

Network Layer

IPv6 ADDRESSES

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Despite all short-term solutions, address depletion is still a long-term problem for the Internet.

This and other problems in the IP protocol itself have been the motivation for IPv6.

Note

An IPv6 address is 128 bits long.

Figure *IPv6 address in binary and hexadecimal colon notation*

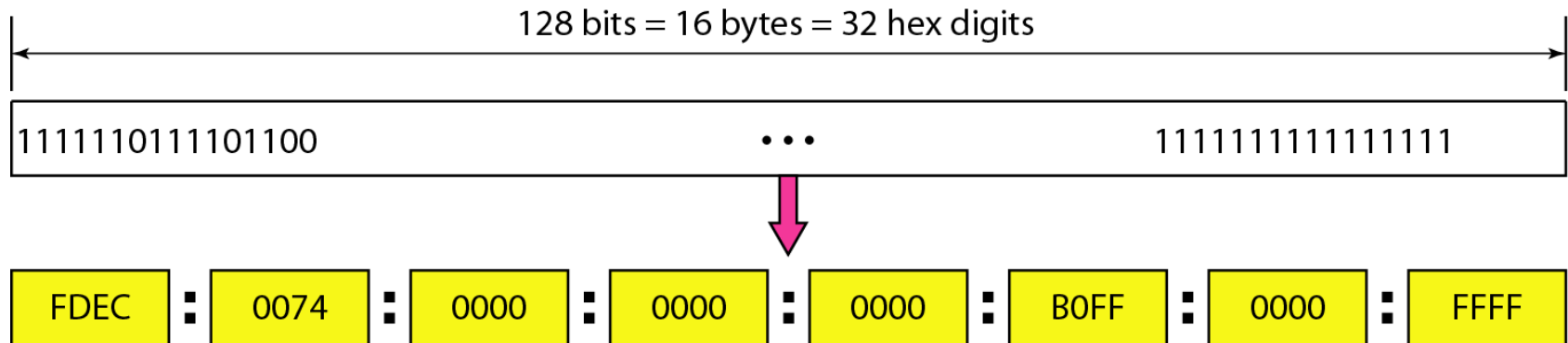
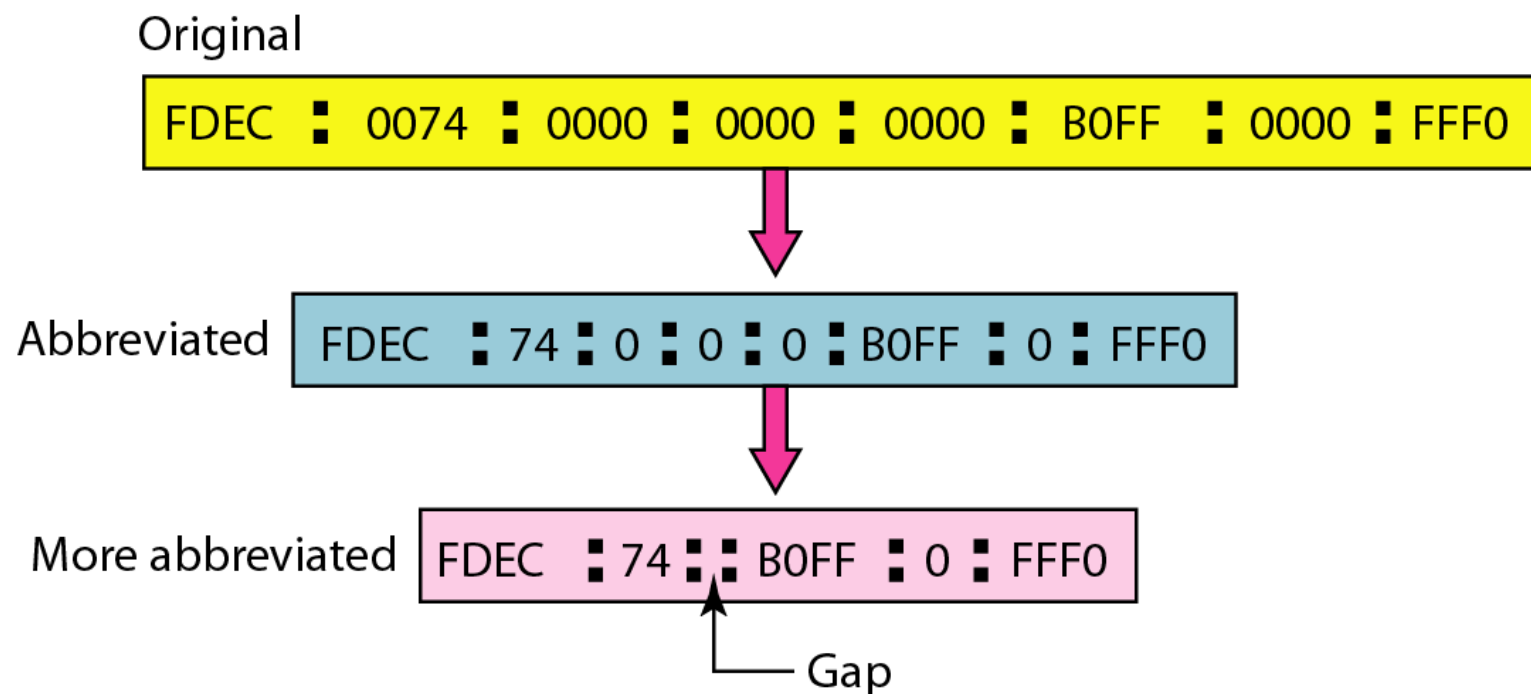


Figure *Abbreviated IPv6 addresses*



Example



Expand the address 0:15::1:12:1213 to its original.

Solution

We first need to align the left side of the double colon to the left of the original pattern and the right side of the double colon to the right of the original pattern to find how many 0s we need to replace the double colon.

XXXX:XXXX:XXXX:XXXX:XXXX:XXXX:XXXX:XXXX
0: 15: : 1: 12:1213

This means that the original address is.

0000:0015:0000:0000:0000:0001:0012:1213

Find the abbreviated form of following IPv6 address:

0000:A0BC:0034:0000:0000:4130:EE0F:03AD

- a) 0:ABC:034:0:0:4130:EEF:03AD
- b) 0:A0BC:34::4130:EE0F:3AD
- c) 0:A0BC:0034::4130:EE0F:03AD