OPERATING RULES OF NIX.SK PEERING NODE

(Version dated 2015/01/01 with effect from 2015/01/01)

Article I.
PREREQUISITES FOR MEMBERSHIP IN ASSOCIATION

1.1 Each legal entity applying for membership in NIX.CZ Association shall comply with the following conditions:

a) carries out activities related to the Internet;

b) has been assigned their own Autonomous System Number (ASN). In case any legal entity applying for membership in NIX.CZ Association have not been assigned their own ASN, it is necessary to provide written permission from the owner of the ASN.

Article II.
PREREQUISITES FOR ENTERING INTO CUSTOMER CONTRACT WITH ASSOCIATION

2.1 Each legal entity requesting to enter into a customer contract with NIX.CZ Association shall comply with the following conditions:

a) Complies with the conditions set out in Clause 1.1.

b) Undertakes to comply with the conditions set out in these Operating Rules of NIX.CZ Association and in the Price list of NIX.CZ Association.

Article III.
OPERATING CONDITIONS

3.1 Connection to NIX.SK nodes shall be permitted after the relevant membership fee has been paid (by a member of the Association) or the service contract has been signed (by a customer of the Association).

3.2 Each member/customer is obliged to cooperate with the employee of the NIX.CZ Association who is in charge of establishing or maintaining the connection to NIX.SK nodes. Any data circuit, cable or fibre connected to the NIX.SK infrastructure shall be clearly identified by the name of the supplier and the name of the member/customer the service is provided to.

3.3 Before connecting to the NIX.SK infrastructure, each member/customer is obliged to enter and keep updated the following information on the Intranet of the Association:

a) operation contact containing:
i) telephone number available 24 hours a day, 7 days a week
ii) e-mail address to their NOC (Network Operation Centre);

b) e-mail addresses to be listed in the NIX.CZ contact register for the purpose of correspondence between members/customers;

c) Autonomous System Number (ASN) assigned to the relevant member/customer;

d) full canonical name for member's/customer's router to be registered in the reverse domains (in-addr.arpa and Ip6.arpa) within the domain name system assigned to NIX.CZ Association;

e) URL to member's/customer's website, if the member/customer requires a link from the website of the Association;

f) e-mail address for sending peering requests;

g) member's/customer's contact information.

3.4 Each member/customer shall be connected to the NIX.SK node under their own Autonomous System Number (ASN). In case a member/customer is not the owner of the connected AS, it is necessary to provide written permission from the owner of the relevant AS connected to the NIX.SK node.

3.5 In case the stability and functionality of NIX.SK equipment gets jeopardized by an equipment/connection belonging to a member/customer, the Association shall be entitled to block the relevant member's/customer's port until the problem has been resolved by the member/customer. Association employees will, in such a case, immediately inform the NOC contact (as registered on the Association Intranet) by e-mail. This obligation to inform does not apply to the automatic port blocking pursuant to Item PI/131 hereof.

3.6 Technical operating conditions for public peering are set out in Annex I to these Operating Rules. Technical operating conditions for private VLAN are set out in Annex II to these Operating Rules.

Article IV
OTHER CONDITIONS OF USING NIX.CZ NODE

4.1 Members/customers shall make sure that their connection to the NIX.SK node does not hamper the use of NIX.SK services by other members/customers.

4.2 Members/customers shall not use NIX.SK to carry out any illegal activities.

4.3 Members/customers shall not, in particular, monitor and record data transmitted through the common segment, except for short-term monitoring of the BGP-4 update, serving to trace routing problems. The NIX.CZ Association may implement systems for statistical purposes and for monitoring the traffic through NIX.SK in order to identify and remedy potential problems in individual members'/customers' peering and in the NIX.SK network workload.

Article V
INSURANCE AND LIABILITY

5.1 In the event of any claims for damage caused by any member/customer of the Association to another member/customer or to the Association itself, the case shall proceed pursuant to the provisions of the Commercial Code.

Article VI
RULES FOR ENTERING NIX.SK NODES

6.1 The premises of NIX.SK nodes may only be entered by member's/customer's employees if accompanied by the Association Director or an authorized person.

6.2 Members/customers entering the premises of NIX.SK nodes shall observe the safety regulations in the buildings where the NIX.SK nodes are located.

Annexes:
Annex I – Technical Operating Conditions for public peering segment.
Annex II - Technical Operating Conditions for private VLAN.

Annex I

TECHNICAL OPERATING CONDITIONS FOR PUBLIC PEERING SEGMENT

PI/1. The common network segment of the NIX.SK nodes is based on Ethernet technology (IEEE 802.3).

PI/2. NIX.SK offers the following interfaces:

a) optical 1Gbps port with SFP module SX (850nm – multimode) or LX (1310nm signlemode) – certain nodes only
b) optical 10Gbps port with SR module; (850nm – multimode) or LR (1310nm singlemode)
c) other, not mentioned modules, specified by responsible employees of the Association (especially modules ER, ZR etc.)

PI/3. Members/customers are not allowed to use peering infrastructure of NIX.SK for internal transit of their networks.

PI/4. Several physical ports of one member/customer of at least 1GB link speed terminated on the same NIX.SK switch can be grouped into one logical port (Etherchannel). Ports group is configured statically or with LACP help. Each member/customer undertakes to realize such connection by means of direct connections to their border router without any additional L2 equipment.

PI/5. Each member/customer single-channel link is limited to 2 source dynamic MAC addresses. A multiple channel connection (Etherchannel) is according to applied technology limited to 1 MAC address (configured by Association employees) or 2 dynamic MAC addresses on the logical port.

PI/6. Ethernet frames forwarded by the connected equipment into the common network segment shall have of one of the following ether-types:

a) 0x0800 – IPv4;
b) 0x0806 – ARP;
c) 0x86dd – IPv6;
d) 0x9000 – loopback/keepalive.

PI/7. All frames forwarded into the common network segment shall not be addressed to the multi-cast or broadcast MAC address, with the following exceptions:

a) ARP broadcast;
b) IPv6 neighbour discovery
c) others based on permission by NIX.CZ Association

PI/8. Broadcast and multicast frames sent to shared segment are limited.

PI/9. Traffic for link-local (see Item PI/10) protocol shall not be forwarded into the common network segment, with the following exceptions:

a) ARP (except Proxy-ARP);
b) IPv6 neighbour discovery.

PI/10. Link-local protocols (PI/7) include but are not limited to the following list: IRDP, ICMP redirect, IEEE 802 Spanning Tree, VTP, vendor discovery protocols (CDP etc.), internal routing protocols (OSPF, ISIS, EIGRP), BOOTP/DHCP, PIM-SM/PIM-DM, DMVRP, IPv6 router advertisement and others.

PI/11. Traffic generated by ARP shall not exceed 20 packets per second.

PI/12. Newly installed ports are initially connected to the isolated testing segment to verify whether the member's/customer's equipment is configured correctly. Connection to the production network is possible only after all detected defects are removed.

PI/13. In the event of exceeding the maximum number of allowed MAC addresses at one port/link, the related switch port is automatically blocked to ensure stability for the switches of the Association.

PI/14. Ports connected to the common network segment shall use only the IP address and network mask assigned by the responsible employee of the NIX.CZ Association. One physical (logical) port is assigned with one IP address IPv4 and potentially with one IPv6 address (if required by the member/customer).

PI/15. IPv6 addresses shall be statically configured (no use of automatic configuration). IPv6 site local addresses shall not be used.

PI/16. Member's/customer's port shall not forward to the common network segment any IP packets with the broadcast address of the common network segment.

PI/17. The routing protocol of NIX.CZ nodes is BGP-4 (RFC-4271) with possible extension to MP-BPG-4 (RFC4760, RFC-2545) – only unicast IPv4 and IPv6.

PI/18. Addresses of the common network segment shall not be advertised to other networks without explicit permission of the NIX.CZ Association.

PI/19. Traffic from the port of one member/customer can be forwarded to the address of another member/customer only upon peering agreement and only via BGP-4 protocol (see PI/15).

PI/20. All routes advertised across the common network segment shall point to the router advertising it unless an agreement has been made in advance in writing by NIX.CZ and the members involved.

PI/21. The members/customers are recommended to:

a) register their routing policy for each connected ASN in the RIPE database and keep it updated;
b) for all networks advertised via BGP register a route (or route6) object in the RIPE database or similar register and keep it updated;
c) not generate useless "route flap";

d) not advertise useless specific routes when peering with other members/customers of the NIX.CZ Association;

e) use an as-set object registered in RIPE database or similar register.

PI/22. Maximum Load per Port/ Ports overload Charge/ Additional Port Requirement

The load on the port/ports used by members and customers (further participants) may not exceed the following values for each port in more than 80h/month:

FastEthernet	(100Mbps)	90%
GigabitEthernet	(1000Mbps)	90%
10GigabitEthernet	(10000Mbps)	90%

If the portload (upload or download) exceeds the aforementioned value in more than 80h/month, NIX.CZ is entitled to charge an overload fee for the current month.

The overload fee is equal to the cost of an additional equivalent port. The period of the port overload is based on the multiple of 5 minutes average values of the port overload above the declared limit.

Regardless of the possibility of the overload fee being charged, the following applies:

If the load on one or more ports (port-channel) exceeds the maximum allowed value within a period of two consecutive months or three times within a period of six months, NIX.CZ notifies the participant and asks him for the sake of maintaining quality to decrease the port load or after mutual agreement the participant will order another connection capacity upgrade.

Annex II

TECHNICAL OPERATING CONDITIONS FOR PRIVATE VLAN

PII/1. The common network segment of the NIX.SK nodes is based on Ethernet technology (IEEE 802.3).

PII/2. NIX.CZ offers the following interfaces:

a) optical 1Gbps port with SFP module SX (850nm – multimode) or LX (1310nm signlemode) – certain nodes only
b) optical 10Gbps port with SR module; (850nm – multimode) or LR (1310nm singlemode)
c) other, not mentioned modules, specified by responsible employees of the Association (especially modules ER, ZR etc.)

PII/3. Link for Private VLAN must be set on 802.1Q encapsulation and it is not allowed to use any other configuration (ISL, QinQ etc.)

PII/4. Several physical ports of one member/customer of at least 1GB link speed terminated on the same NIX.SK switch can be grouped into one logical port (Etherchannel). Ports group is configured statically or with LACP help.

PII/5. Each VLAN is limited to 2 source dynamic or static MAC addresses (according to applied technology).

PII/6. Ethernet frames forwarded by the connected equipment into the common network segment shall have of one of the following ether-types:

a) 0x0800 – IPv4;
b) 0x0806 – ARP;
c) 0x86dd – IPv6;
d) 0x9000 – loopback/keepalive.

PII/7. Broadcast and multicast frames forwarded into the common network segment are limited to 1% of the port capacity.

PII/8. Frames forwarded into common network segment must not be: IRDP, ICMP redirect, IEEE 802 Spanning Tree, VTP, vendor discovery protocols (CDP etc.), internal routing protocol PIM-SM/PIM-DM, DMVRP, and others.

PII/9. Traffic generated by ARP shall not exceed 20 packets per second.

PII/10. Newly installed ports are initially connected to the isolated testing segment to verify whether the member's/customer's equipment is configured correctly. Connection to the production network is possible only after all detected defects are removed.

PII/11. In the event of exceeding the maximum number of allowed MAC addresses at one port/link, the related switch port is automatically blocked to ensure stability for the switches of the Association.

PII/12. Maximum Load per Port/ Ports overload Charge/ Additional Port Requirement

The load on the port/ports used by members and customers (further participants) may not exceed the following values for each port in more than 80h/month:

FastEthernet	(100Mbps)	90%
GigabitEthernet	(1000Mbps)	90%
10GigabitEthernet	(10000Mbps)	90%

If the portload (upload or download) exceeds the aforementioned value in more than 80h/month, NIX.CZ is entitled to charge an overload fee for the current month. The overload fee is equal to the cost of an additional equivalent port. The period of the port overload is based on the multiple of 5 minutes average values of the port overload above the declared limit.

Regardless of the possibility of the overload fee being charged, the following applies:
If the load on one or more ports (port-channel) exceeds the maximum allowed value within a period of two consecutive months or three times within a period of six months, NIX.CZ notifies the participant and asks him for the sake of maintaining quality to decrease the port load or after mutual agreement the participant will order another connection capacity upgrade.

PII/13 Members/customers are recommended to:

a) Apply direct connection to their own edge router without further L2 equipment.

b) Private VLAN is designed for broadcasting internal protocols like OSPF, ISIS, EIGRP, iBGP, BOOT/DHCP, IPv6 router advertisement and other.