WAN Design Test Plan

	Start Date	End Date
Network Build (Setup)		
Testing Date		

Table of Contents

Attendees

Name	Company	Position
	FilmCompany	IT Manager
	FilmCompany	Business Manager
	NetworkingCompany	Account Manager
	NetworkingCompany	Network Designer
	NetworkingCompany	System Engineer

Introduction

INSTRUCTIONS: Explain briefly what the purpose of the test is and what should be observed. Include a brief description of testing goals. List all tests that you intend to run.

Purpose of this test:

_____

_____

_____

_____

_____

Tests to run:

- Test 1: Frame Relay Configuration Test
    - Verify Frame Relay configuration using point-to-point subinterfaces.
    - Verify that EIGRP is configured and that MD5 authentication is set.
    - Verify EIGRP routing between the stadium Edge2 router and the FilmCompany BR3 router.
    - Document operation.
- Test 2: Backup Link Configuration Test
    - Demonstrate that traffic will take the alternate route if the Frame Relay link goes down.
    - Document operation.

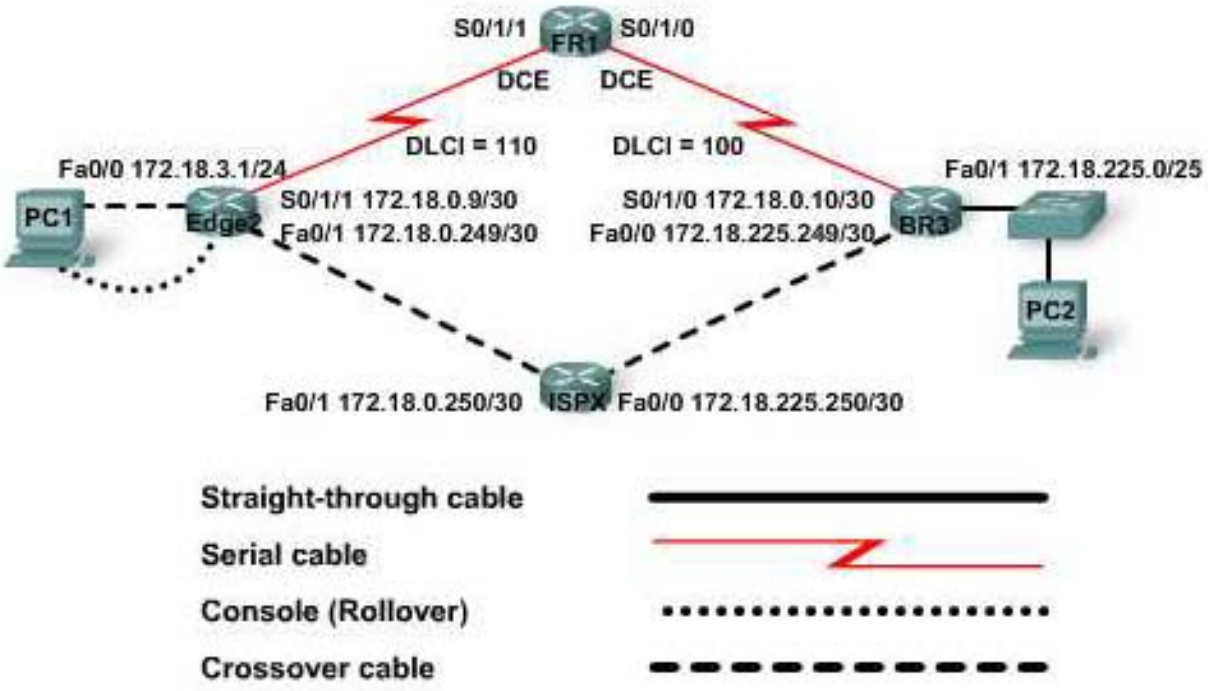
Equipment

INSTRUCTIONS: List all of the equipment needed to perform the tests. Be sure to include cables, optional connectors or components, and software.

Qty. Rqd	Model	Additional options or software required	Substitute	IOS Software Rev.
2	1841 router	none	Any Cisco router with 1 serial interface and 2 FastEthernet or Ethernet interfaces	12.2 or above
1	Router to simulate ISP – can be 1841 with two FastEthernet interfaces	none	Any router or multilayer switch that can support two separate Ethernet networks	any
1	Preconfigured router to simulate Frame Relay switch	Configured as a Frame Relay switch	Any Cisco router with two serial interfaces	12.2 or above
1	2960 switch	None	Any switch or hub to simulate the remote LAN. Can use crossover cable in place of hub/switch	any
2	Personal computer end devices	FastEthernet NIC	At least one PC and any other IP end device (camera, printer, etc.)	Windows, MAC, or Linux operating system
2	V.35 DTE cables	none	V.35 crossover cable	n/a
2	V.35 DCE cables	none	none	n/a
3	Cat 5 or above crossover patch cables	none	none	n/a
2	Cat 5 or above straight-through patch cables (if hub/switch is used)	none	none	n/a
1	Console cable	none	none	none

Design and Topology Diagram

INSTRUCTIONS: Place a copy of the prototype network topology in this section. This is the network as it should be built to be able to perform the required tests, including IP Addressing and DLCI information. If this topology duplicates a section of the actual network, include a reference topology showing the location within the existing or planned network. Initial configurations for each device must be included in the Appendix.



Topology - Prototype test topology

IP Address Plan

Device Name	Interface	IP Address	Subnet Mask
Edge2	S0/1/1 Fa0/0 Fa0/1	172.18.0.9/30 172.18.3.1/24 172.18.0.249/30	
BR3	S0/1/0 Fa0/0 Fa0/1	172.18.0.10/30 172.18.225.249/30 172.18.225.0/25	
ISPX	Fa0/0 Fa0/1	172.18.225.250/30 172.18.0.250/30	
PC1	NIC		
PC2	NIC		

Additional Notes and Instructions:

INSTRUCTIONS: Add a description about this design here that is essential to provide a better understanding of the testing or to emphasize any aspect of the test network to the reader.

INSTRUCTIONS: For each test to be performed state the goals of the test, the data to record during the test, and the estimated time required to perform the test. Test 1 is given as an example.

Test 1. Description: Frame Relay Configuration Test

Goals of Test:

The goal of the Frame Relay Configuration Test is to:

Data to Record:

Configurations

Interface status

Routing Tables

CPU & Memory

Traceroute Output

Ping Test Output

Estimated Time:

90 minutes total

60 minutes build

30 minutes test

Test 1. Procedures

INSTRUCTIONS: Itemize the procedures to follow to perform the test.

1. Build the topology according to the Design and Topology Diagram. Assign IP addresses according to the IP address plan.

2. Using console connections, create a basic configuration on routers Edge2, BR3, and ISPX. The router FR1 is preconfigured as a Frame Relay switch. Include applicable passwords, device names, default routes, default gateways, and activate interfaces.

3. Copy and paste the **`show running-config`**, **`show ip route`**, **`show processes cpu sorted`**, **`show interfaces`**, and the first few lines of **`show memory`**. Save the log file for later analysis using a text editor program such as Notepad. Repeat for all devices in the topology.

4. Configure the Frame Relay connections on point-to-point subinterfaces on the Edge2 and BR3 routers. Use the DLCI values shown on the topology diagram.

5. Verify the Frame Relay is working as expected using the following commands:

   `show frame-relay map` – Status of point-to-point links
   `show frame-relay pvc` – Permanent Virtual Circuit (PVC) status and statistics
   `show frame-relay lmi` – Local Management Interface (LMI) statistics
   `debug frame-relay lmi` –LMI exchange between the Frame Relay switch and router in real time

6. Configure EIGRP to advertise only the LAN and Frame Relay networks. Do not advertise the backup network.

7. Configure EIGRP authentication between Edge2 and BR3.

8. Console into one of the devices in the topology and ping all of the other devices in the topology. Record any anomalies.

9. Telnet to each device in the configuration and verify that each is reachable.

10. Use **`traceroute`** from the Edge2 router to the IP address assigned to H2. Verify that the traffic is using the correct route through the Frame Relay network. Repeat the **`traceroute`** command from the router BR3 to the IP address of PC1. Verify that the traffic is using the correct route through the Frame Relay network. Copy and paste the **`traceroute`** output into a text file using a text editor, such as Notepad.

Test 1. Expected Results and Success Criteria

INSTRUCTIONS: List all of the expected results. Specific criteria that must be met for the test to be considered a success should be listed.

1. All networking devices are connected and accessible through Telnet.
2. Hosts can ping successfully to other hosts on the network.
3. EIGRP routing table updates occur as expected and the routing table is correct.
4. The output of the **`traceroute`** commands verifies that the traffic from the stadium Edge2 router to the FilmCompany BR3 router takes the correct path through the Frame Relay network.

Test 1. Results and Conclusions

INSTRUCTIONS: Record the results of the tests and the conclusions that can be drawn from the results.

Test 2. Description: Backup Link Configuration Test

Goals of Test:

Data to Record:
IP Routing Table
Traceroute Output
Ping Test Output

Estimated Time:
60 minutes total
30 minutes configure
30 minutes test

Test 2. Procedures

INSTRUCTIONS: Itemize the procedures to follow to perform the test.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Test 2. Expected Results and Success Criteria

INSTRUCTIONS: List all of the expected results. Specific criteria that must be met for the test to be considered a success should be listed.

_____

_____

_____

_____

tracerouteTest 2. Results and Conclusions

INSTRUCTIONS: Record the results of the tests and the conclusions that can be drawn from the results.

_____

_____

_____

_____

_____

_____

Appendix

INSTRUCTIONS: Record the starting configurations, any modifications, log file or command output, and any other relevant documentation.