

## 6. Compare the network-wide routing table between any two points in time

If you are a network engineer responsible for an enterprise or service provider network, you have formed a mental picture of what you perceive to be the stable state of your network – let’s call it a “baseline”. But when something goes wrong, how do you pinpoint exactly how and where your network is “out-of-sync” with your baseline? How do you accurately determine the baseline in the first place? And if your organization has multiple engineers with different domain responsibilities and/or shifts, how do you arrive at a common picture of a baseline? Route Explorer’s History Navigator and “RIB Before-and-After Comparison” can be a great help.

Route Explorer’s History Navigator shows you a histogram of a number of vital network statistics – including events, number of routers, routing adjacencies and prefixes. Figure 12 shows an example.

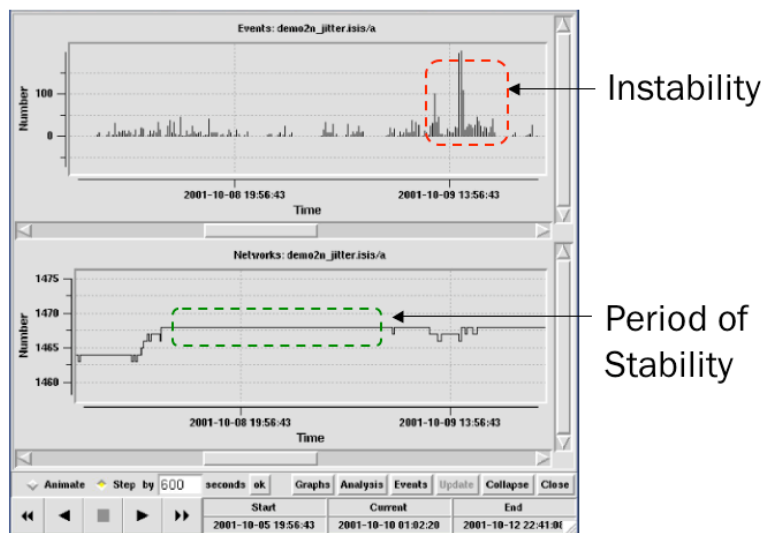


Figure 12

The lower timeline identifies a period of several days when there were no changes to the number of prefixes advertised in the network. This period was followed by several hours of network churn. The stable period can act as a baseline to analyze the instability. Route Explorer can do a Before-and-After Comparison to show you what has changed between two points in time. By selecting a stable time as the “before” time, you can pinpoint the potentially affected links and routes. Figure 13 illustrates such a comparison for the BGP RIB.

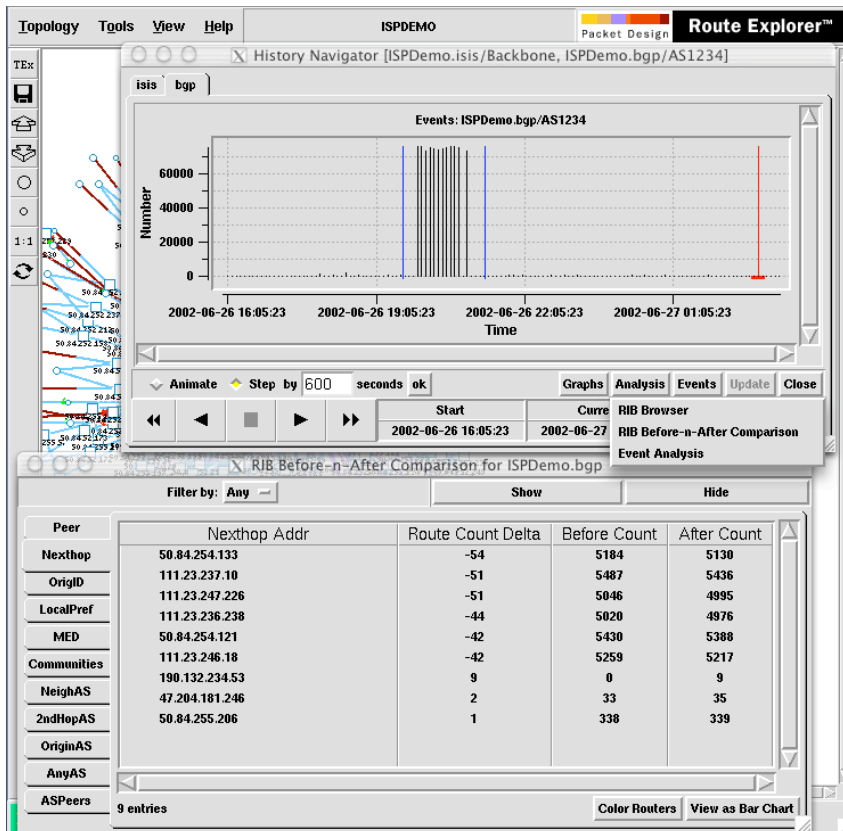


Figure 13

Note that in this case there is a period of extremely high BGP churn at the left of center of the events timeline. Route Explorer allows you to select a time before the churn began and after (the blue vertical lines) for the RIB comparison. The results of the analysis are presented in a tabular or bar graph form. In this case, the analysis shows that despite the high churn, the number of routes that have been lost is less than 1% from each of six BGP next hop routers of this network. To investigate further you may want to get a summary of the events from Route Explorer for the time period of the churn. We show how in the next section.

#### HOW TO:

1. Open the "DemoJitterISPOct01" topology
2. Open history navigator: click Tools->History Navigator
3. Display the Networks timeline: Click on "Graphs" button in History Navigator
  - a. Select the "Networks" button.
  - b. Resize the History Navigator if necessary to display both the events and networks timelines.
4. Zoom the timelines around the center one-third of the time period. Note the period of stability in Networks and the churn in the events following.
5. Next, open the "DemoTier1ISPJun02" topology
6. Open the History Navigator.
7. Compare RIB at two points in time, one before the series of spikes at the center of the time line and another after:

- a. Click on “Analysis” drop down and select “RIB Before-and-After Comparison”
  - b. Select start time at the left of the spikes and end time at the right of them, using blue crosshairs cursor.
8. Resulting tables can be sorted, filtered and viewed as bar graphs (see above)