



Best Practices with Tivoli Storage Manager



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6450 Wedgwood Road N.
Suite 103
Maple Grove, MN 55311
<http://www.netex.com>

HyperIP in a Network with Tivoli Storage Manager (TSM)

Implementation of HyperIP and Tivoli Storage Manager

The addition of HyperIP into the network using gateway mode does not require any changes to the TSM server or Client applications. Changes are necessary to the host routing tables for HyperIP to get inserted in the data path. The routing changes are described later in this document.

Installing HyperIP using proxy mode requires the local proxy IP address to be used in place of the remote IP address in the server or client configuration.

Installation of HyperIP

Refer to the latest documentation, FAQ, and Updates at the HyperIP website to get the latest news regarding HyperIP releases: <http://www.netex.com/support/products/hyperip>.

HyperIP is a WAN Optimization Virtual Appliance and can be requested from this URL: <http://www.netex.com/hyperip/evaluation-request>.

Fill out the Evaluation Agreement, accept the terms, and a download link will be sent to you to download the installation package. HyperIP is keyed and instructions on how to obtain keys are included in the installation package.

Video tutorials are available to assist in stepping through the configuration of HyperIP: <http://www.netex.com/hyperip/tutorials>

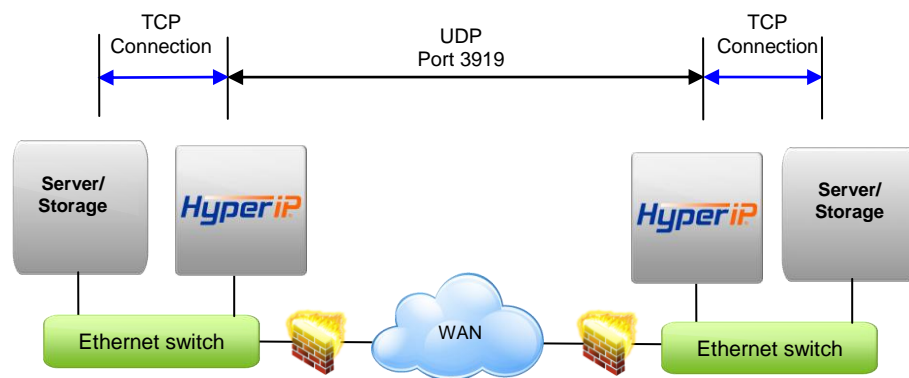
Adding HyperIP into your network

HyperIP improves the performance of backup and replication applications over your IP WAN. **HyperIP does not alter application protocols nor modify any file systems.** It efficiently moves block or file data over the IP WAN under any network conditions.

HyperIP also provides:

- support of WAN speeds scaling from 1-800 Mb/s
- virtual footprint
- adaptive lossless block level compression
- time of day rate controls for changing throughput requirements

HyperIP requires at least two appliances (virtual), one residing on each side of the WAN, as shown in the figure below. Multiple servers and storage at each site can utilize the HyperIP data path. HyperIP can also be deployed in a hub or mesh configuration.



HyperIP terminates TCP connections locally and tunnels the data between HyperIPs using UDP port 3919. **Network devices filtering IP traffic in the data path between the HyperIPs must be configured to allow UDP port 3919.**

HyperIP must be *in* the data path to optimize the movement of data. HyperIP connects to a (virtual) LAN switch with a single Gigabit Ethernet NIC and has two modes of operation to facilitate being inserted into the data path:

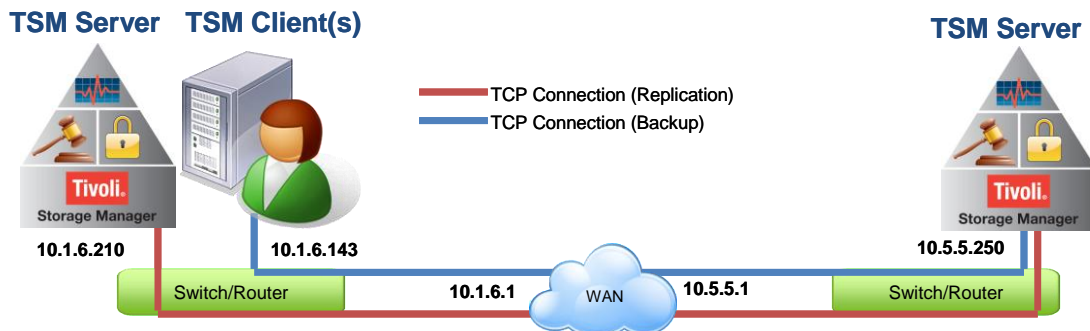
- **Gateway Mode:** User must add route statements in the *data movers (application servers, storage devices, etc.)* defining HyperIP as the IP gateway for the destination IP addresses or networks. Alternatively, these IP route statements or redirect filters, may be configured in a router. Gateway mode **requires users to define HyperIP intercepts** based on IP addresses, TCP ports and/or protocols to determine what traffic to act on.
- **Proxy Mode:** HyperIP requires additional local IP addresses (proxy) which represent remote IP addresses of the application servers or storage devices. This local proxy IP address is then used to communicate with the remote application. HyperIP is configured with a 1:1 mapping in which each destination IP address requires an associated local proxy address. *Applications that do not support Network Address Translation (NAT) must use the HyperIP gateway mode.*

Each HyperIP requires its own key associated with the HyperIP serial number. You must connect to the user interface on each HyperIP to retrieve its serial number and complete the form at: <http://www.netex.com/request-key> to request the key.

For further explanation on the features/functionality of HyperIP see the HyperIP User guide at: <http://www.netex.com/support/products/hyperip-documentation>.

Tivoli Storage Manager Configuration before HyperIP

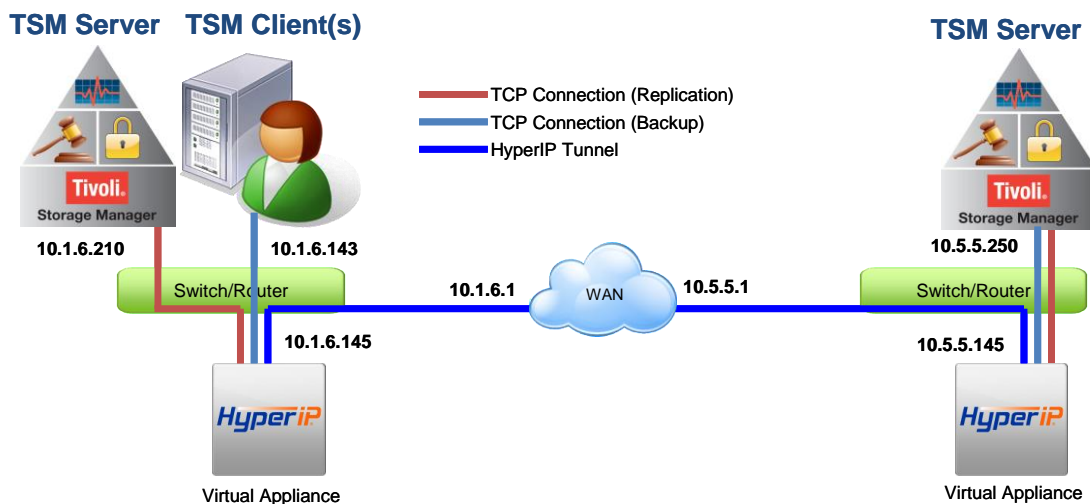
The drawing below shows a TSM configuration before installing HyperIP:



The TSM client or server will establish a TCP connection directly with the remote TSM server.

Tivoli Storage Manager Configuration with HyperIP (Gateway)

The drawing below shows a TSM configuration after installing HyperIP:



When adding HyperIP, as in the drawing above, the TSM Client and Server hosts will use HyperIP as an IP gateway to the remote host. HyperIP tunnels the TSM traffic across the WAN.

Route definitions and specific HyperIP information for the drawing is shown below:

Client site TSM client and TSM server IP route to TSM server:

Route add 10.5.5.250/32 gateway 10.1.6.145

TSM Server IP routes to Client site TSM Client and TSM server:

Route add 10.1.6.143/32 gateway 10.5.5.145

Route add 10.1.6.210/32 gateway 10.5.5.145

Client site HyperIP definitions:

NxN Sites:

Itself – 10.1.6.145

Peer HyperIP (Server site) – 10.5.5.145

Intercepts:

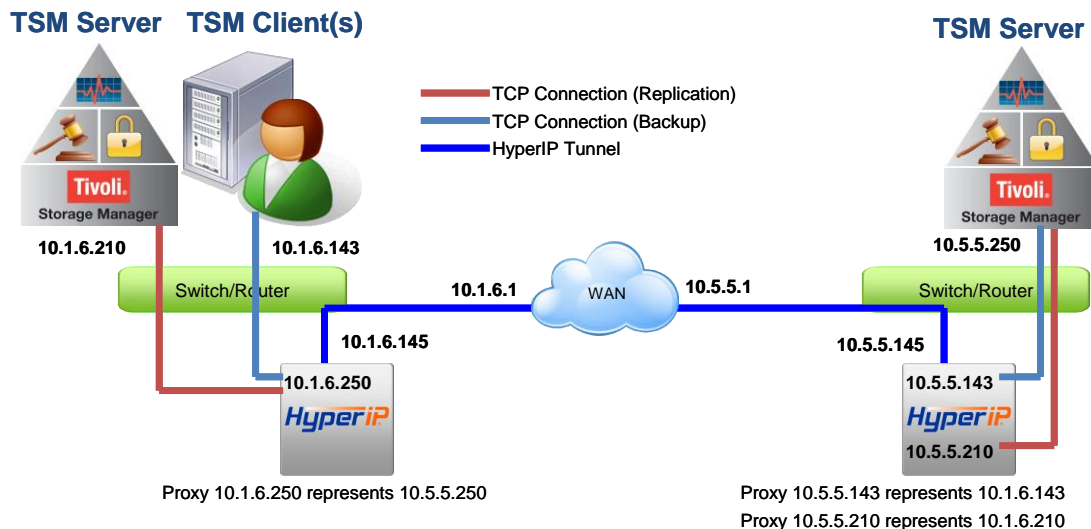
Source Address = 10.1.6.143 Destination Address = 10.5.5.250

Source Address = 10.1.6.210 Destination Address = 10.5.5.250
 Gateway: 10.1.6.1
 Server site HyperIP site definition:
 NxN Sites
 Itself – 10.5.5.145
 Peer HyperIP (Client site) – 10.1.6.145
 Intercept:
 Source Address = 10.5.5.250 Destination Address = 10.1.6.143
 Source Address = 10.5.5.250 Destination Address = 10.1.6.210
 Gateway: 10.5.5.1

Tivoli Storage Manager Configuration with HyperIP Proxies

In situations where the clients and servers can not configure HyperIP as their gateway to remote networks, HyperIP proxies may be an easier implementation. Proxies are a virtual IP address on the HyperIP that will deliver data to the defined remote address. The TSM clients or servers use the proxy address where the remote client or server would be set in their configuration. No routing changes to the clients or servers are required for this configuration.

The drawing below shows TSM clients and servers using proxy to communicate:



Client site HyperIP definitions:

NxN Sites:

Itself – 10.1.6.145

Peer HyperIP (Server site) – 10.5.5.145

Proxies:

Proxy Address = 10.1.6.250 Destination Address = 10.5.5.250

Gateway: 10.1.6.1

Server site HyperIP site definition:

NxN Sites

Itself – 10.5.5.145

Peer HyperIP (Client site) – 10.1.6.145

Proxies:

Proxy Address = 10.5.5.143 Destination Address = 10.1.6.143

Proxy Address = 10.5.5.210 Destination Address = 10.1.6.210

Gateway: 10.5.5.1