CCNA 200-301, Volume I

Chapter 23 IPv6 Addressing and Subnetting

Objectives

- Global Unicast Addressing Concepts
- Unique Local Unicast Addresses

Three Global Routing Prefixes, with One Route per Prefix



Prefix Assignment with IANA, RIRs, and ISPs



Some Types of IPv6 Addresses and Their First Hex Digit(s)

Address Type	First Hex Digits
Global unicast	2 or 3 (originally); all not otherwise reserved (today)
Unique local	FD
Multicast	FF
Link local	FE80

Locations for IPv6 Subnets

Company 1



Classful View of Unsubnetted IPv4 Networks



Classful View of Subnetted IPv4 Networks



Structure of Subnetted IPv6 Global Unicast Addresses



Address Structure for Company1 Example



First 16 Possible Subnets With a 16-bit Subnet Field in this Example



- 2001:0DB8:1111:0008::
- 2001:0DB8:1111:0009::
- 2001:0DB8:1111:000A::
- 2001:0DB8:1111:000B::
- 2001:0DB8:1111:000C::
- 2001:0DB8:1111:000D::
- 2001:0DB8:1111:000E::

2001:0DB8:1111:000F::

Global Routing Prefix Su

Subnet

Subnets in Company1, with Global Routing Prefix of 2001:0DB8:1111::/48

Company 1



Example Static IPv6 Addresses Based on the Subnet Design



IPv6 Unique Local Unicast Address Format



Subnetting Using Unique Local Addresses

Company 1 – Unique Local Prefix FD00:1:1::/48

