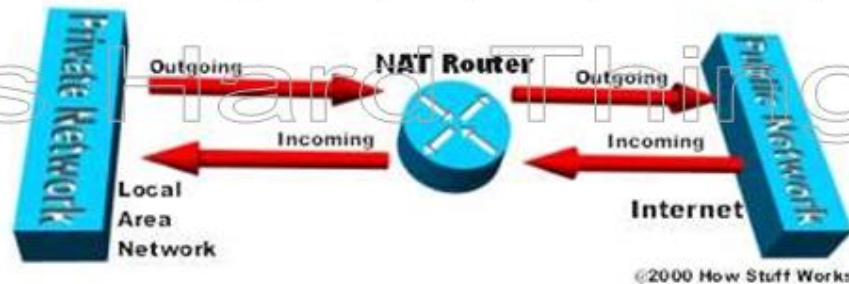


NAT (Network Address Translation)

- ✓ Network Address Translation allows a single device, such as a router,
- ✓ to act as an agent between the Internet (or "public network") and a local (or "private") network.
- ✓ This means that only a single, unique IP address is required to represent an entire group of computers.
- ✓ But the shortage of IP addresses is only one reason to use NAT.



Address Translation:

NAT (Network Address Translation).

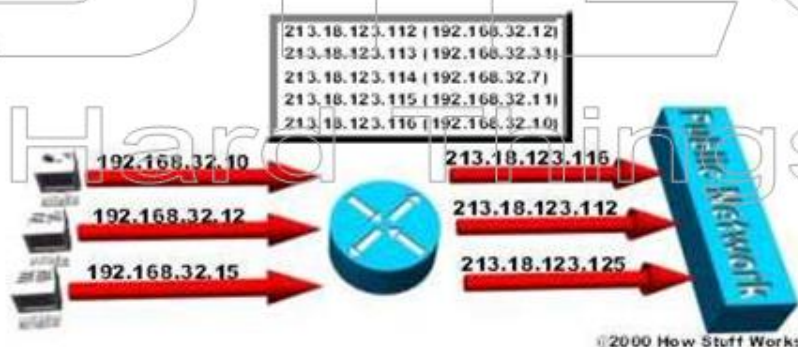
PAT (Port Address Translation).

STATIC NAT: Mapping an unregistered IP address to a registered IP address on a one-to-one basis.



In static NAT, the computer with the IP address of 192.168.32.10 will always translate to 213.18.123.110.

DYNAMIC NAT: Maps an unregistered IP address to a registered IP address from a group of registered IP addresses.



In dynamic NAT, the computer with the IP address 192.168.32.10 will translate to the first available address in the range from 213.18.123.100 to 213.18.123.150.

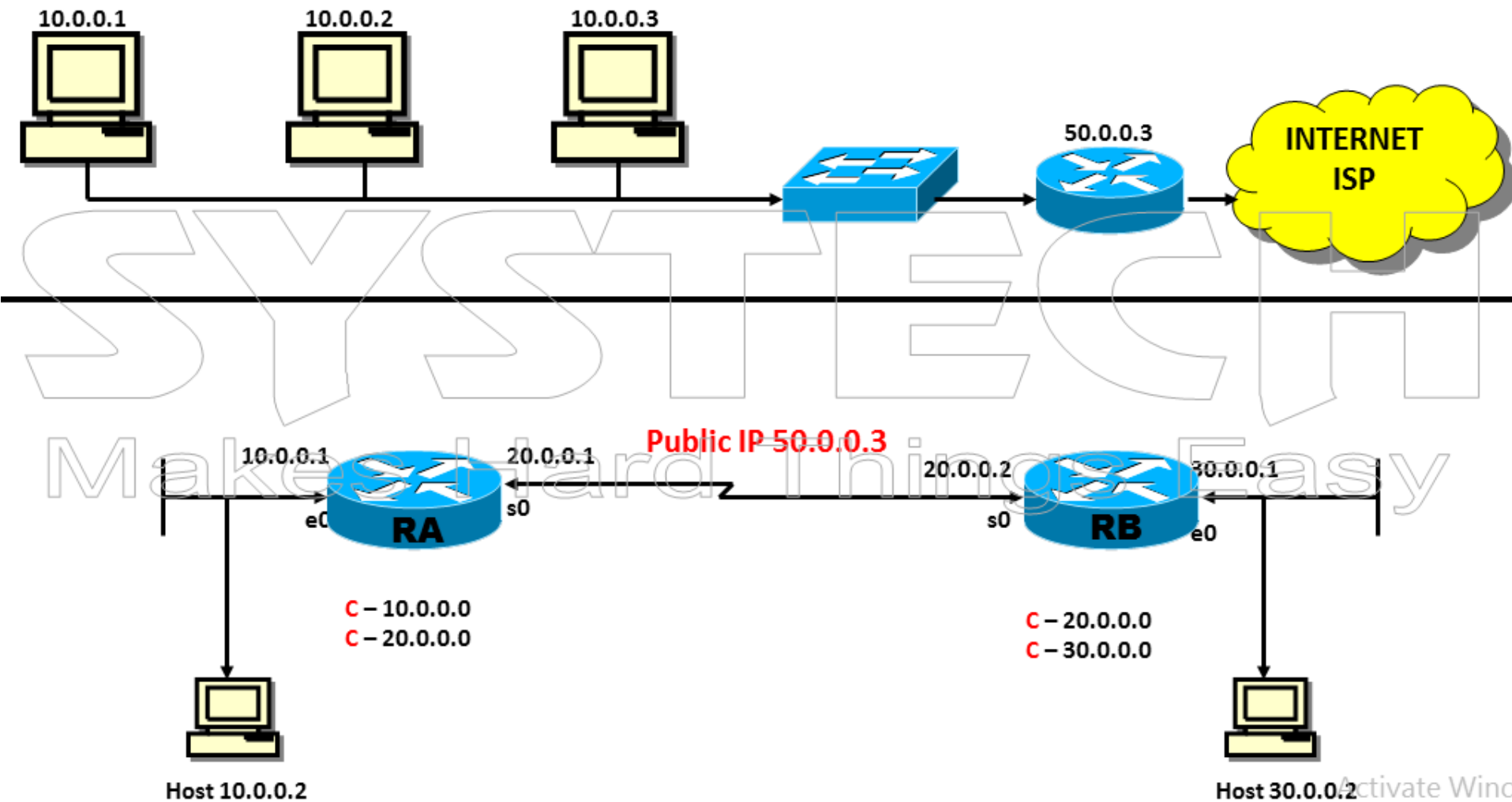


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STATIC NAT



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RA & RB

ENABLE INTERFACE

RA

ping 30.0.0.1 (it will not ping)

From Host 10.0.0.2

ping 30.0.0.1 (it will not ping)

RA

Router >
Router #
Router(config)#

Router(config)#
Router(config)#

Enable

Configure Terminal
ip route 30.0.0.0 255.0.0.0 20.0.0.2

RB

ip route 50.0.0.0 255.0.0.0 20.0.0.1
ip route 10.0.0.0 255.0.0.0 20.0.0.1

RA

Router >
Router #
Router(config)#
Router(config)#
Router(config-if)#
Router(config-if)#
Router(config-if)#

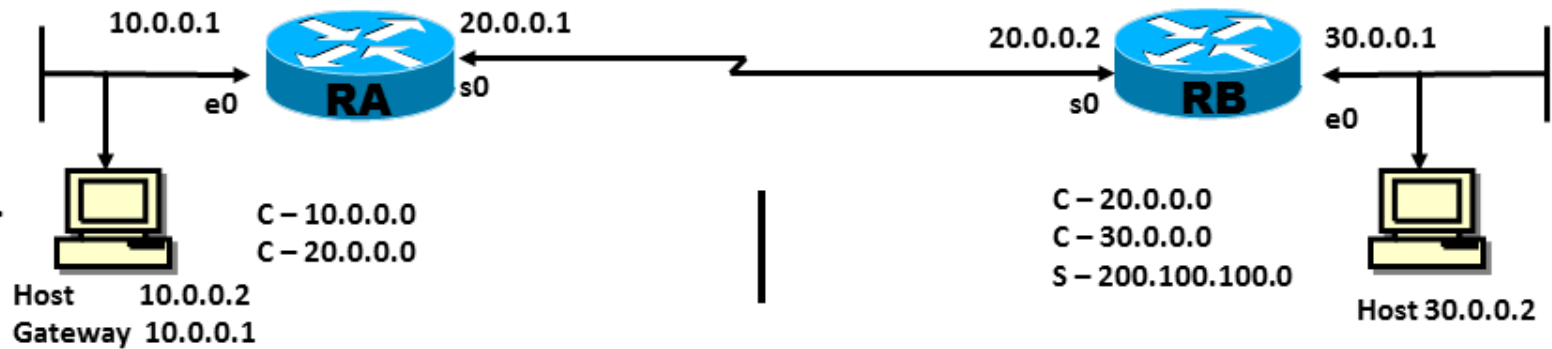
Enable
Configure Terminal
ip nat inside source static 10.0.0.2 50.0.0.3
int e0
ip nat inside
int s0
ip nat outside

RA

Router #
From Host 10.0.0.2

debug ip nat
ping 30.0.0.2 (host) & 30.0.0.1 (Router B)

DYNAMIC NAT



RA & RB

ENABLE INTERFACE

RA

Router(config)#

ip route 30.0.0.0 255.0.0.0 20.0.0.2

RB

Router(config)#

Router(config)#

ip route 200.100.100.0 255.255.255.0 20.0.0.1

ip route 10.0.0.0 255.0.0.0 20.0.0.1

Activate Wind

Go to Settings to a



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RA

Router >	Enable
Router #	Configure Terminal
Router(config)#	access – list 1 permit 10.0.0.0 0.255.255.255
Router(config)#	ip nat pool systech 200.100.100.9 200.100.100.14 netmask 255.255.255.248
Router(config)#	ip nat inside source list 1 pool systech overload
Router(config)#	int e0
Router(config-if)#	ip nat inside
Router(config-if)#	int s0
Router(config-if)#	ip nat outside

RA

Router #	debug ip nat
From Host 10.0.0.2	ping 30.0.0.2 (host) & 30.0.0.1 (Router B)

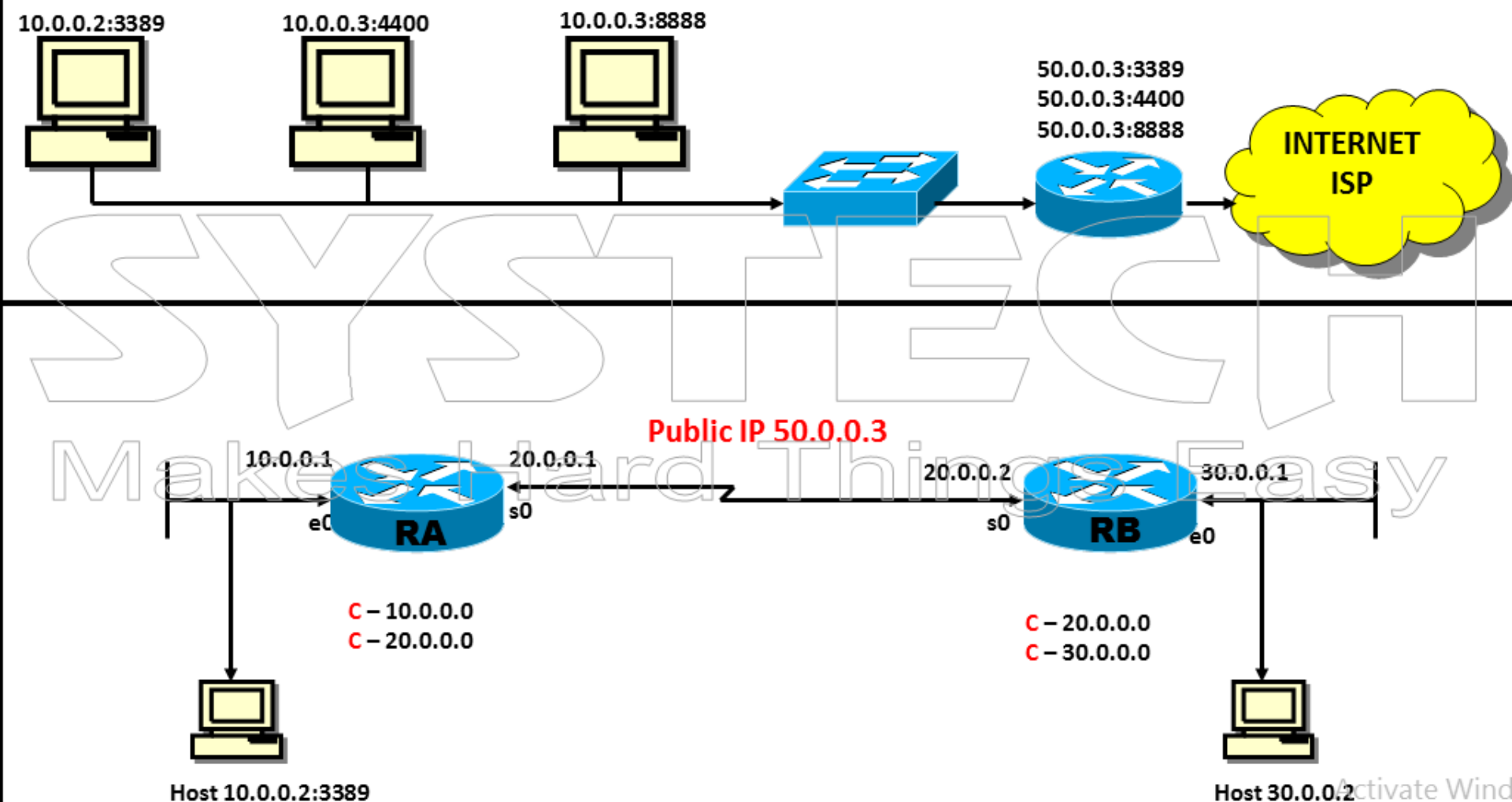


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STATIC PAT



RA & RB

ENABLE INTERFACE AND CONFIGURE ANY ROUTING PROTOCOL

RA

```
Router >  
Router #  
Router(config)#  
Router(config)#  
Router(config-if)#  
Router(config-if)#  
Router(config-if)#
```

```
Enable  
Configure Terminal  
ip nat inside source static tcp 10.0.0.2 3389 50.0.0.3 3389  
int e0  
ip nat inside  
int s0  
ip nat outside
```

RB

```
Router #  
  
From Host 30.0.0.2
```

```
sh ip nat translations
```

Open Remote Desktop Connection 50.0.0.3:3389

Now, Host 10.0.0.2 connect over Remote Desktop



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CLI : Command Line Interface

TAB : AUTOCOMPLETE

CTRL A : Beginning of the line

CTRL E : End of the line

CTRL + SHIFT + 6 : Interrupts processes like ping

CTRL C : exit Configuration mode

CTRL Z : Exit

#enable #disable

#clock set 14:51:50 january 2013

#sh history

#terminal history size 40

#do show ip route

#no ip domain-lookup

#hostname systech

#line console 0

#exec-timeout 0 0

To prevent logging out from console

#line console 0

#logging synchronous

#line vty 0 4

#logging synchronous

Use this command to keep last line readable when we get any updates in our router

#service password-encryption (not much secured)

<http://ibeast.com/tools/CiscoPassword/index.asp>

#int fa0/1

#description connects to systech computer

#banner login % SYSTECH USERS ONLY %

#show running-config | include secret

#show running-config | begin line con 0

#enable

#configure terminal

#ip host systech 10.0.0.1

#exit

#ping systech(it will ping 10.0.0.1)

#sh hosts



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PUTTY



PUTTY

- It supports several network protocols, including SCP, SSH, Telnet, rlogin, and raw socket **connection**.



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