TITLE: IPX Network Address Conventions

STATUS OF THIS DRAFT:
This draft has not been approved by the Network and Telecommunications Standing Committee nor has it been adopted as a "preferred practice" by the Council on Information Technologies and Services.

ABSTRACT:
This document describes proposals for uniquely identifying Internetwork Packet Exchange (IPX) networks at the University of Florida.

1. Internet Protocol (IP) Network Address Format

IP addresses are 32 bits long and are typically represented as 4 octets in decimal notation. The same address space is used to identify networks as well as nodes on the network. The 32 bit address space is divided into 5 classifications. Three of these five classifications are used for network/node addressing. These three classifications are referred to as Class A, B and C with each class representing a different number of node assignments as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Nodes</th>
<th>Octets</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>16,777,216</td>
<td>A.x.x.x.</td>
</tr>
<tr>
<td>B</td>
<td>65,536</td>
<td>B.B.x.x.</td>
</tr>
<tr>
<td>C</td>
<td>256</td>
<td>C.C.C.x.</td>
</tr>
</tbody>
</table>

(x=locally assigned number in the range of 1-254)

Network addresses from the above classes are assigned to organizations by a central Internet authority. See Internet Engineering Task Force (IETF) RFC 1359 for more details on the assignment process.

2. Internetwork Packet Exchange (IPX) Network Address Format

IPX network addresses are 32 bits long (identifying 4,294,967,296 networks) and are typically represented as 8 hexadecimal digits. Network addresses must be unique across the IPX internet. Node addresses are a combination of the network address and the node's network interface hardware address.
3. Defining An IPX Network Address For Subnets Supporting IP

Determine the IP address of the IP subnet that the IPX subnet shares a physical medium with. If multiple IP network addresses have been assigned to that physical medium use the IP network address with the smallest subnet value. Translate the first three dotted decimal octets of this IP subnet number into a six digit hexadecimal number. Append two zeros to the end of this hexadecimal number. Use this eight digit hexadecimal number as the IPX network address. For example the IP network number 128.227.194.0 translates to the hexadecimal number 80E3C200. The IPX network address need only be changed if the defining IP network address is deleted.

This scheme should only be used for the first frame type on a physical network (eg. Ethernet_II, Ethernet_802, "TOKEN-RING_SNAP"). Additional frame types (assigned to the same physical media) and "tunnels" must be numbered by the scheme described under section 4.

4. IPX Network Address For Subnets Not Supporting IP

Assign a full IP host address from the nearest upstream IP subnet to the virtual or physical IPX subnet. If the virtual or physical IPX subnet is attached to more than one IP subnet, assign the IP network address from the IP subnet closest to UFNet. If both subnets are equal distance from UFNet, use the IP subnet number with the smallest numerical value. Translate all four dotted decimal octets of the IP address into hexadecimal form and use this number for the network address. For example the IP network number 128.227.194.17 translates to the hexadecimal number 80E3C211. Novell "internal" networks and "tunnels" are considered to be virtual IPX networks.

5. Conclusion

The derivation of IPX network numbers from unique Internet Protocol network addresses will help to minimize the administrative time required to manage this networks.

6. REFERENCES


7. AUTHORS
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