MITnet - Infrastructure Services

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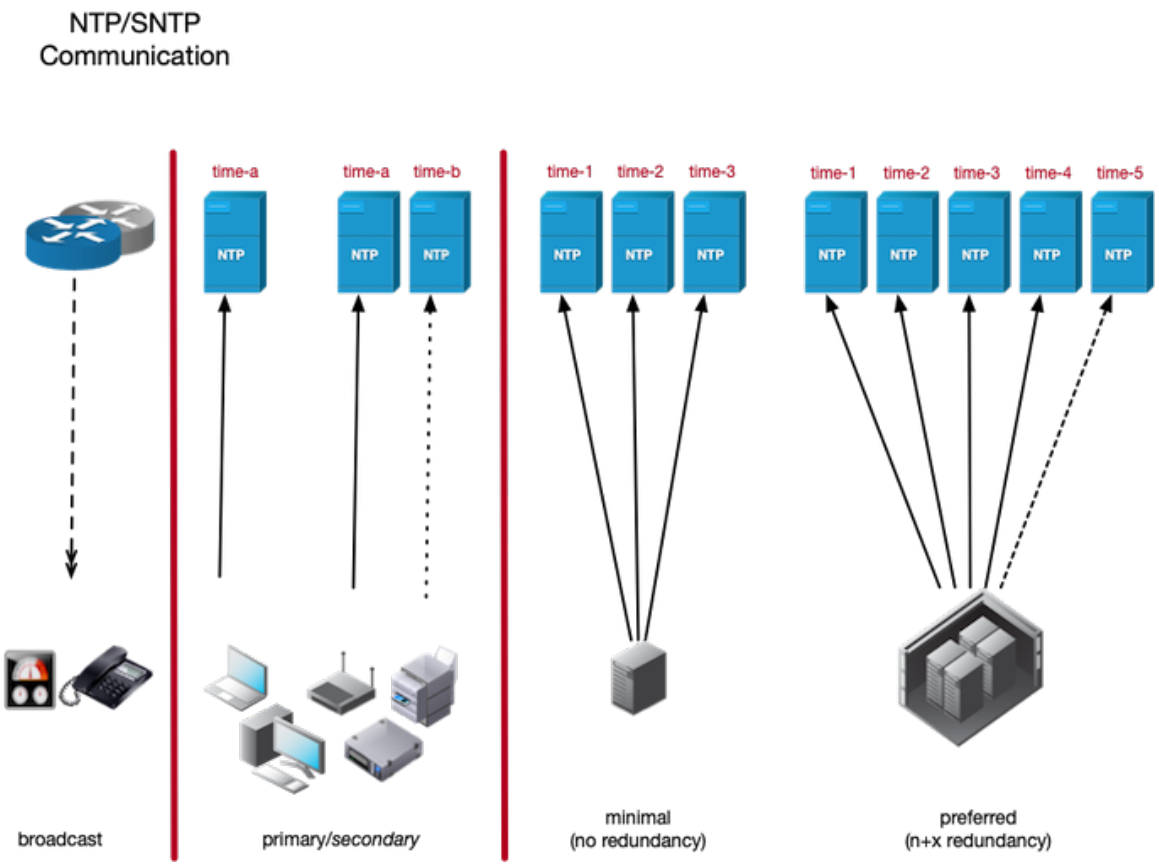
Time (NTP/SNTP):

IS&T makes available a time service on MITnet for systems and devices requiring clock synchronization. The time servers support both NTP (Network Time Protocol) and SNTP (Simple Network Time Protocol). Depending on the capabilities of the client, IS&T recommends configuring systems/devices to communicate with the time servers as follows:



Note: It is recommended to use hostnames whenever possible rather than hardcoding IP addresses in the configuration.

- Devices that support true NTP will require minclock (N=3) sources, but should be configured to use more for redundancy (N+1=4, N+2=5, ...). IS&T maintains 5 time servers (**time-1, time-2, time-3, time-4, time-5**) on MITnet to support redundancy.
- Devices whose configuration only supports one or two time servers should be configured to use "**time-a**" and "**time-b**". Devices that use less than 3 time servers can detect when a time server becomes unavailable, but not when a time server reports an incorrect time. Thus, to protect against "falsetickers", these clients should not directly query a stratum-1 time server. Configuring clients as described above will mitigate this issue.
- NTP broadcast is enabled on the Building-Management-System (BMS) subnets, but currently not enabled elsewhere.

Domain Name System (DNS):

IS&T maintains 3 DNS servers available to systems on MITnet for hostname resolution. These DNS servers are:

- ns1 = **18.0.70.160**
- ns2 = **18.0.72.3**
- ns3 = **18.0.71.151**

The servers are authoritative for the following domains and will recursively resolve queries for records outside of these domains:

- mit.edu.
- *n*.18.in-addr.arpa. {n = 0..31 - with some exceptions}
- *n*.10.in-addr.arpa. {n = 0..255}

The MITnet (internal) view of the "mit.edu." domain differs from the Internet's (external) view such that hosts with private (10-net) IP addresses are not published in the external view.

IP Address Assignment / Host Configuration (DHCP):

Devices that have successfully completed authentication/registration for access to the Wi-Fi or campus building wired networks may obtain an IP address using DHCP (Dynamic Host Configuration Protocol). The DHCP servers will dynamically assign (lease - for a period of time) a random IP address to the device from an available IP address pool.

Devices on the wired network can have a *specific* IP address reserved for their use (DHCP reservation) so that the same IP address is always (and only) assigned to that device. DHCP reservations may be useful for devices that need to accept incoming connection requests (e.g. remote access, web server) or their IP address needs to be referenced in an ACL (access control list). DHCP reservation requests should be submitted to the IS&T Service Desk. DHCP reservations are not available on the Wi-Fi networks.

Configuration settings obtainable via DHCP:

- IP Address
- Subnet Mask
- Default Gateway
- DNS Servers
- NTP Servers
- Time Zone