NAT

Network Address Translation

NAT is used in routers.

NAT translates a set of IP addresses to another set of IP addresses.

Network Address Translation

NAT helps preserve the limited amount of IPv4 public IP addresses.

IPv4 address

67 . 123 . 45 . 67

There are 4,294,967,296 public IPv4 addresses available.

Engineers developed private IP addresses and network address translation (NAT).

Two different types of IPv4 addresses.

Public

66 . 94 . 234 . 13

Publicly registered
on the internet.

Must have a public IP to
access the internet.

Private

10 . 0 . 0 . 1

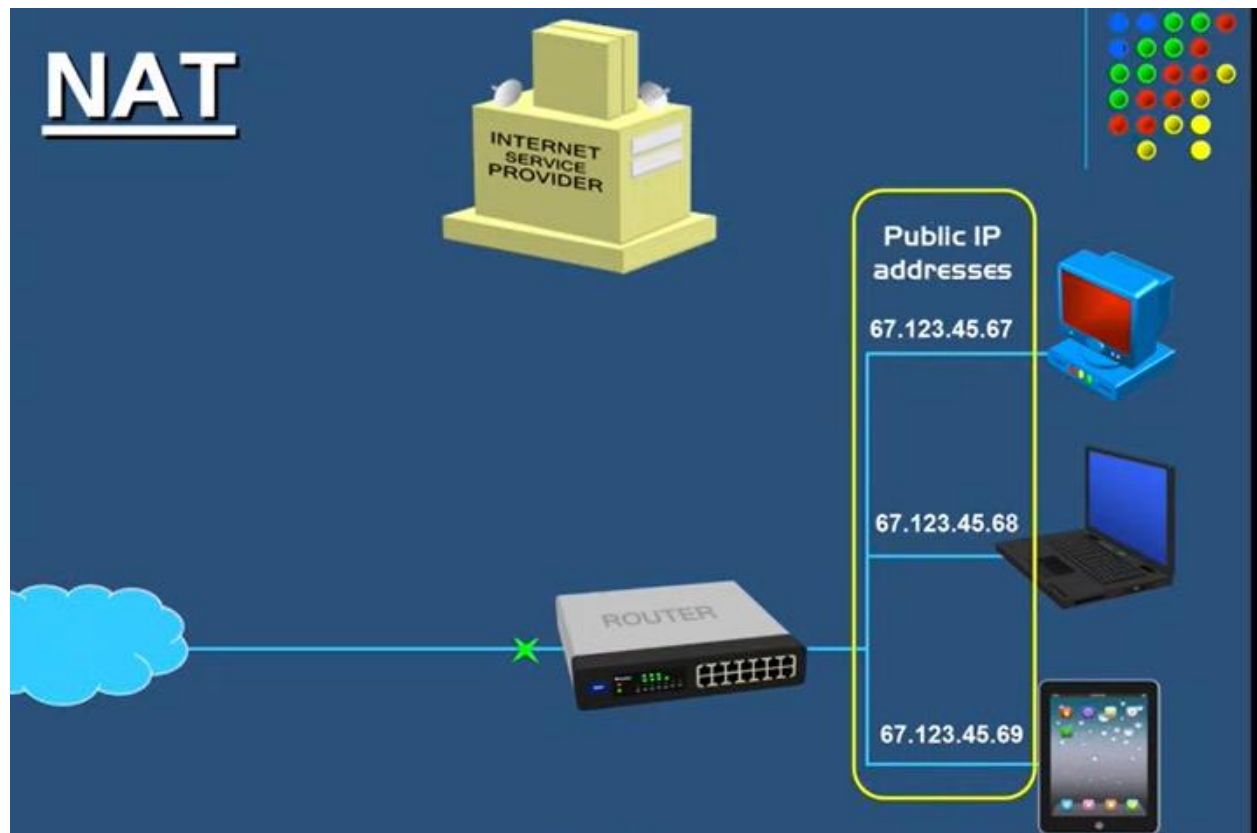**Two different types of IPv4 addresses.**

Public

66 . 94 . 234 . 13

Private

10 . 0 . 0 . 1

Not publicly registered.

Cannot directly access
the internet with a
private IP.

Only used internally.

NAT

INTERNET
SERVICE
PROVIDER

Public IP
addresses

67.123.45.67

67.123.45.68

67.123.45.69

ROUTER

NAT

NAT translates:

- Private to public
- Public to private

INTERNET SERVICE PROVIDER

ROUTER

67.123.45.67

10.0.0.1

10.0.0.2

10.0.0.3

PowerCert

NAT

In the future, we won't need NAT or private IP addresses.

New generation of IP address, called IPv6

76DC:4F59:34CF:71CD:9DC6:89CD:45D6:67A2

Every device will have its own public IP address.

Capable of producing over 340 undecillion IP addresses.

340,282,366,920,938,463,463,374,607,431,768,211,456