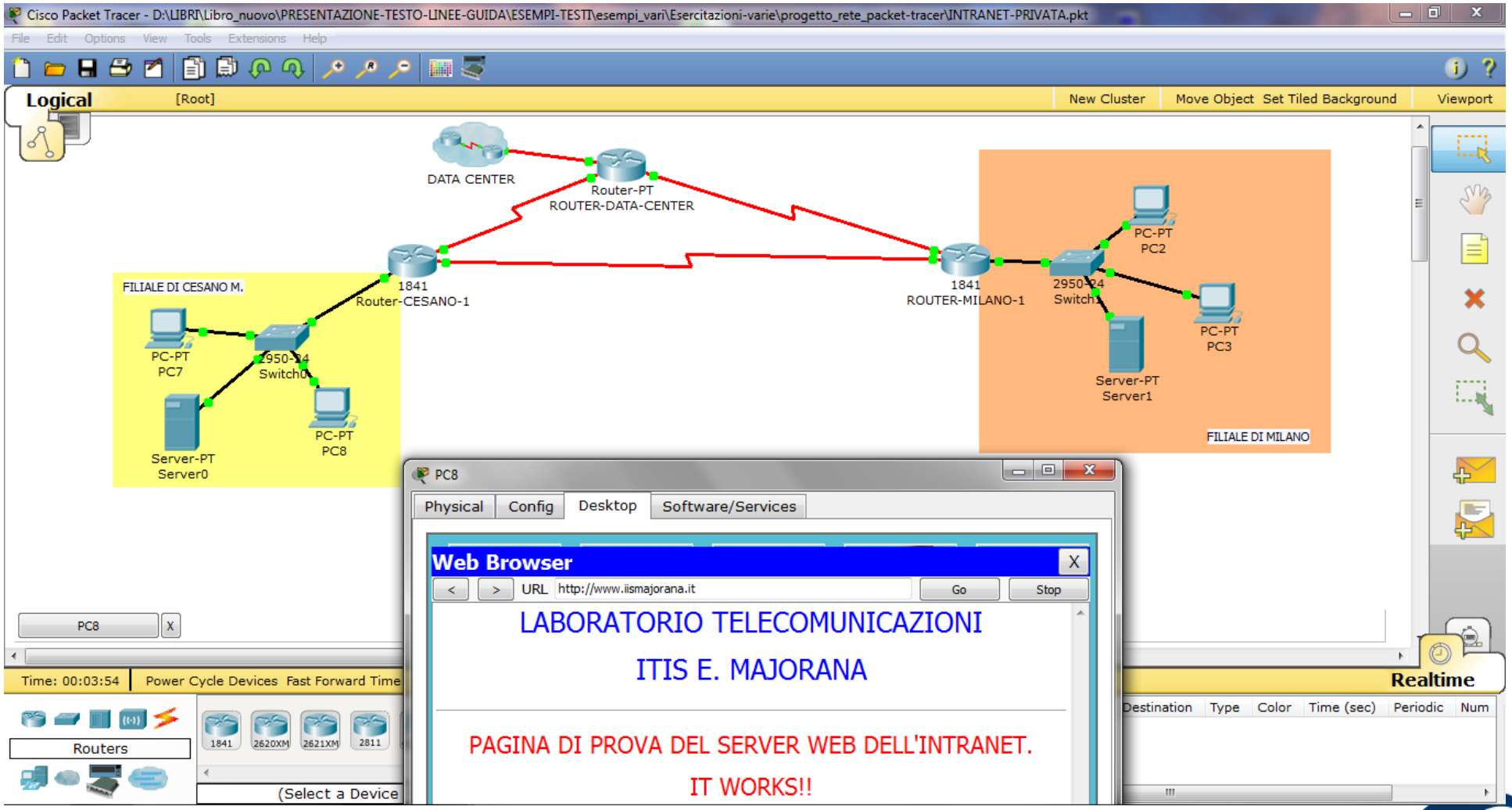
DOTAZIONE DI LABORATORIO - 3

- **WEBCAM per videosorveglianza** collegabile in rete via WiFi e Ethernet
- **Telefonia su IP (**Voice over IP) sulla rete del laboratorio realizzato con:
- PC server con installata la distribuzione **LINUX ASTERISKNOW** che funge da centralino VoIP multimediale (IP-PBX)
- **Videotelefoni software** (softphone) XLITE, 3CX, ZOIPER installati sui PC client Windows e Linux
- Software per la configurazione degli apparati di rete Cisco:

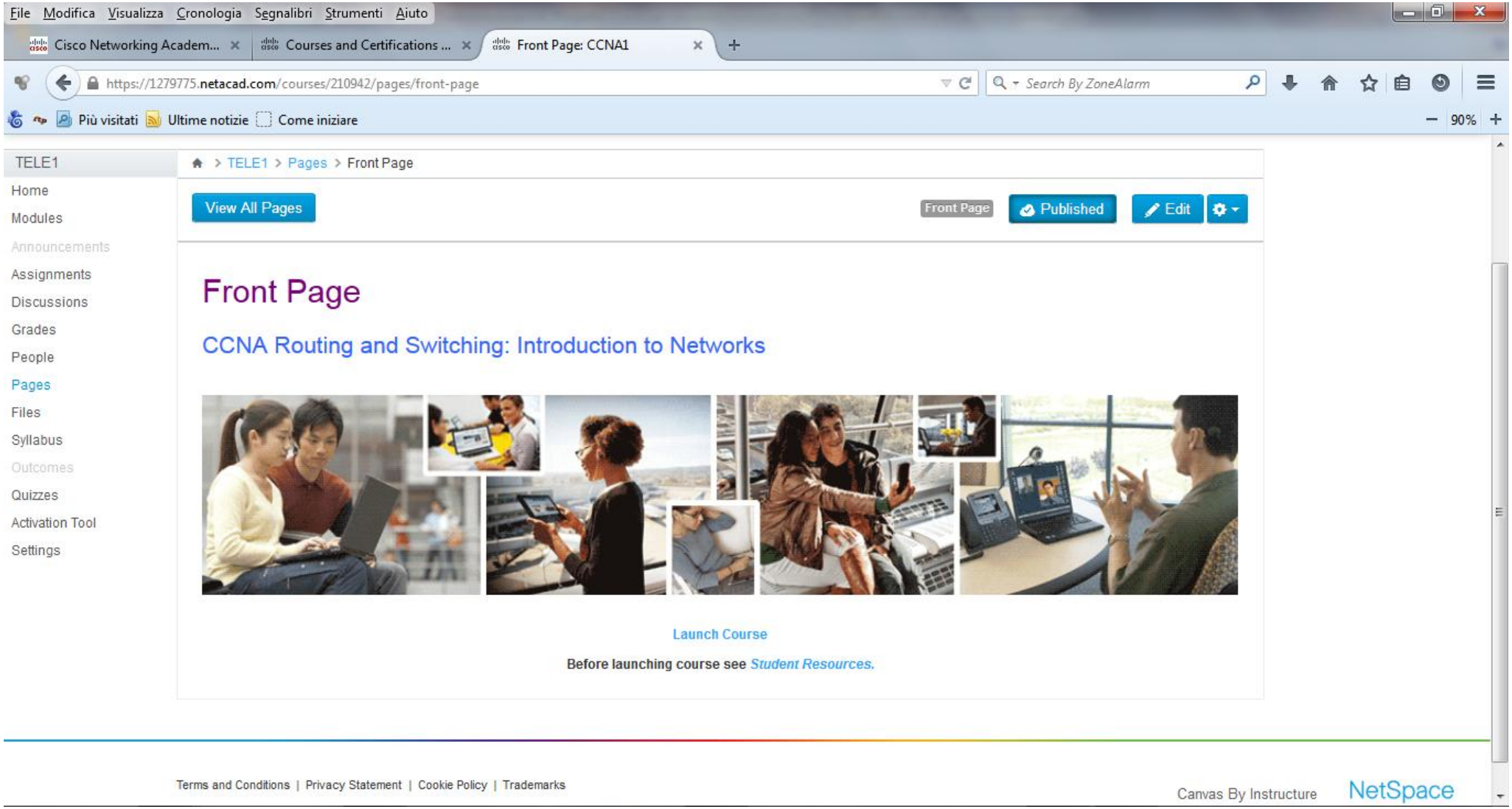
  Cisco Configuration Professional (CCP)

  Cisco Nework Assistant (CNA)

La simulazione delle reti con Cisco Packet Tracer



Materiale didattico online Cisco CCNA1



Materiale didattico online Cisco CCNA1

File Modifica Visualizza Cronologia Segnalibri Strumenti Aiuto

Cisco Networking Academ... | Courses and Certifications ... | Launch Chapter 11: CCNA1 | Introduction to Networks

static-course-assets.s3.amazonaws.com/IntroNet50ENU/module11/index.html#11.1.1.4

Più visitati | Ultime notizie | Come iniziare

Chapter 11: It's a Network › 11.1.1.4 Redundancy in a Small Network

Create and Grow

Devices in a Small Network

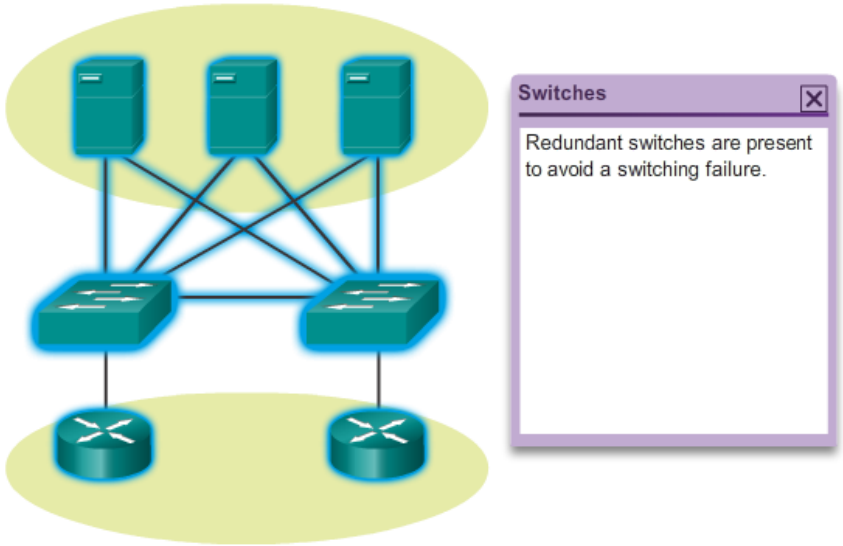
Another important part of network design is reliability. Even small businesses often rely on their network heavily for business operation. A failure of the network can be very costly. In order to maintain a high degree of reliability, redundancy is required in the network design. Redundancy helps to eliminate single points of failure. There are many ways to accomplish redundancy in a network. Redundancy can be accomplished by installing duplicate equipment, but it can also be accomplished by supplying duplicate network links for critical areas, as shown in the figure.

The smaller the network, the less the chance that redundancy of equipment will be affordable. Therefore, a common way to introduce redundancy is through the use of redundant switch connections between multiple switches on the network and between switches and routers.

Also, servers often have multiple NIC ports

11.1.1.4

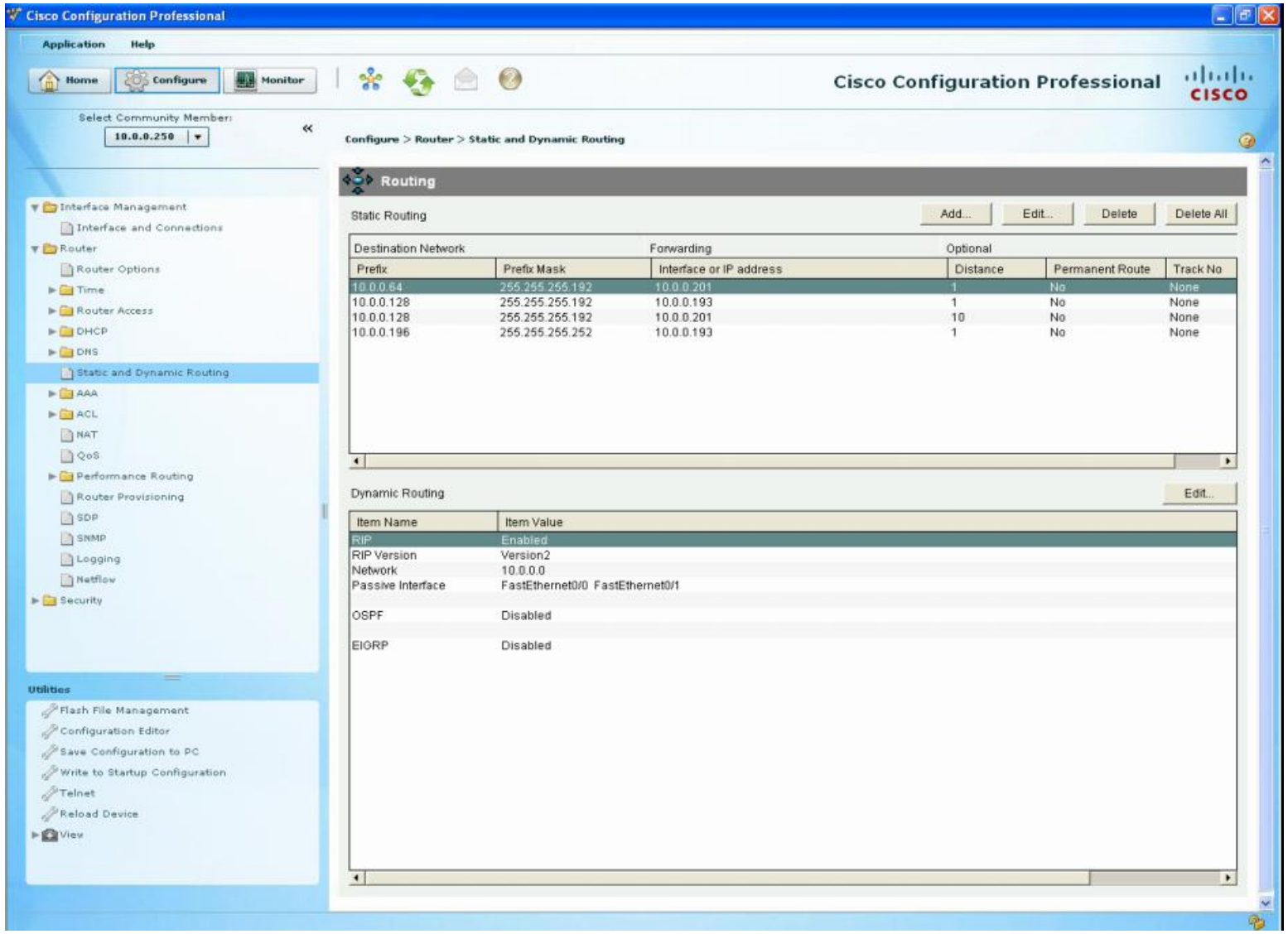
Redundancy to a Server Farm



Click the blue highlighted devices and connections for more information.

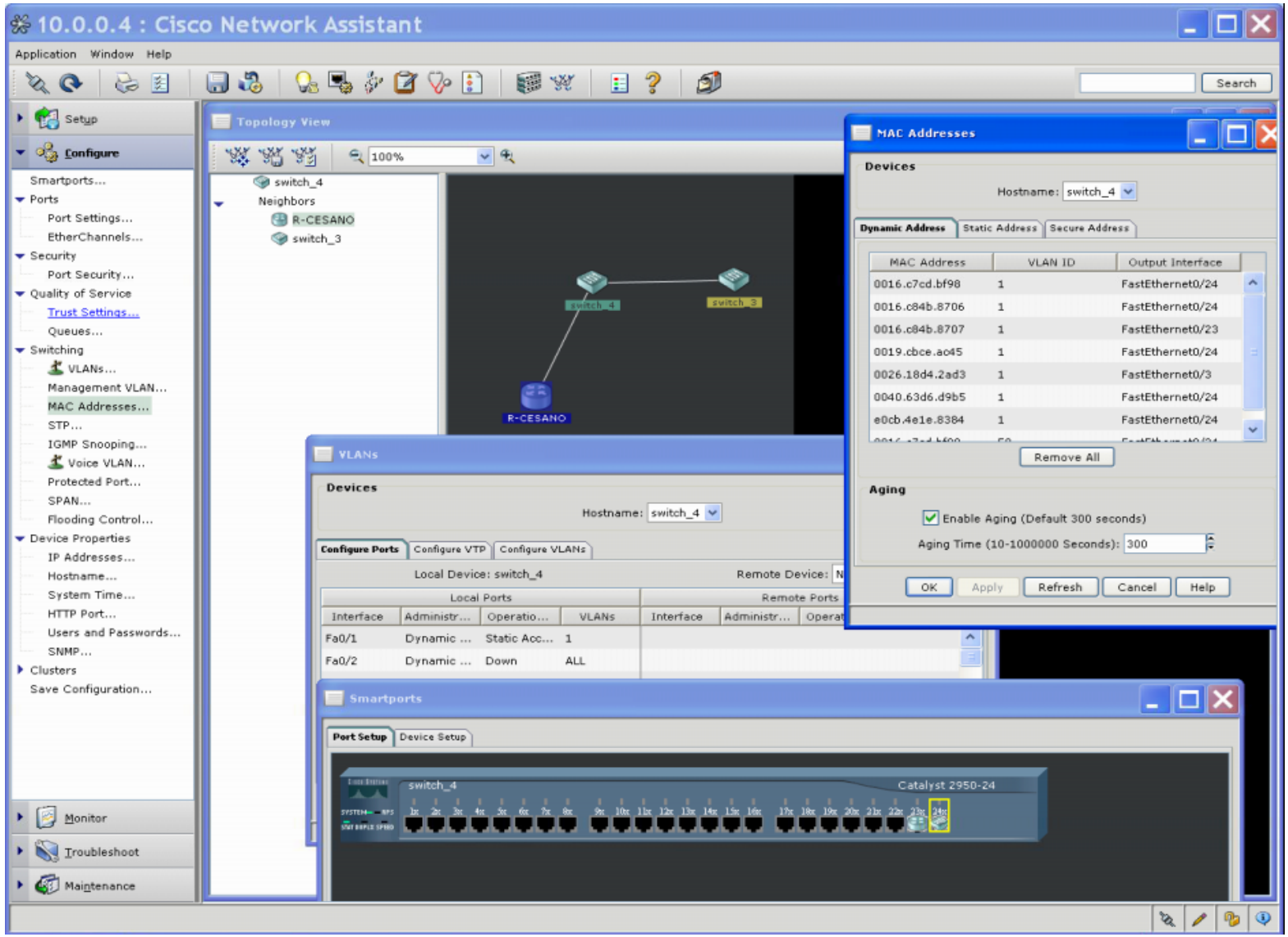
SW per la configurazione di router Cisco

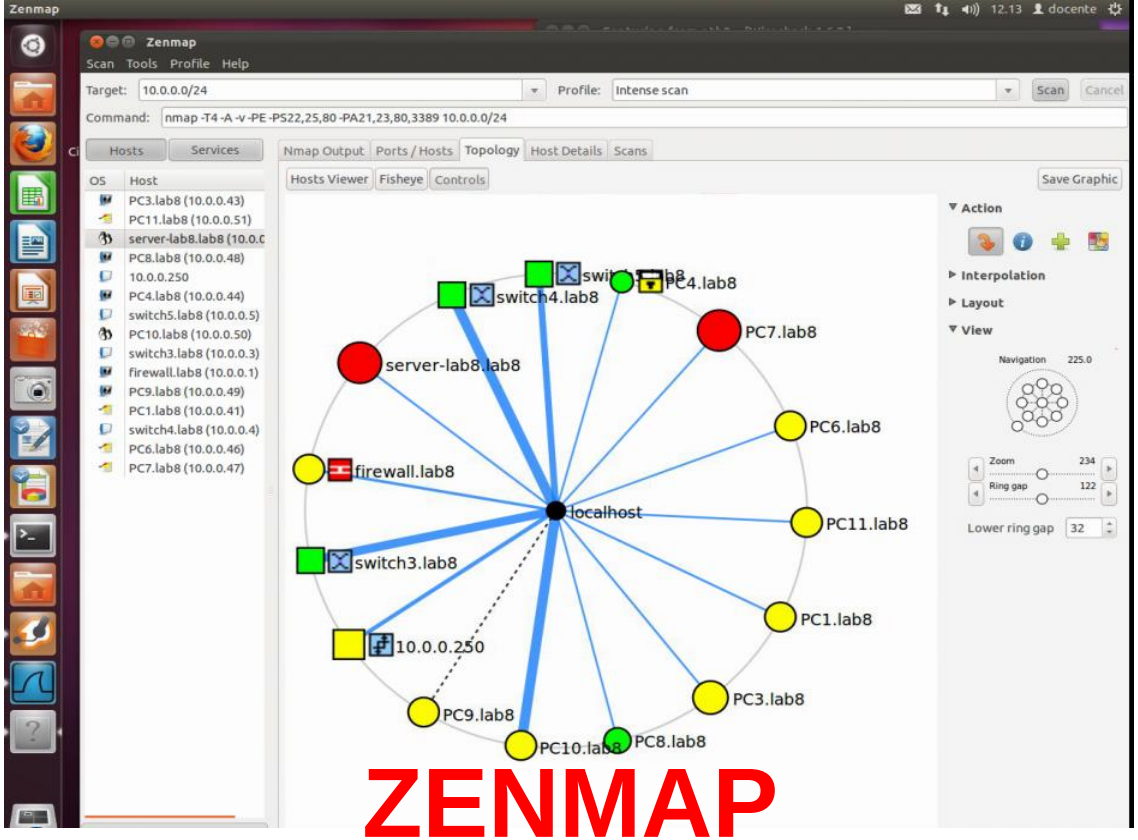
Cisco Configuration Professional (CCP)



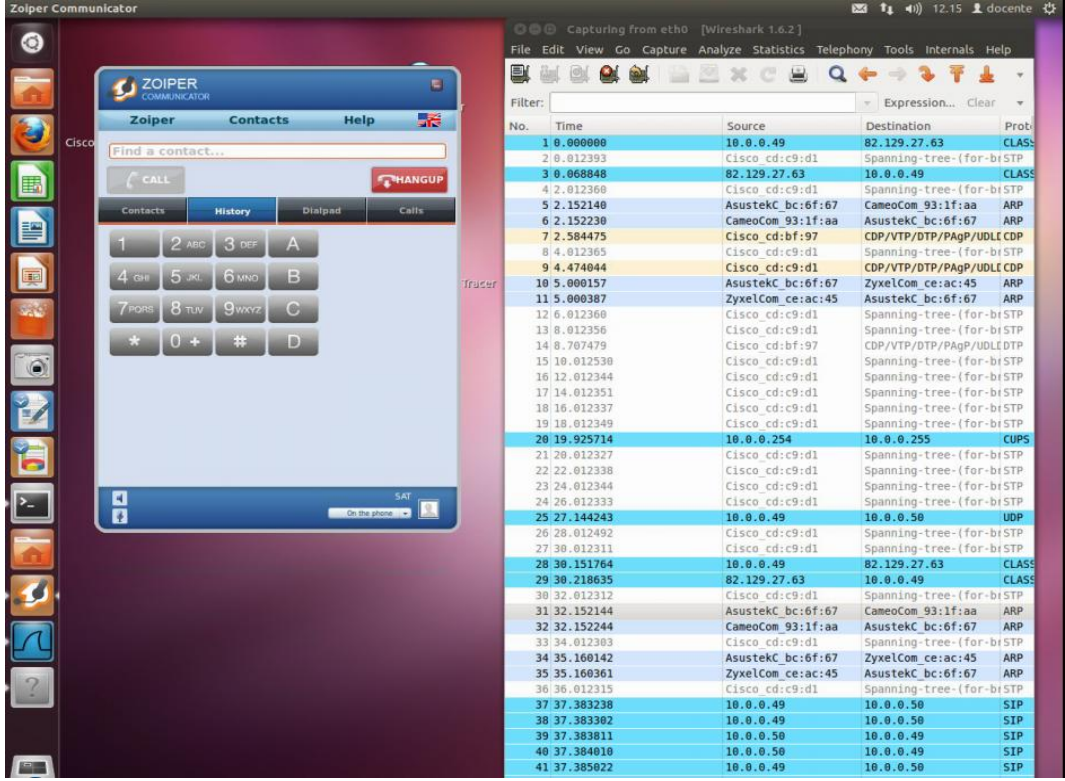
SW per la configurazione di switch Cisco

Cisco Network Assistant (CNA)





ZENMAP

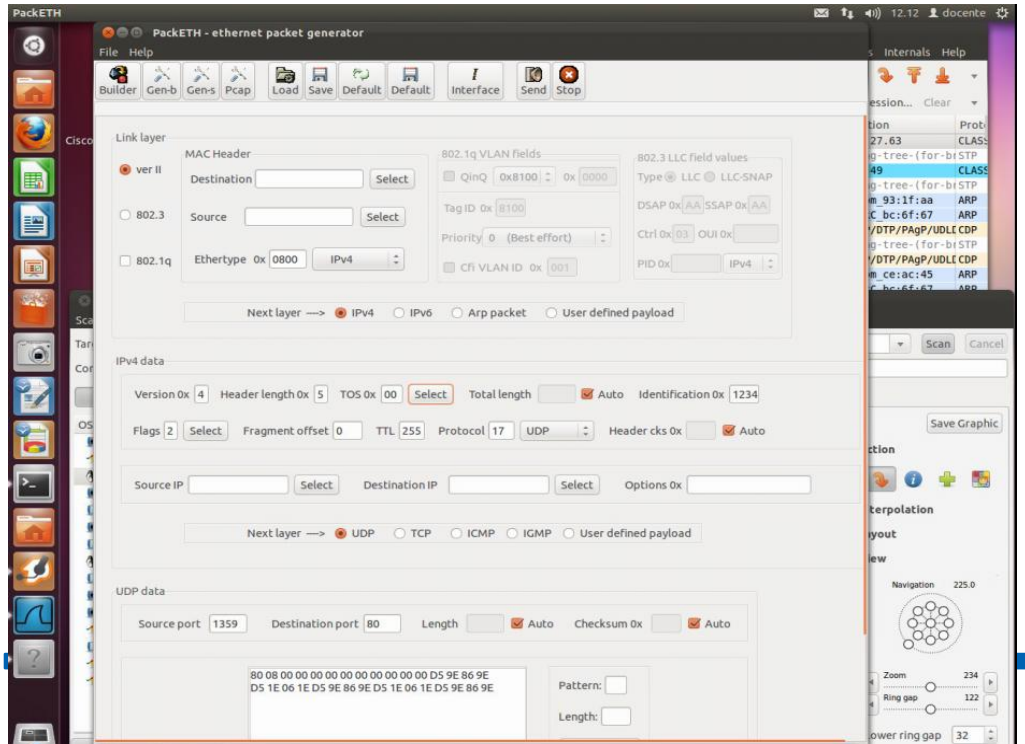


WIRESHARK

Analisi di protocolli

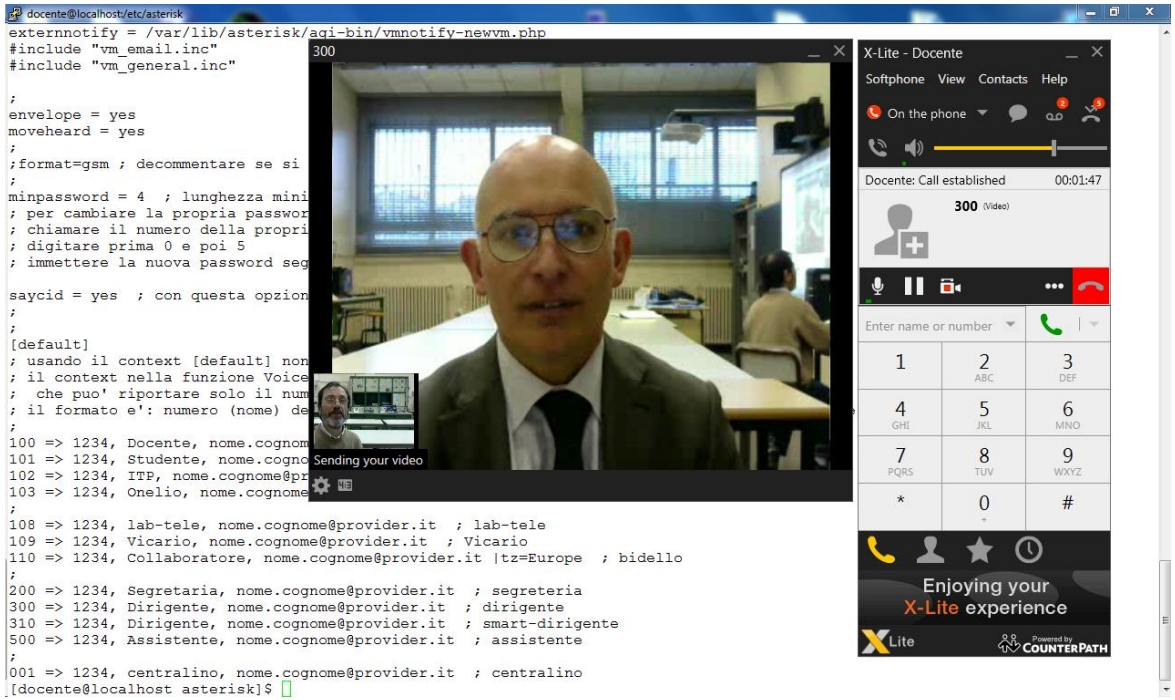
Mappatura di reti

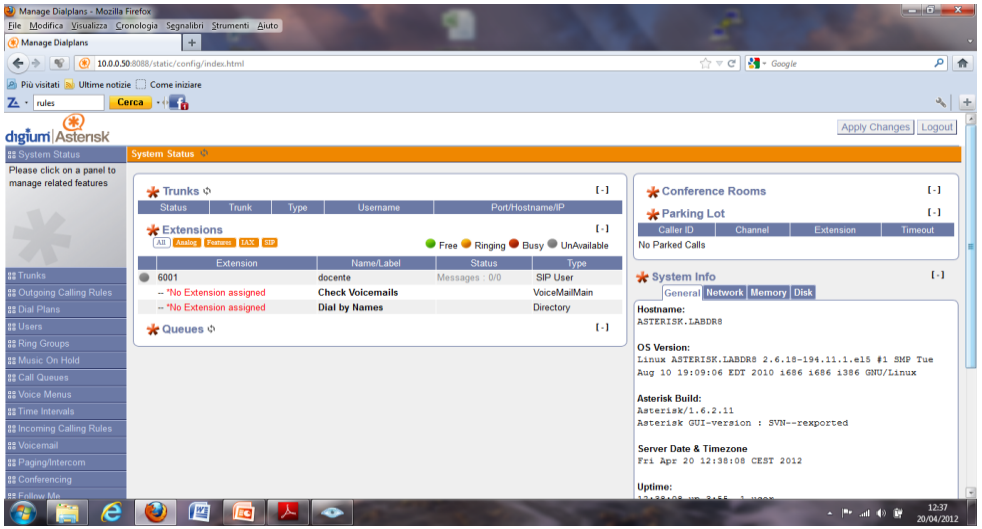
Creazione di Protocol Data Unit (PDU)



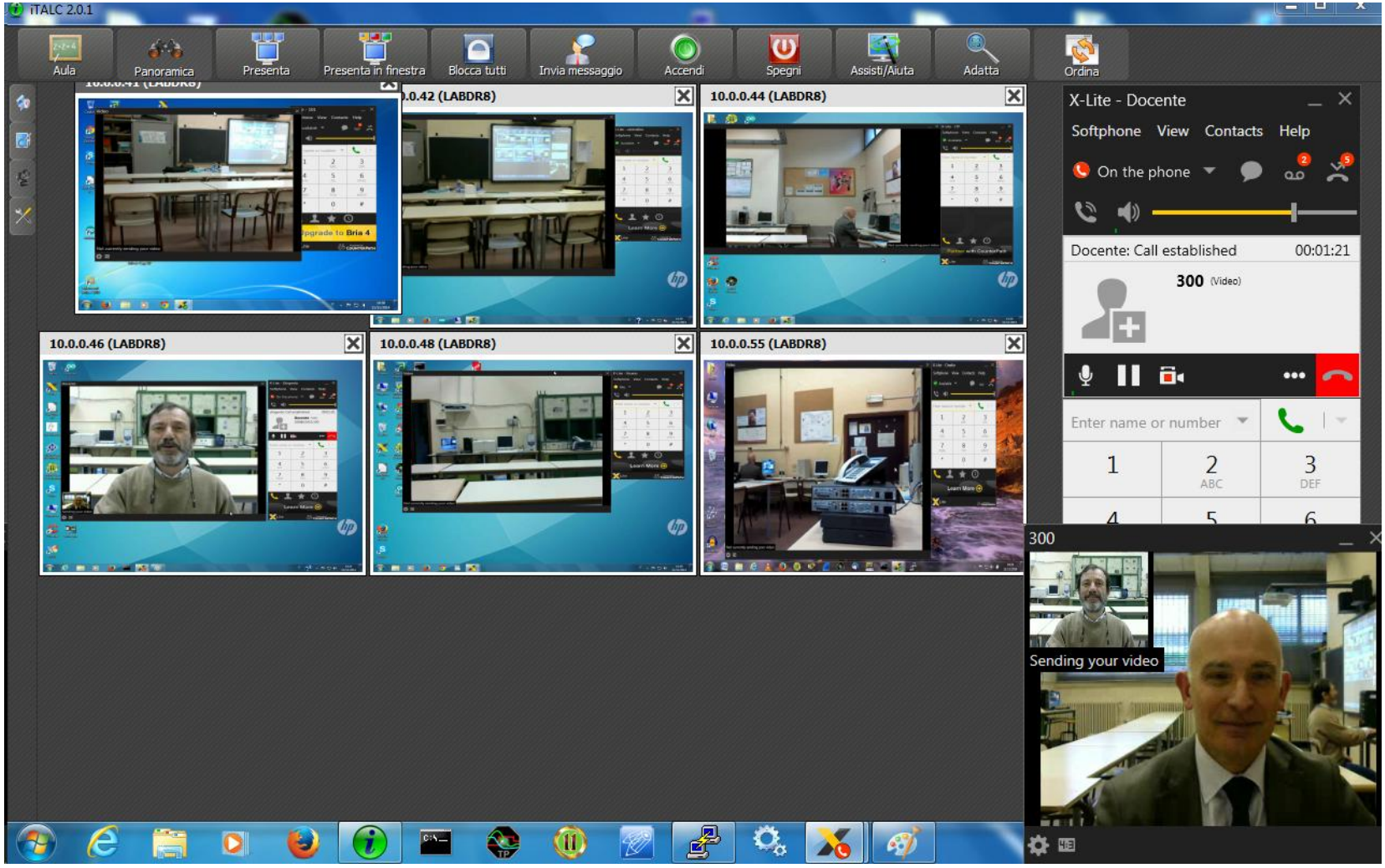
PackETH

VoIP con Asterisk e softphone SIP





Telefoni software (softphone) XLITE, 3CXphone, Zoiper

Controllo centralizzato (docente/studenti) con iTALC

iTALC - intelligent Teaching And Learning with Computers -
Software open source multipiattaforma, gratuito, per il controllo interattivo di computer in rete.