

**Internet Protocol is central to the Internet.
It exists in any device, service or system that
needs to connect to the Internet.**

**Since the birth of the Internet
we have used
IPv4 addresses.**

the story of

IPv4

APNIC



3.7 billion
addresses available

1983

The Birth of the Internet

THE FIRST WAVE OF ADDRESS ALLOCATION

APNIC

DEC
DOD HP
GEC DNIC
MIT IBM
FORD XEROX
INTEROP SITA
APPLE ELI LILLY CSS
PRUDENTIAL SECURITIES
CAP DEBIS CCS JTC
DUPONT AT&T BOEING
ARPANET USAISC JAPAN INET UK GOV
STANFORD UNIVERSITY MERIT PSINET
HALLIBURTON UK DEFENCE USPS
BOLT BERANEK AND NEWMAN MERCK
BELL-NORTHERN RESEARCH NORSK IANA
AMATEUR RADIO DIGITAL COMMUNICATIONS

Academic and experimental

Generous allocations made to early adopters

Worldwide uptake

35%
IPv4 SPACE
ALLOCATED

65%
IPv4 SPACE
AVAILABLE

1992

Expanding the Internet

THE RIR SYSTEM ESTABLISHED
FOR SUSTAINABLE ADDRESS ALLOCATION

APNIC

1992  **APNIC**

1992  **RIPE
NCC**

1997  **ARIN**

1999  **lacnic**

2005  **AFRINIC**
The Internet Number Registry for Africa

THE REGIONAL
INTERNET REGISTRIES

The RIR system allocates addresses according to policies developed in open, transparent, bottom-up, multistakeholder processes

Sustained global uptake



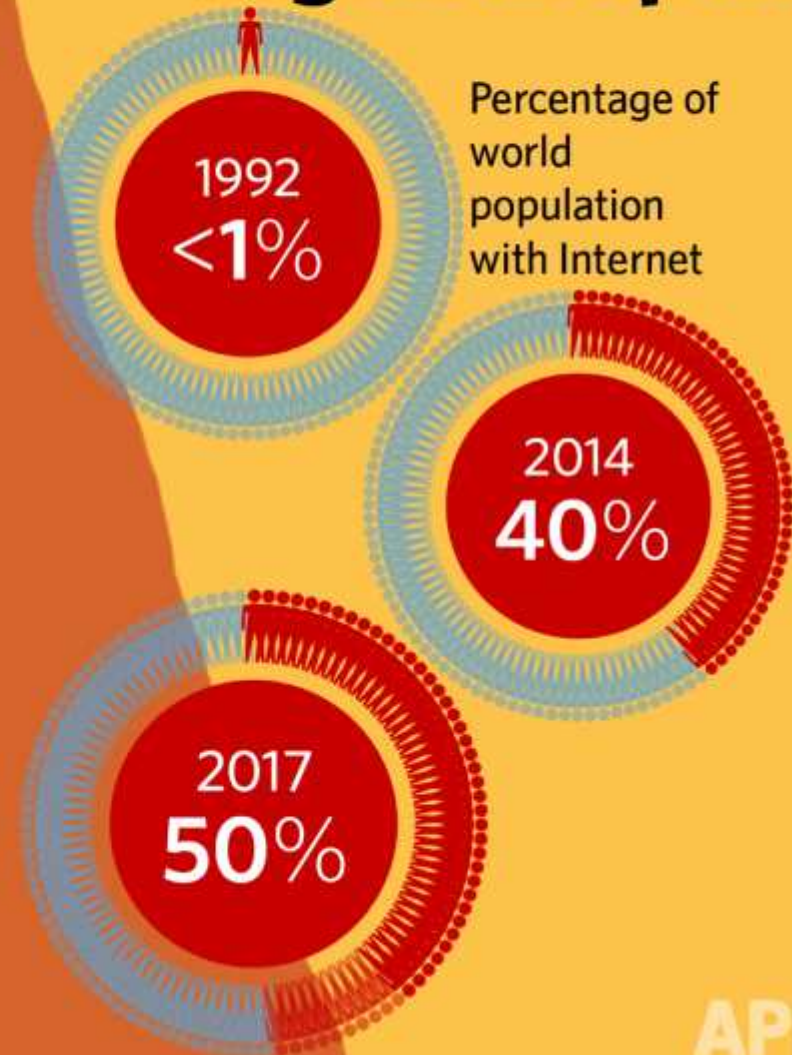
The first billion users was reached in **2005**



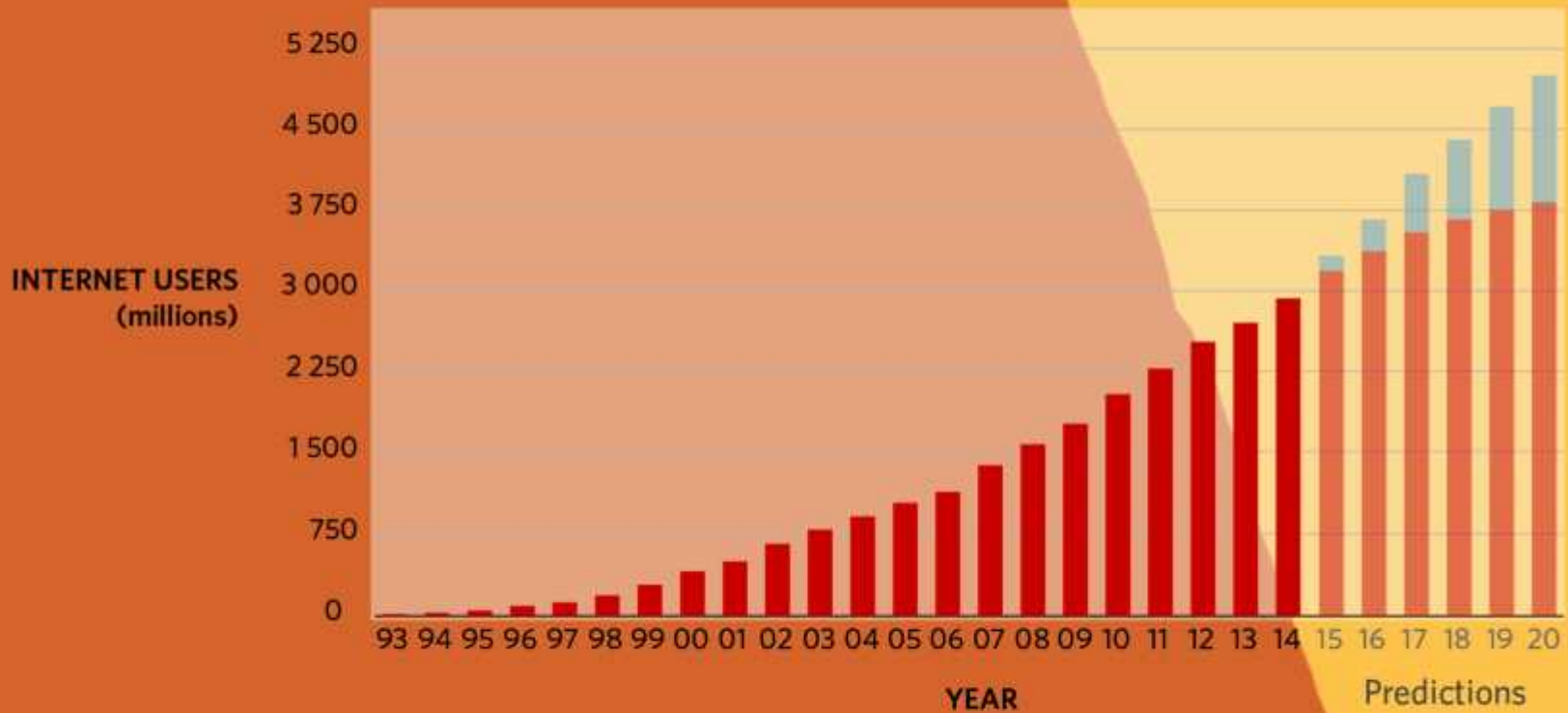
The second billion users was reached in **2010**



The third billion will likely be reached by the end of **2015**

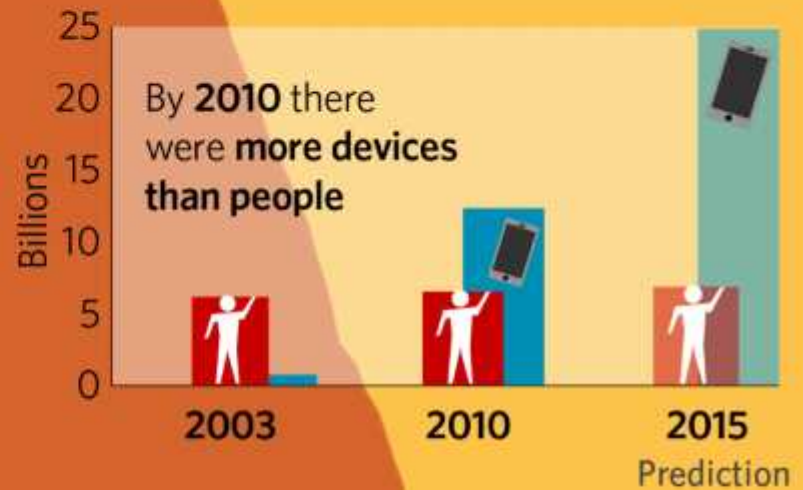
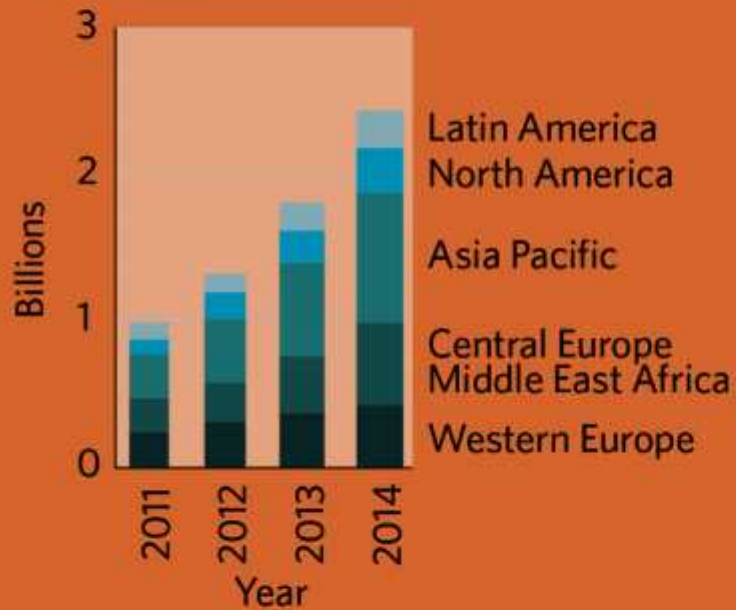


Global Internet Users by year



Mobile Broadband Subscriptions

LTE WCDMA/HSPA



Devices connect to the Internet

**03 Feb 2011
IANA
Unallocated
Address Pool
Exhaustion**

12%

IPv4 SPACE
AVAILABLE

88%

IPv4 SPACE
ALLOCATED

2011

IPv4 Exhaustion

FURTHER RATIONING OF ALLOCATIONS

APNIC

Who delegated all the IPv4 addresses? by %



Available /8 blocks
23 Oct 2014

0.81

0.62

0.97

0.21

3.01

IANA 0.28

ALLOCATED

UNALLOCATED

2015

ARIN approaches IPv4 exhaustion

THE INTERNET CONTINUES TO EXPAND

IPv4 addresses are still available, but in limited supply

We only have **76 million** IPv4 addresses left

2%

IPv4 SPACE AVAILABLE

APNIC

The Internet of 2016

**BILLIONS OF
INTERNET
ADDRESSES
ARE NEEDED
NOW!**

**25+
billion
devices**

**3+
billion
users**

**Global B2C
eCommerce
worth
\$1.47 Trillion
in 2014**

APNIC

The Internet of everything



**THERE ARE MORE
INTERNET-CONNECTED
DEVICES GLOBALLY THAN
PEOPLE**

APNIC

But  We only have **76 million**
IPv4 addresses left

good news is that there are...
340,282,366,920,
938,463,463,374,607,
431,768,211,456

IPv6 addresses

Global IPv6 usage is

7% AND GROWING

but adoption needs to accelerate



Mobile Operators

Start executing your IPv6 transition plan now



Content Providers

Ensure you can provide consistent user experience on IPv6



Businesses

Mandate IPv6 support from your IT suppliers



Governments

Work with industry and consider incentives



Internet Users

Choose an ISP that is IPv6 ready

**Watch out for:
Carrier wifi, "Wifi First"
Internet of Things
Internet of Everything...**

**2010s
mobile
broadband
explosion**

**1990s
mobile
voice
explosion**

**CRITICAL MASS
FOR IPV6
DEPLOYMENT IS IN
THE HANDS
OF MOBILE
OPERATORS**

APNIC

