BGP Roles & its applications

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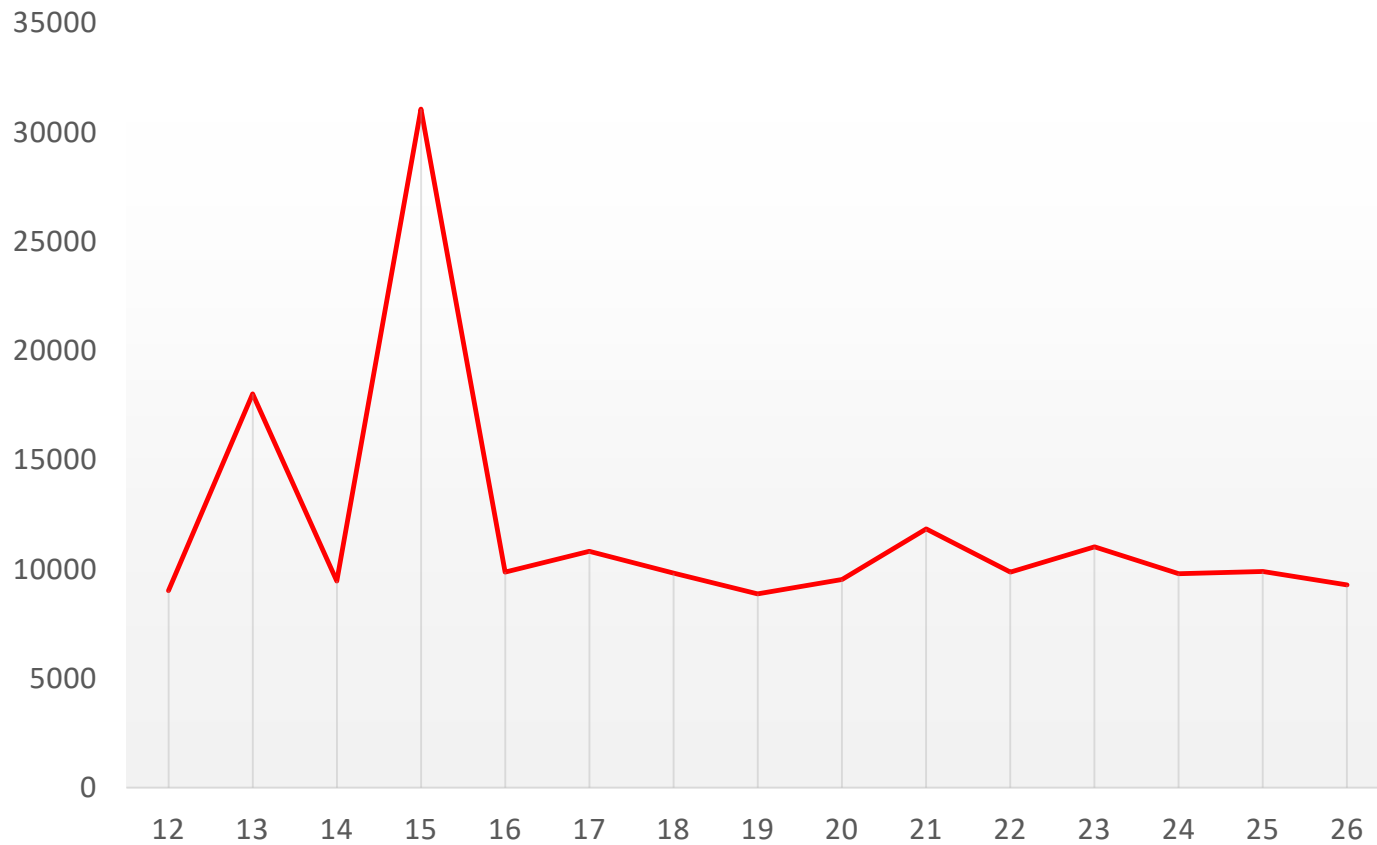
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Problem Statement

Flexibility is the best thing!

Leave no knobs unturned!

Someone let the cowboys and cowgirls in.

Consequences

Number of Prefixes in Route Leaks during March

Consequences

Flexibility + lack of knowledge = outage

Flexibility + typOs = outage

Flexibility + malicious activity = outage

Flexibility, that is under control, is the best thing!

Peering Relations/Roles

Provider: sends their own routes and (possibly) a subset of routes learned from their other customers, peers, and transit providers to their customer.

Customer: accepts 'transit routes' from its provider(s) and announces their own routes and the routes they have learned from the transitive closure of their customers to their provider(s).
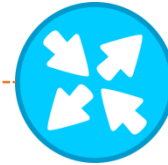
Peer: announces their routes and the routes from their customer cone to other Peers.

Internal: announces all routes, accepts all routes.

BGP Roles

OPEN with
customer role

OPEN with
peer role

Notification →

← Notification

4 pairs of non-conflict roles:
1. Peer <---> Peer
2. Customer <---> Provider
3. Internal <---> Internal
4. Complex <---> Complex

Considerations

- Roles are native;

- Roles are not revealing any sensitive data to other parties;

- Roles have a number of applications.

Roles Applications

Roles + iOTC = leak prevention;

Roles + eOTC = detection of leaks that are made by mistake;

Roles + eOTC + BGPSec = detection of leaks that are made by purpose;

Roles – native definition of ISP borders.

Hard Coding it in OPEN is CRUCIAL!

Remember the Problem Statement
- Flexibility is the best thing!
- Leave no knobs unturned!
- Someone let the cowboys and cowgirls in.