RFC9234

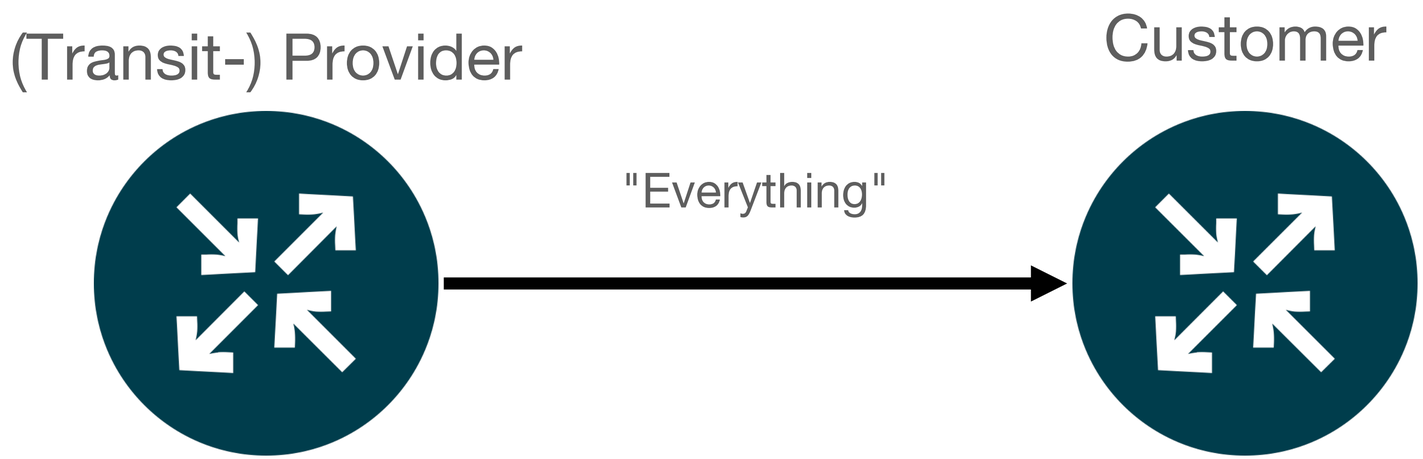
Assigning roles to BGP neighbors

Wolfgang Tremmel, DE-CIX Academy, 2022

Customer

(Transit-) Provider

Customer

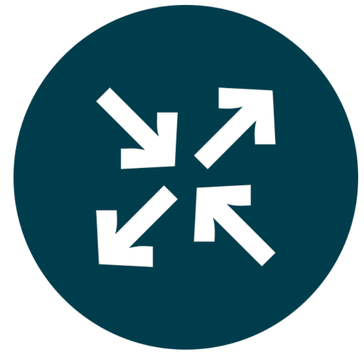

(Transit-) Provider
Customer
"Everything"

(Transit-) Provider

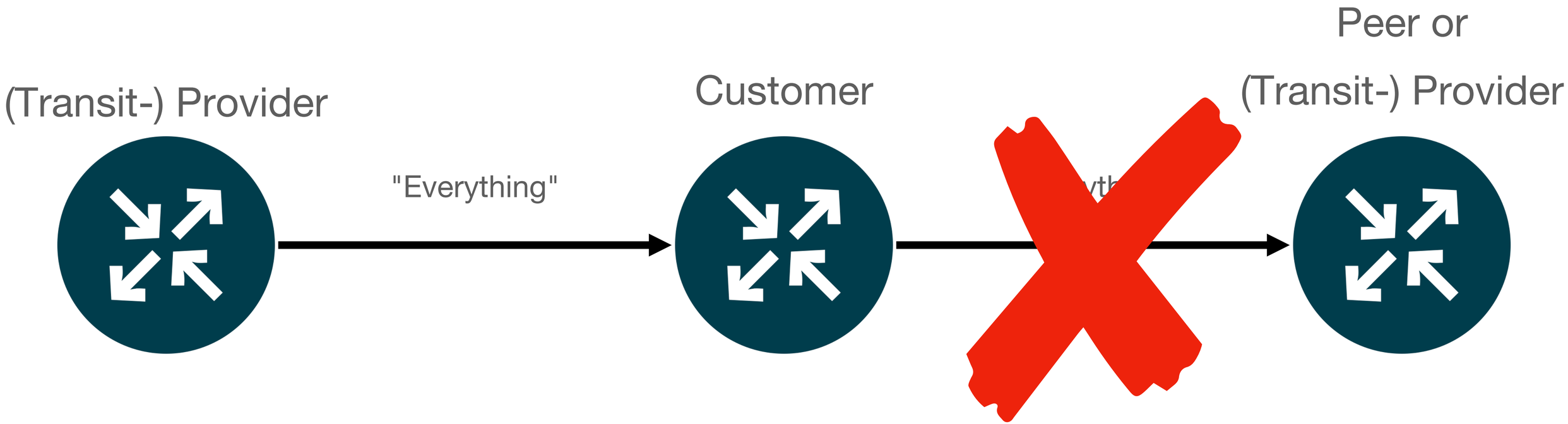
Customer

Peer or

(Transit-) Provider



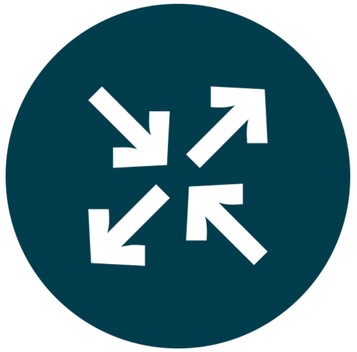
You do not want this to happen!



BGP Neighbors

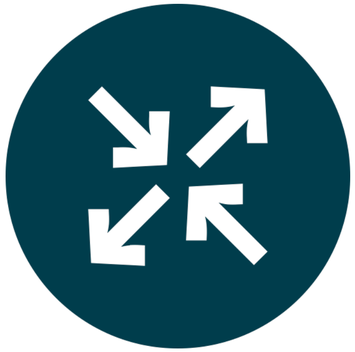
Announcing Prefixes

(Transit-) Provider



"Everything"

own + customers



Customer

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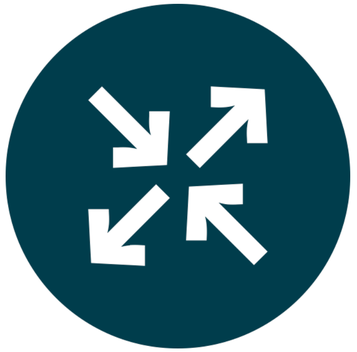
Announcing Prefixes

(Transit-) Provider



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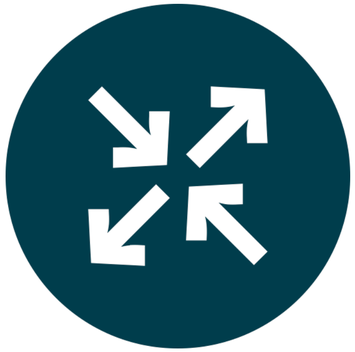
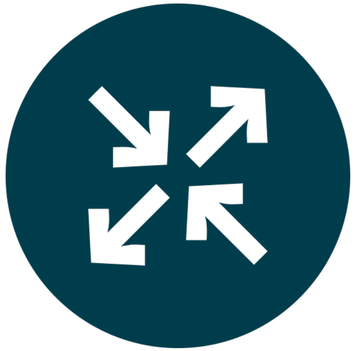


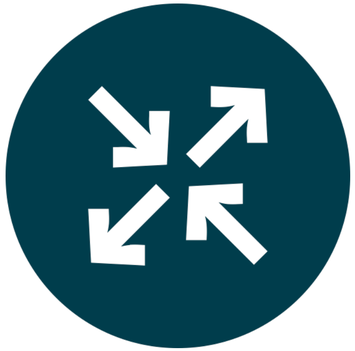
Customer

Peer



own + customers

own + customers



Peer

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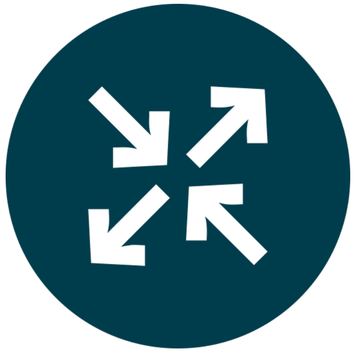
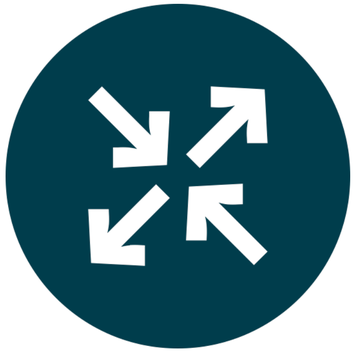
Announcing Prefixes

(Transit-) Provider



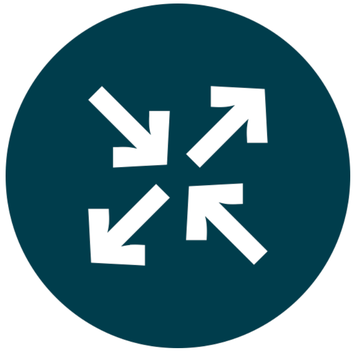
"Everything"

own + customers



Customer

Peer



own + customers

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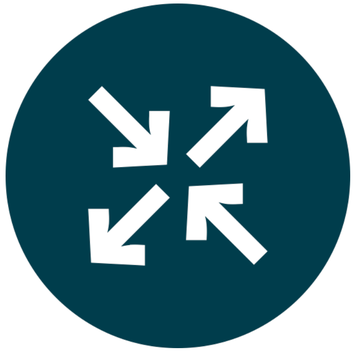
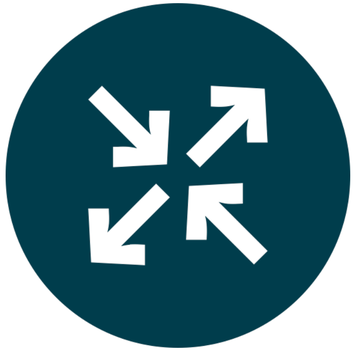


Peer

Route Server



other RS clients prefixes

own + customers

RS-Client

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Configure the roles to BGP sessions

Only some combinations allowed

- Customer - Transit Provider
- Transit Provider - Customer
- Peer - Peer
- Route Server - Route Server Client
- Route Server Client - Route Server

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Configure the *roles* to BGP sessions

Only some combinations allowed

- Customer - Transit Provider
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Configure the *roles* to BGP sessions

Only some combinations allowed

- Customer - Transit Provider
- Transit Provider - Customer
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- Route Server - Route Server Client
- Route Server Client - Route Server

Configure your own role in your router: (example for FRRouting)

```
router bgp 64501
  neighbor 192.0.2.1 remote-as 64502
  neighbor 192.0.2.1 local-role customer
```

```
router bgp 64502
  neighbor 192.0.2.2 remote-as 64501
  neighbor 192.0.2.2 local-role provider
```

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Configure the *roles* to BGP sessions

Now BGP can check if roles match

- Your role and your neigbors role are checked

- If the pairing is not valid
  - do not establish a session

- If the other side did not configure a role
  - Just go ahead (loose mode)

  - do not establish a session (strict mode)

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Is that all? No

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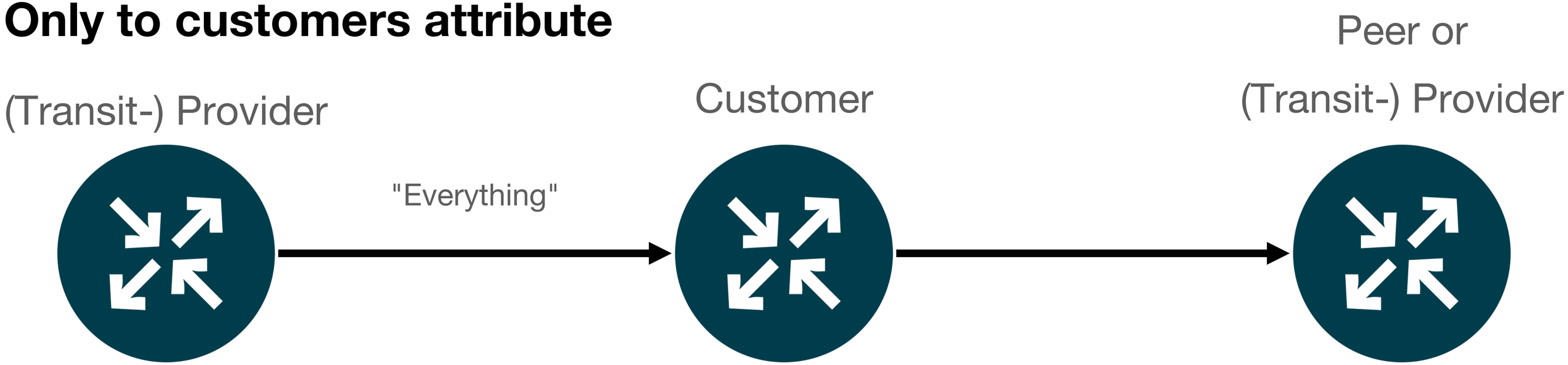
OTC

Only to customers attribute



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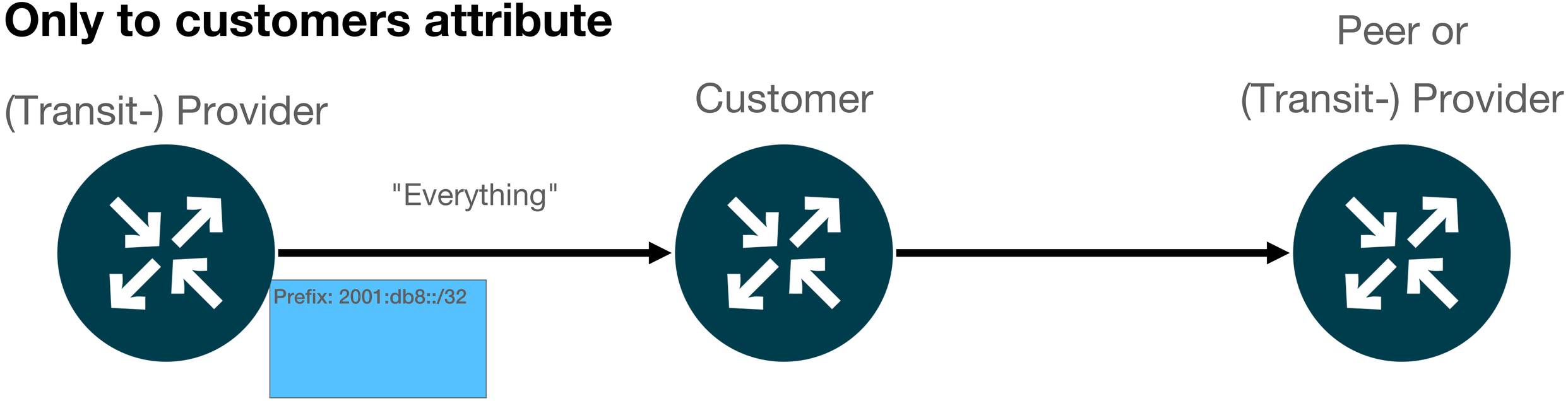
Only to customers attribute



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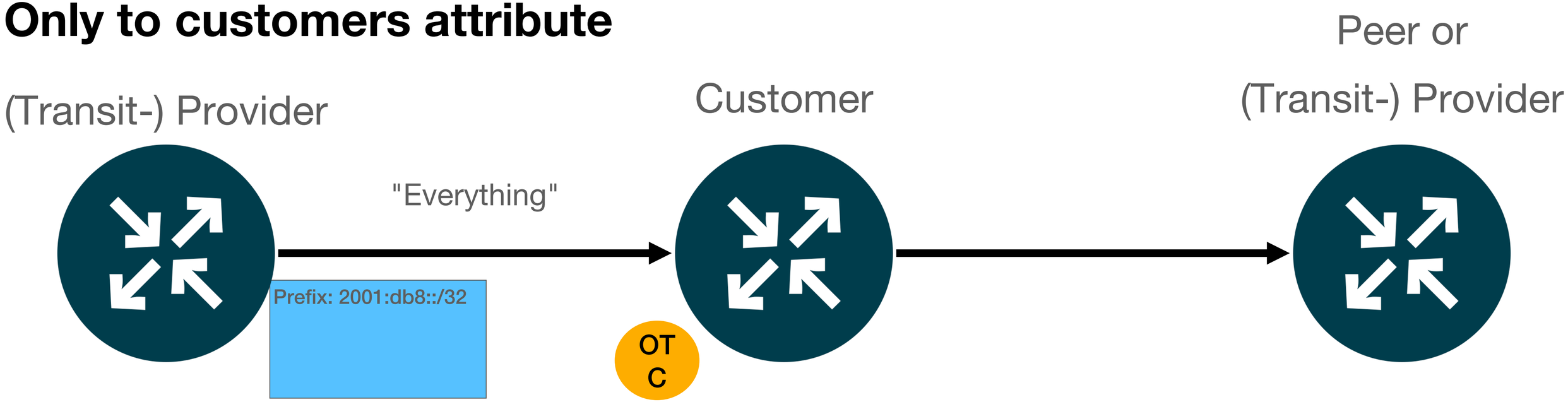

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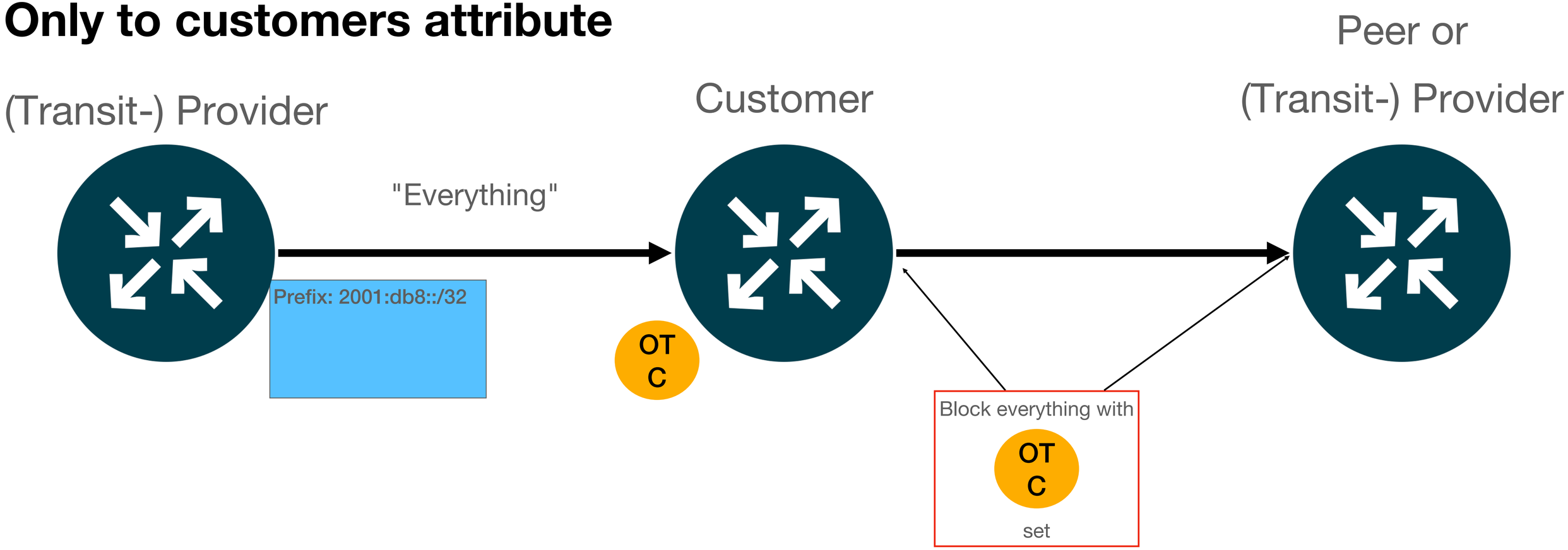

OTC

Only to customers attribute

- It's a little more complex
- OTC carries also an AS number
- So it can be checked **ingress** and egress
  - Ingress: If OTC is present, and the AS is not equal the senders AS, discard
  - Ingress: If OTC is present, and the sender is a customer or RS-Client, discard
  - Ingress: If OTC is not present, and sender is Transit Provider, Peer or RS, set OTC with senders AS

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Thank you!

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