

Network Path Tracing with Netrounds

Netrounds' Path trace feature continuously detects network paths and computes metrics for evaluating their performance.

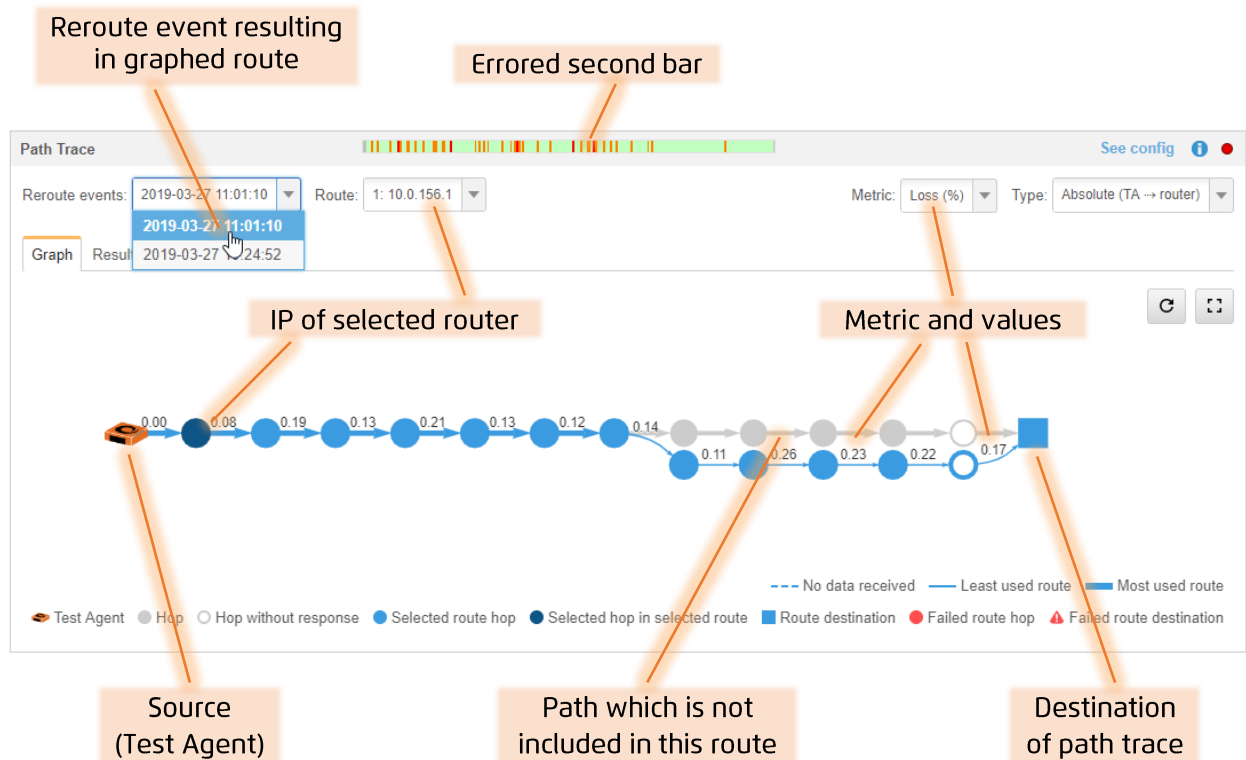
Rerouting of data in a network can result in packet loss, packet reordering, and jitter. This can cause a variety of problems:

- **Transient** effects from the rerouting itself, where routers are disagreeing on where packets should be forwarded, can result in short periods of problems for customers. The length of these periods depends on how well the routing processes are optimized in the network. This kind of problem tends to be more common in inter-domain routing, BGP, than in intra-domain routing where link state protocols are used (OSPF, ISIS, or MPLS).
- More **persistent** effects from rerouting can arise if the network has not been properly planned for failure scenarios, or if the network has been deliberately designed to allow overutilization in case of failures. Such problems can negatively affect user traffic and will remain until the traffic has been redirected back to its original route, or until traffic volumes have been decreased.
- A third problem that can be seen in networks is **instability**, where routes are continually changed. These reroutes may cause quality of service degradations such as those mentioned in the previous paragraphs, although this need not necessarily happen. However, even if the instability does not cause service degradations, it does consume processing power in routers, and it is still a problem that requires analysis and action.

It is important to keep track of how all these problems affect user traffic, and for this purpose you need a tool for path tracing. Netrounds provides such a tool, supporting IPv4 as well as IPv6 networks.

A Netrounds Path trace monitor continuously sends ICMP and/or UDP Echo packets with increasing TTL and measures the time it takes from sending a packet to receiving an ICMP control message back from each router. Any route changes are detected and recorded. A key property of the Path trace tool is precisely this **continuous detection** of network paths, which keeps the results up-to-date and relevant when the path changes.

In the user interface, routes are visualized **graphically** in a powerful yet lucid manner. Reroute events are collected in a drop-down list with the most recent on top, and selecting one of these events highlights the corresponding route in the graph. Each router hop in the graph is labeled with a user-selected metric (min/max/average delay, or jitter), showing the quality experienced for that hop. The thickness of each arrow indicates how frequently that path has been taken.



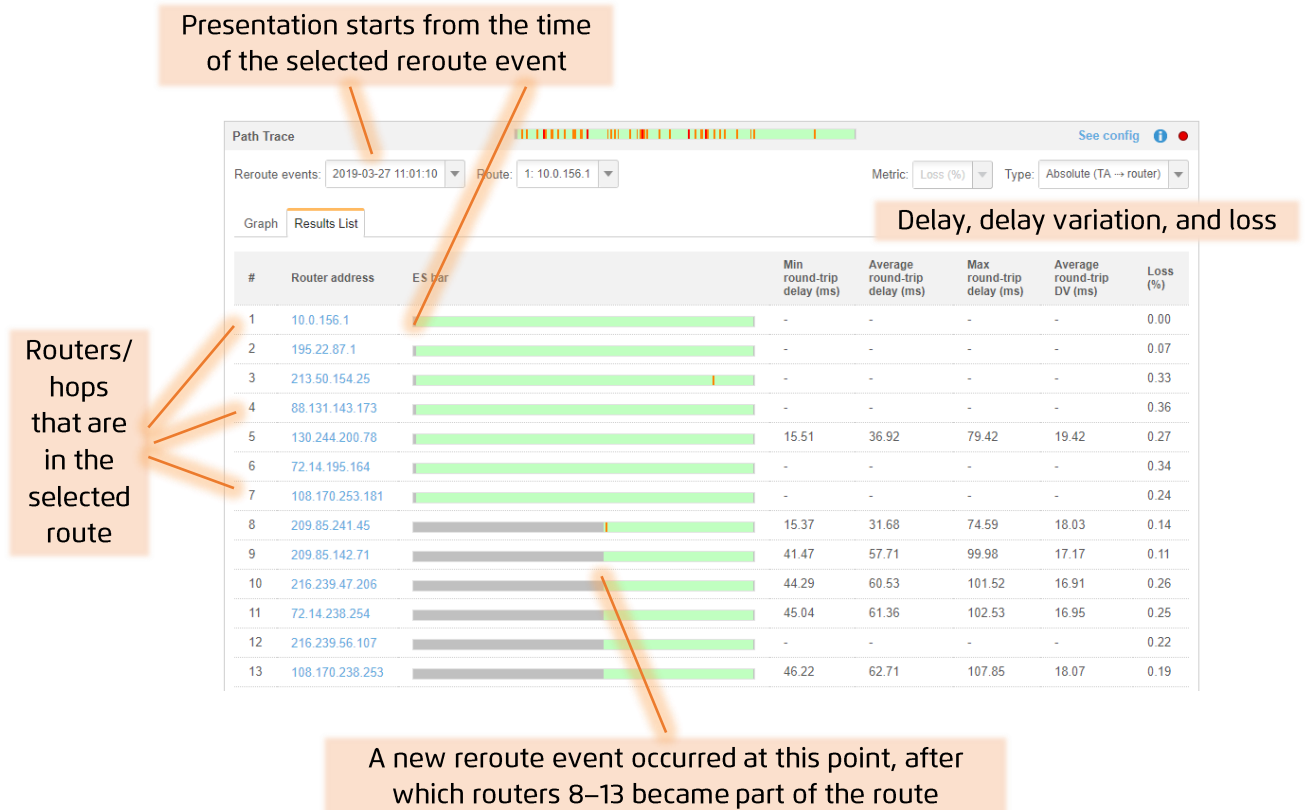
Path trace **metrics** can be calculated in two ways:

- *Absolute*: The metric shown for a hop in the graph is calculated all the way from the Test Agent to the router where the hop terminates.
- *Relative*: The metric shown for a hop in the graph is calculated for that hop only, that is, between the two routers it connects.

If a route has **failed** to reach its destination, the relevant reroute event is labeled with a warning icon, and the route is drawn in orange.

The route graph can be panned and zoomed with the mouse. Routers can also be freely **rearranged** by dragging. You can revert to the default appearance at any time by clicking a reset button.

Besides the Graph tab, the presentation includes a **Results List** tab showing an errored second bar and metrics for each router hop, in a format familiar from elsewhere in Netrounds. You select a route to present by selecting a reroute event in the top left box.



Questions About This Feature Brief?

For more information on how Netrounds Path trace function can enhance your network, please contact Netrounds Sales (sales@netrounds.com) or your authorized reseller, or visit our website at www.netrounds.com.