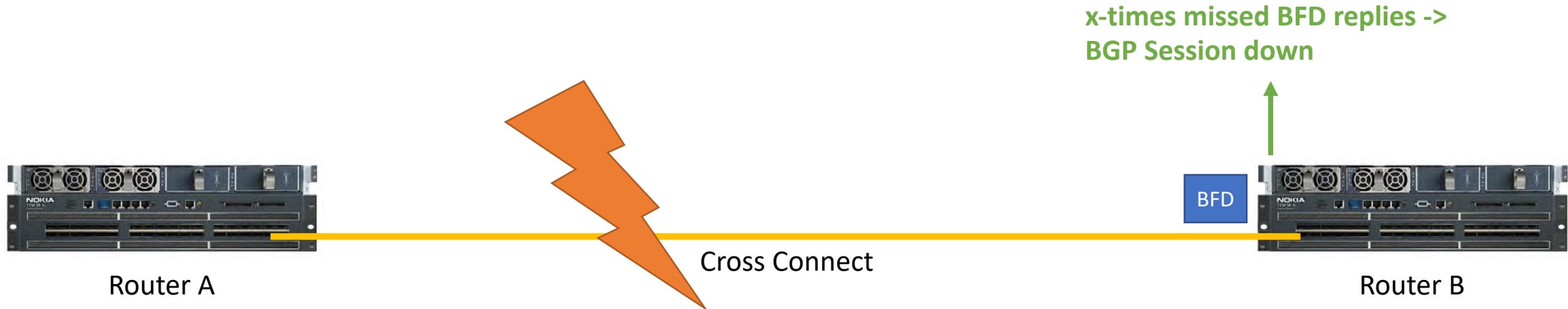


# BFD at IXPs

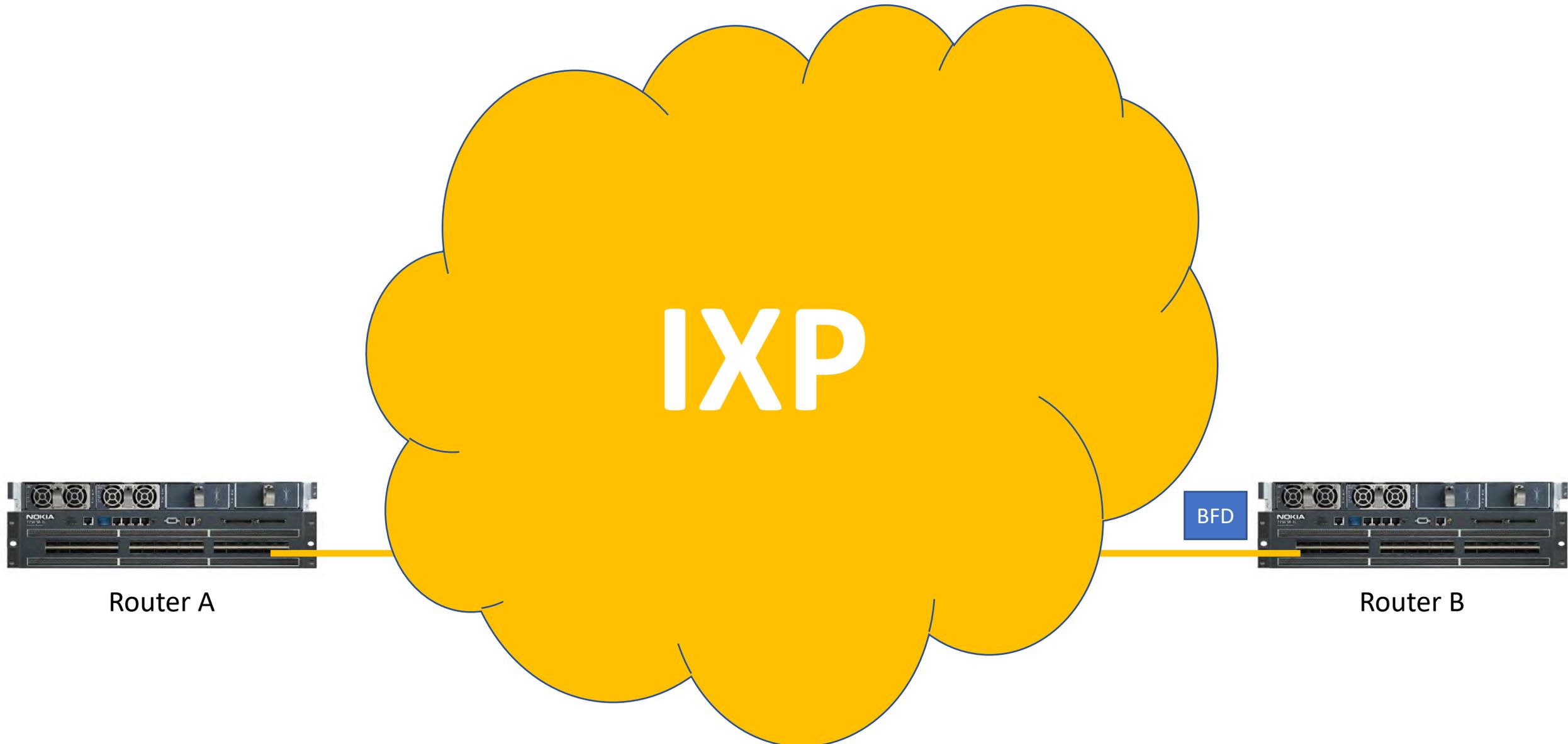
Thomas King, CTO, DE-CIX

# What is BFD?

- BFD = Bidirectional Forwarding Detection (RFC 5880, RFC 5881)
- Low-overhead, short-duration method of detecting failures in the forwarding path between two adjacent routers



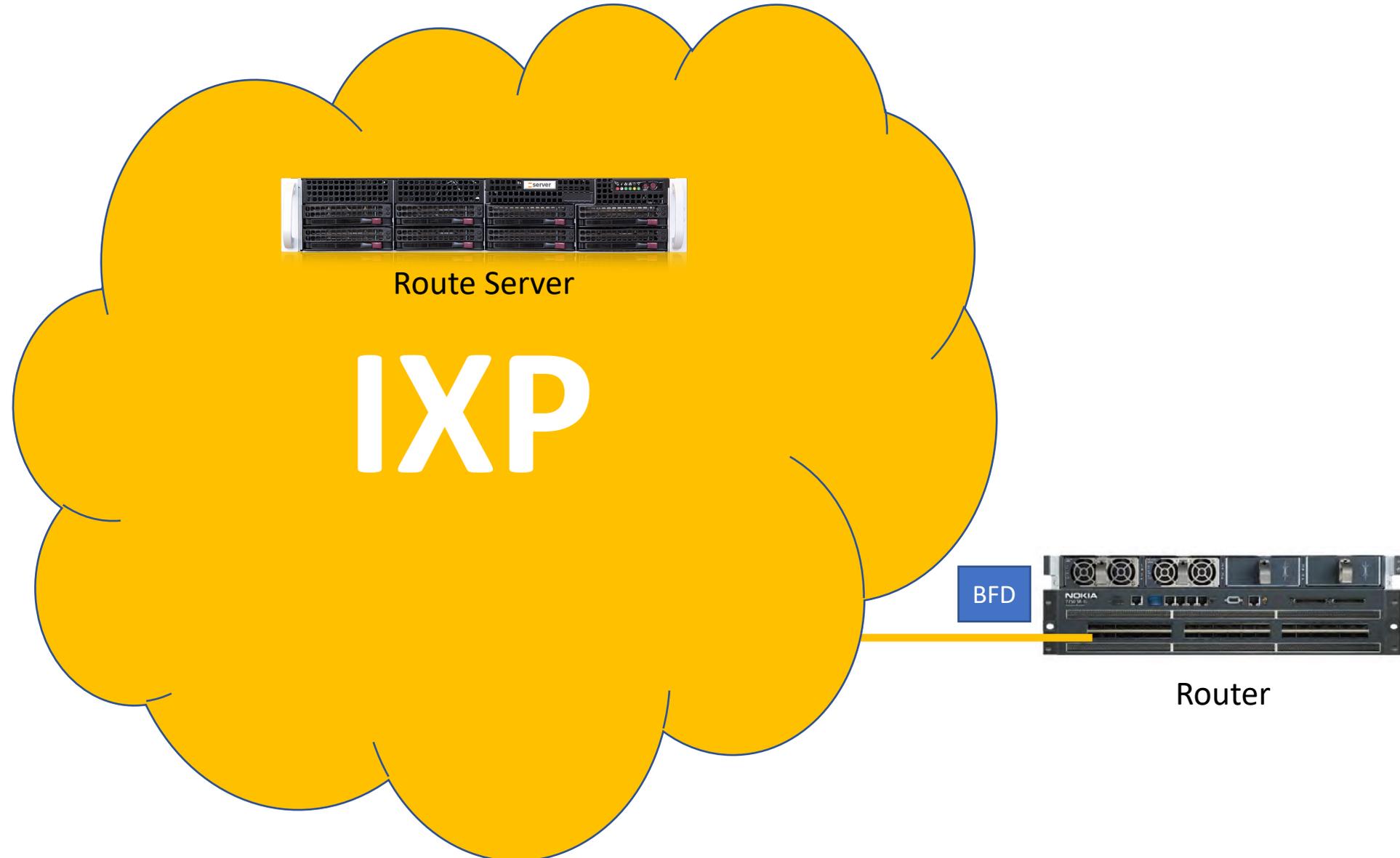
# BFD at IXPs: Forwarding Detection for Two Peers



# BFD at IXPs: Forwarding Detection for Two Peers

- Forwarding issue at the IXPs (is peer A reachable by peer B, is peer B reachable by peer A) can be detected very quickly -> BGP session between peers can be automatically shutdown
  - We all have been there
- IXPs can facilitate the use of BFD (e.g., by highlighting the value of BFD, providing configuration guidelines)
- **Peers need to configure BFD themselves**

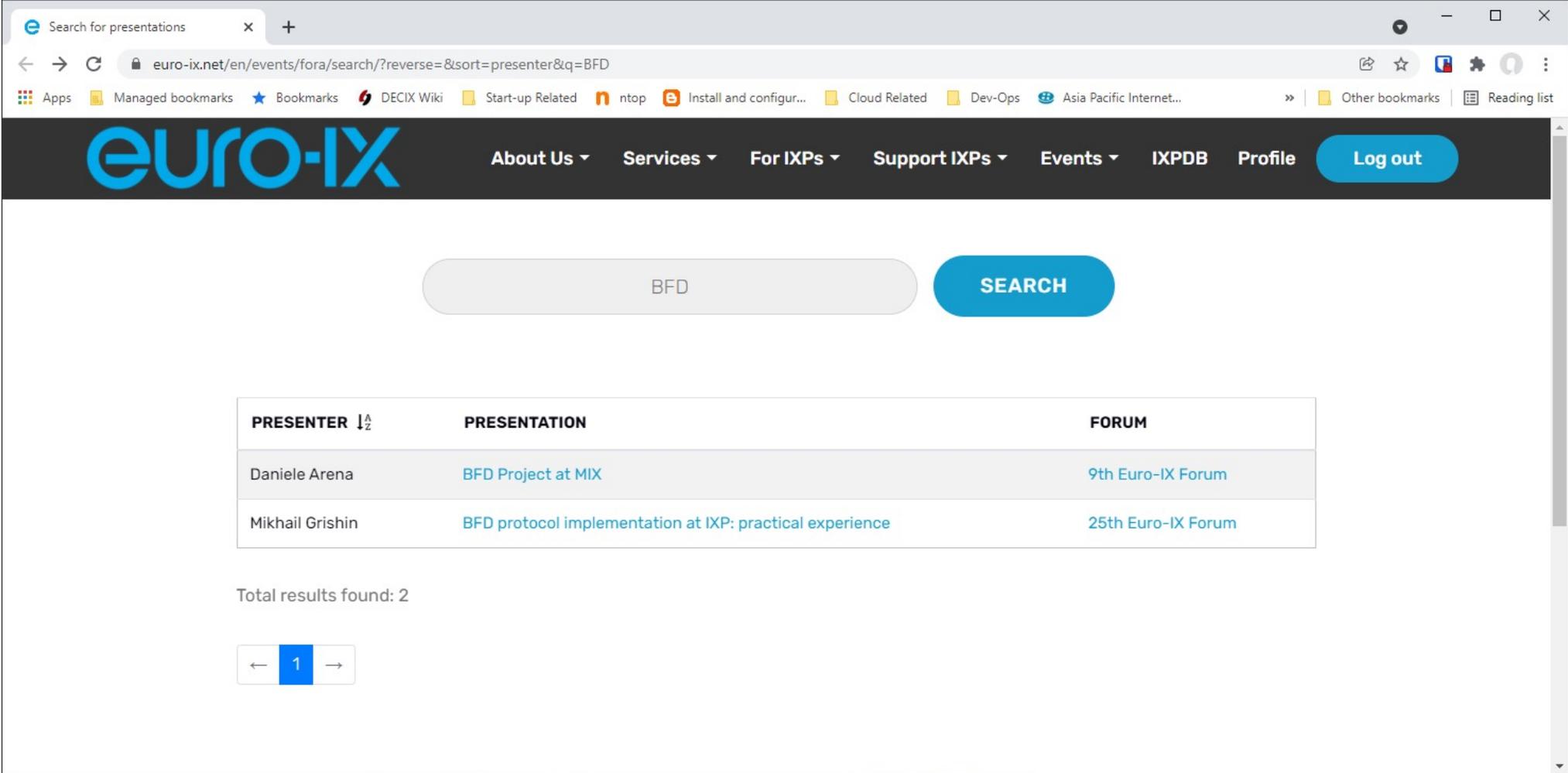
# BFD at IXPs: Forwarding Detection for the Route Server and a Peer



# BFD at IXPs: Forwarding Detection for the Route Server and a Peer

- Forwarding issue between Route Server and a peer (both ways) can be detected very quickly -> BGP session of this peer can be automatically shutdown
  - Route Server can provide alternative routes for the prefixes of this peer if available
  - or
  - Route Server can withdraw prefixes from this peer -> traffic is not dropped on the floor for minutes (!!!)
- **IXPs need to enable BFD at the Route Server and motivate peers to use it (value, documentation)**
- **Peers need to configure BFD themselves**

# Which IXPs Support BFD at the Route Server?



The screenshot shows a web browser window with the URL `euro-ix.net/en/events/fora/search/?reverse=&sort=presenter&q=BFD`. The page features the euro-IX logo and a navigation menu. A search bar contains the text "BFD" and a "SEARCH" button. Below the search bar, a table displays two search results. The table has three columns: "PRESENTER", "PRESENTATION", and "FORUM". The first result is by Daniele Arena for "BFD Project at MIX" at the "9th Euro-IX Forum". The second result is by Mikhail Grishin for "BFD protocol implementation at IXP: practical experience" at the "25th Euro-IX Forum". Below the table, it states "Total results found: 2" and a pagination control showing "1" of 2 results.

PRESENTER ↓	PRESENTATION	FORUM
Daniele Arena	<a href="#">BFD Project at MIX</a>	<a href="#">9th Euro-IX Forum</a>
Mikhail Grishin	<a href="#">BFD protocol implementation at IXP: practical experience</a>	<a href="#">25th Euro-IX Forum</a>

Total results found: 2

← 1 →

# Which IXPs Support BFD at the Route Server?



- 695 peers are connected at MSK-IX
- Forwarding detection for two peers configured at MSK-IX: Unknown
- Forwarding detection for the Route Server and a peer configured at MSK-IX: 102 peers (= 15%)
- **Great documentation:** <https://kb.msk-ix.ru/en/ix/services/route-server>
- **BFD status shown in the MSK-IX Looking Glass:** [https://www.msk-ix.ru/en/lookingglass/?query=summary&rtr=msk-rs1.ripn.net&addr=&ne\\_arg=&community=](https://www.msk-ix.ru/en/lookingglass/?query=summary&rtr=msk-rs1.ripn.net&addr=&ne_arg=&community=)

# Room for Improvements?



**Thomas King**  
@thking



Do you use BFD to protect your Peering Sessions?

Yes, of course!

32.7%

**No, why should I use it?**

**38.5%**

I think about it

28.8%

104 votes · Final results

12:20 AM · Sep 29, 2021 · Twitter Web App

# BFD at IXPs: Standardization?

- Implementation is optional and up to every IXP. However, if an IXP implements BFD, it should follow the standard?  
Let's make it easy for our shared customers to use this great feature!
- Make peers aware of the value of BFD at IXPs (two use-cases)
- Provide documentation and configuration guidelines
- Standardize configuration values for BFD at the Route Server
- Feature request for Alice-LG (show BFD state of a peer in Alice-LG)
- Configuration guidelines for BFD at the Route Server (Bird, OpenBGPd?)
- Euro-IX Workshop for BFD at IXPs? -> Let's do it together!

**Thank you for your attention!**