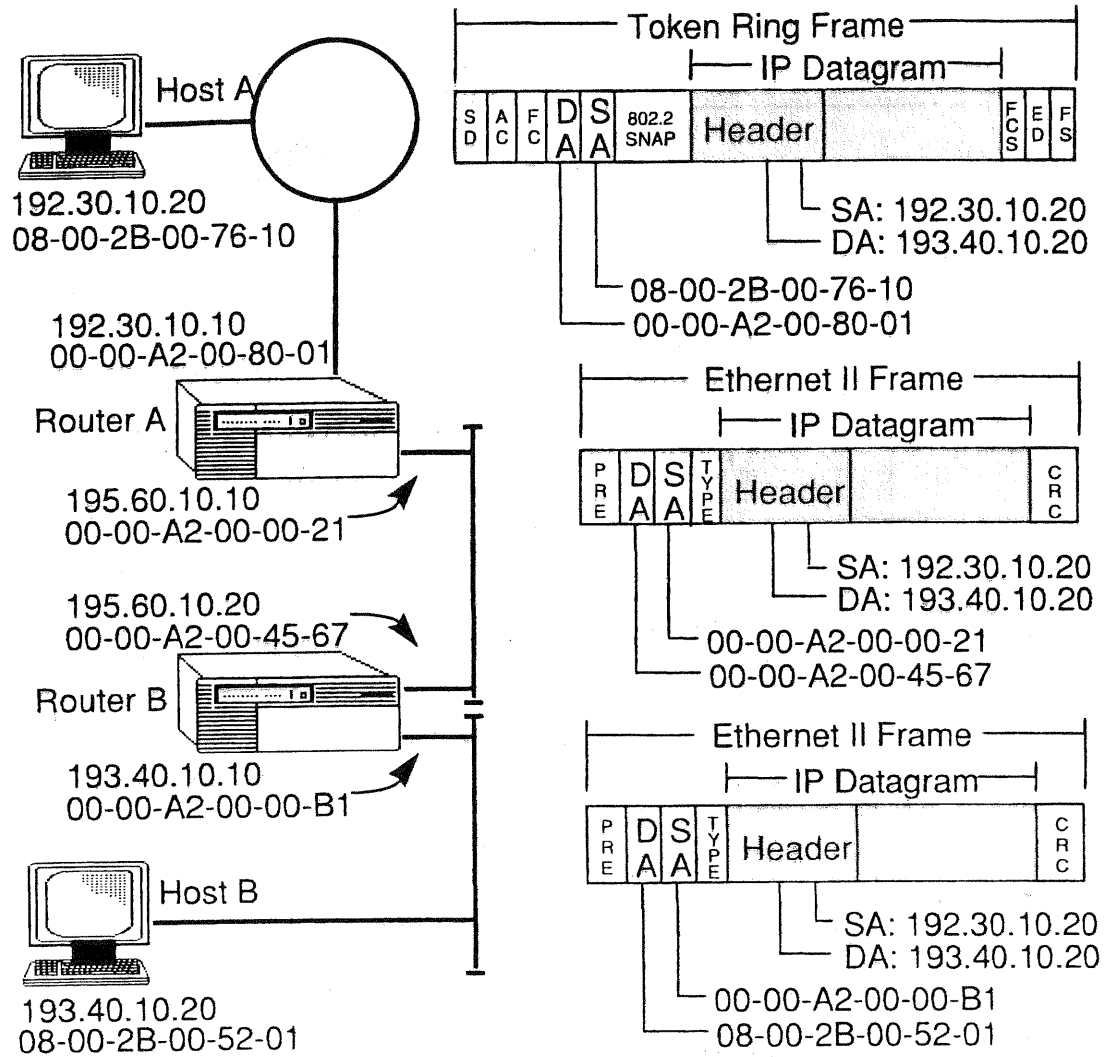
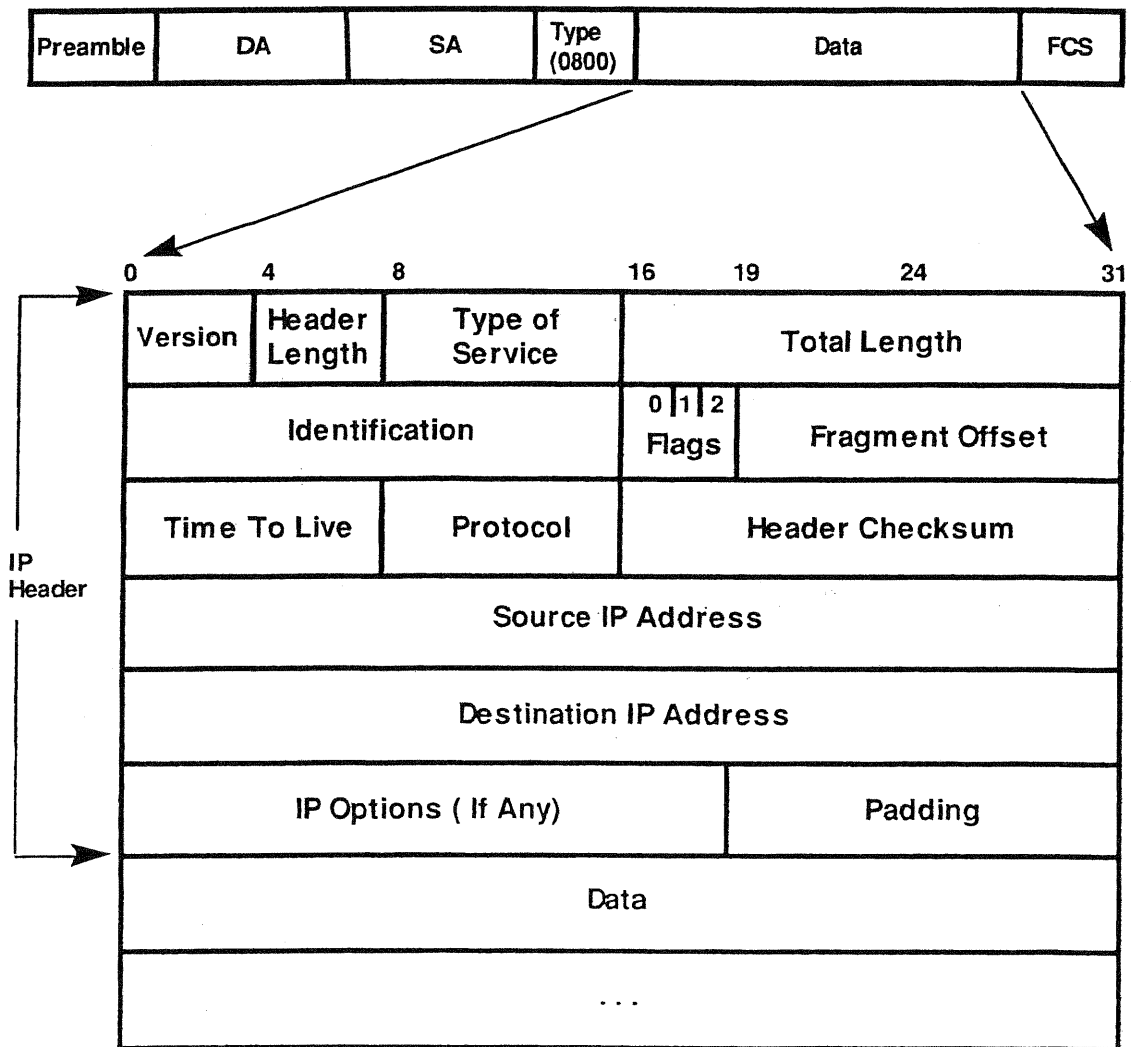


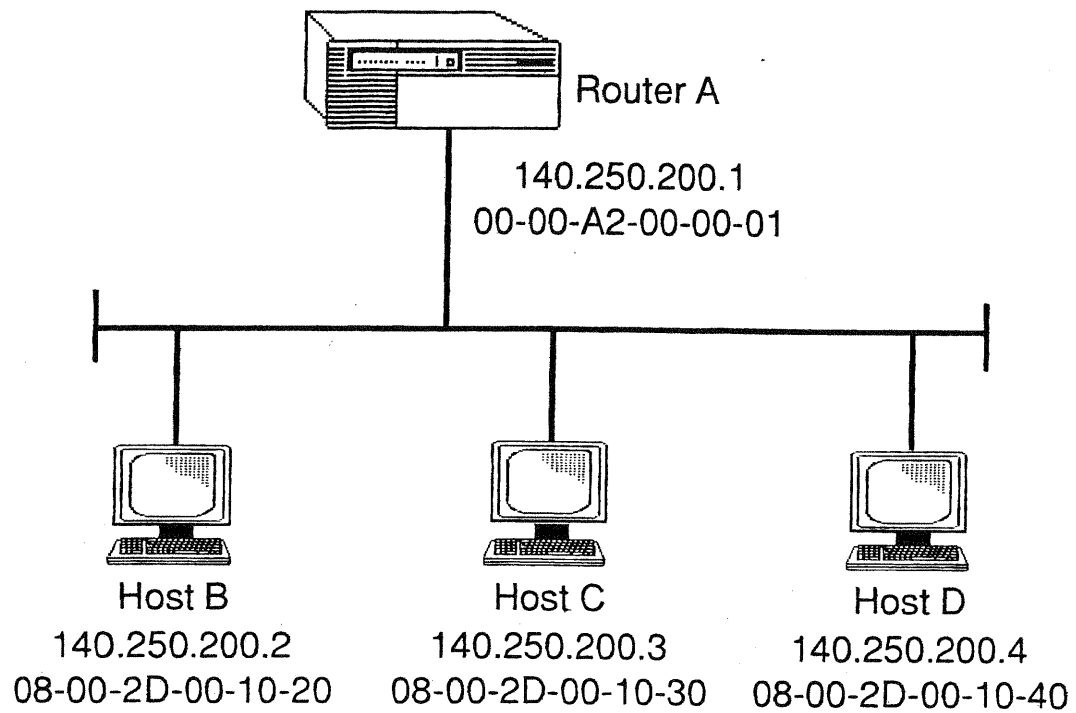
## Internet Protocol



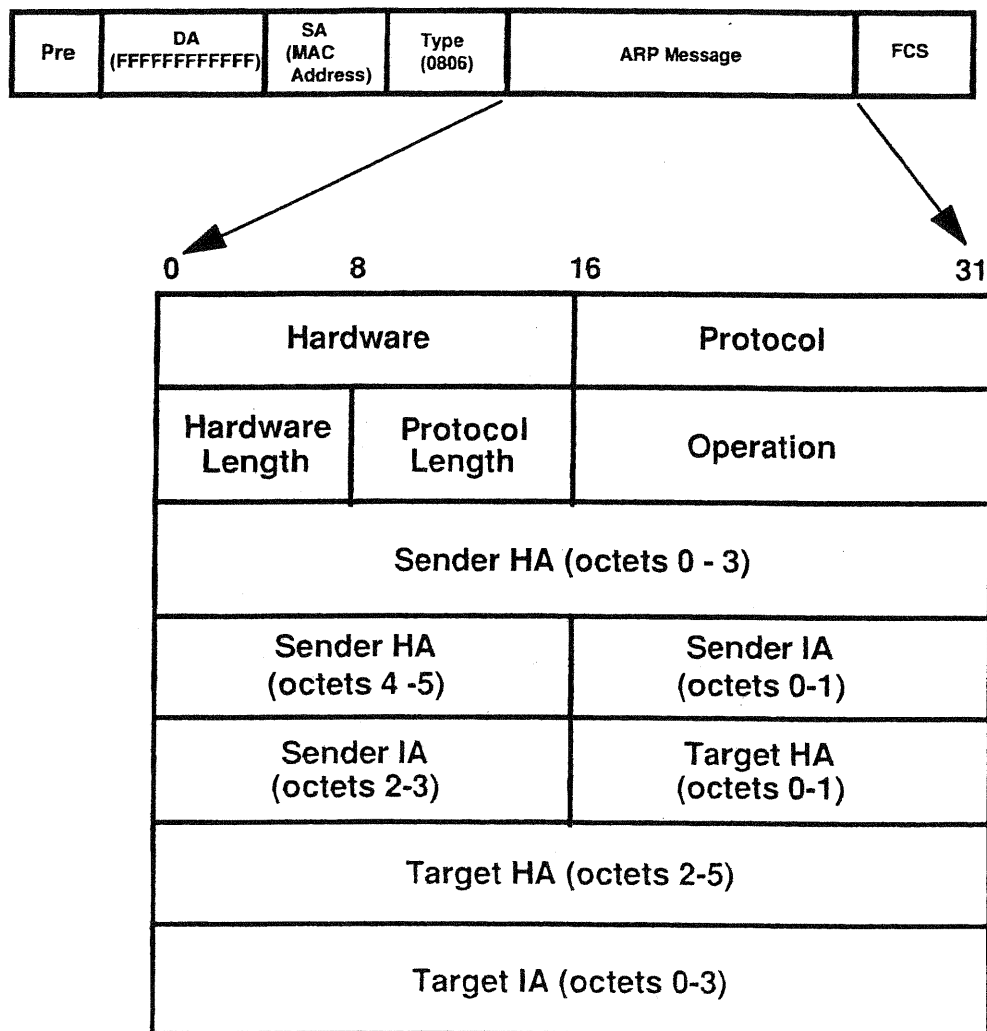
## IP Datagram Format



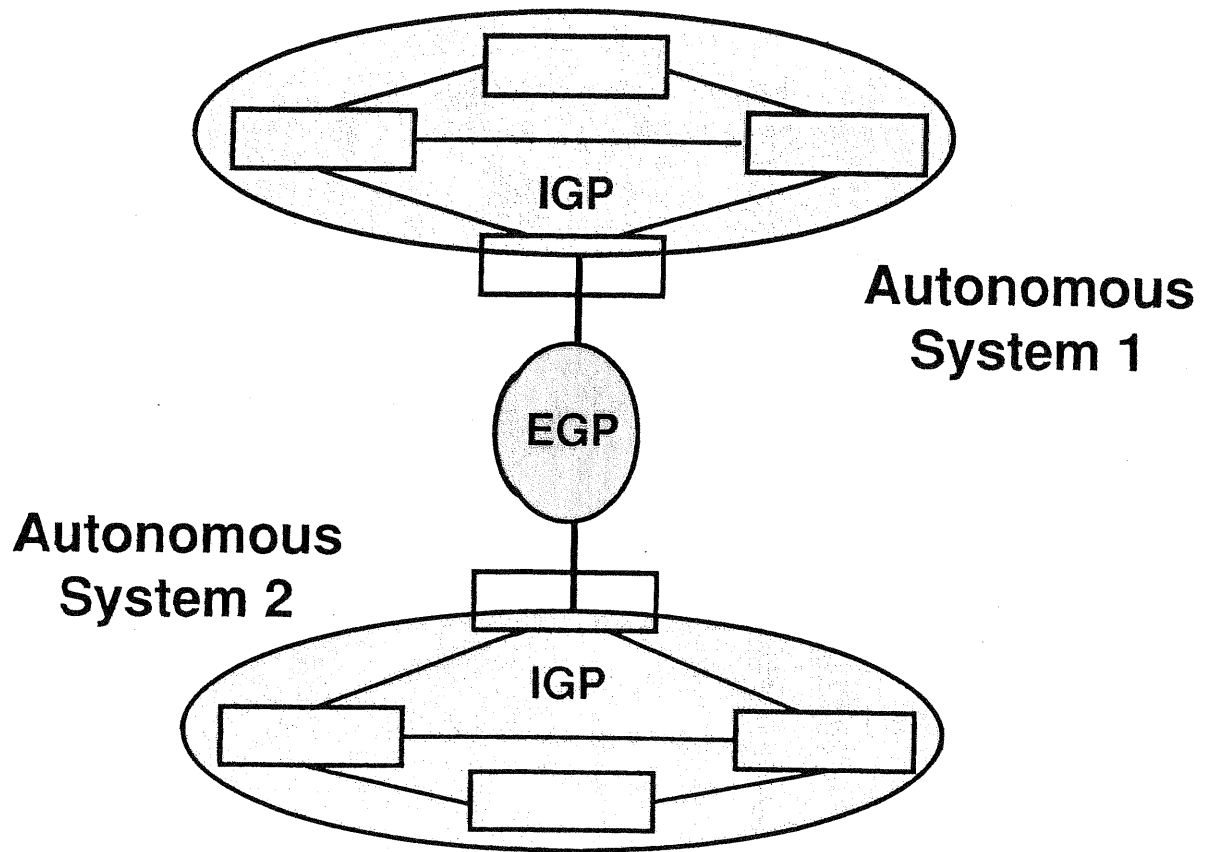
## ARP



## ARP Message Format



## Routing Protocols



## **RIP**

- Distance vector algorithm
- Based on hops
- Routing updates sent every 30 seconds
- Maximum hops is 15 by default
- 16 hops means unreachable
- Extended RIP allows up to 127 hops

## RIP Message Format

0	8	16	31
Command	Version	Must Be Zero	
Family of Net 1		Must Be Zero	
IP Address of Net 1			
Must Be Zero			
Must Be Zero			
Distance to Net 1			
Family of Net 2		Must Be Zero	
IP Address of Net 2			
Must Be Zero			
Must Be Zero			
Distance to Net 2			
...			

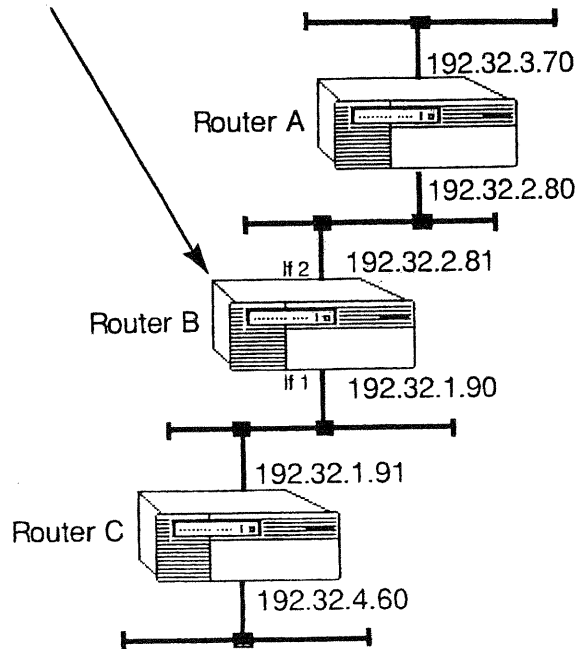
## Routing Table

Dest.	Metric	Next Hop	Type	Protocol	Age	Index
192.32.1.0	0	192.32.1.90	Direct	Local	12	1
192.32.2.0	0	192.32.2.81	Direct	Local	15	2
192.32.3.0	2	192.32.2.80	Indirect	Rip	27	2
192.32.4.0	2	192.32.1.91	Indirect	Rip	16	1

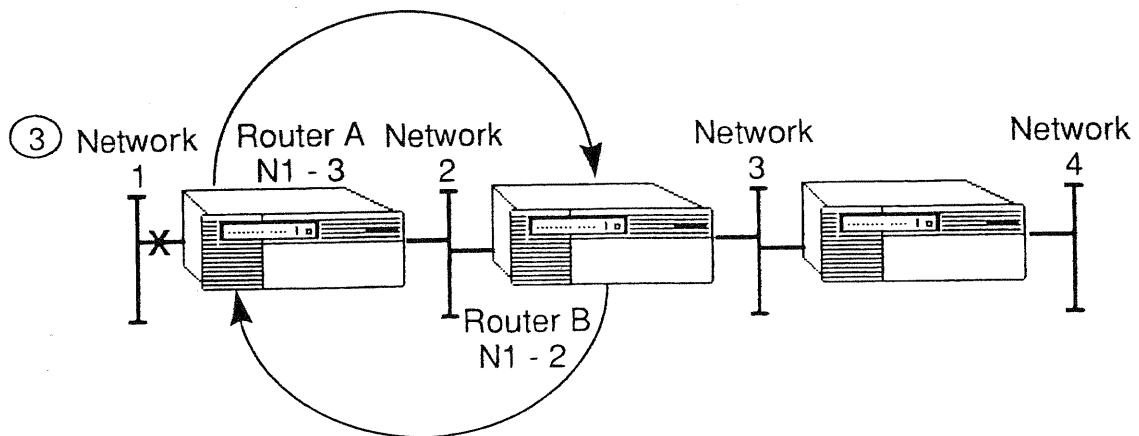
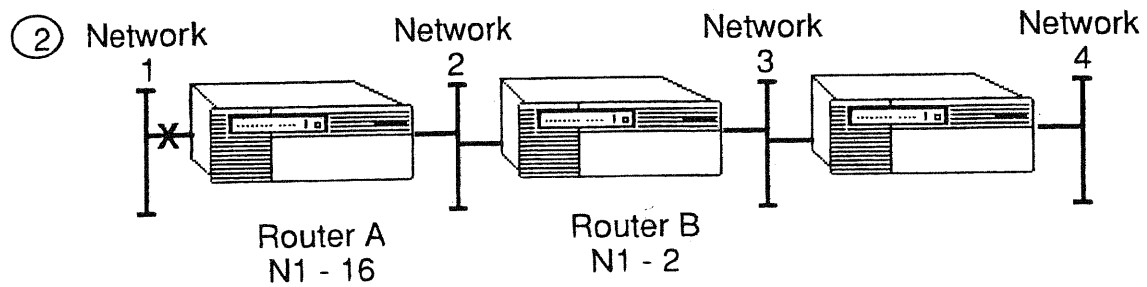
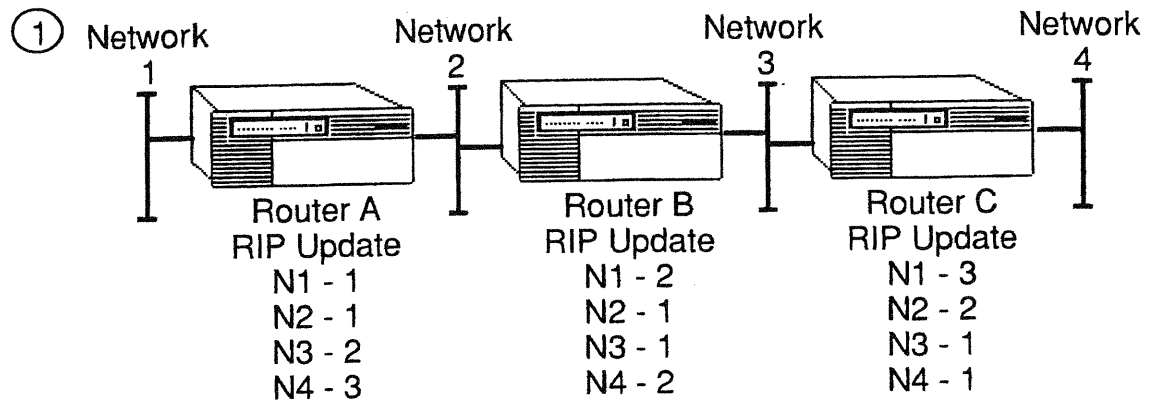


## Building the Routing Table

Routing Table							
Dest.	Metric	Next Hop	Type	Protocol	Age	Index	
192.32.1.0	0	192.32.1.90	Direct	Local	90	1	← T1
192.32.2.0	0	192.32.2.81	Direct	Local	90	2	← T1
192.32.3.0	2	192.32.2.80	Indirect	Rip	10	2	← T2
192.32.4.0	2	192.32.1.91	Indirect	Rip	10	1	← T3

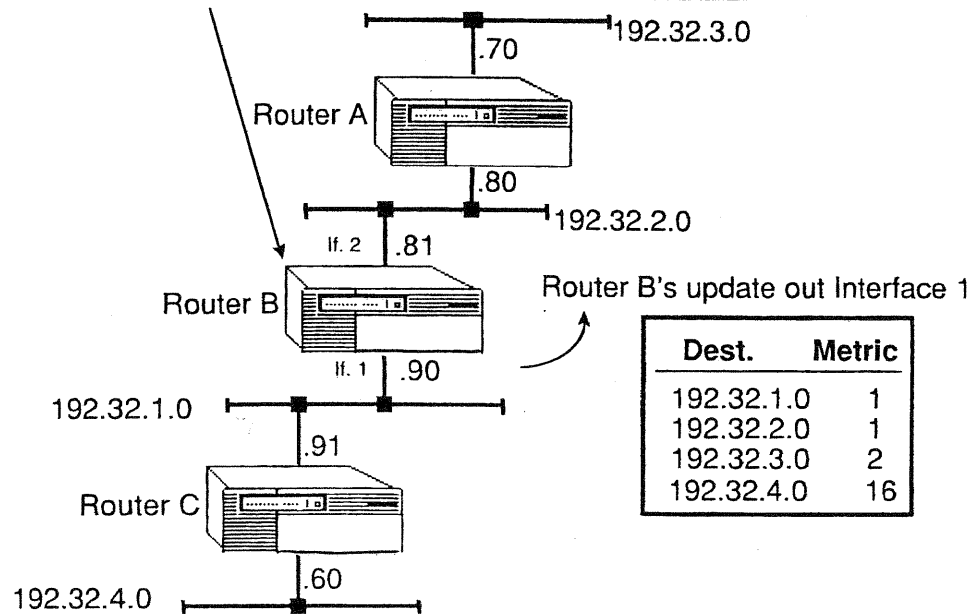


## Transitional Routing Loops



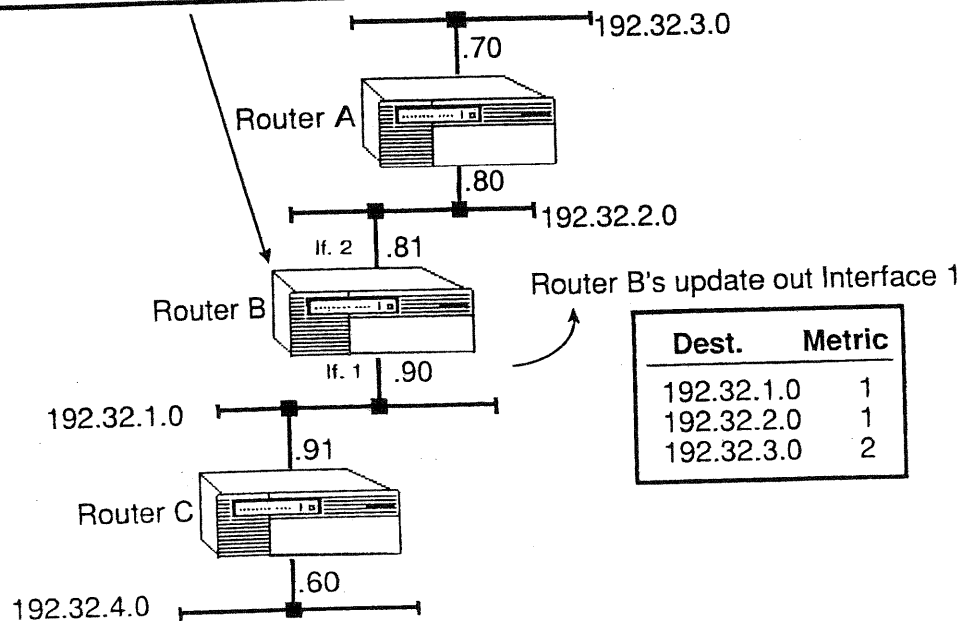
## Poison Reverse

Routing Table						
Dest.	Metric	Next Hop	Type	Protocol	Age	Index
192.32.1.0	0	192.32.1.90	Direct	Local	90	1
192.32.2.0	0	192.32.2.81	Direct	Local	90	2
192.32.3.0	2	192.32.2.80	Indirect	Rip	10	2
192.32.4.0	2	192.32.1.91	Indirect	Rip	10	1



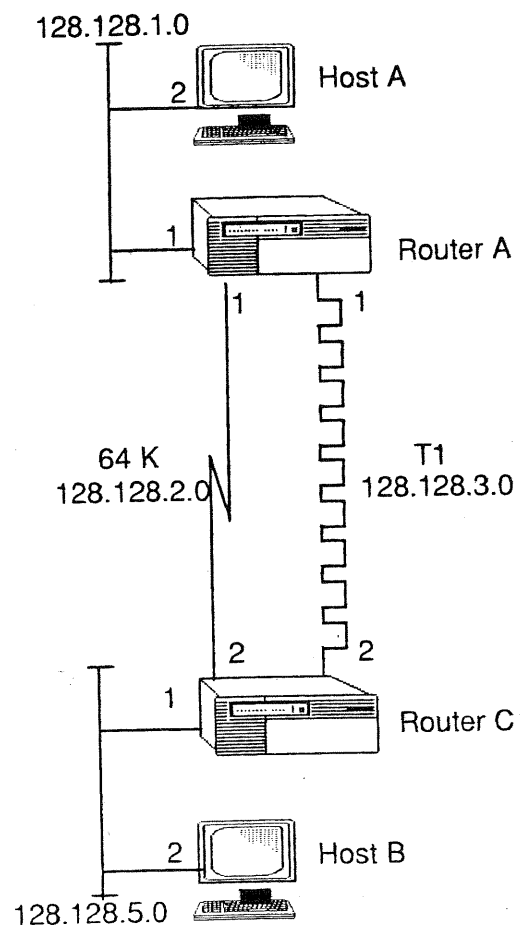
## Split Horizon

Routing Table						
Dest.	Metric	Next Hop	Type	Protocol	Age	Index
192.32.1.0	0	192.32.1.90	Direct	Local	90	1
192.32.2.0	0	192.32.2.81	Direct	Local	90	2
192.32.3.0	2	192.32.2.80	Indirect	Rip	10	2
192.32.4.0	2	192.32.1.91	Indirect	Rip	10	1



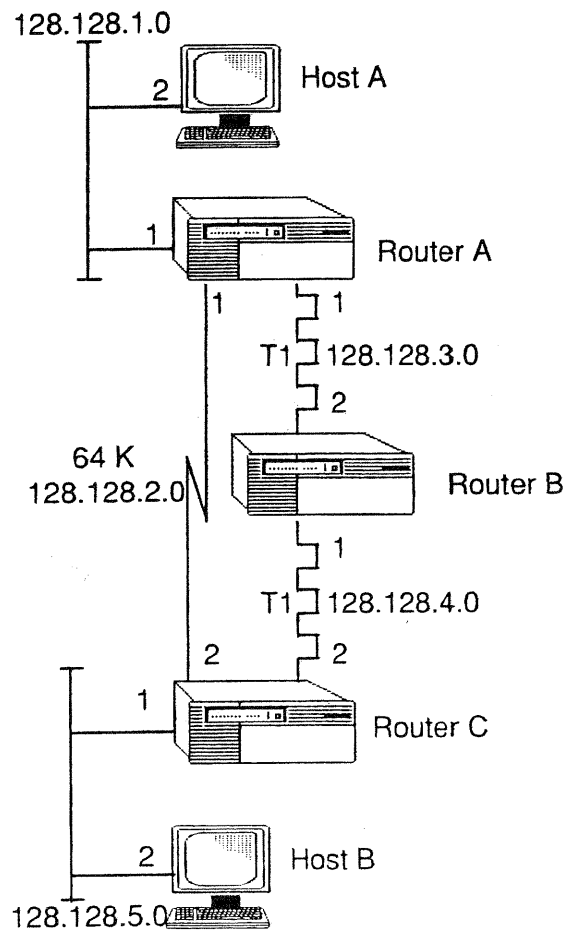
## Static Routes

Network 128.128.0.0  
Subnet Mask=255.255.255.0



## Using a Static Route for IP Datagram Path Control

Network 128.128.0.0  
Subnet Mask=255.255.255.0



## Default Route

