

## App E Tier Renaming: Advanced Workflow for WAN-Accelerated Environments

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In most cases, you should be able to rename tiers correctly using the workflow described in Tier Renaming for WAN-Accelerated Packet Traces: Standard Workflow. However, the import engine might have insufficient information to assign hostnames to the correct logical tiers. This workflow is provided in case you need to override the auto-assignment of hostnames to logical tiers.

The following symptoms in a Transaction Analyzer model indicate that the auto-assignment of tier names is incorrect:

- The network diagram is correct. See Defining the Network Effects.
- Tier pairs are exchanging traffic in the Transaction Analyzer model, but the corresponding hosts did not exchange traffic in the network. (For example, the client and server tiers exchange traffic directly when you know that all traffic went through the accelerators.)
- Bandwidth and latency statistics and results in the Transaction Analyzer model are inconsistent with the bandwidth/latency measurements you specified when Defining the Network Effects.

Before overriding the tier name auto-assignment, you should verify that the following settings are correct:

- The following settings are specified correctly in the Define Sites window:
  - Geographic Location
  - Packet traces from same geographic location were captured on the same machine
  - Accelerated

The tier names are assigned correctly in the standard version of the Rename Tiers dialog box. (That is, with the Advanced option turned off.)

- If the WAN accelerators use non-standard ports, verify that the WAN Acceleration Preferences are set correctly.

### Workflow Description

The following steps outline the advanced workflow for assigning hostnames to logical tiers manually in a WAN-accelerated environment.

- 1) If you have not already done so, fill out the WAN Acceleration Worksheet.
- 2) Review the Key Concepts.
- 3) Import the packet traces until you reach the “Rename Hosts” Window.

- 4) Select the Advanced: Manually override auto-detected assignment from observed IPs to logical tiers option.

- 5) Click the Location where Original Hostname was seen to sort the table entries by capture location.

It is recommended that you assign logical tiers by iterating through each capture location. This makes it easier to consider each hostname in the context of the location where that hostname was seen. The capture location affects whether you assign a hostname to the local host (Direct Assignment) or the local accelerator (Indirect Assignment).

- 6) Iterate through each row of the table. For each row, set the Tier Name according to one of the following conditions. (**Note**—The WAN Acceleration Worksheet is very useful when you need to determine if a host is local to, or remote from, the capture location.)

- a) **Condition:** Location auto-detected during Trace Merge? is set to Yes.

*Action:* Leave the auto-assigned tier name (in other words, do nothing).

You can be reasonably confident that these auto-assignments are correct if the “geographic location” and “captures files from the same geographic location were captured on the same machine” fields are set correctly.

- b) **Condition:** Host is local to the capture location (i.e., there is no accelerator between the capture location and the host).

*Action:* Assign the hostname to the tier that directly corresponds to that host (Direct Assignment).

- c) **Condition:** Host is remote from the capture location (i.e., the host and the capture location are separated by one or more accelerators).

*Action:* Assign the hostname to the accelerator tier that is closest to the capture location (Indirect Assignment). This accelerator acts as the logical tier for all traffic between the capture location and the remote host.

- 7) After you verify that all tier names are set correctly, click OK to proceed to the Local Bandwidth window. Proceed with the import.
- 8) After the import, verify that the resulting Transaction Analyzer model is correct.

## “Rename Hosts” Dialog Box: Options for Advanced Workflow

The following fields are provided for you to determine the correct tier name, as described in this section and are not editable.

**Table E-1 “Rename Hosts” Window**

Item	Description
Original Hostname	The original hostname (IP address) as seen in the packet trace.
Tier Name	The logical tier to which the original host, as seen from a specific capture location, will be assigned. This is the only field in this table that is editable.  <b>Note</b> —If multiple packet traces contain the same hostname, this table might have multiple rows for that hostname. You might need to assign the same hostname to multiple tiers, depending on the capture location where the hostname was seen.
Advanced: Manually override auto-detected assignment from observed IPs to logical tiers	The import engine auto-assigns tier names to hostnames. Therefore, this option is turned off by default.
Location where Original Hostname was seen	The capture location where the original hostname was seen. The location where a hostname was seen can determine the correct logical tier for that host.
Location auto-detected during Trace Merge?	In some cases, the import engine can determine the location of a specific host because the hostname appeared in multiple packet traces. (See Renaming Hosts: Examples.)
Capture File Name	The name of the packet trace where the hostname was seen.

**Figure E-1 “Rename Hosts” Window with Advanced Options**

Name	Original Hostname	Location where Original Hostname was seen	Location auto-detected during Trace Merge?	Trace Name
celerator at client_site	192.168.70.2	client_site (LAN side)	No	lan.clientside.near_accel.appcapture
celerator at client_site	192.168.70.2	Multiple locations	Yes -- client_site	wan.clientside.on_accel.cap
192.168.70.100	192.168.70.100	client_site (LAN side)	No	lan.clientside.near_accel.appcapture
celerator at client_site	192.168.70.100	Multiple locations	Yes -- client_site	wan.clientside.on_accel.cap
celerator at server_site	192.168.70.100	server_site (LAN side)	No	lan.serverside.near_accel.appcapture
celerator at server_site	192.168.71.2	server_site (LAN side)	No	lan.serverside.near_accel.appcapture
celerator at server_site	192.168.71.2	Multiple locations	Yes -- server_site	wan.server.on_accel.cap
192.168.71.200	192.168.71.200	server_site (LAN side)	No	lan.serverside.near_accel.appcapture
celerator at server_site	192.168.71.200	Multiple locations	Yes -- server_site	wan.server.on_accel.cap
celerator at client_site	192.168.71.200	client_site (LAN side)	No	lan.clientside.near_accel.appcapture
Advanced: Manually override auto-detected assignment from observed IPs to logical tiers				

## Key Concepts

Review the following sections carefully before assigning tier names:

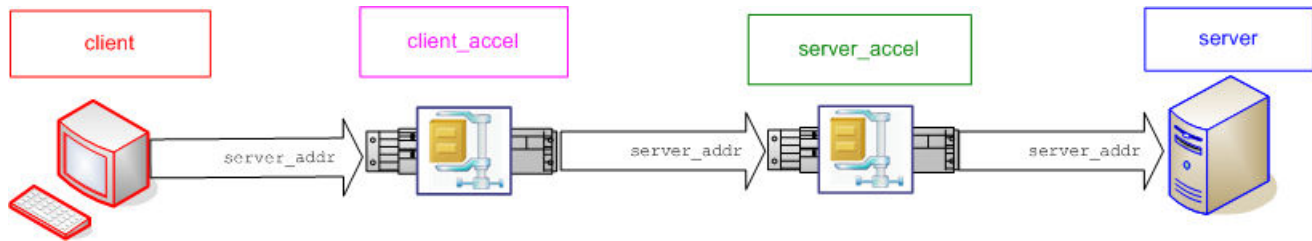
- Capture Locations, Accelerators, and Local/Remote Hosts
- Direct and Indirect Assignment
- Accelerator Addressing Modes

### Capture Locations, Accelerators, and Local/Remote Hosts

Assigning tier names requires careful consideration when the application was captured in a WAN-accelerated environment. When the remote hosts converse across the WAN, they are conversing via the accelerators (not directly with each other via one end-to-end TCP connection). The accelerators converse with each other using their own separate connection. Within each location, the accelerator acts as a proxy for remote hosts on the other side of the WAN. (This is described in more detail in *How WAN Accelerators Work*).

This means that an IP address as seen in a packet might correspond to different tiers, depending on the capture location where the packet is seen. In Figure E-4, traffic sent to `server_addr` corresponds to three different tiers—to `client_accel`, `server_accel`, and `server`—depending on where `server_addr` is seen.

**Figure E-2 One Hostname ==> Multiple Tiers (With Accelerators)**



**Key Concept**—If an accelerator stands between a capture location and the host referenced by `<hostname>`, the local accelerator—not the remote host—acts as the logical tier for `<hostname>` at that location.

## Direct and Indirect Assignment

To assign a hostname to the correct tier in a WAN-accelerated environment, consider the following:

- The network location where the hostname was seen (that is, where the packet trace was generated)
- Whether an accelerator is between this location and the host referenced by the hostname

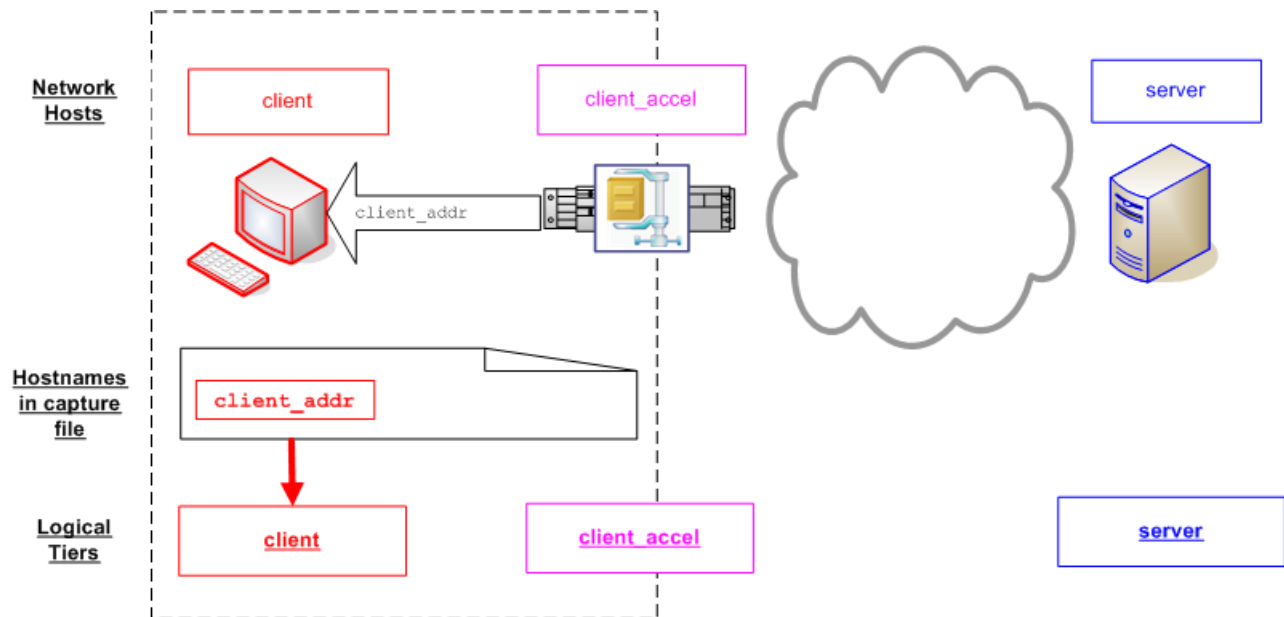
There are two types of hostname-to-tier assignment: direct and indirect.

### Direct Assignment

If there is no accelerator between the capture location and the host, assign the host name to the tier that directly corresponds to that host. Examples:

`<client_ip>` to “client,” `<appserver_ip>` to “app server,” `<accelerator1_ip>` to “accelerator 1” or “client accelerator.”

Figure E-3 Direct Assignment: Example

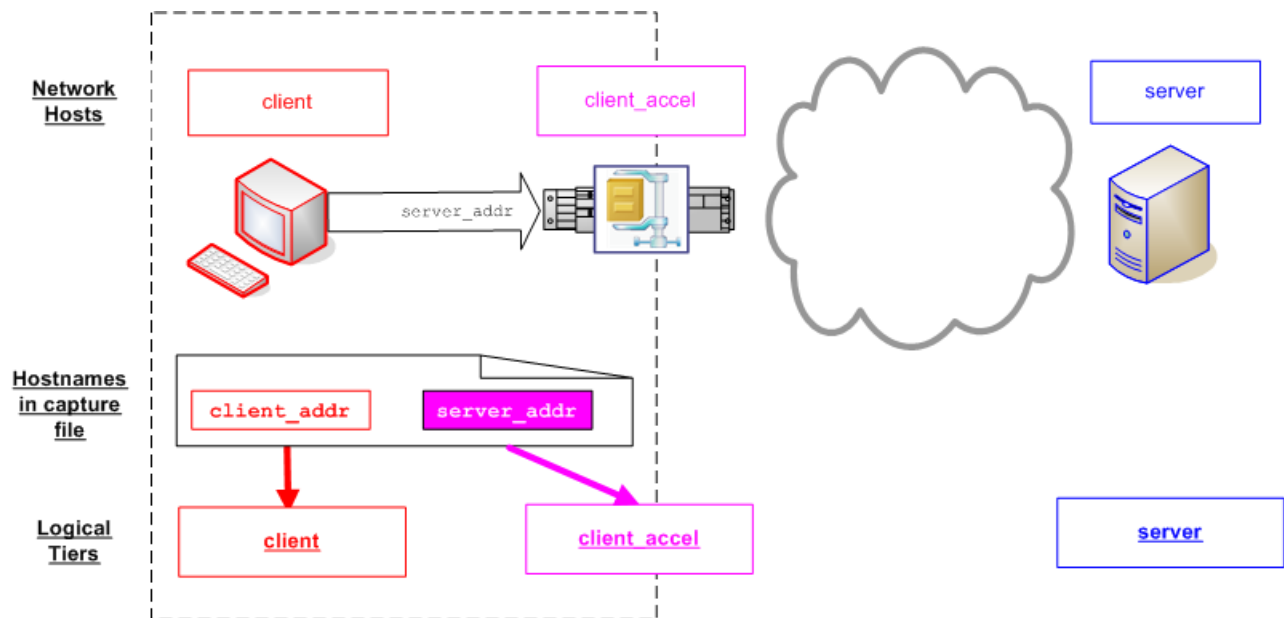


## Indirect Assignment

If there is an accelerator between the capture location and the host, assign the hostname to the accelerator tier within that location. This accelerator tier will send and receive all traffic that uses the `<hostname>` address within that location.

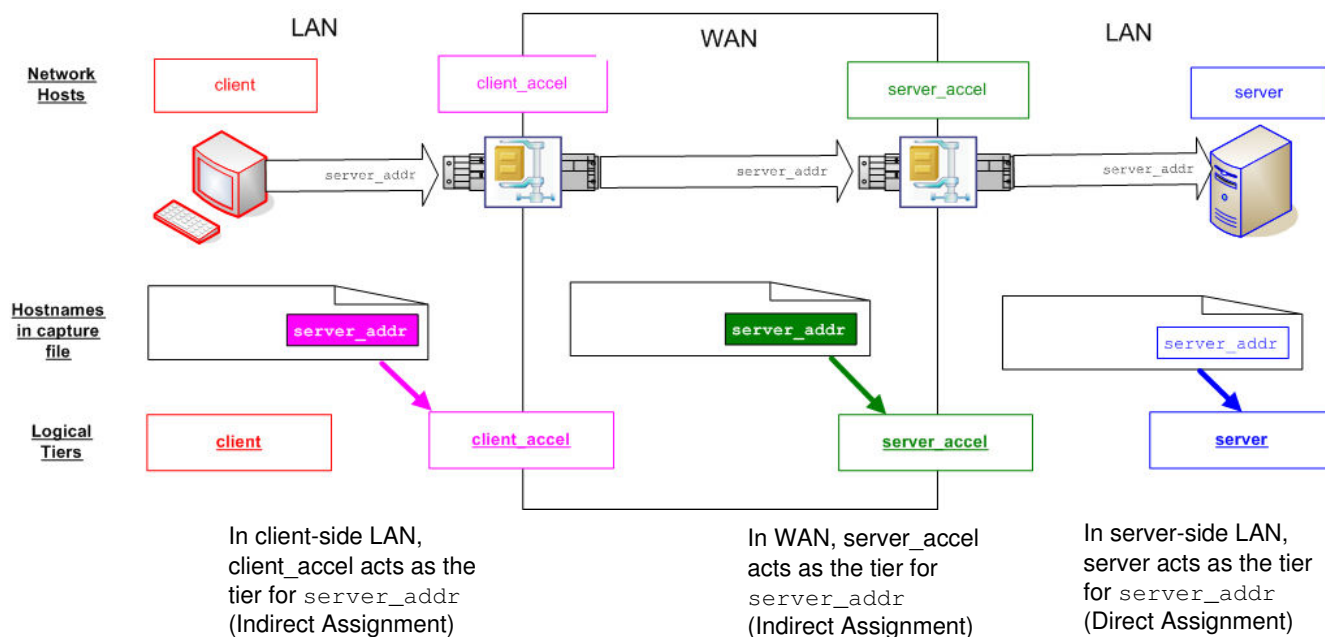
In Figure E-4, there is an accelerator between the client site (capture location) and the server (host). The client sends traffic to `server_addr`, but this traffic actually goes to the client-side accelerator and not the server. Therefore, you need to assign `server_addr` to “`client_accel`” because it acts as the server tier at this location.

Figure E-4 Indirect Assignment: Example



**Example: Direct and Indirect Assignment in the Same Network**

Figure E-5 shows an accelerated network with four tiers, each with its own address. In this case, `server_addr` gets assigned to three different tiers, depending on the capture location, the server, and the presence of an accelerator between the capture location and the server.

**Figure E-5 Direct and Indirect Assignment: Example**

## Accelerator Addressing Modes

The addressing mode used by the accelerators will affect the hostnames you see in the “Rename Hosts” Window, and how you assign these hostnames to logical tiers.

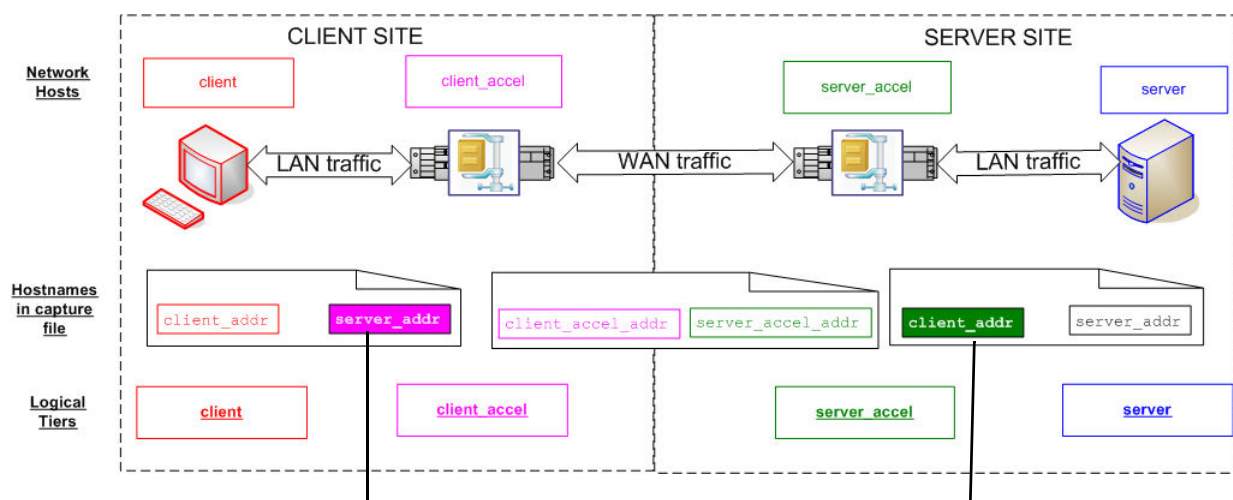
Accelerators generally use one of two addressing modes when they exchange traffic over the WAN:

- **Accelerators Use Distinct WAN-Side Addresses**—The two accelerators exchange accelerated traffic using their own unique addresses, which are distinct from the addresses of end nodes at either side of the WAN.
- **Accelerators Reuse LAN-Side Addresses**—The two accelerators exchange traffic using the same addresses used by the source and destination nodes at either side of the WAN.

### **Accelerators Use Distinct WAN-Side Addresses**

In Figure E-6 the accelerators communicate with each other using their own WAN-side addresses (`client_accel_addr` and `server_accel_addr`) which are different from the client and server addresses. This mode is sometimes referred to as “non-transparent” or “correct” addressing.

**Figure E-6 WAN Accelerator Addressing Mode 1: Accelerators Use Distinct WAN-Side Addresses**



The client and server send traffic to each other, but they are really exchanging traffic with their local accelerators. Therefore, you would assign these hostnames to the accelerator tiers (Indirect Assignment).

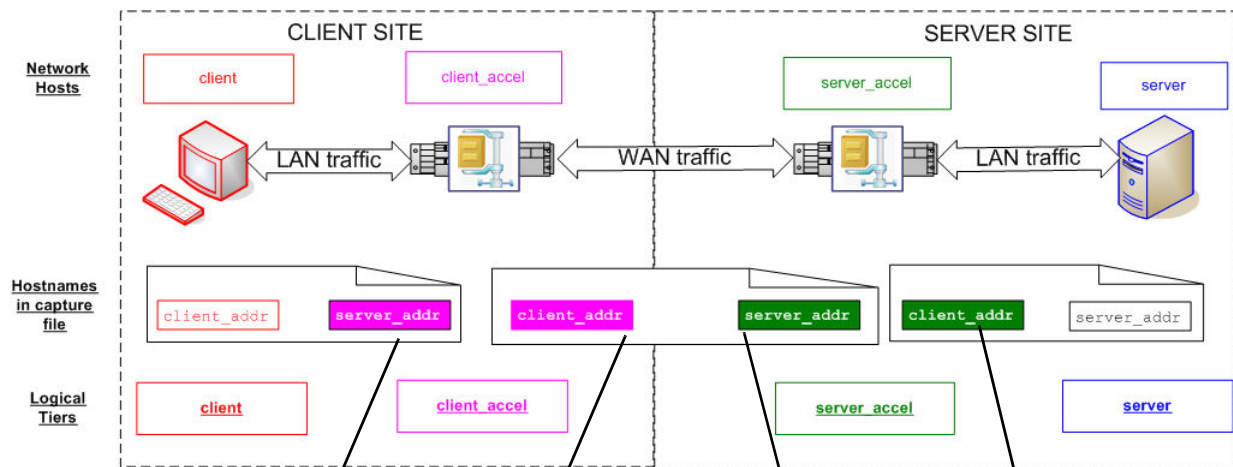
In all other cases, the hostnames assign to the tier indicated by that hostname (Direct Assignment).



**Accelerators Reuse LAN-Side Addresses**

In Figure E-7, the accelerators communicate using the same hostnames as the end tiers on either side of the WAN. Instead of four hostnames, as in the previous example, we have only two: `client_addr` and `server_addr`. This mode is sometimes referred to as “transparent” addressing.

**Figure E-7 Accelerator Addressing Mode 2: Accelerators Reuse LAN-Side Addresses**



In all four cases, an accelerator lies between the capture location and the tier indicated by the hostname. In these cases, you assign the address to the accelerator between the capture location and the host referenced by the hostname

## Renaming Hosts: Examples

The following examples illustrate how to apply these options in the “Rename Hosts” Window. Note that when you rename a host with a tier name, you need to consider the following:

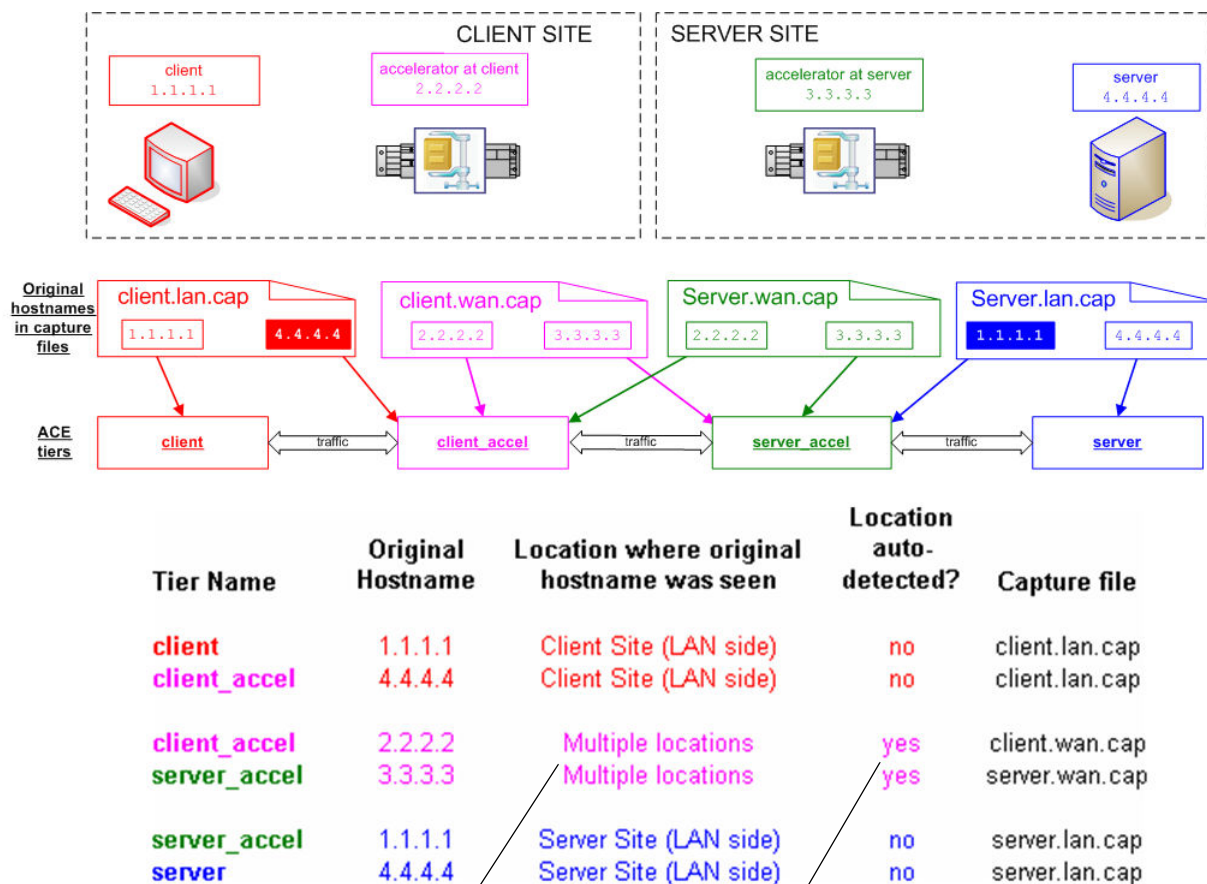
- The original hostname
- The capture location where that host was seen
- Whether there is an accelerator between the capture location and the host referenced by the original hostname

This section includes the following examples:

- Example 1: Distinct WAN Addresses, Four Files
- Example 2: Distinct WAN Addresses, Two Files
- Example 3: Reused LAN Addresses, Four Files
- Example 4: Reused LAN Addresses, Two Files

**Example 1:  
Distinct WAN  
Addresses, Four  
Files**

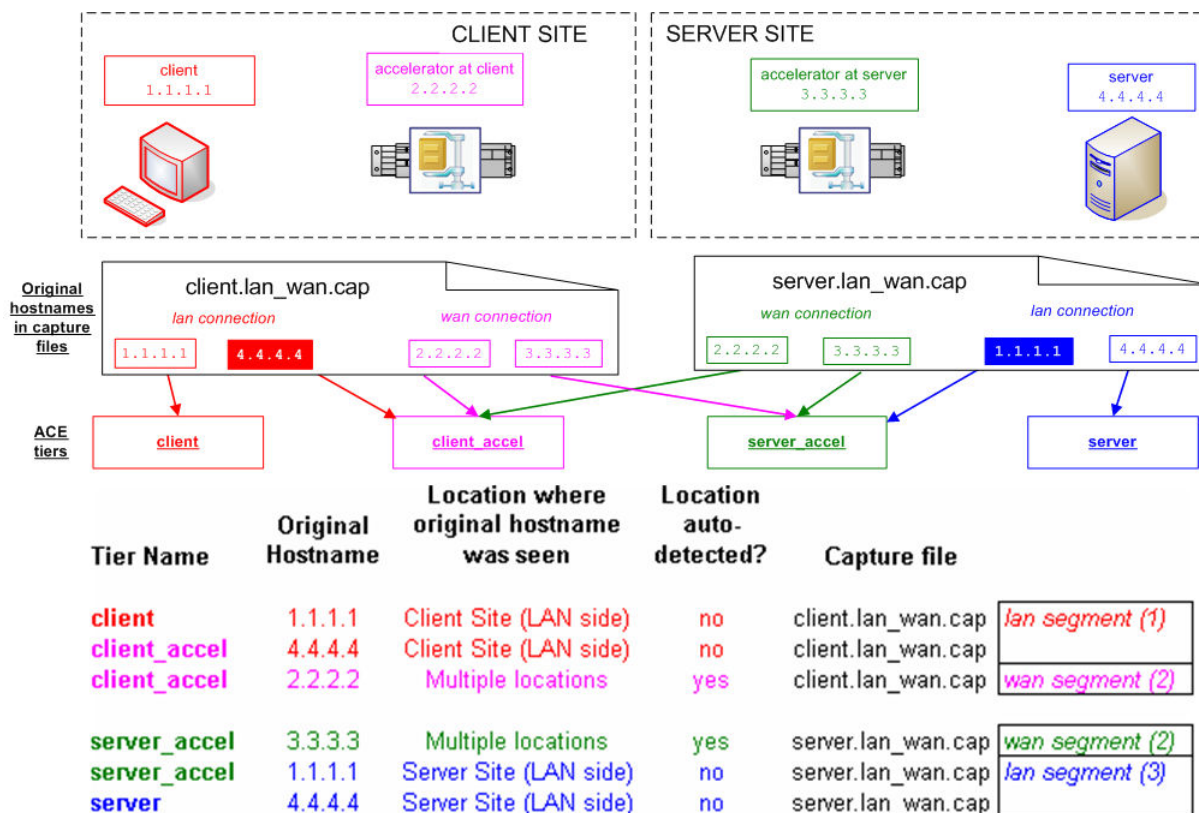
Figure E-8 shows an import scenario that involves four packet traces from a network where the accelerators use their own distinct WAN-side addresses. In this case, you would use indirect assignment for two addresses (highlighted) and direct assignment for all others.

**Figure E-8 Hostname Assignment: Distinct WAN Addresses, Four Files**

Because traffic over the WAN segment is seen from multiple locations, the import engine can auto-detect the accelerator locations; as a result, these addresses will be combined on one line in the Rename Tiers table.

**Example 2:  
Distinct WAN  
Addresses, Two  
Files**

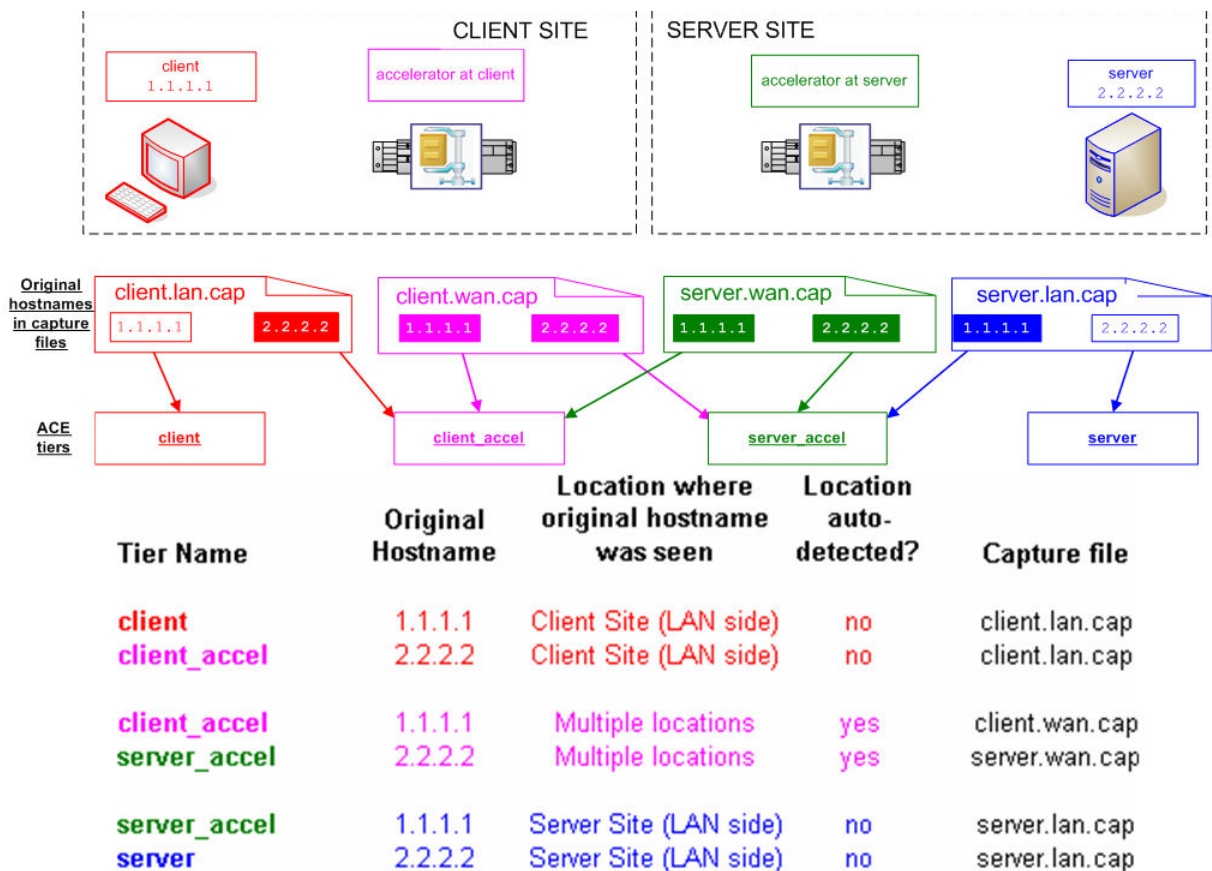
In Figure E-9, the user generated two packet traces instead of four. Each packet trace contains both LAN and WAN traffic. Despite this, the tier assignment is essentially the same: Indirect Assignment for addresses where an accelerator lies between the capture location and the referenced host; Direct Assignment for all other hostnames.

**Figure E-9 Hostname Assignment: Distinct WAN Addresses, Two Files**

**Example 3: Reused LAN Addresses, Four Files**

Figure E-8 shows an import scenario from a network where the accelerators use the same addresses as the LAN-side end tiers. Instead of four different addresses, the packet traces contain only a client address (1.1.1.1) and a server address (2.2.2.2). This means that every address captured between the accelerator is “remote”—an accelerator stands between the capture location and the referenced host.

In this case, you would use Indirect Assignment for all addresses *except* the local addresses in the LAN-side packet traces (1.1.1.1 in the client LAN segment and 2.2.2.2 in the server LAN segment).

**Figure E-10 Hostname Assignment: Reused LAN Addresses, Four Files**

**Example 4: Reused LAN Addresses, Two Files**

The two-file transparent case is similar to the four-file transparent case. Again, you would use indirect assignment for all addresses *except* the local addresses in the LAN-side packet traces.

**Figure E-11 Hostname Assignment: Reused LAN Addresses, Two Files**

