





CONTROL-PLANE DATE-PLANE TESTING

To Convergence and Beyond

ABOUT ME/US



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Tobias Heister

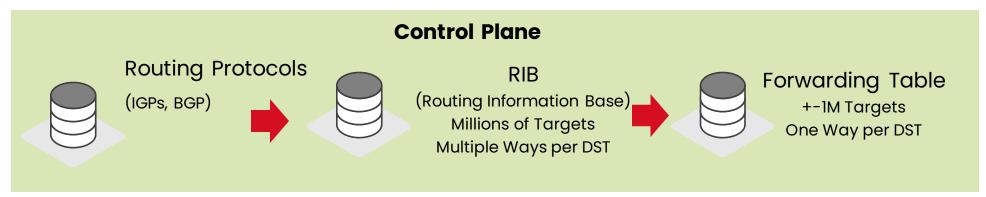
- Solution Architect by Day
- one of the Keepers of the XT3LAB
 (see talk from DENOG9 about the Lab
 http://dump.hackathon.de/denog9/171124_0930_automation_for_network_lab_environments__tobias_heister.pptx)

Xantaro

- Value Added Reseller + Trusted Advisor
- Biggest (outside of the vendor) Juniper (+ more technologies) Lab in Europe

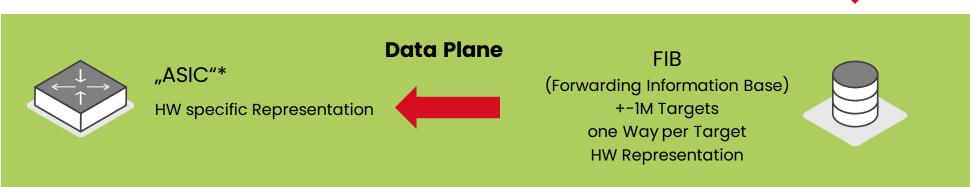
CONTROL PLANE - DATA PLANE - WHAT IS WHAT?

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Generic Compute x86/ARM/MIPS





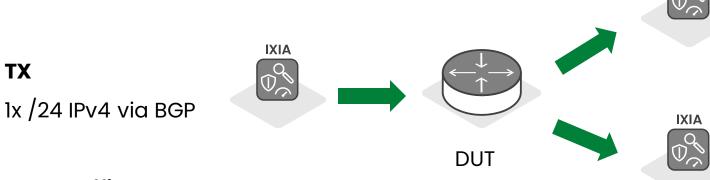
Special HW
Optional LC CPU
HW Forwarding

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^{*}https://github.com/denog/media/blob/main/DENOG12/Day0_workshop_ASIC.pdf

CP/DP TEST METHODOLOGY





RX1

IXIA

900k /24 IPv4 via BGP

Preferred via local-pref

RX2

900k /24 IPv4 via BGP

Test Traffic

1 Flow per Prefix (900k Flows)

Relevant Rate (at least 1pps per flow for 1s resolution)

x seconds	x seconds	x seconds	
Conrol Plane Event Withdraw 900k Prefixes on RX1	Data Plane Event1 First Traffic arrives on RX2 Remaining Traffic still arrives on RX1	Data Plane Event2 All Traffic Arrives on RX2 No Traffic remains on RX1	
	DP/DP Convergence in s		
	CP/DP Convergence in s		



SOME RESULTS (BIGGEST JUNIPER LAB IN EUROPE)

Good

OK

Juniper MX304	11s	Juniper PTX10001	43 s
Juniper MX204	21s	Juniper PTX10003	45 s
Juniper MX480 (MPC5)	22 s	Juniper ACX7100	70 s
Juniper MX10008 (LC2101)	23 s		

BAD

Honorary Mention

Juniper SRX380	464s
Juniper SRX345	442s
Juniper MX80	318s
Juniper MX104	242 s

Juniper SRX1500 117s

Full Results see Blogpost: https://www.xantaro.net/en/tech-blogs/juniper-cp-dp-convergence-testing/

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CALL TO ACTION - "WE" SHOULD



DENOG Community

define standard BGP policies per use-case (Peering, Transit, \$whatever) e.g. via Routing-WG

Optionally) create Test-Suite based on "Open" Tools (e.g. TREX, bng-blaster, Ostinato)

Define Test-Plan + Setup
based on BGP Policies from WG



Xantaro

offer to run IXIA based tests for free in XT3LAB*
Bring your Router, We test it with you
All results must be published

DENOG

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Publish all results under the DENOG umbrella e.g. on DENOG Wiki/Website/\$Wherever

^{*}Terms and Conditions may apply. Contact us for Details. e.g. Limited to the Use Cases described in this presentation etc.



THANKS!

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