BGP Roles and More

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BGP Roles Negotiation

Allowed roles:
• Provider - sender is a transit provider to neighbor;
• Customer - sender is transit customer of neighbor;
• RS - sender is a Route Server, usually at internet exchange point (IX)
• RS-Client - sender is client of RS
• Peer - sender and neighbor are peers
A Long History

2016: OTC – a single attribute for leak prevention and detection;
2016: OTC is split into non-transit iOTC and transit eOTC;
2017: eOTC design is merged with RLP;
2018: ASPA emerges;
   RLP attribute is transformed into DO community,
   iOTC is ready for WGLC...
2019: OTC is back (but has different design)!
   DO replicates OTC logic.
The Signal(s)

Leak prevention:
If a route is received from provider, RS or peer it MUST not be sent to another provider or peer. The signal is set on ingress.

Leak detection:
If a route is sent to customer, peer or RS-client it also MUST follow 'only down' rule. The signal is set on egress.
OTC: Setting

Egress policy:
If route is sent to customer, peer or RS-client and the OTC attribute is not set it MUST be added with value equal to AS number of the sender;

Ingress policy:
If a route is received from a Provider, Peer or RS and the OTC attribute has not been set it MUST be added with value equal to AS number of the neighbor (sender).
OTC: Setting

No matter who sets the signal – the value is the same. The signal is indication that route can be sent only to customers!
OTC: Prevention & Detection

Egress policy (before egress marking):
• A route with the OTC attribute set MUST NOT be sent to providers, peers, or RS(s).

Ingress policy (before ingress marking):
• If a route with OTC attribute is received from Customer or RS-client - it's a route leak;
• If a route with OTC attribute is received from Peer and its value isn't equal to the neighbor's ASN - it's a route leak.
OTC: Prevention & Detection

Set on egress/ingress: OTC=AS1

Check existence of OTC egress/ingress
What Should We Do with Route Leaks?

The only acceptable mitigation policy – route leaks MUST be rejected. This mitigation policy SHOULD be used.

Will be discussed in detail during GROW meeting.
Attribute vs Community

Attribute:
• More reliable signal;
• Memory efficient;
• Reserved for specific use.

Community:
• Easy to implement!

Choose between? No, we’ll take both!
Summary

- Non-transit iOTC is transformed into transit OTC;
- Marking on both ingress and egress filters;
- Filtering on both ingress and egress sides;
- Prevention & detection using a single attribute;
- Roles provide automation;
- Large community and attribute with the same logic.