

### 3. Disaster planning – see what effect router failures will have on service availability

Most distributed enterprises have a backbone of IP routers that is designed to provide continuous service in the event of failures. But testing this redundancy on a live network is hardly an optimum way to verify availability of services in event of router failure, and testing for “disaster” situations such as the loss of a data center or cascade failures of routers is usually impossible. Route Explorer provides a very easy and safe way to check for the availability of routes to vital services in the event of router failures.

This example shows a multi-area OSPF network of a global enterprise with a backbone of three highly connected core routers. See Figure 15.

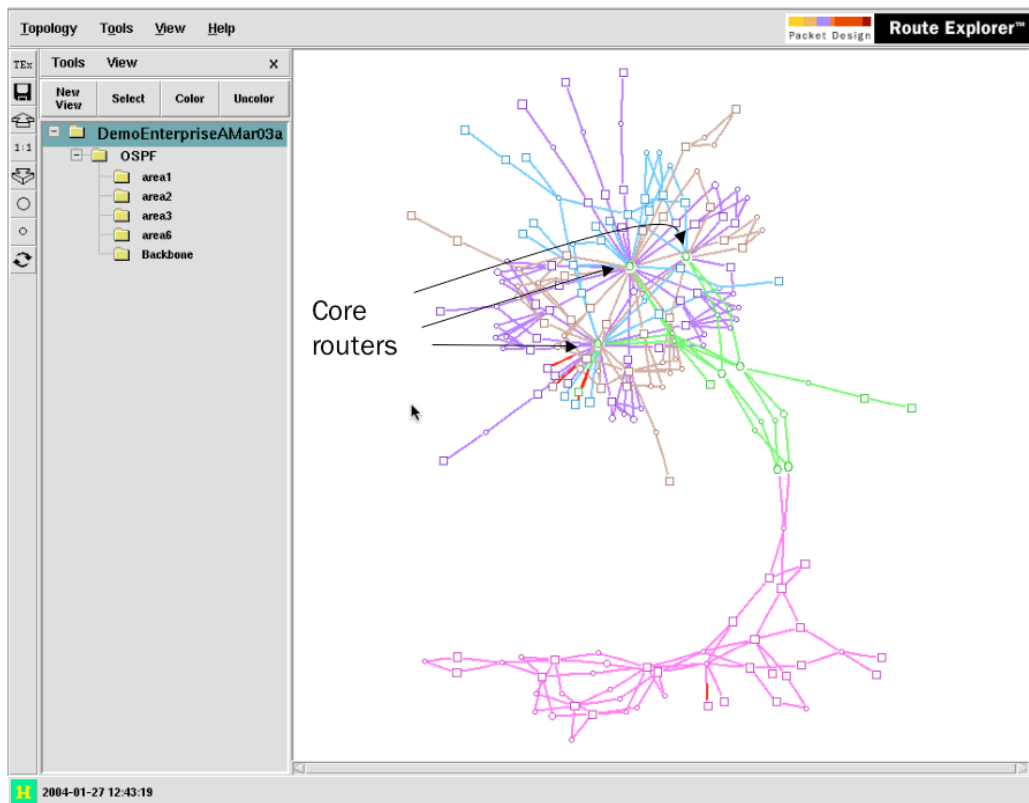


Figure 15

To see the effect of a core router failure, let us first highlight several representative prefix paths spanning this network. These could be prefixes to business critical services such as application server networks. We have highlighted 3 such prefix paths in Figure 16.

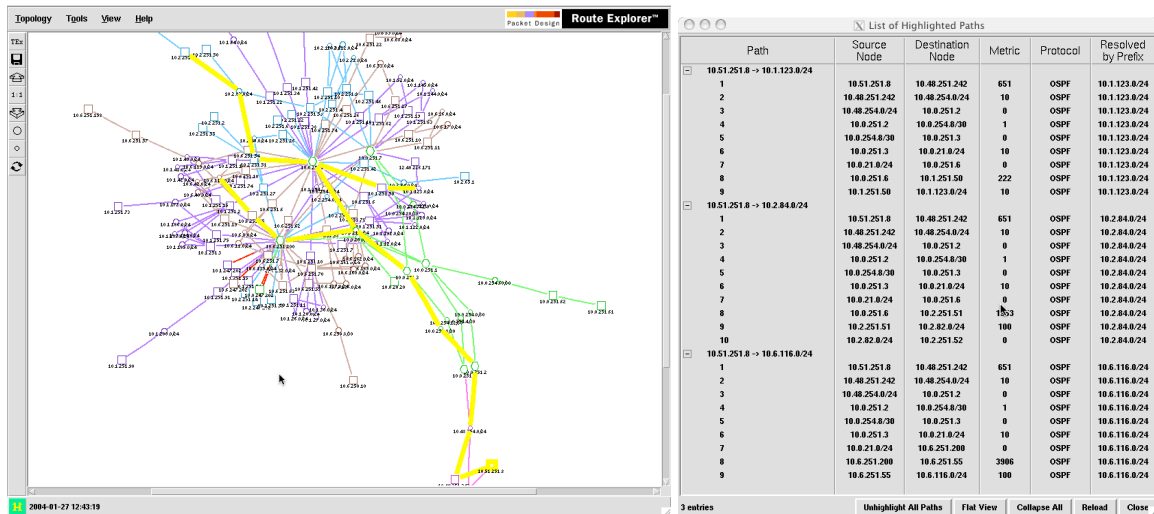


Figure 16

To simulate the effect of a down router in Route Explorer, simply right click on the router (see Figure 17) and click “Down”. Note that the core router in this example is in four different OSPF areas. Route Explorer gives the user the flexibility to down the router in each area separately.

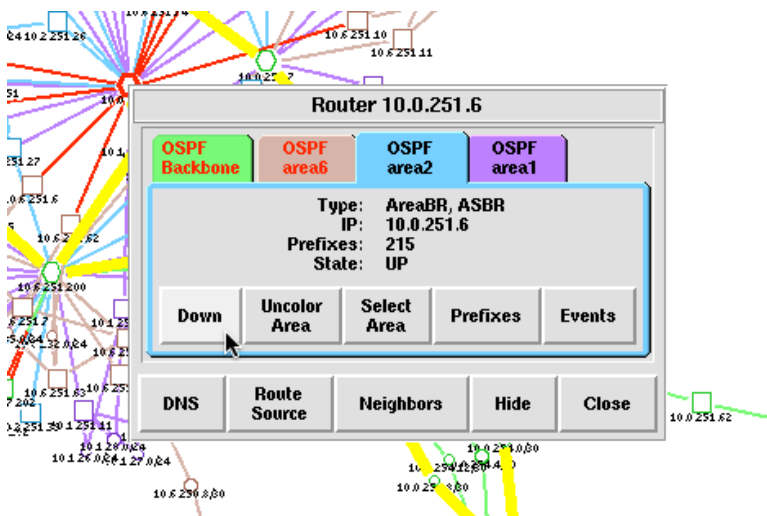


Figure 17

Figure 18 shows the effect on the prefix routes we highlighted earlier. Note that two of the routes were rerouted to a second core router. Route Explorer’s List of Highlighted Paths shows the details of each route including each hop and it’s metric.

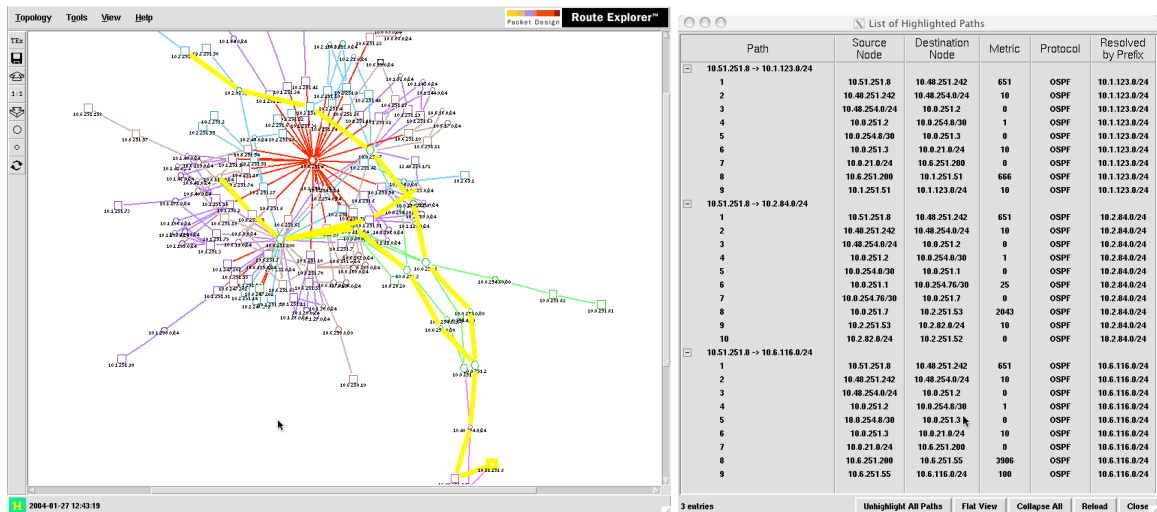


Figure 18

Let us now examine the effect of a second router failure. Cascading router failures sometime occur as a result of traffic suddenly being rerouted from a primary router to a secondary. Figure 19 shows the result on our selected routes. All three routes are still reachable via the remaining core router.

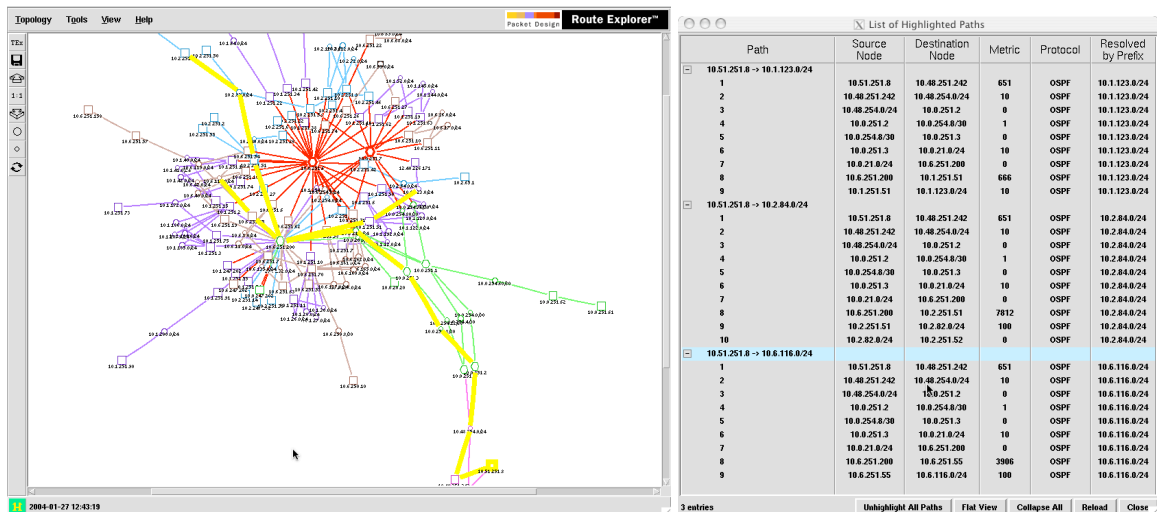


Figure 19

Even in the most redundant and well-designed networks, Route Explorer can provide the level of confidence from verification of prefix reachability in a “disaster”, without the disaster.

## HOW TO:

1. Open an X Windows or VNC session to the Route Explorer. See Route Explorer User Guide for details.
2. Click on File->Open Topology
3. Select an online topology (shown in green) and click Open.
4. Highlight a route:

- a. Right-click on source router
- b. Click “Route Source” in node pop-up menu
- c. Right-click on destination router
- d. Click “Route Destination” in pop-up
5. To see the route in hop-by-hop detail, select Tools->List Highlighted Paths
6. Down a router:
  - a. Right-click on a router
  - b. Click “Down” in node pop-up
7. Show all link/router simulated changes: Select Tools->List Router/Link Edits
8. Restore edits:
  - a. Click on “Restore All” in list of edits
  - b. Up the individual links or nodes via pop-up menu (right-click on item)