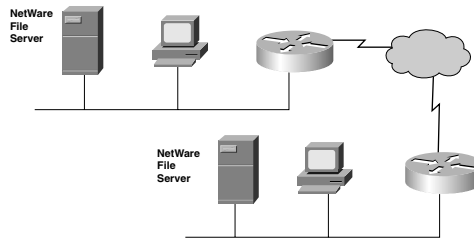
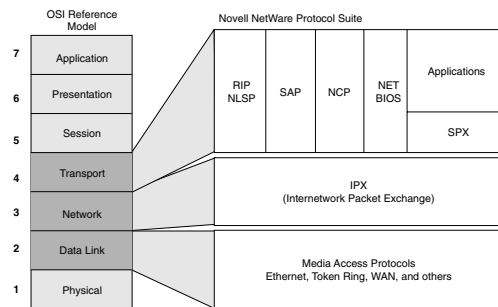


- The default routing protocol is IPX RIP.
- NetWare servers and routers announce their services to clients using SAP broadcasts. One type of SAP broadcast is *Get Nearest Server* (GNS).



NetWare Protocol Stack



Novell IPX/SPX is a proprietary suite of protocols based on the Xerox Network Systems (XNS) protocol suite. All common media access protocols are supported on the NetWare protocol stack. IPX is a Layer 3 connectionless protocol.

Novell IPX Addressing

Novell IPX addresses have two parts: a network number and a node number. IPX has the following characteristics:

- The network number can be up to eight hexadecimal digits long. (The leading 0s are not shown.)
- A network number is assigned to servers and routers by the network administrator.
- Clients dynamically learn the network address upon startup.

IPX Ethernet Frame Structures

Cisco routers support all four framing variations allowed by NetWare. Each encapsulation type has a specific use:

- **Ethernet_802.3 (raw Ethernet)**—The default for NetWare 2.0 to 3.11
- **Ethernet_802.2**—The default for NetWare 3.12 and later
- **Ethernet_II**—Used with TCP/IP and DECnet
- **Ethernet_SNAP**—Used with TCP/IP and AppleTalk

Multiple encapsulations can be used on a single interface as long as multiple network numbers have also been assigned. Clients and servers with different framing types cannot communicate directly with each other.

Cisco Encapsulation Types

In the figure, the Novell framing type is matched to its Cisco equivalent. The default encapsulation type is used if one is not specified. All devices must use the same encapsulation type if they are to communicate directly.

	Novell IPX Name	Cisco IOS Name
Ethernet	Ethernet_802.3	novell-ether
	Ethernet_802.2	sap
	Ethernet_II	arpa
	Ethernet_SNAP	snap
Token Ring	Token-Ring	sap
	Token-Ring_SNAP	snap
FDDI	FDDI_SNAP	snap
	FDDI_802.2	sap
	FDDI_Raw	novell-fddi

Specify encapsulation when you configure IPX networks

IPX RIP

IPX RIP (a distance-vector routing protocol) uses ticks and hop count as metrics. RIP checks ticks first and then uses hop count if two or more paths have the same tick value. IPX routers broadcast copies of their routing tables in the same manner that IP routers do. The split-horizon algorithm prevents routing loops in IPX networks.

Service Advertising Protocol

All NetWare servers advertise their service types and service addresses. NetWare uses SAP broadcasts to dynamically announce, locate, add, and remove services on the network.