

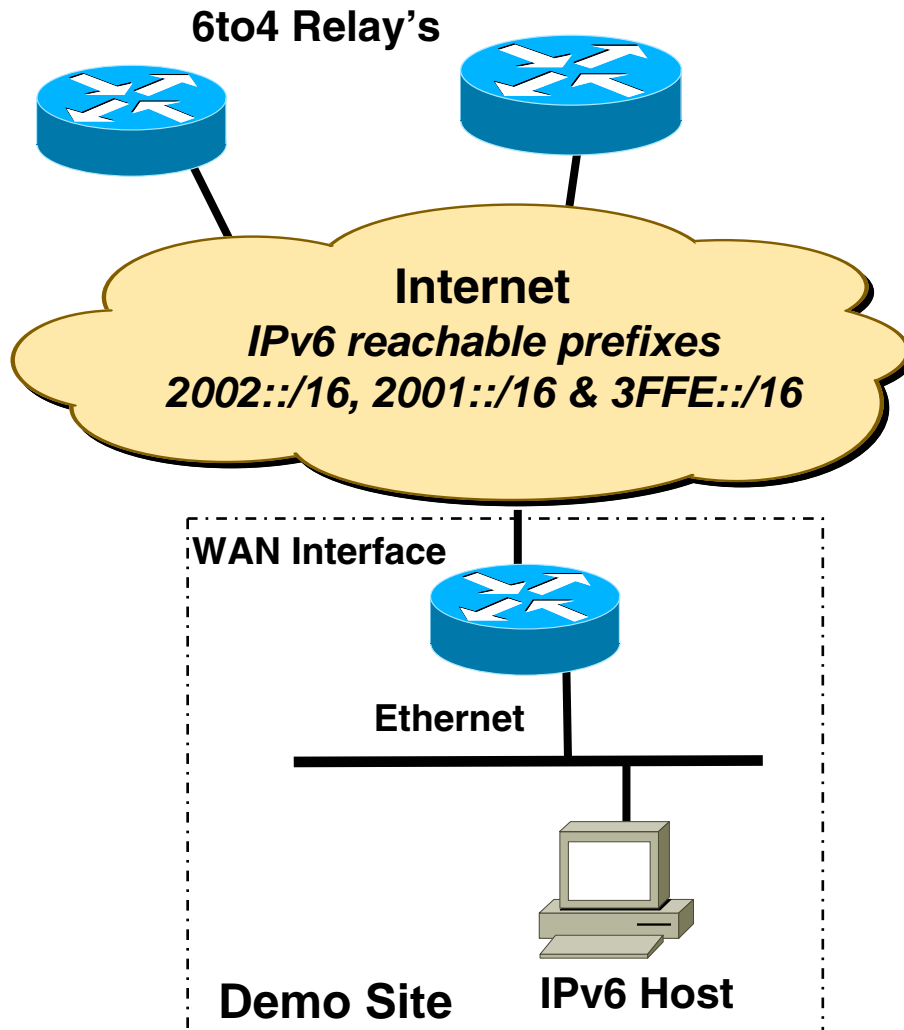


IPv6 Quick Start Trial using Cisco IOS

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- **Any site with an IPv4 Internet connection can be configured to experiment IPv6 using a Cisco IOS router**
 - Easy set-up using 6to4 mechanism
- **IPv6 feature set information is available on http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/ipv6_c/ftipv6s.htm**
- **More documentation on www.cisco.com/ipv6**

Minimum Requirements



Cisco IOS router & release

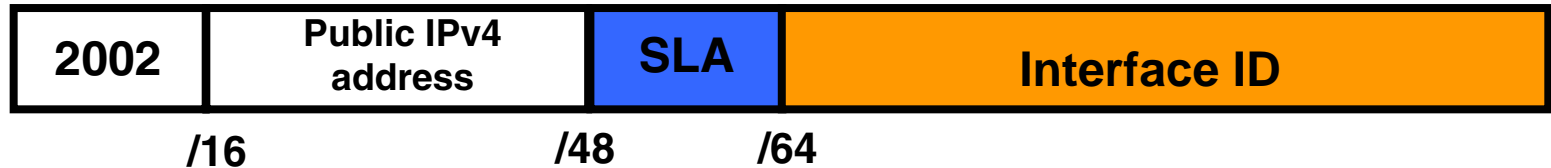
830 – 12.3(4)XG minimum
1600, 1700, 2600-XM,
3640/3660, 3700 – 12.3(1)M
or 12.3(2)T and above
7200, 7300 or 7500 – 12.3M
12.3(1)M, 12.3(2)T or
12.2(18)S and above

IPv6 Host

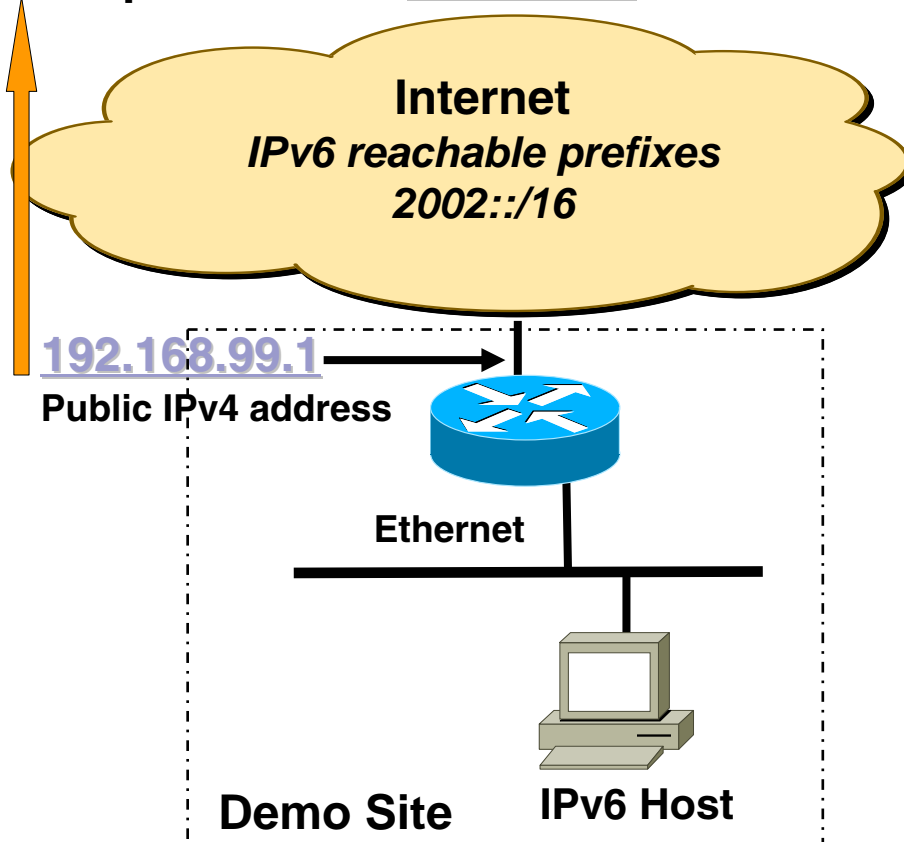
Windows XP SP1
*nix (Linux, BSD,...)
MAC OS X

6to4 Relay's already exist on the Internet

Understanding 6to4 Tunnel



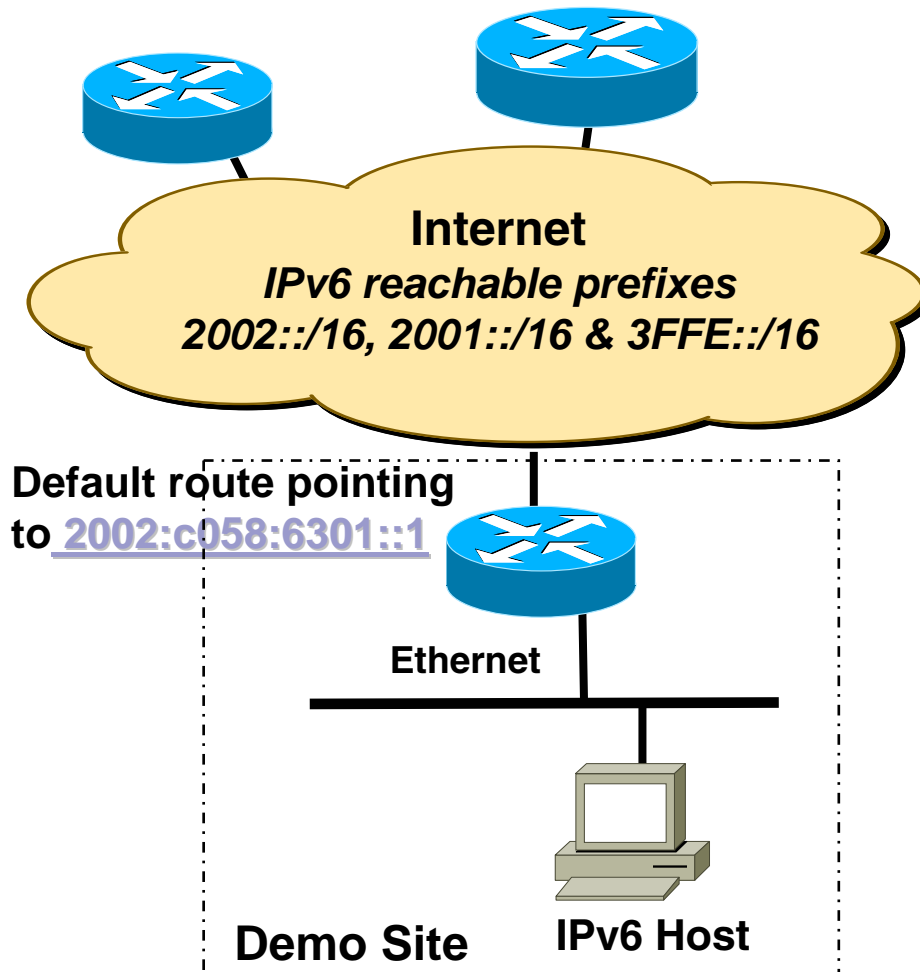
IPv6 prefix: 2002:c0a8:6301::/48



- 6to4 is an automatic IPv6 over IPv4 tunnel mechanism defined by RFC 3056.
- Prefix 2002::/16 is assigned to 6to4
- Public IPv4 address from the site is embedded (hex. value) in /48 prefix
- 6to4 router can extract an IPv4 address from the IPv6 destination address to reach any 6to4 site

Understanding 6to4 Relay

6to4 Relay Anycast address 192.88.99.1



- 6to4 Relay is a default gateway to the overall IPv6 Internet

- 2001::/16, 3FFE::/16 prefixes

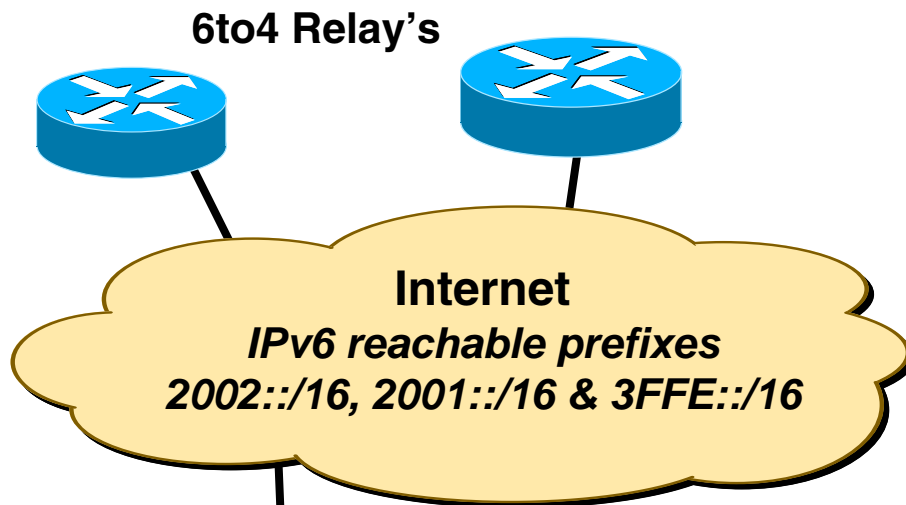
- An Anycast address is allocated to the 6to4 Relay function – RFC 3068 – enabling multiple relays to be reachable on the Internet

- Note that the Return path may be different

- Default Route pointing to 6to4 Relay Anycast needs to be set on 6to4 routers.

- http://www.6bone.net/6bone_6to4.html

Router IPv6 Configuration



Example: Cisco 837 running
Cisco IOS 12.3(4)XG
Pick your public IPv4 address,
convert it to hexadecimal to build
the 6to4 prefix

80.14.35.1 -> 500e:2301

Configure IPv6
Configure 6to4 tunnel

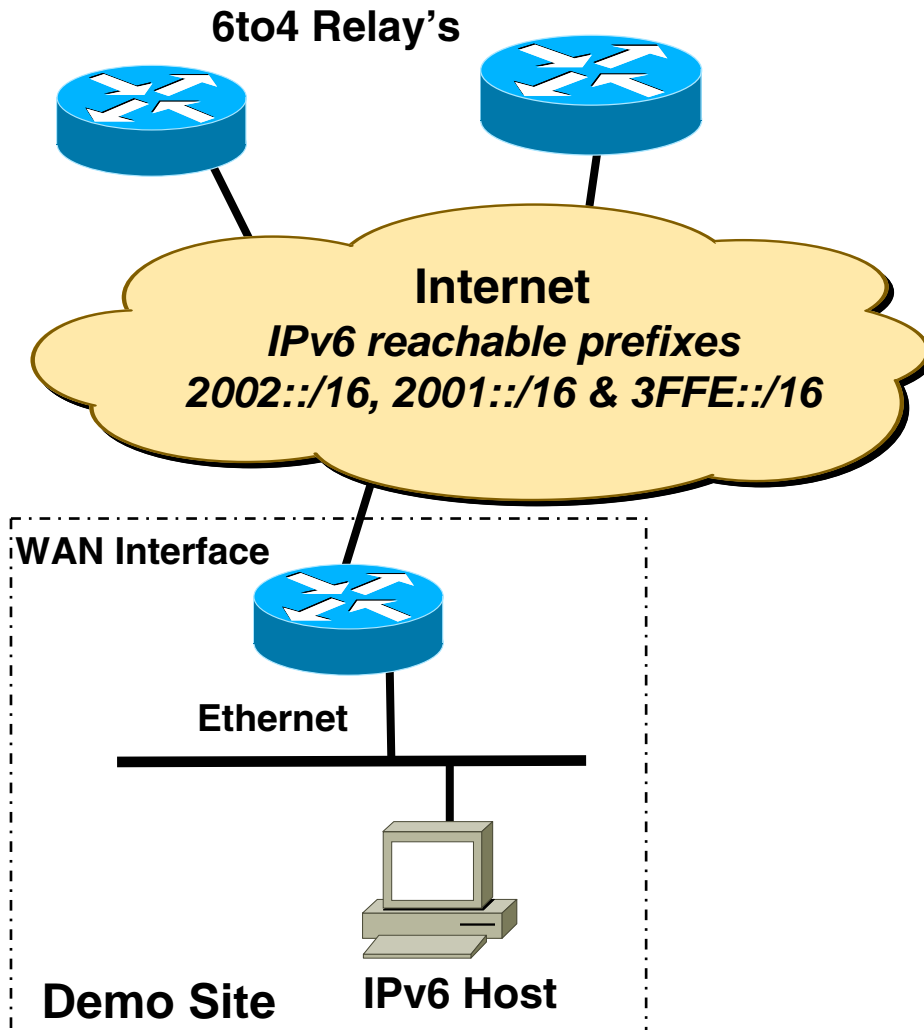
```
router# conf term
router#(config)ipv6 unicast-routing
router#(config)ipv6 cef
router#(config)interface ethernet0
router#(config-if) ipv6 address 2002:500e:2301:1::/64 eui-64
router#(config) interface tunnel0
router#(config-if) ipv6 unnumbered Ethernet0
router#(config-if) tunnel source dialer1
router#(config-if) tunnel mode ipv6ip 6to4
router#(config) ipv6 route 2002::/16 Tunnel0
router#(config) ipv6 route ::/0 2002:c058:6301::1
```

Note: IPv6 configuration only

Check IPv6 Router configuration

```
router>sho ipv6 inter
Ethernet0 is up, line protocol is up
  IPv6 is enabled, link-local address is FE80::20D:BDFE:FE99:F559
  Global unicast address(es):
    2002:500E:2301:1:20D:BDFE:FE99:F559, subnet is 2002:500E:2301:1::/64 [EUI]
  Joined group address(es):
    FF02::1
    FF02::2
    FF02::1:FF99:F559
  MTU is 1500 bytes
  ICMP error messages limited to one every 100 milliseconds
  ICMP redirects are enabled
  ND DAD is enabled, number of DAD attempts: 1
  ND reachable time is 30000 milliseconds
  ND advertised reachable time is 0 milliseconds
  ND advertised retransmit interval is 0 milliseconds
  ND router advertisements are sent every 200 seconds
  ND router advertisements live for 1800 seconds
  Hosts use stateless autoconfig for addresses.
Tunnel0 is up, line protocol is up
  IPv6 is enabled, link-local address is FE80::500E:2301
  Interface is unnumbered. Using address of Ethernet0
  No global unicast address is configured
...
router>
```

Host IPv6 Configuration



Example: Windows XP SP1

- Install IPv6
 - C:\>ipv6 install
- Later, you may want to install the Advanced Networking Pack for Windows XP (KB817778)
 - Peer-to-Peer
 - IPv6 Firewall
 - NAT traversal

www.microsoft.com/ipv6

Check IPv6 Host configuration

```
C:\Documents and Settings\>netsh
netsh>interface ipv6
netsh interface ipv6>show address
Querying active state...
Interface 5: Local Area Connection
Addr Type   DAD State   Valid Life   Pref. Life   Address
-----
Temporary Preferred   6d21h48m47s   21h46m 2002:500e:2301:1:bd86:eac2:f5f1:39c1
Public      Preferred   29d23h58m25s 6d23h58m25s 2002:500e:2301:1:202:8aff:fead:a136
Link        Preferred   infinite      infinite fe80::202:8aff:fead:a136

netsh interface ipv6>show route
Querying active state...
Publish Type      Met  Prefix                               Idx  Gateway/Interface Name
-----
no      Autoconf      8   2002:500e:2301:1::/64                5   Local Area Connection
no      Autoconf     256  ::/0                                  5   fe80::20d:bdff:fe87:f6f9
netsh interface ipv6>
```

Test the configuration

```
router# ping 2002:500e:23a0:1:202:8AFF:FEAD:A836
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2002:500E:23A0:1:202:8AFF:FEAD:A836, timeout is 2
seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/4/8 ms
router#
```

- **Ping from Router to PC**

```
C:\Documents and Settings\>ping6 www.ipv6tf.org

Pinging www.ipv6tf.org [2001:800:40:2a03::3]
from 2002:500e:2301:1:515e:93cf:282:b8d2 with 32 bytes of data:

Reply from 2001:800:40:2a03::3: bytes=32 time=118ms
Reply from 2001:800:40:2a03::3: bytes=32 time=116ms
Reply from 2001:800:40:2a03::3: bytes=32 time=127ms
Reply from 2001:800:40:2a03::3: bytes=32 time=121ms

Ping statistics for 2001:800:40:2a03::3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 116ms, Maximum = 127ms, Average = 120ms
```

- **Ping from PC to www.ipv6tf.org**

Applications?

- **Test your connection using**
Ping, Telnet, FTP, Web Browser,...
- **IPv6-capable application's references**
www.hs247.com
www.6net.org applications database
- **“Interesting” IPv6 Apps to test 😊**
www.threedegrees.com
www.videolan.org

Browsing the Internet – http://ipv6.hs247.com

Cisco.com

HS247

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(2002:500e:23a0:1:515e:93cf:282:b8d2)

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March

16,

2004

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Don't have an account yet? You can [create one](#). As a registered user you have some advantages like theme manager, comments configuration and post comments with your name.

Who's Online

Newest Member
jay

Members Online: 0

Guests Online: 23

Euro6IX Tunnel Broker

jordi writes "The Euro6IX Tunnel Broker has been updated recently including also Spanish screens and help.is available at

<http://tb.consulintel.euro6ix.org>. Also, only in Spanish, with additional help at <http://www.6eas.org>."

Posted by [Waboy](#) on Sunday, March 14 @ 03:04:00
CET (29 reads)

([Read More...](#) | [Comment](#) | Score: 0)

Tunnel
Broker



Cisco Expands Integrated Security Systems Leadership

Cisco Systems, Inc., today announced the expansion of its integrated security systems product portfolio, focusing on enhanced performance, flexibility, and network resilience to security threats. Additions include threat defense and secure connectivity products and services that offer cost-effective and advanced performance and protection for networked businesses.

IPv6



Improved Security Deployment Flexibility: New transparent firewall support gives customers the flexibility to segment the network into security "trust zones," while preserving the network's existing IP addressing scheme and simplifying security deployment. The new Cisco IOS Firewall for Internet Protocol version 6 (IPv6) provides stateful inspection to both existing IPv4 and IPv6 traffic on a single interface for enhanced performance, along with better management of the IPv6 migration process. Cisco IOS Software now also offers anomaly protocol inspection for the Extended Simple Mail Transfer Protocol (ESMTP), which gives customers advanced network packet inspection capabilities and helps protect against known mail attacks.

Posted by [Waboy](#) on Tuesday, March 09 @ 23:59:30
CET (146 reads)

([Read More...](#) | 7363 bytes more | [comments?](#) |
Score: 5)

Translate HS247



IPv6 Tunnel Brokers

HS247's recommended and stable providers over the long term of use.

[United States
Hurricane Electric](#)

[Europe
XS26 Distributed Tunnel
Broker](#)

[Unix-Servercs.de](#)

HS247 Forum Links

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[e!net](#)

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[Applications](#)

Operating Systems IPv6 Support

Vendor	IPv6 Support	Versions	More Info
Microsoft	Yes	Windows XP SP1 .NET server 2003 CE .NET 4.1 (Pocket PC 2003)	http://www.microsoft.com/ipv6
Sun	Yes	Solaris 8 and 9	http://www.sun.com/software/solaris/ipv6/
IBM	Yes	z/OS Rel. 1.4 AIX 4.3 - > OS/390 V2R6 eNCS	http://www-3.ibm.com/software/os/zseries/ipv6/
BSD	Yes	FreeBSD 4.0 - > OpenBSD 2.7 - > NetBSD 1.5 - > BSD/OS 4.2 - >	http://www.kame.net/
Linux	Yes	RH 6.2 - > Mandrake 8.0 - > SuSE 7.1 - > Debian 2.2 - >	http://www.bieringer.de/linux/IPv6/status/IPv6+Linux-status-distributions.html
HP/Compaq	Yes	HP-UX 11i Tru64 UNIX V5.1 OpenVMS V5.1	http://h18000.www1.hp.com/ipv6/next_gen.html
Novell	Yes	Netware 6.1	http://www.novell.com/documentation/lq/nw65/index.html?page=/documentation/lq/nw65/readme/data/ajlp6r.html
Apple	Yes	MAC OS X 10.2 - >	http://developer.apple.com/macosx/

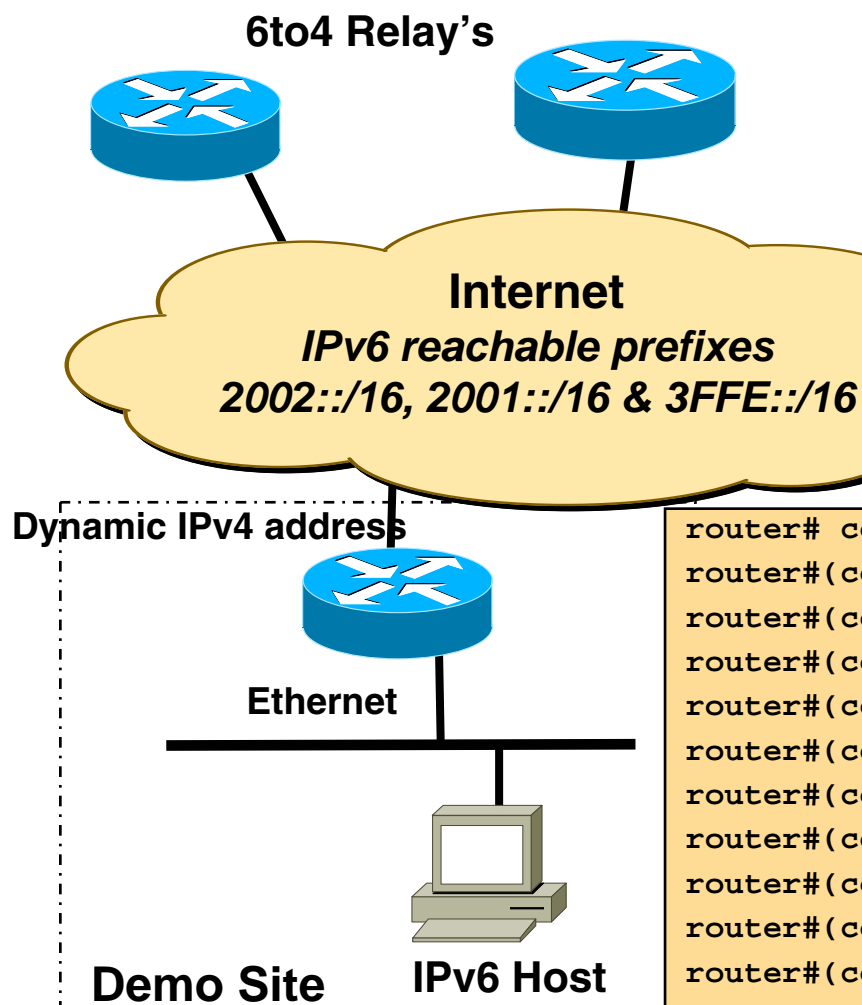
Cisco IOS IPv6 Generic Prefix Feature

Cisco.com

How to configure 6to4 when a dynamic IPv4 address is assigned to the WAN interface?

Cisco IOS IPv6 Generic Prefix on Cisco IOS 12.3(4)T

Define a prefix coming from a 6to4 interface that applies to the IPv6 address definition



```
router# conf term
router#(config)ipv6 unicast-routing
router#(config)ipv6 cef
router#(config)ipv6 general-prefix DYN 6to4 Dialer1
router#(config)interface ethernet0
router#(config-if) ipv6 address DYN 0:0:0:1::/64 eui-64
router#(config) interface tunnel0
router#(config-if) ipv6 unnumbered Ethernet0
router#(config-if) tunnel source dialer1
router#(config-if) tunnel mode ipv6ip 6to4
router#(config) ipv6 route 2002::/16 Tunnel0
router#(config) ipv6 route ::/0 2002:c058:6301::1
```

More Information

- CCO IPv6 - <http://www.cisco.com/ipv6>
- The ABC of IPv6
http://www.cisco.com/en/US/products/sw/iosswrel/ios_abcs_ios_the_abcs_ip_version_6_listing.html
- IPv6 Application Notes
http://www.cisco.com/warp/public/732/Tech/ipv6/ipv6_techdoc.shtml
- Cisco IOS IPv6 manuals
http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/ipv6_vcq.htm

Q and A



CISCO SYSTEMS

