UNIVERSITÀ DEGLI STUDI DI PADOVA

CENTRO DI CALCOLO DI ATENEO

ADMISSION REGULATIONS

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GENERAL PART

1. PRELIMINARY REMARKS

1. The University of Padua, through its *Centro di Calcolo*, has established facilities named **North East Neutral Access Point** at its venue in Galleria Spagna n° 28 (from now onwards, VSIX).

2. Its main purpose is promotion of the use of IInternet in the Veneto Region by means of the collaboration and communication among local, national and international Internet Service Providers (from now onwards ISP).

3. **VSIX** does not aim at the institution of an Internet Service Provider, and does not deliver access for the public to Internet or publishing contents.

4. **VSIX** provides for the constitution of a neutral inter-connection point (from now onwards NAP) among ISP that operate in Italy and/or abroad, in order to optimize and enhance data exchange among them.

5. Access to the NAP is opened for all operators who accept and sign the conditions described in the present regulations.

2. INSPIRING PRINCIPLES OF THE NAP

1. To operate neutrally towards adherents.

2. To guarantee access to the NAP to those who request it and own the requirements illustrated in these regulations.

3. To promote useful actions, so that Internet traffic exchange among participants through their infrastructures is free.

4. To exclusively use spaces, technological facilities and equipments in the framework of the NAP functionalities.

5. To register statistical features of the interconnection service, that is to measure and track fundamental parameters of the activities performed, and to produce periodical reports to be communicated to operators.

3. . MANAGEMENT OF THE NAP

The management of VSIX is implemented through 3 bodies:

- Technical-Scientifical Committee (CTS) of the University of Padua *Centro di Calcolo* (CCA).
- Operators Committee.
- Executory group

The Technical-Scientifical Committee has the following functions towards the NAP:

1. To provide guidelines for the activity of VSIX, and to supervise the activities performed by the Operators Committee and the Executory group.
2. To approve and/or modify the technical regulations of VSIX, including all related dispositions; to verify their coherence with the Inspiring Principles, also in coordination with the Operators Committee if necessary.
3. To define, once a year, the participants' dues and to suitably update all related dispositions.
4. To review membership applications and to authorize the consequent activation of service, after verifying compliance of requests to entry requirements; to resolve potential dispensation .
5. To settle any internal controversies.

The **Operators Committee** is composed by a representative of all operators within NAP, a representative of the CCA (appointed by the CTS), and a technician of the Veneto Region Information Systems Unit (in the framework of the existing agreement between the University of Padua and the Veneto Region).

The Operators Committee annually appoints a coordinator and meets upon request of the coordinator or of at least one third of its members, with a week's notice.

Its functions include:

1. NAP service auditing.
2. Annual verification of Executory Group

The **Executory Group** is the technical and executory structure of the CCA, maintaining the NAP service.

Its functions are:

1. To manage premises equipped as service.
2. To operate on technical facilities.
3. To operatively manage the activation of new applications.
4. To intervene whenever malfunction or configuration errors of participants' equipments compromise smooth functioning of the net or part of it.
5. To monitor and report on NAP functioning .
6. To manage helpdesk and secretarial activities for the whole structure.

4. ACTIVATION PROCESS

In order to join VSIX operators have to sign the present regulations and submit this document to the CTS, also providing documentation stating conformity to requirements.

In the first available meeting, the CTS resolves and notifies applicant and all other operators, both in case of acceptance or rejection of the application.

If application is successful, the participant commits itself to activate connection to the NAP within 90 days after communication of acceptance, installing to the purpose all necessary devices. If these actions are not undertaken, acceptance will expire.

5. PARTICIPANTS' DUTIES

In order to obtain an efficient and effective management of the NAP, all participants commit themselves:

1. To take care of configuration, maintenance and updating of router pertaining to it, in order to assure they can operate within the NAP's network.
2. To constantly maintain the connection levels between NAP and their network, in order to guarantee a best quality service.
3. To punctually fulfill their financial engagements.
4. To implement at their own charge the interconnection of their own network with the NAP's facilities.
5. To develop peering agreements among the NAP's participants.
6. To publicise peering policies adopted within the NAP.
7. To maintain the use of shared resources constituting the infrastructure of the NAP, compatibly with the use of resources by the other participants.
8. Not to publically disseminate different data than the ones officially provided by the TCS, or part of such information.
9. Not to perform activities in contrast with Italian or European laws currently in force.
10. To explicitly exempt the NAP manager from any civil or penal injury connected to the use of the NAP.
11. To take out a policy cover for fire, theft and third party insurance on their equipment and devices.
12. To appoint their representative at the Operators Committee.

6. OBLIGATIONS OF THE UNIVERSITY OF PADUA *CENTRO DI CALCOLO*

In order to obtain an efficient and effective management of the NAP, the CCA, through its Executory Group, commits itself:

1. To publish and update at least quarterly, exclusively in favour of NAP participants:
   a) The peering matrix
   b) Data on speed of the survey service in the period of reference, enclosing explicatory notes.
2. To keep all useful information for participants updated in a dedicated website: for instance, “useful information” in this paragraph include: name of the contact person of all participants to the NAP, a mailing list of such persons, the peering matrix, the peering policies applied by each participant, the traffic statistics on the switch ports.
3. To support users in their equipment’s set up activities.
4. To provide first level assistance in opening hours.
5. To allow access to the NAP data collection 7 days a week and 24 hours a day, according to precise protocols.
6. To assure best possible efficiency of the equipment of the LAN of the NAP and to supervise their functioning, also assuring monitoring 7 days a week and 24 hours a day.
7. To provide information to all users on dates and modalities of ordinary and extra-ordianary maintenance interventions, respecting 15 days notice before intervention, in case of ordinary maintenance; in case of extra-ordinary maintenance, all interventions will be performed immediately.

7. MANAGEMENT AND CONTROL PROCEDURES

Each participant has to communicate the names of one technical and one administrative representative.

Such representatives are included in the Nap's mailing list. This mailing list, and in general e-mail is the official communication means between the NAP and the participants.

These communications must be considered confidential and cannot be diffused out of the NAP. In particular, each NAP participant will have to provide a telephone number for emergency malfunctioning.

The technical personnel of the Executory Group of the CCA may ask participants evidence of respect of these regulations.

In case of violation of the present regulations, the Executory Committee will send a formal warning to technical representative of the participant, inviting them to re-establish within certain times, the respect of regulations. In case violations are persistently repeated, the CTS will be involved and will evaluate at his discretion the measures to be adopted.

8. ADMISSION REQUIREMENTS

In order to be eligible to NAP, applicants should complete the application form, enclose all necessary documents and meet the following requirements:

1. To be assignee of at least one Autonomous System Number.
2. To have been assigned public IP classes by at least one "local registry", thus having the option to assign public IPs to their clients.
3. To be equipped with at least one connection announcing their classes into Internet.

Those applicants who, on application, are not assignees of an Autonomous System will have to straighten out this condition within 6 months by the date of application.

9. DURATION AND WITHDRAWAL

Adherence to the present regulations will run from the completion of admission and acceptance procedure at December 31st of the same year; it will have to be annually renewed at least 30 days before expiry date, except notice of cancellation to be communicated to the CCA through record delivery letter with return recipt with a 60 days' notice before renewal date.

In case the present regulations and related documents are modified, the CCA will inform ISP about these modifications 60 days before they come into force; in case the ISP does not notice cancellation within 30 days from the date of the communication, the CCA will assume modifications are accepted.

10. PRIVACY CLAUSE

The CCA and the NAP participants commit themselves not to disseminate or offer third parties reserved information, any news, document or information about or related to the work performed, the organization, the activity and the specific know-how of the other party, however the they came to own, except for news or information disseminated by a third party having the right to do so, and for the information that are necessary for protect its interests by the judiciary authorities or the competent authorities.

It is forbidden to duplicate or replicate the other party's documents, except for those necessary to the NAP for delivering services.

The privacy obligations will be valid for the 5 years following the cancellation from the NAP.

11. PLACE OF JURISDICTION AND REGULATORY LAW OF THE CONTRACT

All controversies that should rise between the Parties in relation to interpretation, execution, effectiveness, withdrawal and to the ends of the agreements recalled in the present regulations will be devoluted to the competency of the tribunal of Padua, with the exclusion of any other alternative or concurrent tribunal and will be settled according to the Italian law, accepted by the Parties as Regulations law.

TECHNICAL PROVISIONS

1. INTERFACES AND STANDARDS FOR ACCESS TO THE INFRASTRUCTURE

The backbone of the NAP, based on Ethernet Layer 2 architecture, offers its users the following access modalities:

- 100 Mbps Ethernet Switch Port 100baseTX (jack RJ45) for nominal bandwidth up to 100Mbps
- 1 Gbps Ethernet Switch Port 1000baseT (jack RJ45) for nominal bandwidth up to 2Gbps (with LACP)
- 10 Gbps Ethernet Switch Port (project based) for nominal bandwidth up to 10Gbps
- Back-up port

In case of access up to 2Gbps (N x 1Gbps in Port Aggregation 802.3ad-LACP), the following access standards may be also available, technological platform and its engagement permitting:

1000baseSX (F.O. MM with LC jack);

1000baseLX/LH (F.O. SM o MM with LC jack);

1000baseZX (F.O. SM with LC jack)

The Port Aggregation 802.3ad LACP modality allows aggregation of more Ethernet links, using them as an only connection. In order to be used, the requested ports have to be uniform (following several parameters among which speed) and at 100 Mbps minimum.

This modality has also to be supported by the interested participant's devices. The modality is used in case accesses at 2 Gbps are requested. It must be considered that the effective availability of the interfaces of the NAP must be evaluated case by case; whenever the port is not immediately available, the necessary timing for service provisioning (depending on devices upgrade) will have to be considered. Possible needs related to mechanisms for the management of the QoS may be evaluated and included in a dedicated project, if supported by NAP devices.

2. INTERCONNECTION REGULATIONS

Access to the Internet Exchange backbone is made available on a single switch module constituting the level 2 infrastructure of the NAP. In order to enhance efficiency of the service, it is permitted to ask for a second active access for the back-up. In this case, the participant commits itself to use the back-up access and make traffic transit, only in case of fault of the main access.

Access for the back-up is as a rule arranged on a switch module that is alternative to the main one but connected to it with a sufficient bandwidth to assure the requested aggregated throughput. It is never permitted to forward traffic on both active and backup accesses. Breaking of this rule will bring to immediate disabling of the back-up port.

If the participant intends to implement a fiber optic remotization of its border router, the connections to the NAP switches must as a rule be implemented through dedicated level 2 point-to-point links. The participant will have to specify brand and model of the devices it uses, the MAC address of the interfaces it will connect on the peering LAN and the requested ethernet standards. Interconnection will be allowed only if specifications are compatible with the technological platform.

Whenever the bandwidth on the interconnection to the NAP is higher than 75% of the nominal bandwidth on monthly base for two consecutive months, the participant commits itself to upgrade it within 60 days.

3. IP ADDRESSING

The Nap allocates an IPv4 address for each of the requested ports (or groups of ports in case of aggregation). The IPv4 addresses will be assigned within the IP range:

95.140.128.0 /23

IP addresses in the range 95.140.128.1-254 will be assigned for the primary connection to the NAP while IP addresses in the range 95.140.129.1-254 will be assigned for the back-up connection, at least until no more addresses of the first group are available.

4. LOGISTICAL ASPECTS

Participants commit themselves not to act on the Nap devices.

Participants commit themselves not to act on the others' devices without explicit authorization of those concerned.

Each device/cabling in the NAP area must be properly labeled.

The participants' devices in the NAP must fit within the assigned 19"rack space and powered with 220 Volt AC.

The participant must provide all the required materials for the setup of its devices in the NAP's facilities.

The participant must install its devices within the rack assigned by the technical personnel of the NAP.

5. TECNICAL ASPECTS

PHYSICAL LEVEL

Router interfaces connected to the ports of the NAP must be configured in full duplex mode (not autosensing); in case of multi-standard interfaces the speed must be annually agreed and fixed by contract, except for particular cases.

MAC AND VLAN LEVEL

All the Ethernet frames sent to the NAP ports must have the same MAC address source. Public and private peering agreements are implemented on dedicated VLAN (802. 1q IEEE).

Public peering agreements are implemented on a single public VLAN on which there are free peering agreements and no not provide for transit service.

Private peering agreements are implemented on private VLAN allowing reciprocal visibility exclusively to those concerned.

Each partecipant's interface used to connect to the NAP devices must be bound to a single MAC address. The MAC address will be associated to the assigned IP address for the peering.

On such interfaces participants agree to disable the following features:

- Proxy-ARP
- ICMP redirect
- IP direct broadcast
- IEEE 802.1D Spanning tree

IP LEVEL

All interfaces connected to the NAP ports will use exclusively IP addresses and netmasks provided by the NAP.

ROUTING

All routing exchanges through NAP infrastructure will be implemented through the BGPv4 protocol. AS numbers used in BGP unicast sessions through the NAP network will not have to be part of the block reserved for private use.

Participants commit themselves to announce in optimized way their networks. In particular, they commit themselves to announce their networks aggregately (route summarization) and to reduce at the minimum announcement of specific networks.

Addresses block assigned by the NAP for peering will not be announced on other networks without the NAP's explicit permission.

Participants undertake to keep updated their peering agreements at the IRR (Internet Routing Registry) of the RIR (Regional Internet Registry) of their own Region, according to the specifications given by the RFC-2622 (RPSL) and RFC-4012 (RPSLng) documents.

6. SERVICE LEVEL

The NAP aims to reach the level of 99.5% availability of service annually for the single port for its participants. The applicable formula is:

$$\frac{(\text{Total time} - \text{sum of unavailability times}) * 100}{\text{total time}}$$

Scheduled maintenance activities related to enhancement of reliability and performance of the technological platform are excluded from the calculation.

These interventions will be notified participants and planned in order to reduce impact on delivered services.

Reports on the access in the NAP website are excluded from the calculation..

FINANCIAL PROVISIONS

FEES FOR BASIC SERVICE

Each NAP participant has to pay anticipately to the University of Padua *Centro di Calcolo*

1. the 1.500Euro annual participation fee
2. the annual fee for the nominal bandwidth.

The above-mentioned fees include:

1. 10 rack 19" units space;
2. electrical supply for the participant's devices up to 500W, assured by power generator and UPS.
3. access and connection of the participant's equipment to NAP devices (as per technical specifications previously described).
4. the back-up port

At the participants' charge:

1. connection expenses between the participant's site and the NAP
2. configuration of their own devices

Current table

Category	Access Interface	Nominal Band Mbit/s	Monthly Fees Euro (VAT not included)
-	-	-	-
-	-	-	-
A1	FE	30	209
A2	FE	100	709
B1*	GE	200	1.000
B2	GE	300	1.090
B3	GE	500	1.210
B4	GE	1000	1.500
B5	2 x GE**	2000	2.045
C1***	10GE	3000	2.295
C2***	10GE	10000	2.750

* interfaccia ottica a partire dalla cat. B1

** realizzata con aggregazione di tipo LACP

*** attivazione sulla base di un progetto

1.500EURO ANNUAL PARTICIPATION FEE