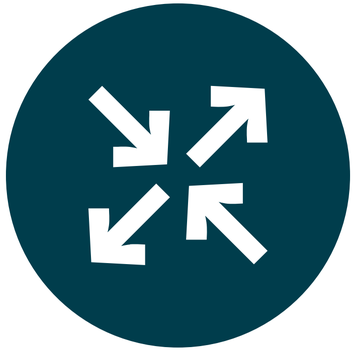
RFC9234

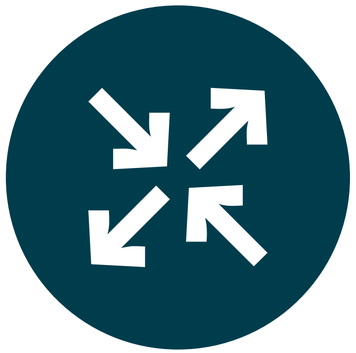
Assigning roles to BGP neighbors

Wolfgang Tremmel, DE-CIX Academy, 2022

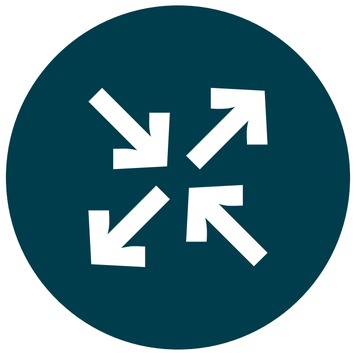
Customer

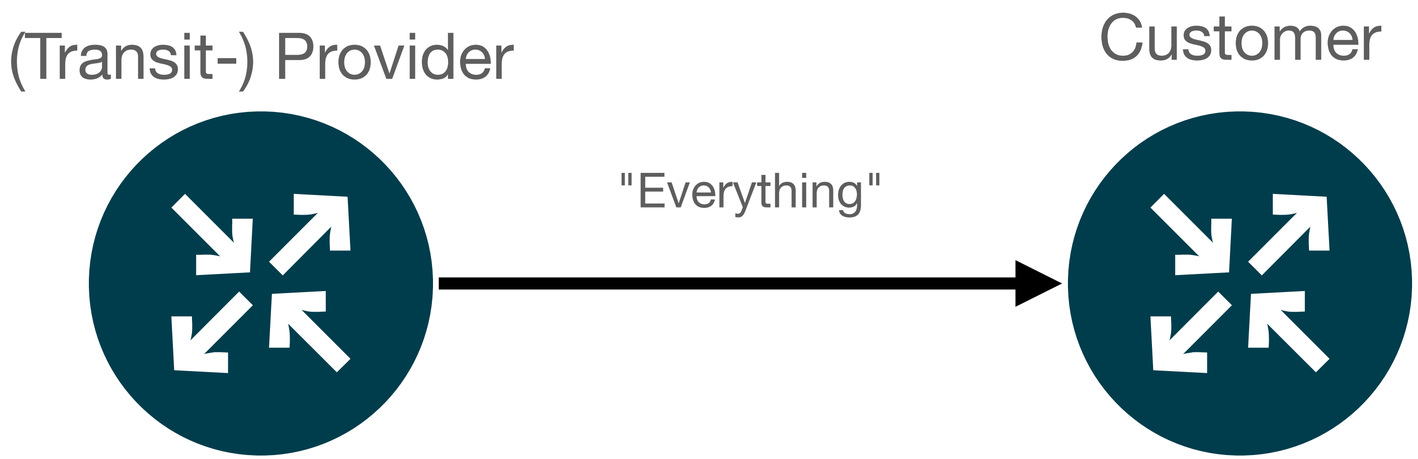


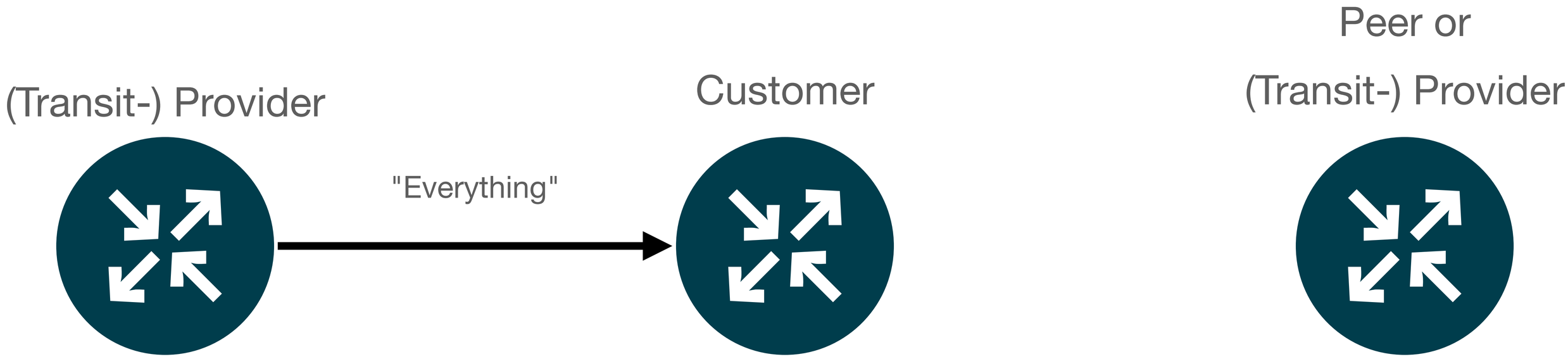
(Transit-) Provider



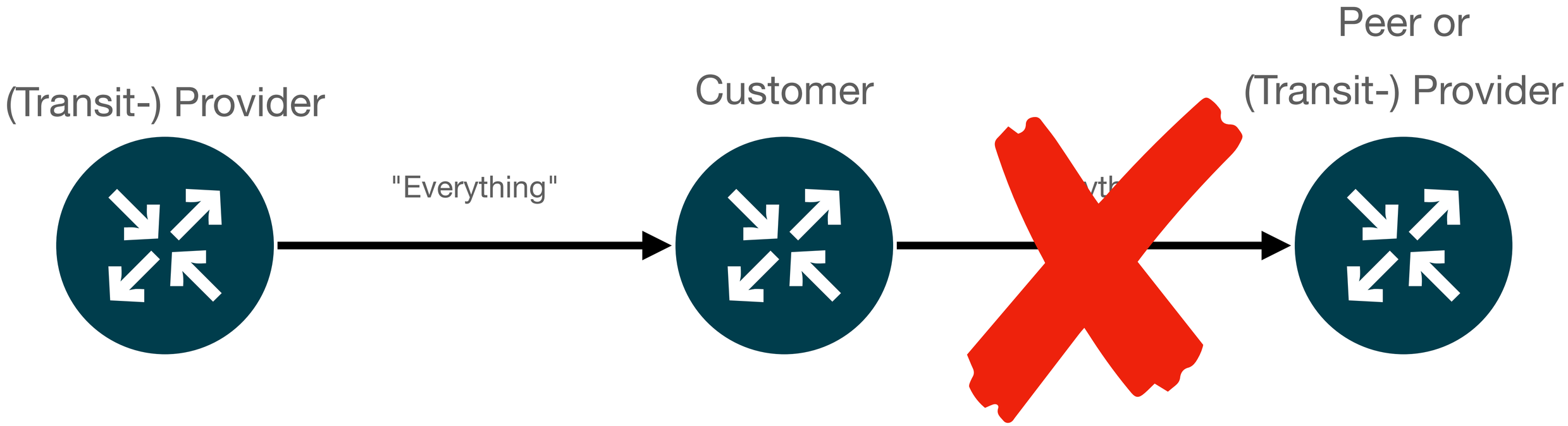
Customer




(Transit-) Provider
Customer
"Everything"


(Transit-) Provider
"Everything"
Customer
Peer or
(Transit-) Provider

You do not want this to happen!



BGP Neighbors

Announcing Prefixes

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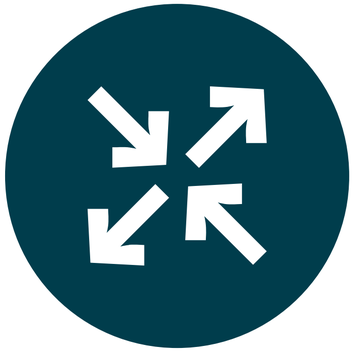
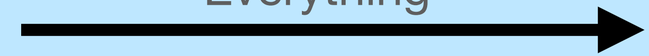
Announcing Prefixes

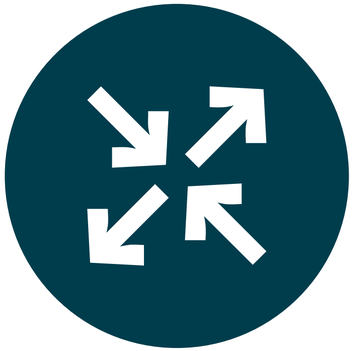
(Transit-) Provider



"Everything"



own + customers



Customer

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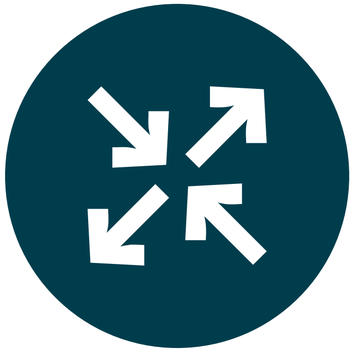
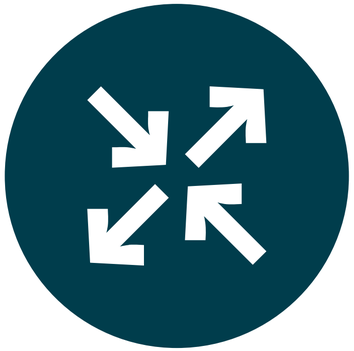
Announcing Prefixes

(Transit-) Provider



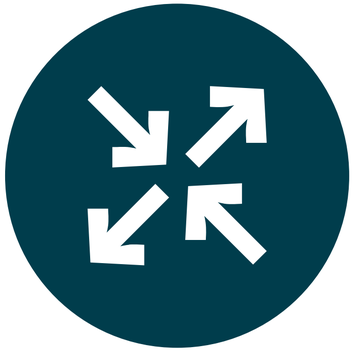
"Everything"

own + customers



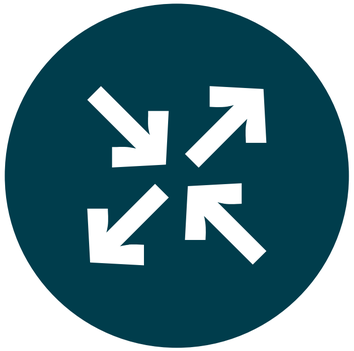
Customer

Peer



own + customers

own + customers



Peer

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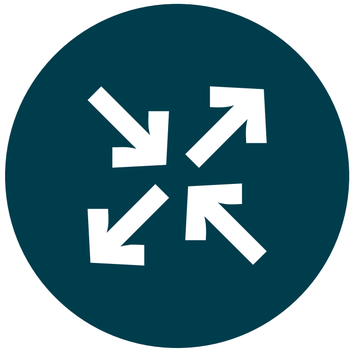
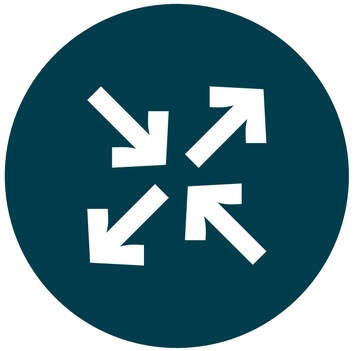
Announcing Prefixes

(Transit-) Provider



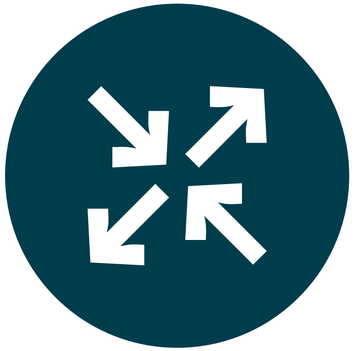
"Everything"

own + customers



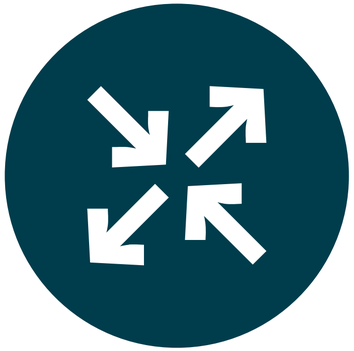
Customer

Peer



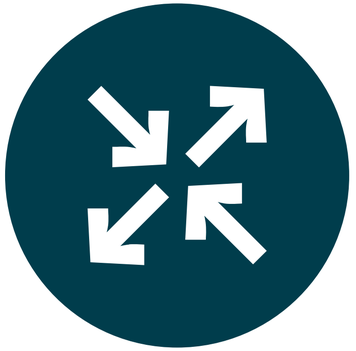
own + customers

own + customers



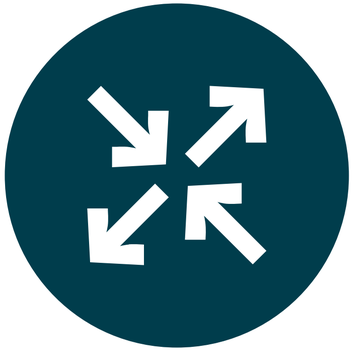
Peer

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
- 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
- Transit Provider - Customer
- Peer - Peer
- 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 192.0.2.1 remote-as 64501
  neighbor 192.0.2.1 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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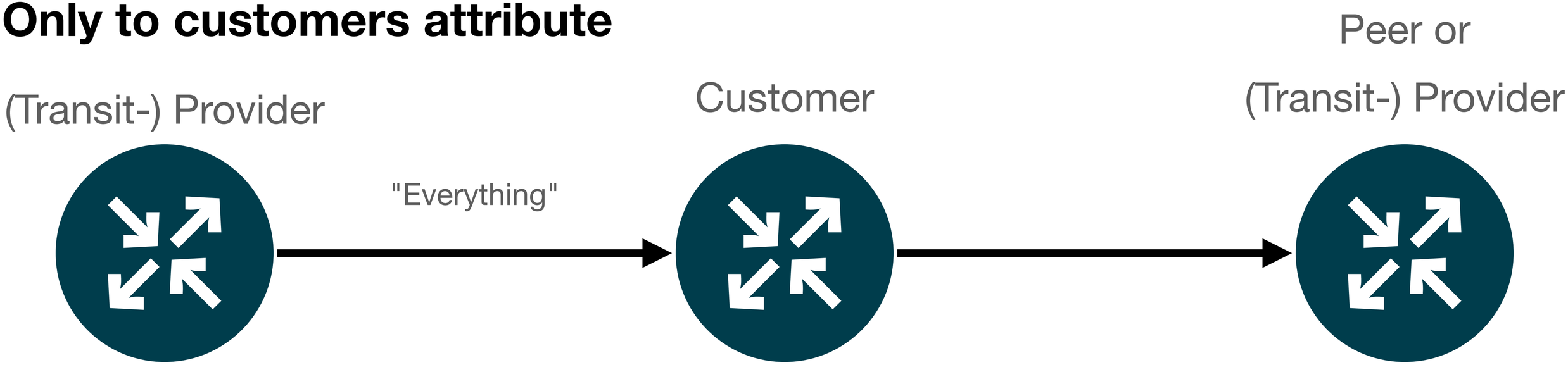
Is that all?

Is that all? No

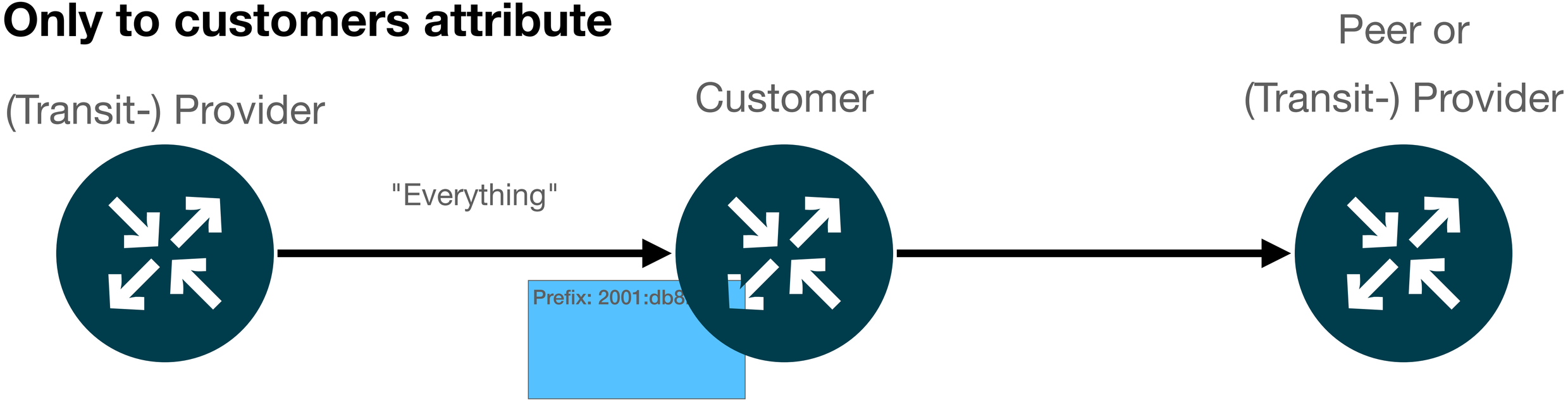
OTC

Only to customers attribute



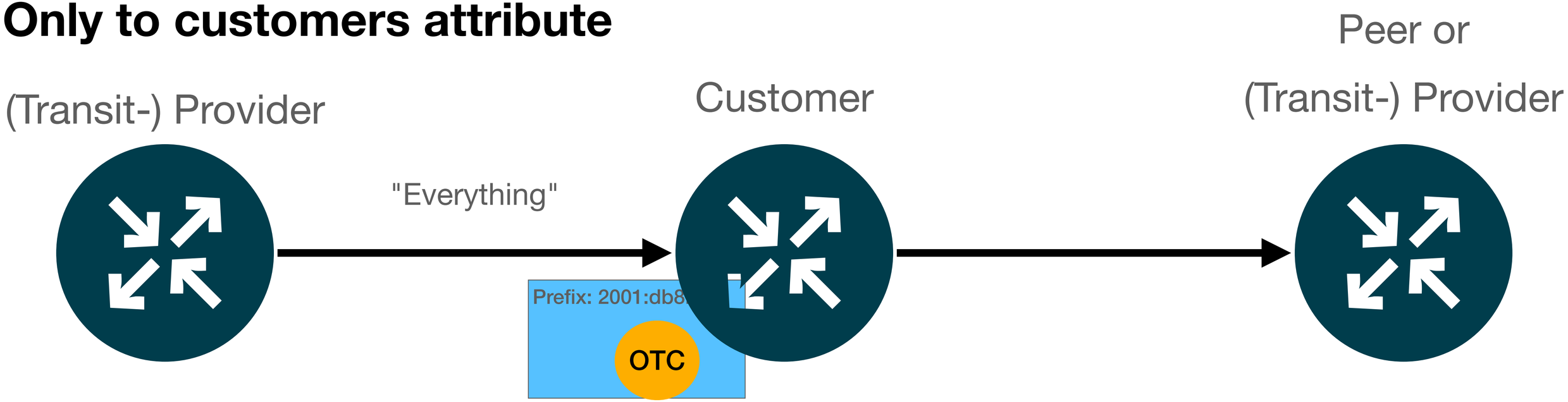
OTC

Only to customers attribute



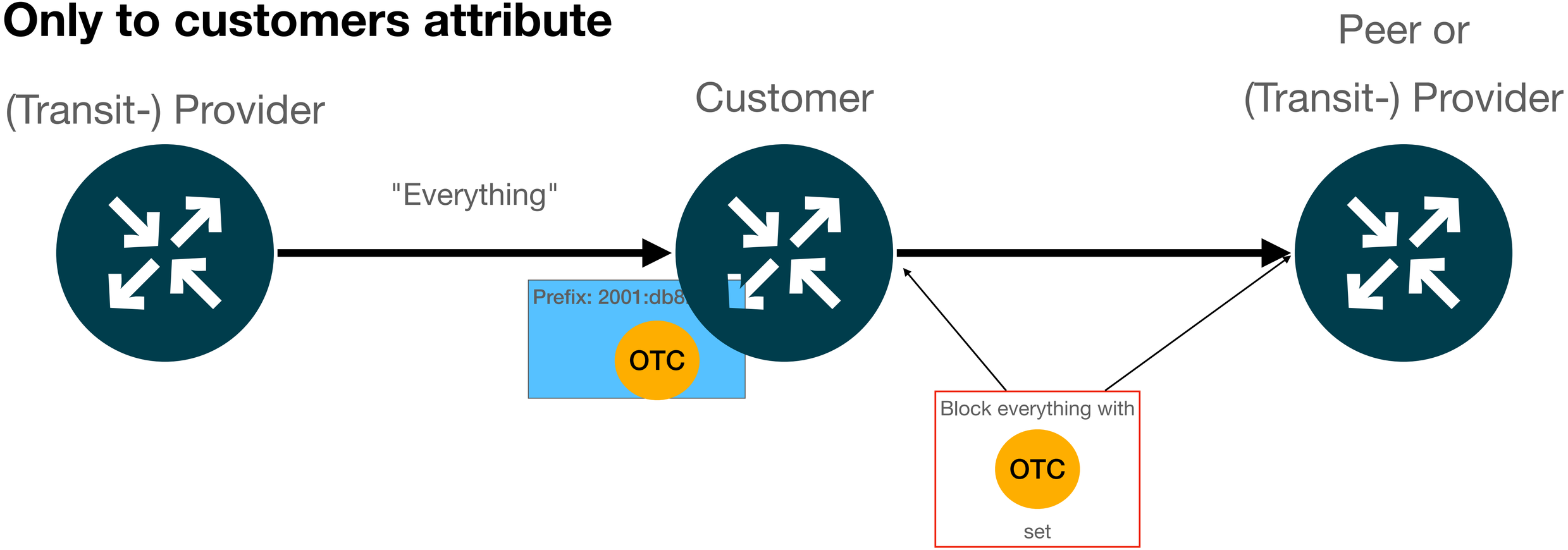
OTC

Only to customers attribute



OTC

Only to customers attribute



OTC

Only to customers attribute

OTC

Only to customers attribute

- It's a little more complex
- OTC carries also an AS number

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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

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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

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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

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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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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**

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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**
  - Egress: If OTC is **not** present, and receiver is Customer, Peer or RS-Client, set OTC with own AS as value

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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**
  - Egress: If OTC is **not** present, and receiver is Customer, Peer or RS-Client, set OTC with own AS as value
  - Egress: If OTC is present, do not send the prefix to Transit Provider, Peer or RS

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Want to know more?

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Want to know more?

	Monday 24 October	Tuesday 25 October	Wednesday 26 October	Thursday 27 October	Friday 28 October
08:30	Welcome Coffee	Welcome Coffee	Welcome Coffee	Welcome Coffee	Welcome Coffee
09:00	Tutorial	Plenary	Routing	Anti-Abuse	Plenary
09:30	Tutorial	Plenary	Address Policy	MAT	Plenary
10:00	Tutorial	Plenary	Coffee Break	Anti-Abuse	Plenary
10:30	Tutorial	Coffee Break	Open Source	Coffee Break	GM Results
11:00	Coffee Break	Plenary	Open Source	DNS	Closing Plenary
11:30	Newcomers' Introduction	Plenary	Coffee Break	DNS	Closing Plenary
12:00	Newcomers' Introduction	Plenary	IPv6	DNS	Closing Plenary
12:30	Lunch	Lunch	IPv6	Lunch	Lunch
13:00	Lunch	Lunch	Lunch	Lunch	Lunch
13:30	Lunch	Lunch	Lunch	Lunch	Lunch
14:00	Opening Plenary	Plenary	Lunch	Database	
14:30	Opening Plenary	Plenary	RIPE NCC Services	Database	
15:00	Opening Plenary	Plenary	RIPE NCC Services	Database	
15:30	Coffee Break	Coffee Break	RIPE NCC Services	Coffee Break	
16:00	Plenary	Plenary	Coffee Break	RIPE Community Plenary	
16:30	Plenary	Plenary	General Meeting	RIPE Community Plenary	
17:00	Coffee Break	Coffee Break	General Meeting	RIPE Community Plenary	
17:30	BCOP TF	BoF	General Meeting	Coffee Break	
18:00	BCOP TF	BoF	General Meeting	Diversity In Tech	
18:30				Diversity In Tech	
19:00					

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Want to know more?

	Monday 24 October	Tuesday 25 October	Wednesday 26 October	Thursday 27 October	Friday 28 October
08:30	Welcome Coffee	Welcome Coffee	Welcome Coffee	Welcome Coffee	Welcome Coffee
09:00	Tutorial	Plenary	Routing	Address Policy	Anti-Abuse	MAT	Plenary
09:30	Tutorial						
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10:30		Coffee Break	Open Source	Address Policy	Coffee Break		GM Results	Coffee Break
11:00	Coffee Break	Plenary			DNS	IoT	Closing Plenary
11:30			Coffee Break				
19:00							

Thank you!

Come to the Routing WG

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DE-CIX Management GmbH | Lindleystr. 12 | 60314 Frankfurt | Germany
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