

Working together to improve routing security for all

The MANRS IXP Programme

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Mutually Agreed Norms for Routing Security

MANRS defines four simple but concrete actions that network operators must implement to improve Internet security and reliability.

- The first two operational improvements eliminate the root causes of common routing issues and attacks, while the second two procedural steps improve mitigation and decrease the likelihood of future incidents.

MANRS builds a visible community of security minded network operators and IXPs



MANRS

MANRS Actions

Filtering

Prevent propagation of incorrect routing information

Ensure the correctness of your own announcements and announcements from your customers to adjacent networks with prefix and AS-path granularity

Anti-spoofing

Prevent traffic with spoofed source IP addresses

Enable source address validation for at least single-homed stub customer networks, their own end-users, and infrastructure

Coordination

Facilitate global operational communication and coordination between network operators

Maintain globally accessible up-to-date contact information in common routing databases

Global Validation

Facilitate validation of routing information on a global scale

Publish your data, so others can validate



A bit of history



EURO-IX 28th Forum: “What is in MANRS for an IXP?”

Is routing security important for your community?

- An opportunity to build a “safe neighborhood”

Do you need a global reference point?

- A platform where you can organize related activities

Are you willing to feed your expertise back to MANRS?

- Strengthening the global community

Developing a set of useful actions

Development team

- AMS-IX, AOIX, BKNIX, CABASE, DE-CIX, IIFON, IXPN, LONAP, NIC.CR, RINEX, TorIX

Requirements

- Improve routing resilience and security
- Be useful to IXP members
- Do not set the bar too high, so that few IXPs can join
- Do not set it too low, so it makes no difference
- Make the actions concrete and measurable

EURO-IX 30th Forum: What's on the table?

Prevent propagation of incorrect routing information	Assist in preventing unwanted traffic	?
Facilitate global operational communication and coordination between network operators	?	Provide monitoring and debugging tools
Promote MANRS among the membership	Perform MANRS Local auditing	Assist with the mitigation of a DDoS attack

EURO-IX 31st Forum: This initiative needs your feedback

Vote link:

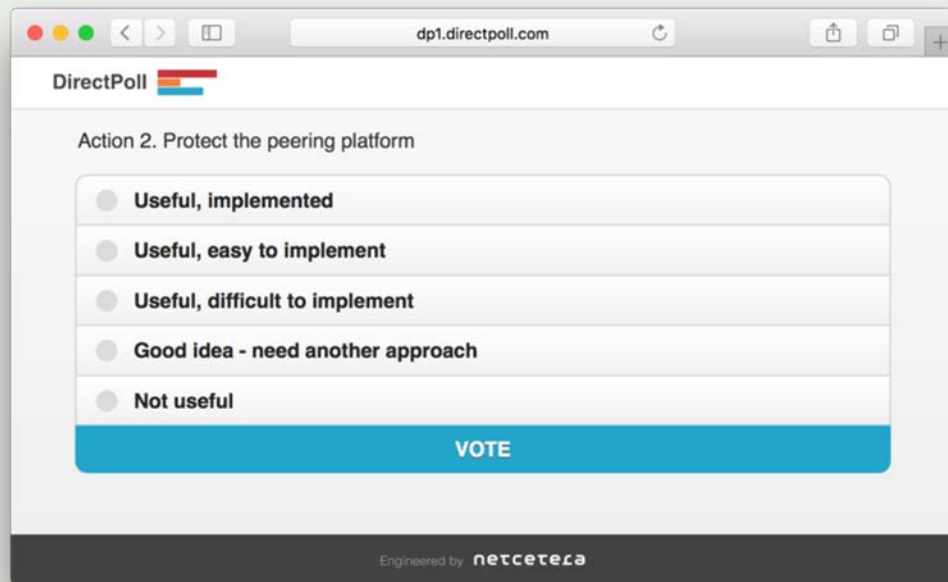
<http://etc.ch/Pz5h>

As we go Action by Action, please vote

We'll see the results immediately

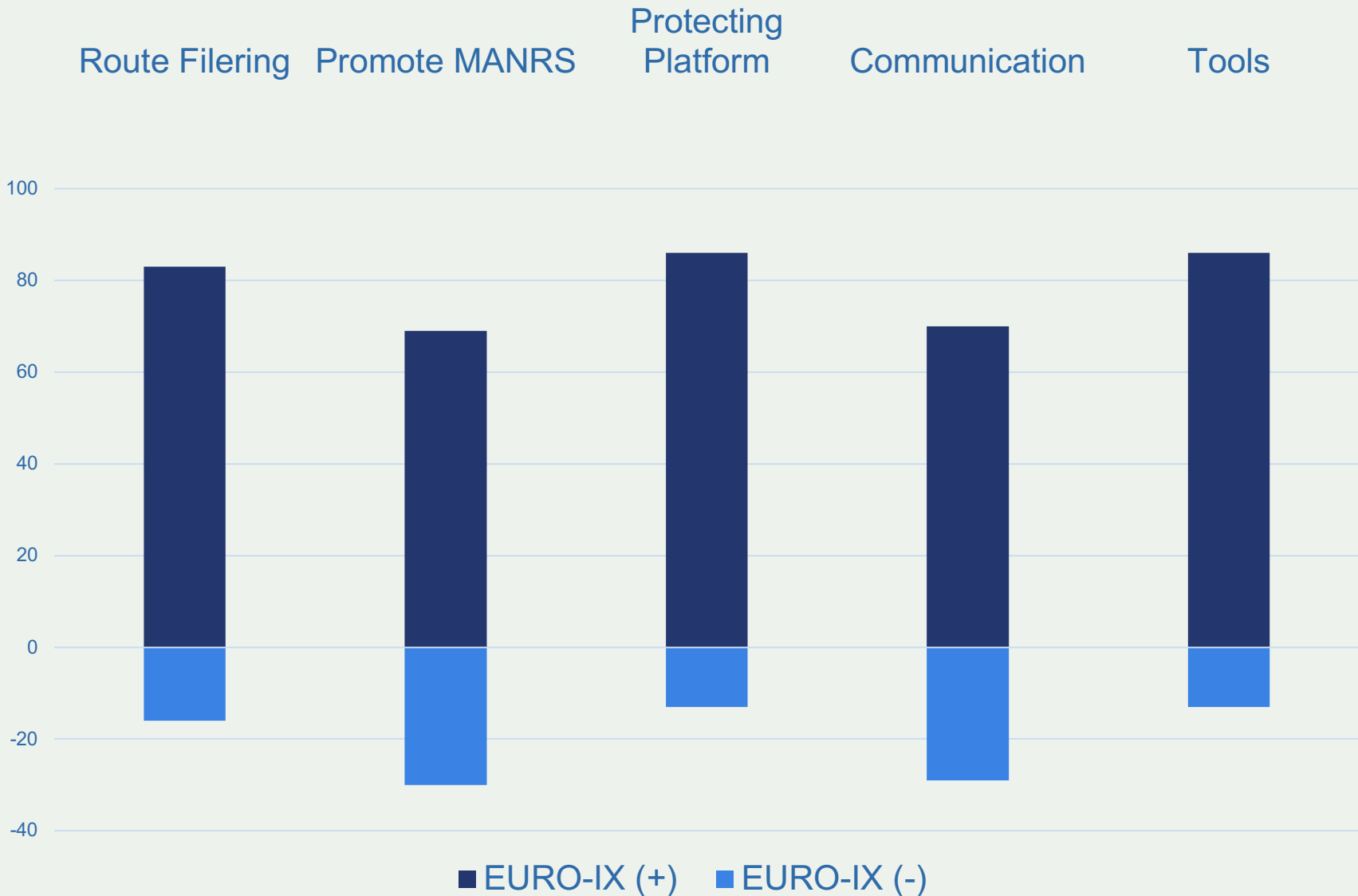
A priority list by importance and feasibility

Specific comments on an Action are welcome

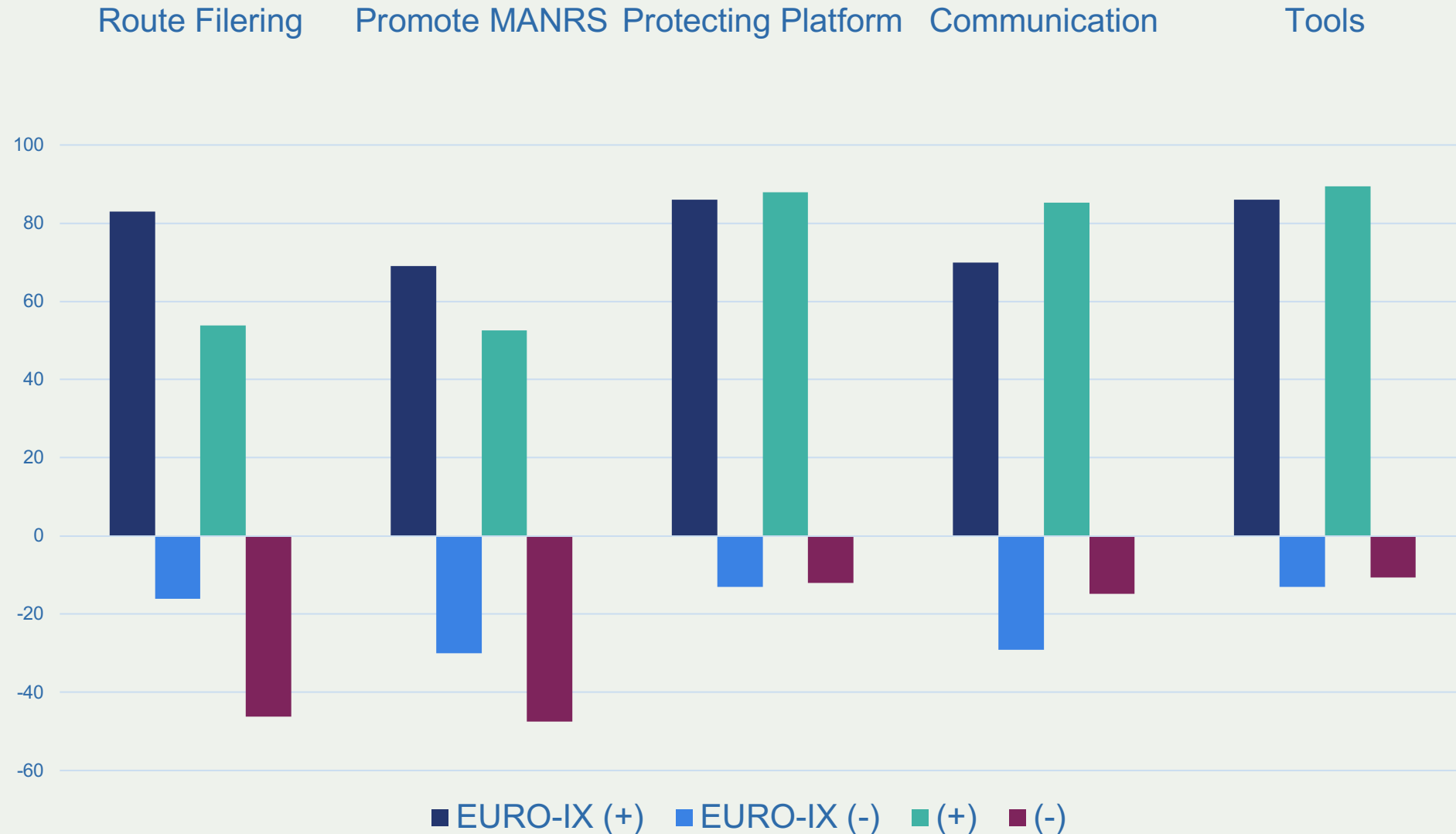


The image shows a screenshot of a web browser displaying a DirectPoll survey. The browser's address bar shows 'dp1.directpoll.com'. The survey title is 'Action 2. Protect the peering platform'. There are five radio button options for voting: 'Useful, implemented', 'Useful, easy to implement', 'Useful, difficult to implement', 'Good idea - need another approach', and 'Not useful'. A blue 'VOTE' button is at the bottom of the options. The footer of the poll says 'Engineered by netcetera'.

Implemented/Easy vs Difficult/Not Useful



And then, after the roadshow (LA, AF, AP, NA)



The IXP Programme

Launched April 23, 2018



A dozen of leading IXPs around the globe already joined

IXP Participants

IXPs are important partners in the MANRS community

IXPs can be a collaborative focal point to discuss and promote the importance of routing security. To address the unique needs and concerns of IXPs, the community created a related but separate set of [MANRS actions for IXP members](#).

[Click Here to Join!](#)

Organization	Country	Action 1: Prevent Incorrect Routing Information	Action 2.1 Assist in Correct Routing Information	Action 2.2 Assist in MANRS ISP Actions	Action 2.3 Indicate MANRS participation	Action 2.4 Incentives for MANRS Participation	Action 3. Protect the Peering Platform	Action 4. Facilitate Global Communication	Action 5. Provide Monitoring and Debugging Tools
INEX (Internet Neutral Exchange Association CLG)	IE								
TorIX (Toronto Internet Exchange Community)	CA								
DE-CIX	DE								
MSK-IX	RU								
Netnod	SE								
CRIX (NIC Costa Rica)	CR								
Asteroid (Asteroid									



Action 1. Facilitate prevention of propagation of incorrect routing information (Mandatory)

The IXP implements filtering of route announcements at the Route Server based on routing information data (IRR and/or RPKI)

Action 2. Promote MANRS in the IXP membership (Mandatory)

Action 2-1: Offer assistance to its members to maintain accurate routing information in an appropriate repository (IRR and/or RPKI)

OR

Action 2-2: Offer assistance in implementing MANRS ISP Actions for the members

OR

Action 2-3: Indicate MANRS participation on the member list and the website

OR

Action 2-4: Provide incentives linked to MANRS readiness

Action 3. Protect the peering platform

The IXP has a published policy of traffic not allowed on the peering fabric and performs filtering of such traffic.

Action 4. Facilitate global operational communication and coordination between network operators

The IXP facilitates communication among members by providing necessary mailing lists, and member directories.

Action 5. Provide monitoring and debugging tools to participants

The IXP provides a looking glass for its members.

Join the group of initial participants for the launch of the programme

Your IXP has to implement the majority (3/5) of the Actions, including mandatory 1&2



Why is this important?



We Are In This Together

Network operators and IXPs have a responsibility to ensure a globally robust and secure routing infrastructure.

The network security depends on actions of other players: networks and IXPs

The more network operators and IXPs work together, the fewer incidents there will be, and the less damage they can do.



LEARN MORE:

<https://www.manrs.org/ixp>

JOIN:

<https://www.manrs.org/join-ixp>





Thank you.

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