

CN ASSIGNMENT-2

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REPORT ON RFC-1918

RFC-1918: PRIVATE NETWORK-address allocation

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From: [draft-ietf-cidr-private-addr-05](#) Best Current Practice
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Network Working Group
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Y. Rekhter
Cisco Systems
B. Moskowitz
Chrysler Corp.
D. Karrenberg
RIPE NCC
G. J. de Groot
RIPE NCC
E. Lear
Silicon Graphics, Inc.
February 1996

Introduction:

RFC-1918 is an old document under the Network Working Group. It is a standard document and is established under the category of "Best Current Practice" (BCP). The authors of the document are listed on the right side of the image attached above.

This RFC deals with address allocation for private internets. The enterprise operates a network using TCP/IP and determines the addressing plan and address assignments within that network.

Full network layer connectivity is allowed among all hosts inside an enterprise as well as among all public hosts of different enterprises.

When the address allocation is done, the host and network numbers have to be renumbered between public and private.

Purpose of the protocol:

- To conserve the globally unique address space by not using it where global uniqueness is not required.
- Non-connected enterprises use this protocol for sole intra-enterprise communications without connecting to other enterprises or the Internet itself.
- The growth of routing overhead which will grow beyond the capabilities of Internet Service Providers (ISPs).
- The ISPs assign to its customers addresses from within a block of address space from an address registry. Because of this, the routes to many customers will be aggregated together, and will appear to other providers as a single route. The internet providers therefore encourage customers joining their network to use the provider's block and this might become a requirement in the future.
- When an organisation connects to the internet to achieve Internet wide IP connectivity, the organisation would need to change the IP addresses of all its public hosts, despite being globally unique or not initially
- The enterprises gain a lot of flexibility in network design by having more address space at their disposal than they could obtain from the globally unique pool.
- This enables operationally and administratively convenient addressing schemes as well as easier growth paths.

Message format/Architecture details:

The Internet Assigned Numbers Authority (IANA) has reserved the following three blocks of the IP address space for private internets:

1. 24-bit block: 10.0.0.0 - 10.255.255.255 (10/8 prefix)

single class A network number

2. 20-bit block: 172.16.0.0 - 172.31.255.255 (172.16/12 prefix)

set of 16 contiguous class B network numbers

3. 16-bit block: 192.168.0.0 - 192.168.255.255 (192.168/16 prefix)

set of 256 contiguous class C network numbers

Usage:

3 categories of hosts within enterprises use this protocol:

1. Category 1: hosts that do not require access to hosts in other enterprises or the Internet at large
2. Category 2: hosts that need access to a limited set of outside services
3. Category 3: hosts that need network layer access outside the enterprise

The first two categories are referred to as "private" and the third as "public".

Conclusion:

Using this protocol, many large enterprises will need only a relatively small block of addresses from the globally unique IP address space. This would conserve globally unique address space which will effectively lengthen the lifetime of the IP address space.

The enterprises also gain increased flexibility provided by a relatively large private address space. However, use of private addressing requires that an organization renumber part or all of its enterprise network, as its connectivity requirements change over time.