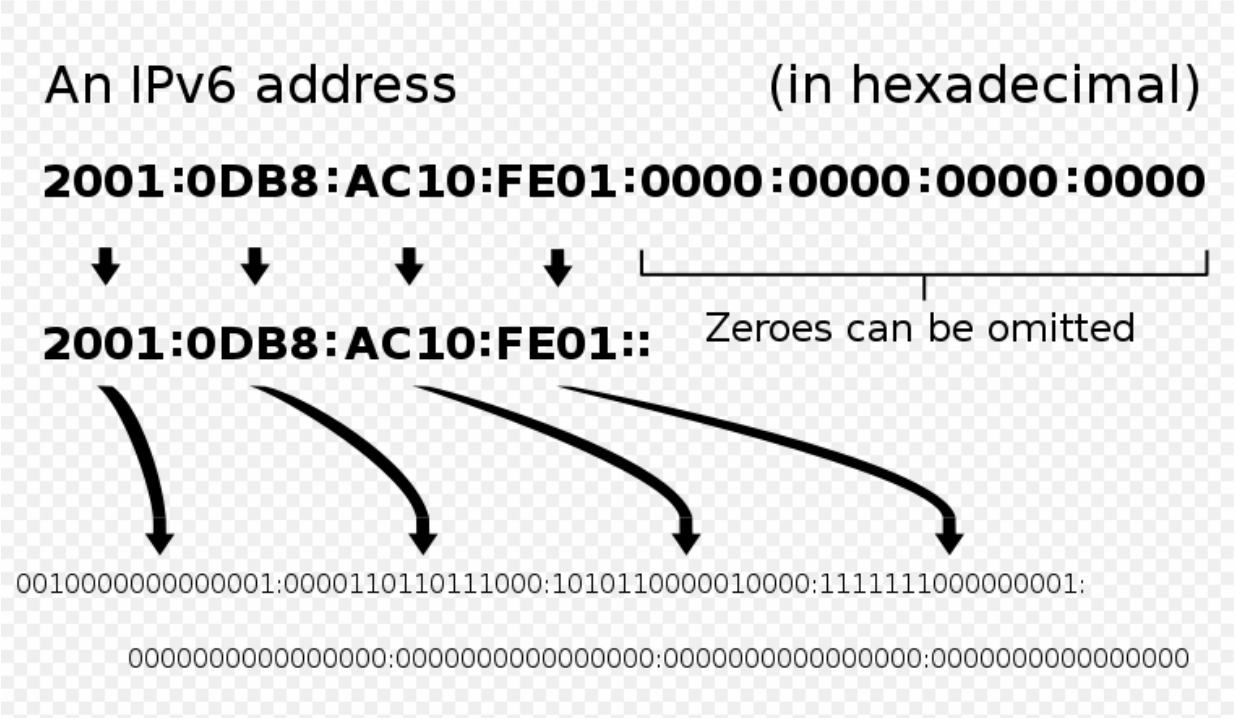
IPv6: the Next Generation IP (IPng)

IPv4 uses 32 bit address and will be run out soon. It has 4.3 billion addresses.

IPv6 uses 128 bit address. It has 2^{128} addresses. 340 undecillions
(2^128 = 340,282,366,920,938,463,463,374,607,431,768,211,456)

Name	Short scale (U.S. and modern British)
Million	10^6
Milliard	
Billion	10^9
Billiard	
Trillion	10^{12}
Quadrillion	10^{15}
Quintillion	10^{18}
Sextillion	10^{21}
Septillion	10^{24}
Octillion	10^{27}
Nonillion	10^{30}
Decillion	10^{33}
Undecillion	10^{36}
Duodecillion	10^{39}
Tredecillion	10^{42}
Quattuordecillion	10^{45}
Quindecillion (Quinquadecillion)	10^{48}
Sexdecillion (Sedecillion)	10^{51}
Septendecillion	10^{54}
Octodecillion	10^{57}
Novemdecillion (Novendecillion)	10^{60}
Vigintillion	10^{63}
Centillion	10^{303}

Example of IPv6 address:



How to convert IPv4 to IPv6?

192.168.5.20 ➔ IPv6 address:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

192	**168**	**5**	**20**
192 /16 = 12 Remainder is 0 **12 = C** **0 = 0** **192 = C0**	168/16 = 10 Remainder is 8 **10 = A** **8 = 8** **168 = A8**	5/16 = 0 Remainder is 5 **5 = 05**	20/16 = 1 Remainder = 4 **20 = 14**

Short format: :: C0A8:0514

Long format: 0000:0000:0000:0000:0000:0000:C0A8:0514

Convert following IPv4 address:

139.182.149.254