



Cisco Networking Academy Program (CNAP)

<http://www.cisco.com/global/HU/cnap/home.shtml>

I. Introductory Overview

1. Aim of the training

Transferring the theory and practical know-how of small and medium size enterprise companies/institutions, *typically under 100 end-points local (LAN), wide area (WAN) and dial-up network*, computer network infrastructure planning and installation according to customer needs.

2. Motivation

2.1. The principal motivation for the world wide training even today is still the acute need for professionals. According to the unanimous opinion of several independent sources, the trend forecast reflects the increasing need for professionals for the years coming.

2.2. Cisco Networking Academy presents an opportunity to acquire a CCNA_(Cisco Certified Network Associate) certificate, which is world wide accepted and saleable.

2.3. CISCO supports the training in several forms:

2.3.1. Modern training material continuously updated both with regards to form and contents.

2.3.2. Laboratory devices

2.3.3. Trainer training

3. Form and Duration of the Training

The specifically practice oriented training comprises a total number of 280 hours, and it is divided into 4 semesters (15 weeks each) with 5 hours a week for full time trainees. (The institutions joining the training have certain flexibility in schedules.)

4. Training Institutions

The training takes place in non-profit secondary or higher education institutions that wish to provide the possibility to acquire CCNA professional qualifications.

5. Ensuring Training Quality

The Quality Assurance Plan (QAP) worked out in fine details and strictly observed by CNAP Management System guarantees the realization of training goals. The most important elements of QAP are as follows:

5.1. Trainings can exclusively be performed by trainers certified and re-trained by Cisco in each year.

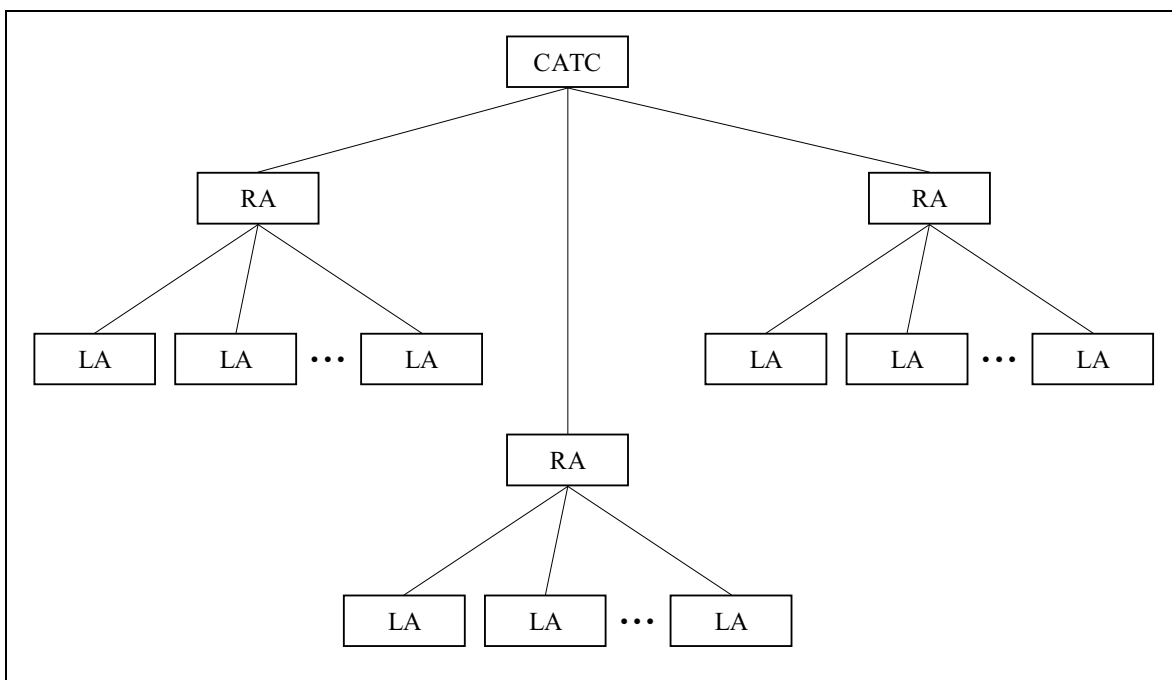
5.2. Each phase of the training and the training Academy is continuously and strictly controlled from several sources.

6. CNAP Organizational Structure

The basic purpose and final goal of CNAP is the training of the trainees from institutions participating the program.

- 6.1. The basic cells of training are the **Local Academies** (LA) created in each institution. Each LA consists of a minimal staff two trainers and a Main Contact manager responsible for the training. The latter is also responsible for the appropriate co-operation between the LA and the CNAP system.
- 6.2. The next level in the scheme of organization is the **Regional Academies** (RA) performing the support and professional control of the work of LAs. These are organizations undertaking additional tasks in order to operate the entire CNAP system in addition to training their candidates. Core activities are : integrating LAs, professional support of training start, continuous transfer of training experiences, professional consulting about laboratory work, training the LA trainers, and their regular further education, supporting the launch of new versions of training materials, co-ordination of devices necessary for the training but difficult or impossible to obtain individually, organizing the operation of equipment to be used together, and continuous control of quality specifications. Only LA operating institutions can create RAs. Any RA consists of minimum two trainers and a Main Contact manager responsible for the training. The latter is also responsible for the appropriate co-operation between the RA and CNAP system and the professional supervision of LAs.
- 6.3. The work of RAs is co-ordinated by the **Academy Training Center** (Cisco Academy Training Center – CATC). Their primary task is the training of RA trainers and their regular (annual) further training, professional support of training start, continuous transfer of training experiences, professional consulting, support of introducing new training material versions, new training tools and methods, and the continuous control of quality specifications. CATC can exclusively work in institutions where an LA and a RA work as well.

The structure of Cisco Networking Academy



7. Necessary training infrastructure

7.1. Due to the prompt changes of the training subject, namely the professional area, printed training materials, standard exams and administration methods would cause significant delay and very high extra costs. Therefore, the training material is issued in E-Learning via electronic media, the exam system is also web based, and so is the administration of the entire training activity. According to this one of the most important conditions to training start is a training room with computers connected to the local network and Internet access. For this purpose a room with 10-12 PC work stations and an independent server is necessary.

7.2. Due to the specifically practice oriented nature of training a laboratory is also needed including,

- A system network consisting of five routers, two switches, their HUBs connected, transceivers and other fittings typically located in two or three open racks,
- PCs serving console-functions and system work station functions during laboratory exercises (minimum 5, but practically 10) and
- Cabling connecting PCs to network devices (flexible configuration according to the needs of the tasks).

7.3. It is an important part of the practical training to get to know the professional use of tools used for planning, installation and operation. The range of these tools can reach from simple hand tools to complicated cable monitoring instruments and network and protocol analyzers used for monitoring the internal operations of networks. The cost of their procurement is significantly decreased as the program of Cisco Networking Academy is supported by several companies who provide considerable discounts to make the tools necessary for training available for the Academies.

8. Cisco support

8.1. Local Academy (LA): training 2 trainers free of charge, providing free training materials, discount provided for the purchase of basic network device kit (5 routers and 2 switches) (instead of the 18,000 USD market price the price is 10,236 USD).

8.2. Regional Academy (RA): training 2 trainers free of charge, providing free training materials, and providing basic network device kit (10,000 USD worth 5 routers and 2 switches).

8.3. Academic Training Center (CATC): training 2 trainers free of charge, providing free training materials, laboratory devices in the value of 20,000 USD and compensation in proportion to the number of RAs sponsored.

9. Liabilities

Each Academy has to guarantee that they exclusively use the training materials, devices and information received for training purposes limited to the framework of the CNAP training, and no other person(s) have access to those except for the ones participating the training.

9.1. In case of LAs –keeping training specifications, including the administration of the training, paying the amounts to the RA as scheduled in the contract concluded with the RA.

9.2. In case of RAs- in addition to keeping training specifications integrating maximum 10 LAs to the system, training the LA trainers (2 trainers /LA) and their annual (2 day) further training, continuous control of quality expectations, and continuous sponsoring.

9.3. In case of CATCs-the training of max 30 RA trainers (2 trainers /RA) and their annual (2 day) further training, continuous control of quality expectations, and continuous sponsoring.

10. Costs

10.1. One time costs at joining the program

LA:

Providing training room, appropriate PCs and the appropriate trainers, and buying the necessary additional laboratory equipment. The training of two trainers is free of charge, but any other training-related costs : travel, accommodation, and provisions, and the costs of CCNA exam compulsory for every trainer after the four semesters (in our domestic Sylvan centers this means approximately HUF 60,000, and Cisco provides a 40% discount once for every trainer) has to be covered by the employer of the trainer.

RA:

Providing training room, appropriate PCs and the appropriate trainers, and buying the necessary additional laboratory equipment. The training of two trainers is free of charge, but any other training-related costs : travel, accommodation, and provisions, and the costs of CCNA exam compulsory for every trainer after the four semesters (in our domestic Sylvan centers this means approximately HUF 60,000, and Cisco provides a 40% discount once for every trainer) has to be covered by the employer of the trainer. The basis (5 routers, 2 switches) for necessary laboratory equipment are provided to RA by Cisco for performing the tasks described in point 6.2. Any further devices necessary for the operation of the laboratory are to be purchased by the Academy at their own cost.

CATC:

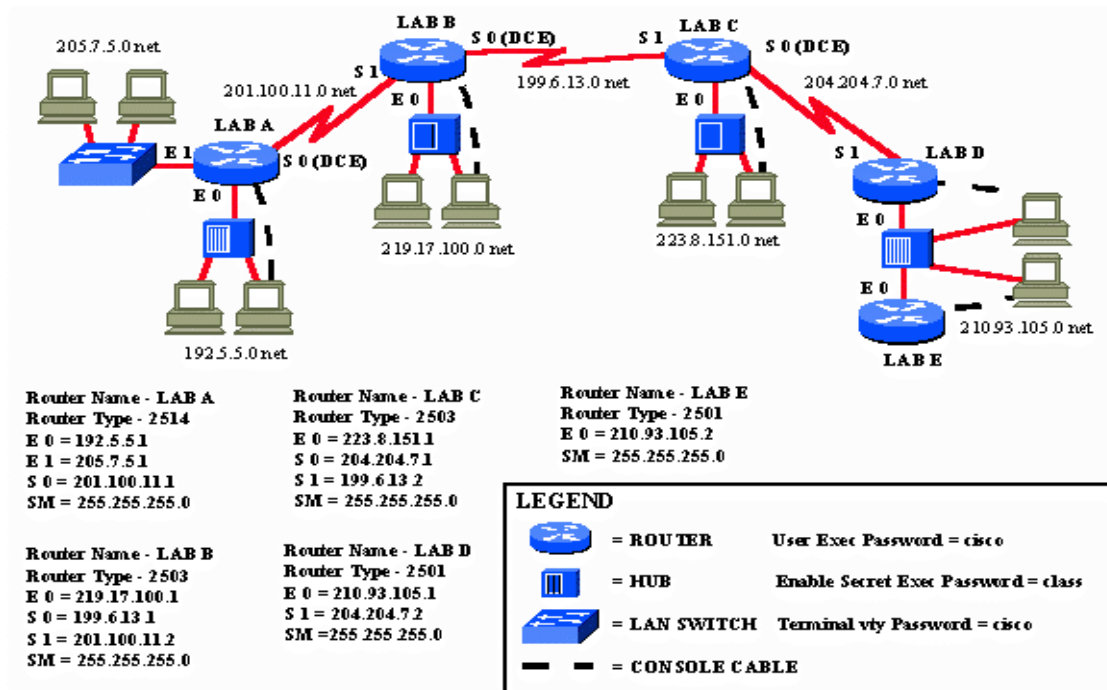
Providing training room, appropriate PCs and the appropriate trainers. The basis (5 routers, 2 switches) for necessary laboratory equipment are provided to CATC by Cisco for performing the tasks described in point 6.2. Any further devices necessary for the operation of the laboratory are to be purchased by the Academy at their own cost. The training of two trainers is free of charge, but any other training-related costs : travel, accommodation, and provisions, and the costs of CCNA exam compulsory for every trainer after the four semesters (in our domestic Sylvan centers this means approximately HUF 60,000, and Cisco provides a 40% discount once for every trainer) has to be covered by the employer of the trainer.

10.2. Regular cost after joining the program

Operations also has regularly incurring costs, and these are to be covered by each Academy from their own sources. It is widely-known that from among the cost factors of technical training (and within this especially the training of areas showing rapid change) the development of documents (training material), and providing laboratory practice conditions and practice itself are crucial. As the training realized within the framework of CNAP is specifically practice-oriented these costs here are higher than usual. This fact explains why the system works with involving external support even in the developed countries. This help is partially provided by Cisco in the form of support described above. This in itself however covers only a part of kick-off costs, so further continuous funds are also necessary. The solution on the one hand is the involvement of external (private sector or government) sources, and on the other hand it also means using the sources of the institution performing the training. The latter is usually strongly limited, so it is necessary

to self-finance the training too, and this can be achieved by providing paid training sessions for non-program participants in addition to gratis trainings for program participants. The CNAP specifications and maintaining non-profit expectations provide possibilities only to **reinvest the revenues exclusively in Networking Academy training**. Cisco controls these conditions and complying with some other minor restrictions. Nevertheless in case of RAs extra cost incur too: the revision and continuous sponsoring of LAs belonging to RA and RA operation co-ordination has to be ensured. The managers (RA Main Contact) performing these tasks require full-time positions and their wage costs are imposed on the training institution operating the RA.

Basic configuration of the laboratory system



II. Training start conditions

Any training can reach its goal only if the necessary personal and material conditions are at disposal. It is not different in case of Cisco Networking Academy either, therefore the detailed conditions of start has to be known to those who wish to join. We wish to summarize these briefly below. For us the starting point is that the number of participants in a training group is 10 – 12 people. Starting smaller groups is not cost effective (low trainee/trainer ratio) and it is also difficult to manage with regards to training organizing. In case of larger groups the profitability indices improve, but larger scale investment is necessary. Based on the above the optimal number for groups seems to be 12.

1. Room:

Basically we have to provide premises for two activities:

- Access of training and exam materials accessible in electronic form, so the training room for preparations and exams.
- The laboratory serving practical work equipped with network devices and networks constructed from them.

In the training room minimum 12 PC work stations are to be set up connected to the local network and providing Internet access too. The Internet- connection is necessary primarily to reach Cisco Networking Academy central organizations (for exams and administering the entire training process) , and also to be able to manage the Internet-references in the training material. The work stations also use a local server supporting the training work of the Academy through the local network. This is the server of the Academy and it basically serves the purpose of fast and reliable access to training materials. However it can also be used for other training support purposes (web server and many others).

10 (minimum 5) PCs used as work stations or consoles are to be placed in the laboratory room (usually with fixed installation but a possibility to configure flexibly according to the requirements of the actual practice) and network devices for practical training use. The network devices are placed in the standard 19” open racks used in communications systems (2 or 3 units).

The training room and laboratory function can both be realized in the same room. The floor area of this room can not be under 80 square meters. In case of separate laboratory and training rooms the floor-space refers to the total area of both units respectively. In principle the computers used for the laboratory practice can be the same as the ones used to access training materials, but this solution causes numerous

technical, security, and training management problems in practice, therefore it can only be used as a temporary solution in exigency.

2. Equipment:

2.1 Training room equipment

- **PC configuration (12):** Minimal expectations toward machines: Intel Pentium 133 MHz or compatible, 32M RAM, VGA monitor, sound card, headphone connected to sound card (for the multimedia parts of the training material) network card, individual, or network connected hard disk (1 GB), Win95-98 or Win NT 4.0, Win2k operation system, Netscape or MS Internet Explorer.
- **Server configuration (1):** PC with printer, and minimum 2GB hard disk capacity, Win NT or other operation system that guarantees that only authorized users can access the training material. It is not absolutely necessary to install a new dedicated server as the necessary functions can also be realized on another existing server (used for other purposes).
- **LAN :** 10/100BaseT based Ethernet network with Internet access.

2.2 Laboratory equipment:

Prior to the training of the first semester the following laboratory equipment set has to be available:

Notice! The devices marked with * in the list below can be ordered with considerable discount from the CNAP support companies through the Community server.

<u>LA/1 SET</u>	NUMBER OF UNITS
UNIT DESCRIPTION	
Supplementary network devices for the laboratory :	
Ethernet 10T Hub (4+1 up-link port)	4
Tools: (to install PCs and network devices)	
UTP cable cutter	3
UTP cable-crimping tool	3
Wall and patch panel-fastener	3
Screw driver set	3

Pliers	3
Multi-purpose plier	3
Drilling machine with battery	1
Equipment:	
Fluke CCNA Starter Kit:* - Network Inspector Site License (1) - Protocol Inspector Educational Version Site License (1) - Network Maintenance and Troubleshooting Guide (1) - Fluke 620 LAN CableMeter (1) - Fluke 12B Multimeter (1)	1
Fluke 620 LAN CableMeter* (Equipment 2.)	1
Fluke 87 Series III Professional Multimeter*	1
Cables and cable fittings for 12 persons	
UTP wall cable reel (300m)	1
UTP aerial cable reel (300m)	1
RJ45 jack-plug set (250)	1
Cable reinforcement for RJ45 Jack plug (250)	1
CAT5 RJ45 double wall socket pack (20)	1
CAT5 Patch panel (24 port, modular)	4
Ethernet 10/100 LAN network connection card (with driver)	5
Operation systems	
Windows 9x system disk (to install network cards)	1
Windows NT server system disk (for the training document server)*	1

Prior to the training of the second semester the following laboratory equipment set has to be available for the practice:

Notice! Devices marked with ** in the list below are elements of standard CCNA laboratory set recommended by Cisco, and Cisco delivers these with considerable discount (at production price) to the Academies.

LA/2 SET DESCRIPTION OF UNTIS	NUMBER OF UNITS
Router devices: **	
CISCO2501 Ethernet/dual serial router (with accessories)	2
CISCO2503 Ethernet/dual serial router (with accessories)	2

CISCO2514 Ethernet/dual serial router (with accessories)	1
CISCO2500- IOS IP/IPX/AT PLUS	5
CAB-V35MT DTE V35 CABLE 10FT serial (father/male) cable	5
CAB-V35FC DCE V35 CABLE 10FT serial (mother/female) cable	5
Switch devices: **	
WS-C1924-A 24 port 10MB Switch with W/2 100Base TX port	1
WS-C1912-EN 12 port 10MB Switch with W/2 100Base TX port	1
Services: **	
SMARTnet (12 months): 5 routers + 2 switches	7
Laboratory supplementary network tools :	
Standard 19"open rack (the domestic development and manufacturer brand name CONET is the least expensive and the most suitable)	2
Distributor unit for feeder (220V) installable to 19"rack	2
AUI-Ethernet10T media converter (tranceiver)	6
Patch cable mounted 50cm	30
Patch cable mounted 100cm	30
Patch cable mounted 300cm	20
Patch panel (16 ports) (among the routers and laboratory machines)	4
UTP wall cable 1 reel (300) (among the routers and laboratory machines)	1
CAT5 RJ45 double wall socket (among the routers and laboratory machines)	20
8 MB Flash SIMM card to Router 2500	2
8 MB DRAM SIMM card to Router 2500	2

Expandable materials

The above LA/1 set includes the volume of materials used by a 12 person group during four semesters. We separately highlight this below to help the cost calculation for starting further groups.

UTP wall cable reel (300m)	1
UTP aerial cable reel (300m)	1
RJ45 jack-plug set (250)	1
Cable reinforcement for RJ45 jack-plug (250)	1
CAT5 RJ45 double wall socket pack (20)	1
CAT5 Patch panel (24 port, modular)	4
Ethernet 10/100 LAN network connection card (with driver)	5

software)	
Printed and copied documentation (laboratory materials)	5,000 pages
Cartridge (black)	5
Cartridge (color)	5

3. Personal conditions

The academies are authorized to work only in case they have at least 2 trainers. In the first two years of operation it is sufficient if these trainers had passed their exams of the course material they train, however in a later phase they are allowed to train exclusively with CCAI certificate. A further condition to their operation is that in addition to the trainers every Academy has an appointed manager. The manager (Main Contact) responsible for directing the work of the Academy, sponsoring and revising (professional supervision) task completion, and keeping contact with the system of Academies and the management of the training institution can at the same time be a trainer too.

3.1. Trainer training

RA trainers train LA trainers, and CATCs train RA trainers. Only Academies with valid contract can send trainers to training sessions. Training applications are registered through the Community server.

- *Costs:*

The training of two trainers per academy is free of charge, and the cost of training further trainers is 60 USD/day.

Training related travel, accommodation and exam costs (CCNA) are to be covered by educational organization of the trainers to be trained.

- *Duration of training:*

Semester 1.:	8 working days
Semester 2:	6 working days
Semester 3:	4 working days
Semester 4:	4 working days

The total number of training days for one trainer is 22 working days.

- *Qualifications:*

The basic trainer training is closed with completing the four semesters. Following this every trainer has to pass the CCNA exam. Applications via the next Sylvan Test Center. The exam fee is HUF 60,000 in Hungary to be paid by the employer of the trainers. Cisco covers 40% of the first exam fee.

Passing the CCNA exam the experienced trainer also qualifies for CCAI - Cisco Certified Academy Instructor certificate.

- *Further training*

Due to the exceptionally rapid development of the training topic the form and contents of the Academy training material changes fast, and the laboratory exercises are continuously renewed. As a consequence of this the annual two day training of certified trainers is compulsory. The training is performed by the “parent academy” and the travel and accommodation costs of participants are to be covered by their employer.