



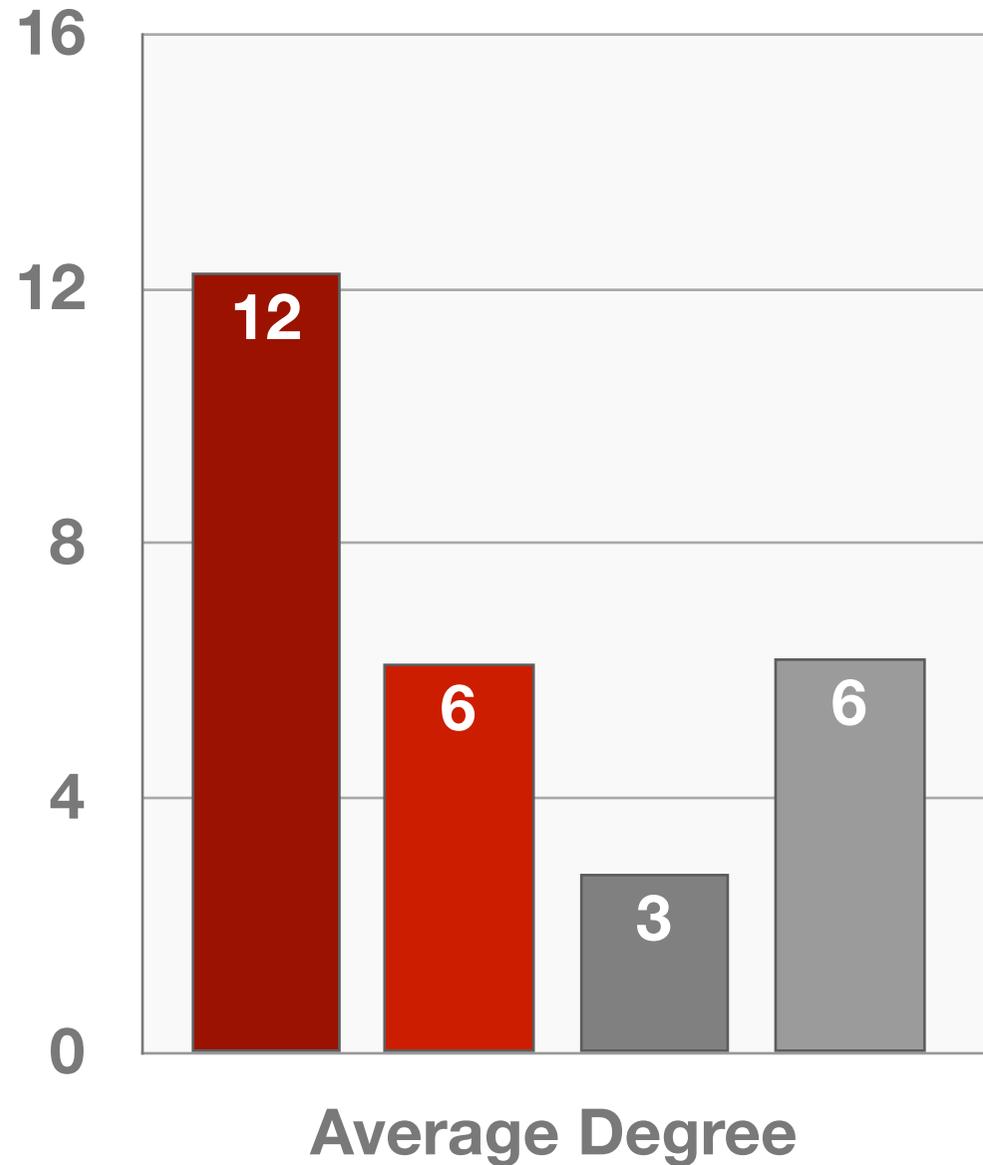
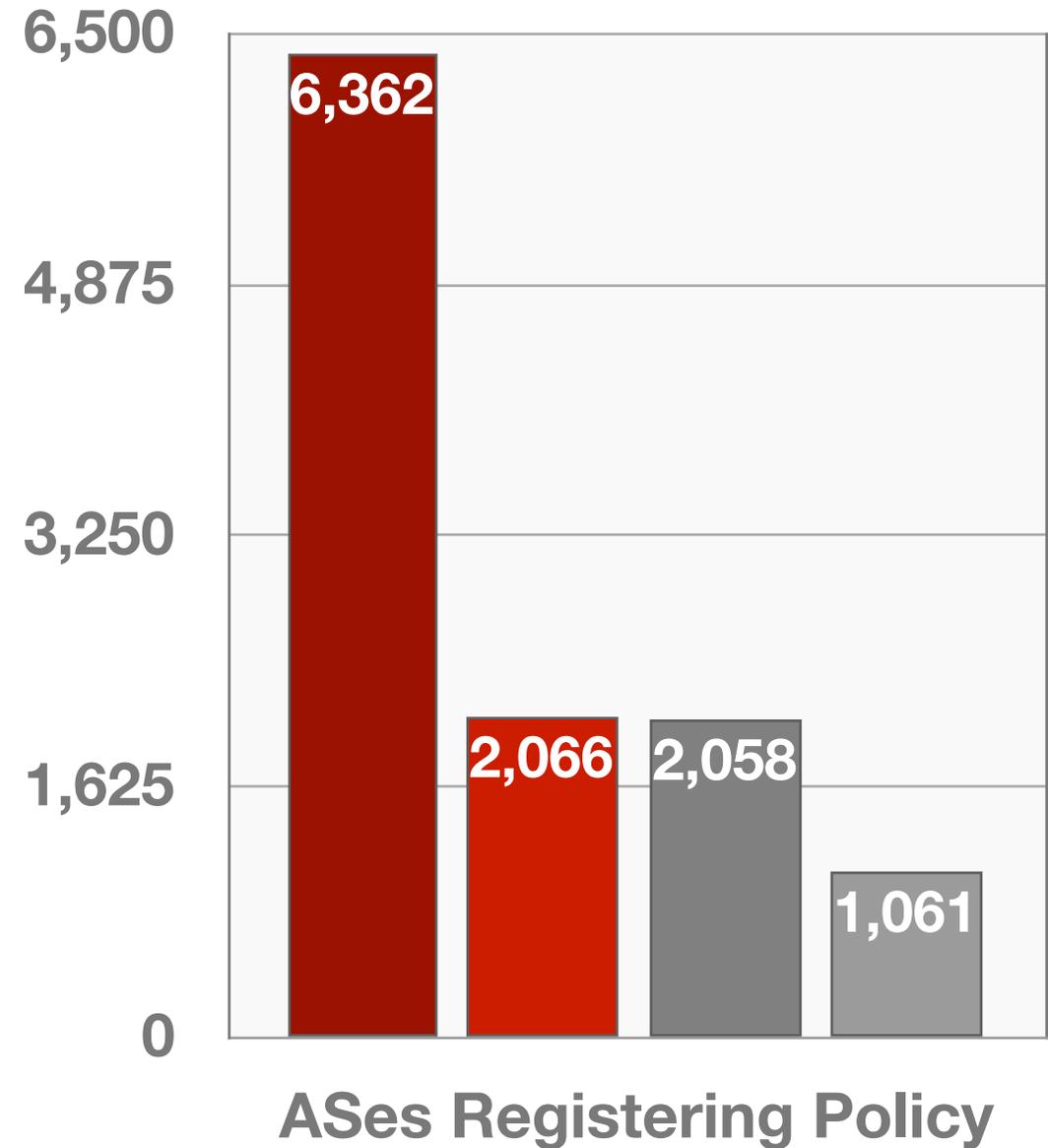
Nemecis: **A tool to analyze the IRR Registries**

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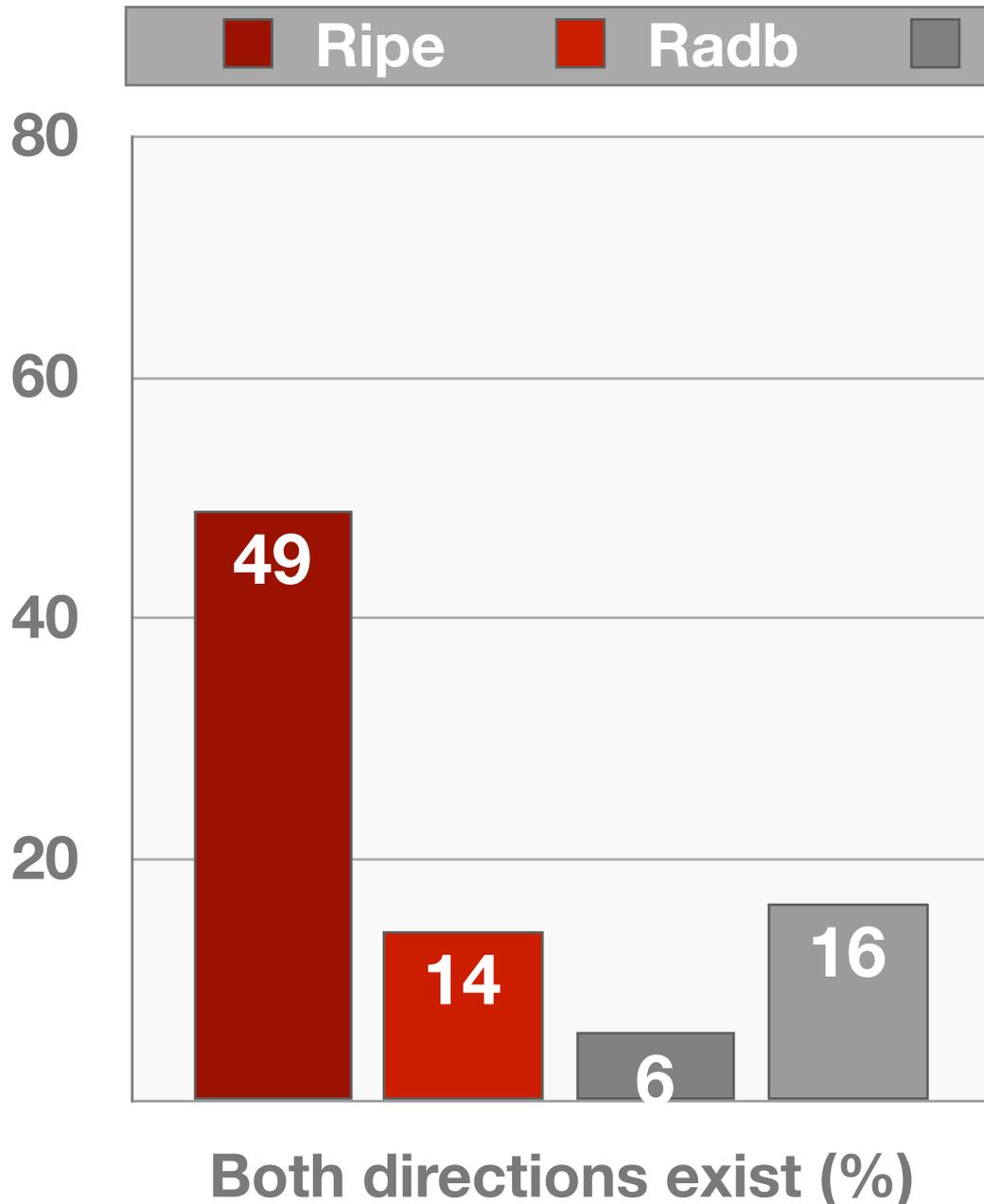
What are we trying to do?

- Quantify the accuracy of the IRR
 - Do they contain any useful/fresh information?
 - Can we find a lower bound on the accuracy?
- We develop a tool to analyze IRR data
 - Semantic analysis: import-export consistency
 - Consistency with external source of data (BGP routing tables)
 - No such tools existed before
 - We analyze the IRR collected on June 22, 2003

How many ASes register their policy?



Do both peers register “each other”?



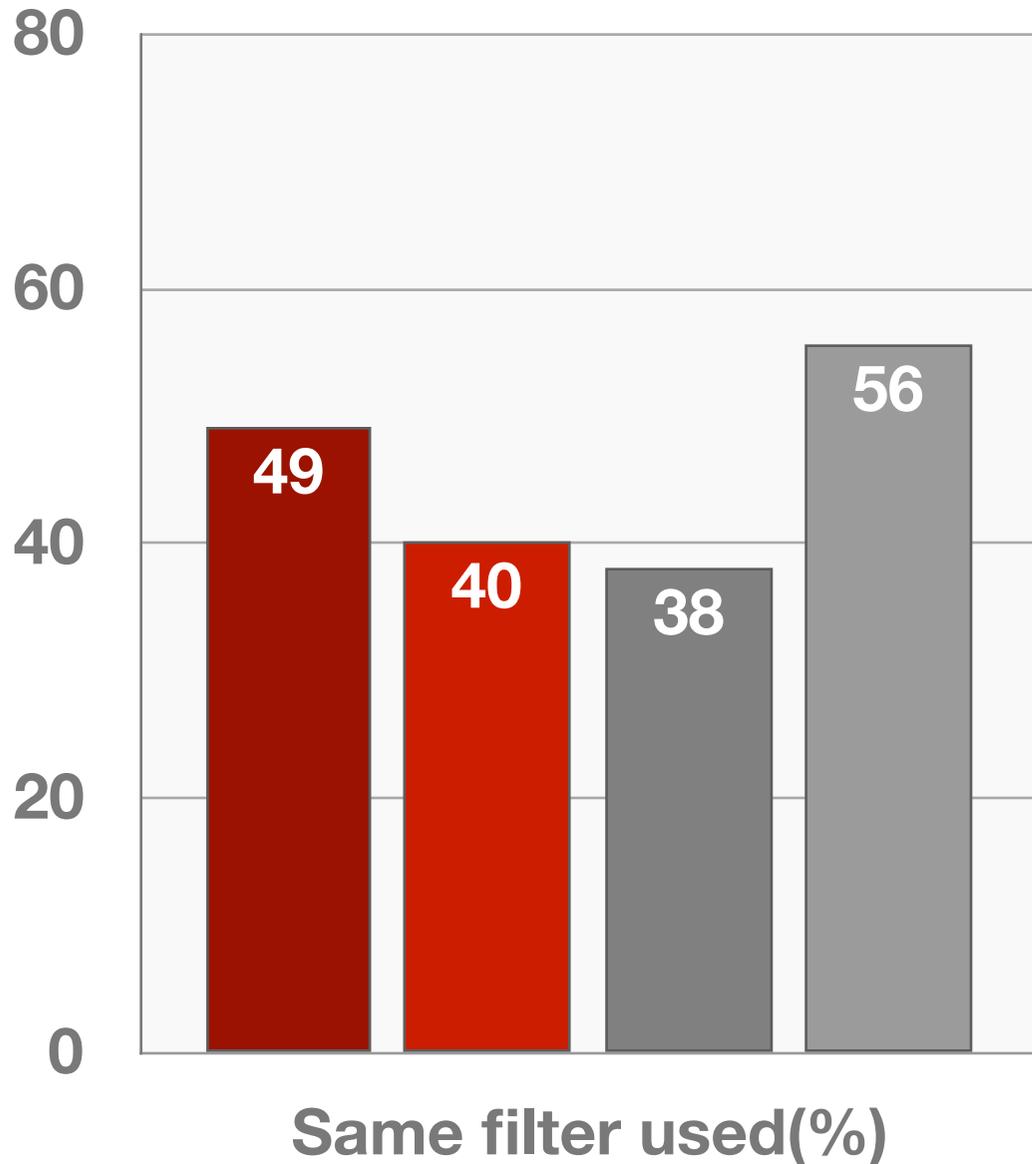
IRR

Policy of AS1:
from AS2 import B
to AS2 export A

Policy of AS2:
from AS1 import A
to AS2 export B

Do they use the same filter?

■ Ripe ■ Radb ■ Apnic ■ Rest



Examples of same filter

Policy of AS1:
from AS2 import B
to AS2 export A

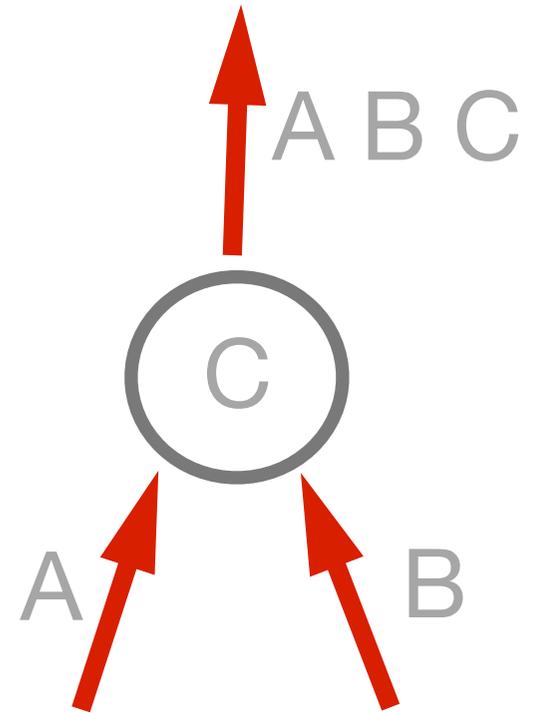
Policy of AS2:
from AS1 import A
to AS2 export B

Our Approach - Tool

Matching import-exports



Extract info from low-level policy
Use it to validate completeness
and accuracy



Tests for consistency

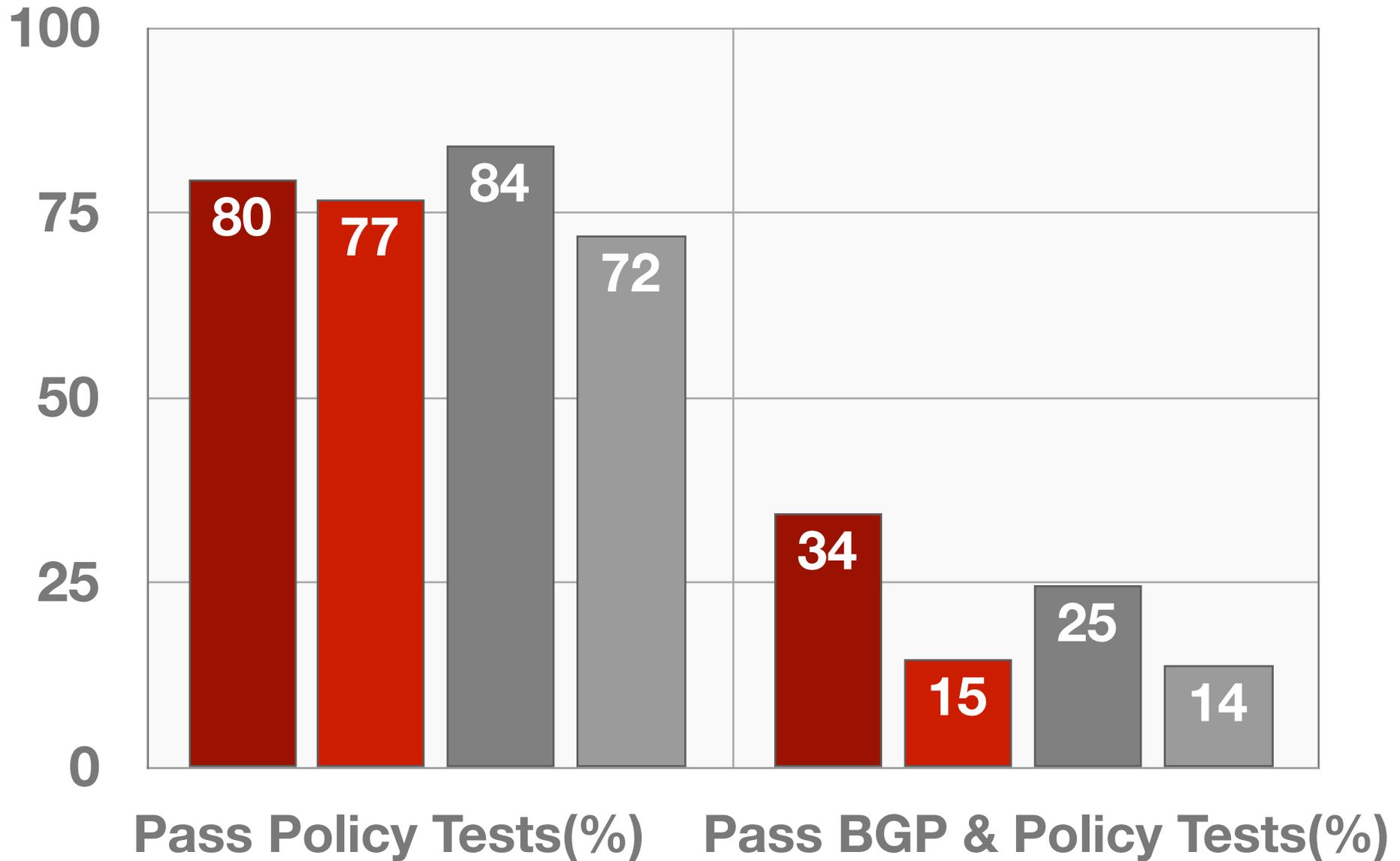
■ Policy based tests

- import-export consistency
- Link-Level policy is symmetric

■ BGP based tests

- All peers of an AS, as found in BGP, must be registered in IRR.
- The high-level policy of an AS should be the same in both BGP and in IRR (e.g. upstream, downstream).

Quantify the Accuracy of IRR



Snapshot of Nemecis

Nemecis

[HOME](#)

[REGISTRIES](#)

[ABOUT](#)

you are here: home

[view](#)

[external warnings](#)

[internal warnings](#)

[link level policy](#)

state: visible

 **AS3303**

[▲ Up one level](#)

[1] 2

[next 44 items »](#)

rpsl ▲	last modified	type
 AS3303	2003/06/16	AUT_NUM
 AS-SWCMCHPEERS	2002/03/26	AS_SET
 AS-SWCMCHROUTES	2002/03/26	AS_SET
 AS-SWCMGLOBAL	2003/05/23	AS_SET
 194.11.225.0/24	2001/08/03	ROUTE
 193.5.0.0/16	2003/03/17	ROUTE
 194.11.156.0/22	1999/08/03	ROUTE
 194.124.232.0/24	1999/10/05	ROUTE
 193.73.208.0/24	1999/11/23	ROUTE

Conclusions

- The first effort to quantify the consistency of IRR
 - RIPE is the best registry (over 2100 ASes)
 - Useful information exists in the Registries.
- We are actively seeking feedback and collaboration from the industry.
 - How can we use the tool to help ISPs?
 - How can we improve the IRR?
- To use our demo please visit:

<http://ira.cs.ucr.edu:8080/Nemecis>