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# SIP Server HA Deployment Guide

IP Address Takeover

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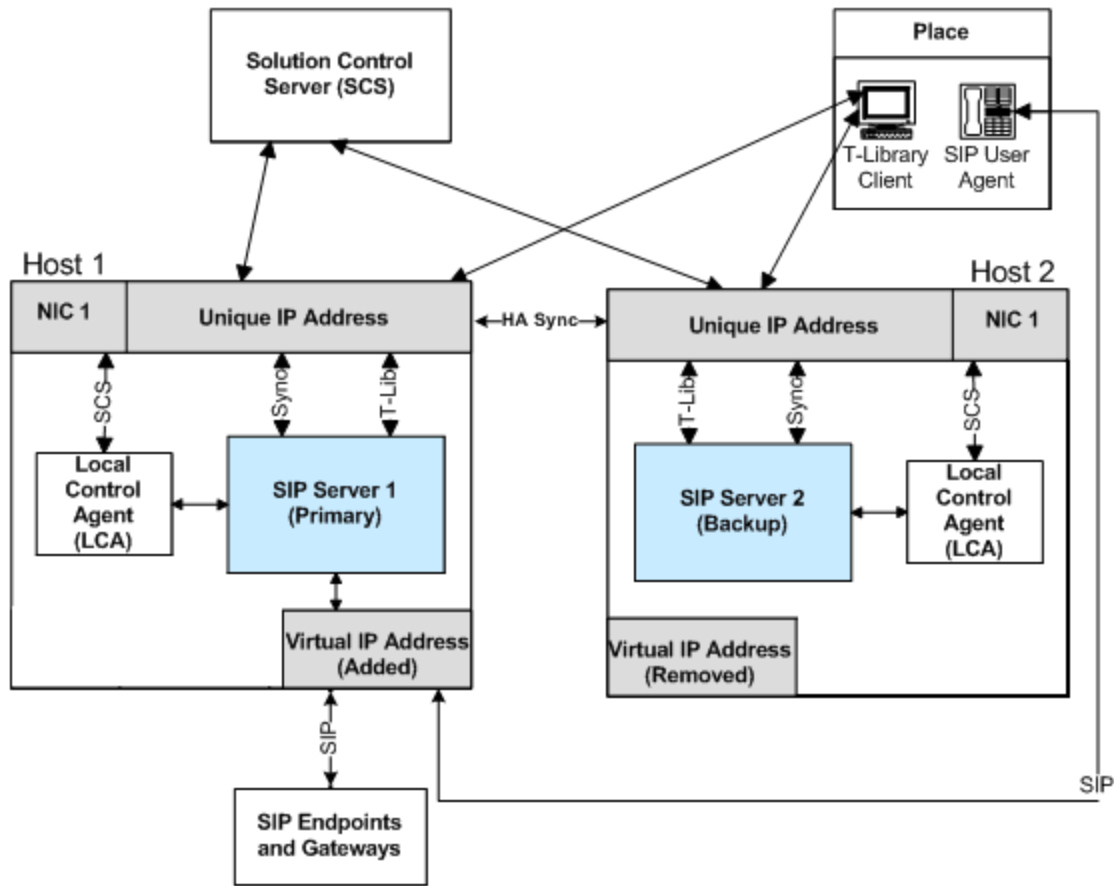
### Windows and UNIX Platforms

High availability of the service for SIP communications requires that the IP address of SIP Server is always accessible by other SIP components, is operational on the SIP Server currently running in primary mode, and is transferred to the other server in case of failover or switchover.

There are two approaches for the IP Address Takeover HA configuration:

- Linux and Solaris platforms use the Virtual IP address as the IP address configured on a logical sub-interface on the network interface card (NIC).
  - Logical sub-interface with the Virtual IP address is enabled on the server that is running in primary mode.
  - Logical sub-interface with the Virtual IP address is disabled on the server that is running in backup mode.
- Windows and AIX platforms use the Virtual IP address as an additional (or alias) IP address configured on the NIC.
  - Virtual IP address is added to the NIC configuration on the server that is running in primary mode.
  - Virtual IP address is deleted from the NIC configuration on the server that is running in backup mode.

The **HA Configuration with One NIC** figure shows an IP Address Takeover configuration on the Linux or Solaris platform using one NIC.



HA Configuration with One NIC

There are two SIP Server hosts on the same subnet, each of them has two logical IP interfaces set up on the NIC connected to the subnet. Each host has a unique IP address that is configured on the main logical IP interface. The second IP interface (a sub-interface) is configured with the IP address that is shared by the hosts and called the Virtual IP address. The second IP interface is enabled only on one host at a time.

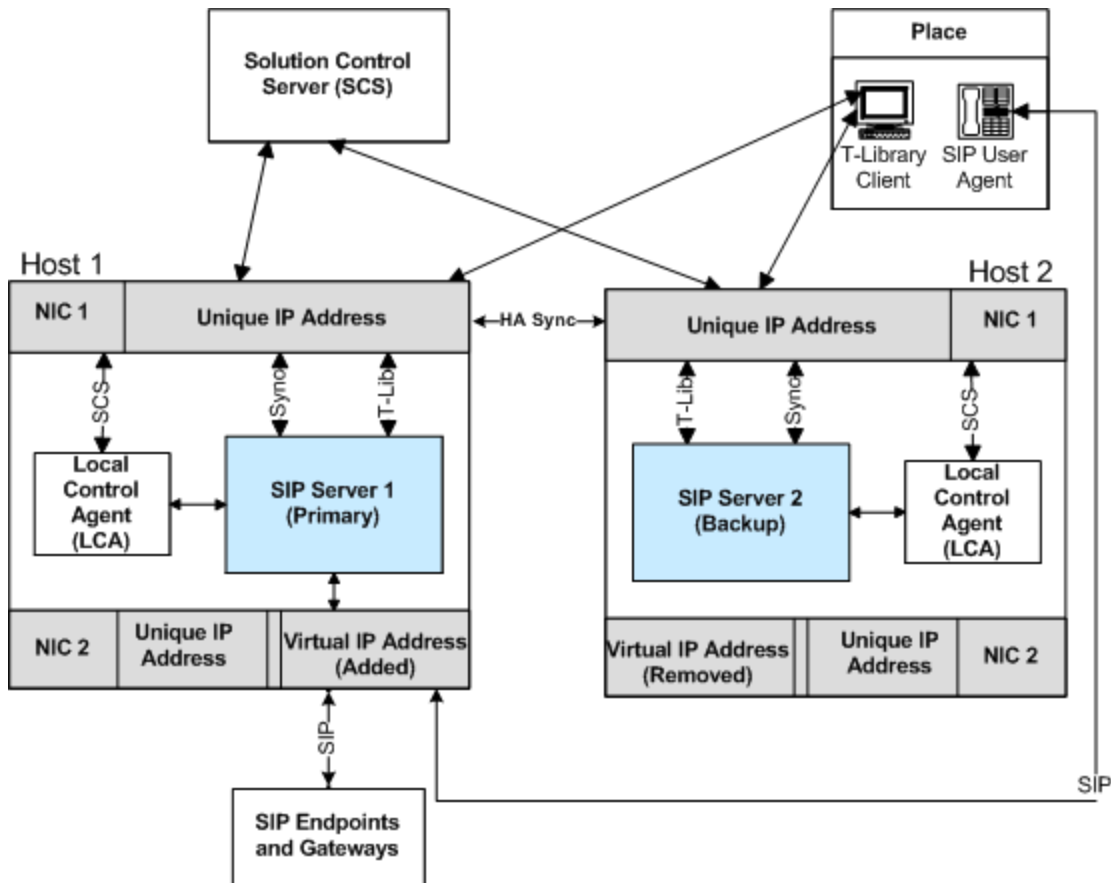
The IP interface with the unique IP address is always active. Management Layer and Configuration Layer components, and T-Library clients use the unique IP address for communication with the SIP Server and LCA.

SIP endpoints and gateways use the Virtual IP address to send SIP messages to SIP Server. The IP interface with the Virtual IP address is only enabled on the host on which SIP Server is running in primary mode. The IP interface with the Virtual IP address is disabled on the host on which SIP Server is running in backup mode.

In the IP Address Takeover configuration, the IP interface with the Virtual IP address is enabled and disabled by using the Virtual IP address control scripts.

The IP Address Takeover HA can be configured using either one network interface card (NIC), or multiple NICs.

The **HA Configuration with Two NICs** figure shows an IP Address Takeover configuration using two NICs on the Windows platform.



HA Configuration with Two NICs

In a deployment with two NICs, one NIC (NIC 2 in the above figure) is used for the SIP communication, while the second NIC (NIC 1 in the above figure) is used for other kinds of communication with various components—for example, Management Layer and Configuration Layer components, as well as any T-Library clients. Solution Control Server (SCS) manages and monitors the SIP Server application through NIC 1 (dedicated to other non-SIP communication).

Although, the unique IP address of NIC 2 is not used, the Virtual IP address is configured on NIC 2 or its sub-interface. Monitoring of the connectivity through NIC 2 can be done by means of the SIP traffic monitoring feature. (See [SIP Traffic Monitoring](#).)

See the [IP Address Takeover HA Workflows](#) for step-by-step descriptions of manual switchover, primary SIP Server failure, and primary SIP Server disconnect workflows. For deployment procedures, see:

- [Deploying HA on Windows](#)
- [Deploying HA on AIX](#)
- [Deploying HA on Solaris](#)
- [Deployng HA on Linux](#)

### IP Address Takeover HA Notes

- In an IP Address Takeover configuration, the Virtual IP address control scripts are used to add and delete the Virtual IP address to achieve a switchover. On Windows platform, the scripts use a Netsh command. Improper execution of this command may impact the SIP Server switchover time, as follows:
  - If the Netsh command fails to execute on either SIP Server host, the switchover will fail. For example, the Netsh command fails if any NIC properties are opened.
  - The Netsh command may take up to five seconds to execute. The execution time depends on the hardware and software characteristics of the host. With some network adapters the execution time can be significantly longer.
- Some hosts on the subnet may not be able to connect to the primary SIP Server after a switchover. Disabling the Virtual IP address at one host and enabling it at another changes the relationship between the MAC address and Virtual IP address. If an Address Resolution Protocol (ARP) announcement fails, the ARP table on some hosts on the subnet is not updated.

See the Prerequisites section for information about basic requirements and recommendations for deploying an IP Address Takeover HA configuration in a particular operating system.