

# ThousandEyes

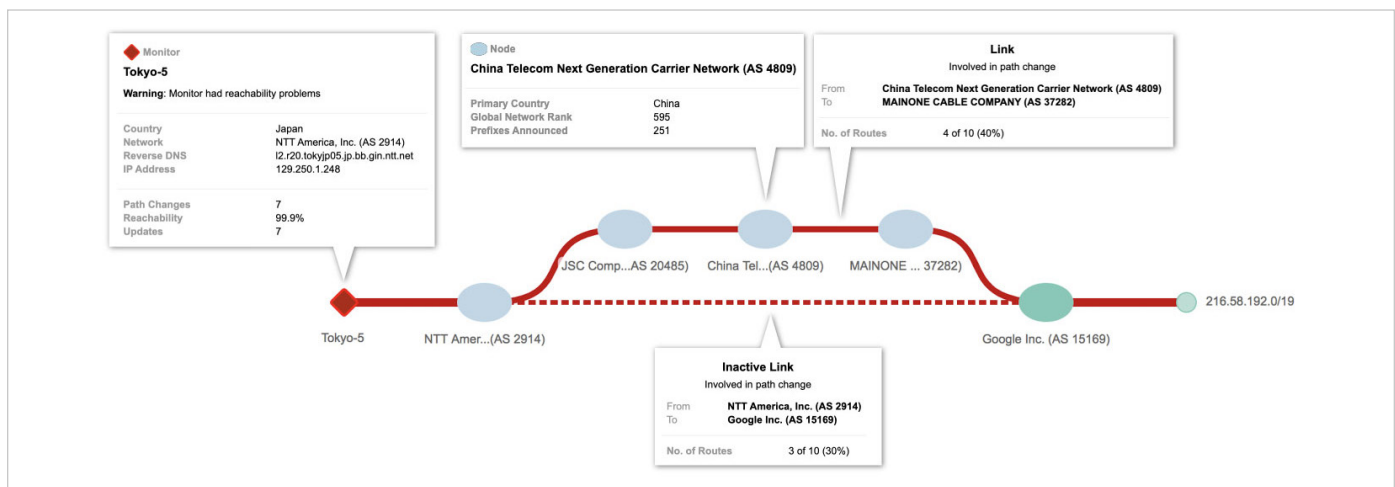
# BGP MONITORING

## Solution Brief

## Optimize Network Connectivity with Route Monitoring and Visualization

Border Gateway Protocol (BGP) routing errors can cause chronic interruptions and sudden outages that impact your network performance. ThousandEyes visualizes routes from both corporate and service provider networks. BGP is vulnerable to leaks, origin hijacking, and malevolent ASN path insertion causing severe repercussions in secure delivery.

Track BGP path changes, reachability and network performance between your Autonomous System (AS) and those of your customers and service providers. Intelligent algorithms also look for patterns in unreachable prefixes to identify reachability outages, providing insights into their global and local scope and also the networks most likely to contain the root cause of the routing issues. Correlate routing information with hop-by-hop loss and latency metrics so that you can take action immediately.



**Figure:** Suspicious announcement for 216.58.192.0/19 showing the best path to Google via Russia, China and Nigeria

## Visualize Global Routing Topologies to and from Your Network

### See Where Routing Changes Affect Performance

Quickly diagnose route flaps, find policy misconfigurations and confirm peering changes.

- Monitor reachability and path changes and put routing in context with path visualization and page load data
- Plan and troubleshoot routing across your network or those of your peering and transit providers

### Be Proactive with Your Service Providers

With routing visibility and outage detection, you'll know when and where to reroute traffic and when to wait it out.

- Ensure routes are optimally configured by your service providers: ISPs, DDoS mitigation, hosting, CDNs
- Easily record and share routing topologies and outage data with your vendors to speed issue resolution

### Detect BGP Hijackings

- Detecting BGP prefix Origin ASN hijacks, route advertisements of bogus or unannounced prefixes

- Comprehensive alerting (origin ASN, next hop ASN, covered prefix, hop-by-hop path trace) for BGP hijacks

### Verify Reachability Post RPKI Rollout

Resource Public Key Infrastructure is a best practice method in securing BGP route announcements but improper configuration of ROAs can introduce reachability issues that prevent users from connecting.

- ThousandEyes BGP monitoring enables enterprises to confirm that routes to its service are reachable once RPKI has been adopted

### Detect Route Leaks and Improper Route Insertions

Route leaks are similar in structure and effect to malicious BGP hijacks but are usually inadvertent and due to filter misconfigurations.

- Offering BGP route visualizations that allow alerting on heuristics like newly announced specific prefixes, path changes that include unexpected non-Tier 1 providers.

## Analyze and Communicate Data with Custom Alerts and Reports

### Receive Fine-Grained Alerts

- Set up powerful alerts to proactively notify you of a change in reachability, path, prefix or AS
- Detect unexpected changes to prefixes, subprefixes, origin AS or next hop AS

Settings

Notifications

Tests

5 of 431 tests selected

Prefix Length

IPv4 /16 - /32 and IPv6 /32 - /128

Monitors

All monitors

☒ Alert on covered prefix data

ALERT CONDITIONS

All conditions are met by at least 1 monitor 1 of 1 time in a row:

Reachability

<

100

%

Any BGP Hop

meets all of:

ASN

in

ASN...

Collapse All

BGP Hop #

1

from the

origin

meets all of:

ASN

not in

ASN...

Collapse All

BGP Origin

meets all of:

ASN

not in

ASN...

Collapse All

Covered Prefix

exists

No BGP Hop

meets all of:

ASN

not in

ASN...

Collapse All

Path Changes

>

1

change per 15 minutes

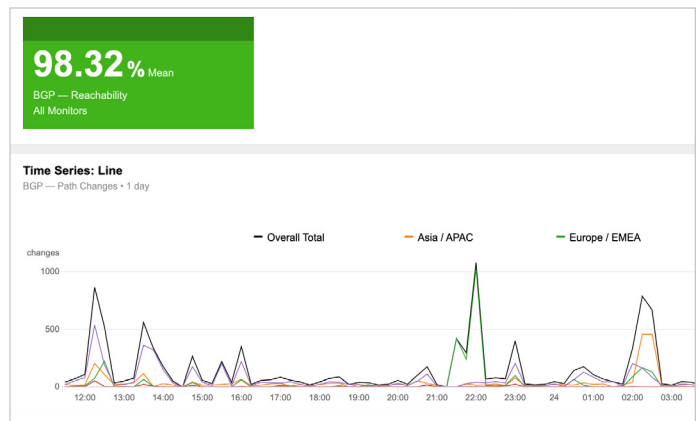
Prefix

not in

Prefix...

### Create Your Own Routing Reports

- Plot routing performance and stability across locations and services
- Create ad-hoc reports for forensics or schedule recurring reports to communicate trends



## Combine Routing Data from ThousandEyes Monitors and Your Own Corporate Network

### Easily Collect Routing Metrics for Key Services

- Routing data includes reachability, path changes and effects on real network traffic
- We automatically match IP addresses and URLs to all associated prefixes, making monitoring a breeze

### A Global View with Dozens of Vantage Points

- Outside-in visibility helps you understand ingress routes to prefixes that you originate
- ThousandEyes collects data from a number of monitoring points around the world

### Understand Routes from Your Network

- Inside-out visibility discovers routes from your enterprise to prefixes that you originate or external applications and services
- Configure a Private BGP Monitor to visualize your routing information within ThousandEyes