

Banyan Vines Frequently Asked Questions

Document ID: 10545

Questions

Introduction

Does Cisco support load balancing for Vines? If not, will it be supported in a future release?

When is a Vines serverless command required?

What features are enabled by a Vines serverless command?

What is the default MAC-level encapsulation used for Vines on the defined interfaces?

What is a zero hop broadcast?

How does a Cisco router handle broadcasts heard through multiple paths?

What is StreetTalk?

Does a Cisco router participate in StreetTalk?

How does a Cisco router process a StreetTalk broadcast?

Can an access list be set such that a filter is done based on the StreetTalk addresses that Banyan uses?

When are two nodes neighbors?

Some nodes on the same physical medium have different network numbers. Why?

Who assigns network numbers to nodes?

What is RTP?

This message is received when debug vines-packet is turned on:

What is the SS LAN option?

What is the difference between the "vines propagate" (undocumented) and "vines serverless" configuration commands?

When is the configuration command "arp-enable" required?

Is this topology legal? If it is, why do we see StreetTalk broadcast storms when there are two or more routers in parallel?

Is there an explanation of the debug commands for Vines?

NetPro Discussion Forums – Featured Conversations

Related Information

Introduction

Note: This document addresses the questions and answers that relate to Banyan Vines.

Q. Does Cisco support load balancing for Vines? If not, will it be supported in a future release?

A. It is not supported in Versions 8.2, 8.3, 9.0, 9.1, or 9.17, but load balancing for Vines will be supported in future releases.

Q. When is a Vines serverless command required?

A. A Vines network without a server needs to be configured with a Vines serverless interface command.

Q. What features are enabled by a Vines serverless command?

A. This command enables two features:

1. Broadcast packets with a zero hop count are not dropped but are forwarded to the nearest available server. (This does not apply to hello messages or routing updates.) The serverless command does not rebroadcast packets on all interfaces, but it attempts to forward them to the nearest server.
2. IPC messages that are sent to Cisco evoke a proxy service. Cisco sends these packets to a Banyan server and then returns the response to the requestor. These IPC messages only occur when the clients use the Cisco network numbers.

Q. What is the default MAC–level encapsulation used for Vines on the defined interfaces?

- ◆ ARPA for Ethernet lines
- ◆ SNAP for IEEE 802.2 media
- ◆ Vines–tr for Token Rings

Banyan is in a transition in regard to its Ethernet and Token Ring encapsulations. The new encapsulation for both media will be a SNAP header that uses types 0x80C4 and 0x80C5.

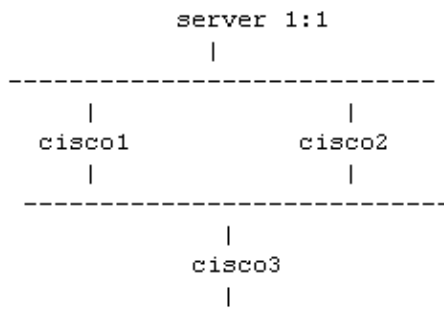
Q. What is a zero hop broadcast?

A. It is a broadcast with the hop–count field of the Vines IP header set to zero. This broadcast only traverses one physical network and must not be propagated across servers or routers. We make two exceptions to this rule, both mentioned here.

Q. How does a Cisco router handle broadcasts heard through multiple paths?

A. A Cisco router does not forward a broadcast which has a hop count of zero. A Cisco router forwards a broadcast that has a non–zero hop count but only if it heard that broadcast on the interface that it considers as the best choice to reach the source of the broadcast. The only exception to this rule is the broadcast to the StreetTalk service.

Broadcasts are only ever forwarded if they are received on the interface that is, in that router opinion, the best interface to reach the source. This does not allow the router to forward multiple copies of the same broadcast.



In this diagram, when the server sends a broadcast, cisco1 and cisco2 each forward the broadcast from the top Ethernet to the middle Ethernet because they know that the best path to the server is through the top Ethernet. Cisco3 sees both of these broadcasts and forwards them to the bottom Ethernet because it knows that the best path to the server is through the middle Ethernet.

This clause comes into play when cisco2 sees the broadcast that cisco1 sent. Cisco2 saw a broadcast from server1 on the middle Ethernet. Since it knows that the best path to server1 is through the top Ethernet, this broadcast must be a duplicate on one that it has already seen and propagated, so it discards the broadcast. This does not allow the broadcast to propagate back to the top Ethernet, where it has already been.

This broadcast process does not prevent the appearance of duplicate broadcasts, but it does significantly limit the number of duplicates that appear.

Q. What is StreetTalk?

A. StreetTalk is a naming service. It manages globally unique names within a Vines network. Name management includes support for the registration of a name, name lookup, and the mapping of a name to a set of attributes.

Q. Does a Cisco router participate in StreetTalk?

A. No, it does not.

Q. How does a Cisco router process a StreetTalk broadcast?

A. A zero-hop StreetTalk broadcast is always propagated if it passes the reverse path test. This test attempts to insure that a broadcast always travels away from the source and drops those that take a path back towards the source. All StreetTalk broadcasts **MUST** be propagated so that the consistency of the distributed StreetTalk database is maintained across the routers. All other zero-hop broadcasts are propagated only if the "serverless" or "propagate" commands have been used.

Q. Can an access list be set such that a filter is done based on the StreetTalk addresses that Banyan uses?

A. The Cisco router does not understand StreetTalk, so it cannot filter on anything inside a StreetTalk packet.

Q. When are two nodes neighbors?

A. Two nodes are neighbors when they share a same physical medium.

Q. Some nodes on the same physical medium have different network numbers. Why?

A. The network number identifies a Vines logical network. The logical network does not map directly to the physical media topology. Members of a single network can reside on different physical media.

Q. Who assigns network numbers to nodes?

A. Service node, which is usually a Banyan server. For more information, see the Banyan Vines application notes.

Q. What is RTP?

A. It is the Routing Update Protocol of Vines.

Q. This message is received when debug vines–packet is turned on:

A. It means that the router received a broadcast with a non–zero–hop count. In the Vines IP header, the broadcast modifier bit that indicates that "this packet should only be forwarded over networks that do not have a per packet charge" is set. When this frame was forwarded to all other interfaces, the router detected that Serial0 had packet charges associated with it, so the packet was not forwarded out that interface.

Q. What is the SS LAN option?

A. Server–to–Server LAN option.

If a Cisco router and a Vines server are on the same segment, then to a Vines server, the Cisco router appears as another Vines–server. Because of this, customers need to purchase the "Server–to–Server LAN" option for their server. If they do not have it, the server does not stay up.

Q. What is the difference between the "vines propagate" (undocumented) and "vines serverless" configuration commands?

A. The propagate command tells the router to forward a broadcast out an interface without a decrement to the hop count and not pay attention to the broadcast modifier bits. This allows you to have the second "file service request" broadcasts travel farther than their normal one hop, as well as have them travel across X.25 networks. It is always applied on the outbound interface. (The first "file service request" broadcast is a zero–hop broadcast and is discarded.)

The serverless command indicates that a physical network segment has no Banyan servers on it, and special processing must take place on inbound zero–hop broadcast frames. The initial "file service request" broadcast is sent out the interface that has the shortest path to a Banyan server. It is forwarded **WITHOUT** a decrement to the hop count, but it **DOES** pay attention to the broadcast modifier bits. In other words, this particular frame is marked so that it does not traverse an X.25 network, and in this case the router does not send it onto the X.25 network. It is always applied on the inbound interface.

With both of these commands, you must build a path from the serverless network to the network with servers and specify serverless or propagate at each router.

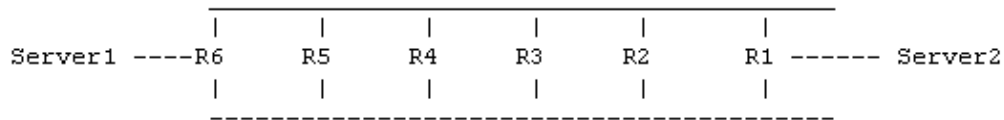
Q. When is the configuration command "arp–enable" required?

A. If you have a serverless LAN segment, you must configure the Cisco to act as a server (turn on arp–enable), so the client is assigned an address. If this is not done, the client never

gets an address, so the client never can talk to anyone.

Q. Is this topology legal? If it is, why do we see StreetTalk broadcast storms when there are two or more routers in parallel?

Topology:



Yes, it is legal. The problem goes back to the Banyan implementation of StreetTalk. In order for StreetTalk to work correctly when separated by Cisco routers, the Cisco must forward all StreetTalk broadcasts. When the forwarded broadcasts interact with the dynamic determination of the best path to the source, problems occur in such a network

For example, the problem is that R4 believes that the best path to S1 is through the top Ethernet, and R5 believes that the best path is through the bottom Ethernet. When R4 sees a broadcast on the top Ethernet from S1, it forwards it to the bottom Ethernet. R5 sees this forwarded broadcast on the bottom Ethernet, and, since it came in through what R5 believes is the best path to S1, R5 forwards it back to the top Ethernet. Both routers are correct, but they have different ideas of the best path needed to reach S1. The easiest solution to this problem is to change the metric from two to three on all Ethernet interfaces on the lower Ethernet. This solves the problem completely since all routers (except R1) then think that the top Ethernet is the best path to S1.

Q. Is there an explanation of the debug commands for Vines?

A. [debug vines–packet]

This EXEC command is used to log general Vines debugging information. This includes packets received, forwarded, and generated, as well as failed access checks and other items.

```
VINES: s=31126D01:1 (local), d=3110440F:1 (Ethernet0), g=3110440F:1 sent
VINES: s=0:0 (Ethernet0), d=FFFFFFFF:FFFF, rcvd w/ hops 0
VINES: s=31126D01:1 (local), d=FFFFFFFF:FFFF (Ethernet0), sent

VINES: Indicates that this Banyan Vines packet
      s Source address of the packet
(local) Router generated the packet
      d Destination address
(Ethernet0) Interface packet is coming into (source) or going out
              through (destination)
      g Address of the gateway
sent Packet just passed through the interface
s=0:0 (Ethernet0) Source address that indicates a VINES station that on the
                  backbone connected to the ethernet 0 interface
d=FFFFFFFF:FFFF Indicates that the target station has not been assigned a
                  Banyan Vines internet address
rcvd w/hops 0 Indicates that this is a local broadcast
```

[debug vines–routing]

This enables all RTP update messages sent or received and all routing table activities that occur in the router to be logged.

[debug vines-table]

This EXEC command enables all modifications to the Vines routing table to be logged. This command provides a subset of the information that is provided by **debug vines-routing**.

```
VINESRTP: create neighbor 12345678:8004, interface Ethernet0
VINESRTP: Indicates that this is a debug vines-routing or debug vines-table m
create nighbor 12345678:8004 Indicates that client at address 12345678:8004 has been
                                added to Vines neighbor table
interface Ethernet0 Indicates that this neighbor can be reached through the
                                router interface named Ethernet0
```

NetPro Discussion Forums – Featured Conversations

Networking Professionals Connection is a forum for networking professionals to share questions, suggestions, and information about networking solutions, products, and technologies. The featured links are some of the most recent conversations available in this technology.

NetPro Discussion Forums – Featured Conversations for Router and IOS Architecture
Network Infrastructure: LAN Routing and Switching
Network Infrastructure: WAN Routing and Switching

Related Information

- [Technical Support & Documentation – Cisco Systems](#)

All contents are Copyright © 1992–2006 Cisco Systems, Inc. All rights reserved. Important Notices and Privacy Statement.

Updated: Dec 12, 2006

Document ID: 10545