

Network Address Translation (NAT)

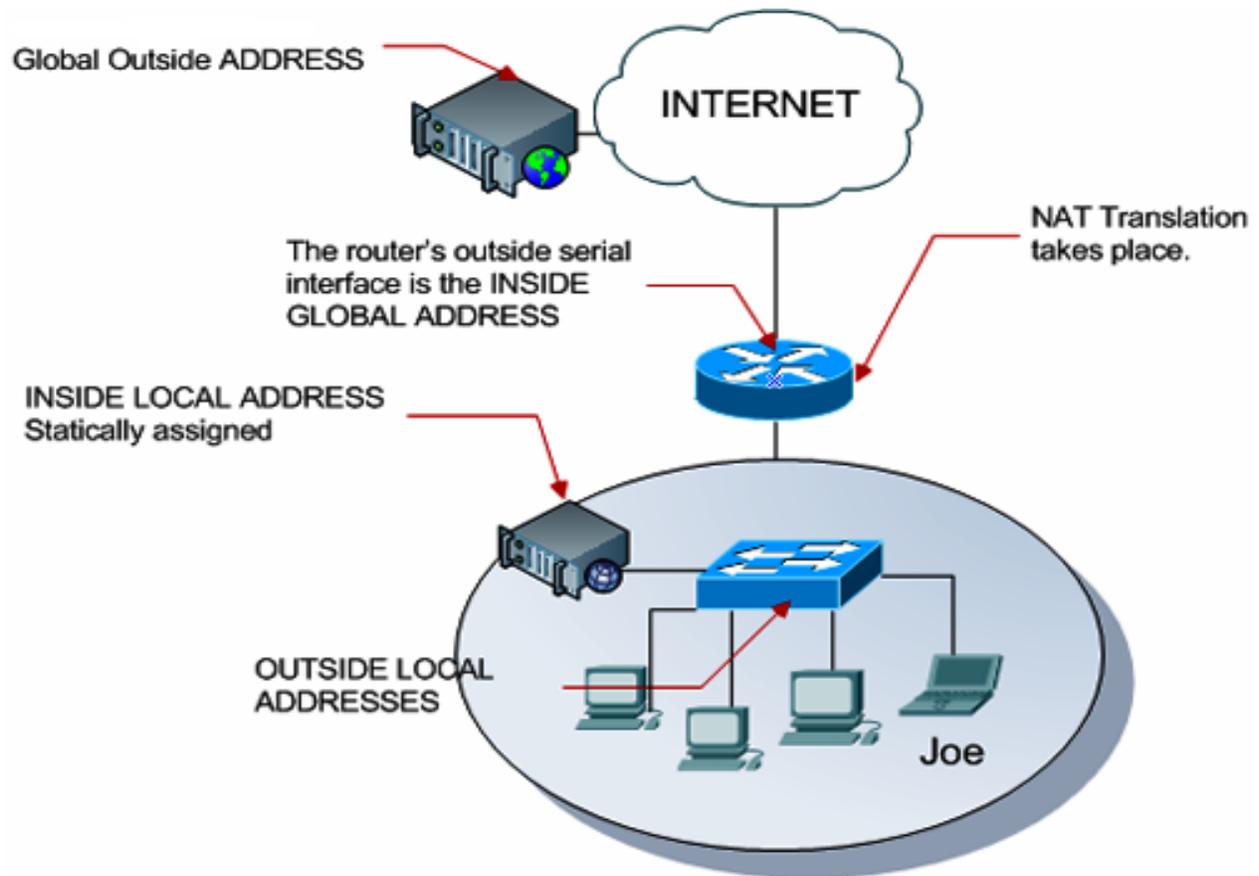
NAT (Network Address Translation or Network Address Translator) is the translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the *inside* network and the other is the *outside*. Typically, a company maps its local inside network addresses to one or more global outside IP addresses and unmaps the global IP addresses on incoming packets back into local IP addresses. This helps ensure security since each outgoing or incoming request must go through a translation process that also offers the opportunity to qualify or authenticate the request or match it to a previous request. NAT also conserves on the number of global IP addresses that a company needs and it lets the company use a single IP address in its communication with the world.

NAT is included as part of a router and is often part of a corporate firewall. Network administrators create a NAT table that does the global-to-local and local-to-global IP address mapping. NAT can also be used in conjunction with *policy routing*. NAT can be statically defined or it can be set up to dynamically translate from and to a pool of IP addresses. Cisco's version of NAT lets an administrator create tables that map:

- A local IP address to one global IP address statically
- A local IP address to any of a rotating pool of global IP addresses that a company may have
- A local IP address plus a particular TCP port to a global IP address or one in a pool of them
- A global IP address to any of a pool of local IP addresses on a round-robin basis

NAT is described in general terms in RFC 1631, which discusses NAT's relationship to Classless Interdomain Routing (CIDR) as a way to reduce the IP address depletion problem. NAT reduces the need for a large amount of publicly known IP addresses by creating a separation between publicly known

and privately known IP addresses. CIDR aggregates publicly known IP addresses into blocks so that fewer IP addresses are wasted. In the end, both extend the use of IPv4 IP addresses for a few more years before IPv6 is generally supported.



Source: <http://computrnetworking.wordpress.com/2012/02/20/network-address-translation-nat/>