

Packet Pushers VDC

Continuous Testing for Networks

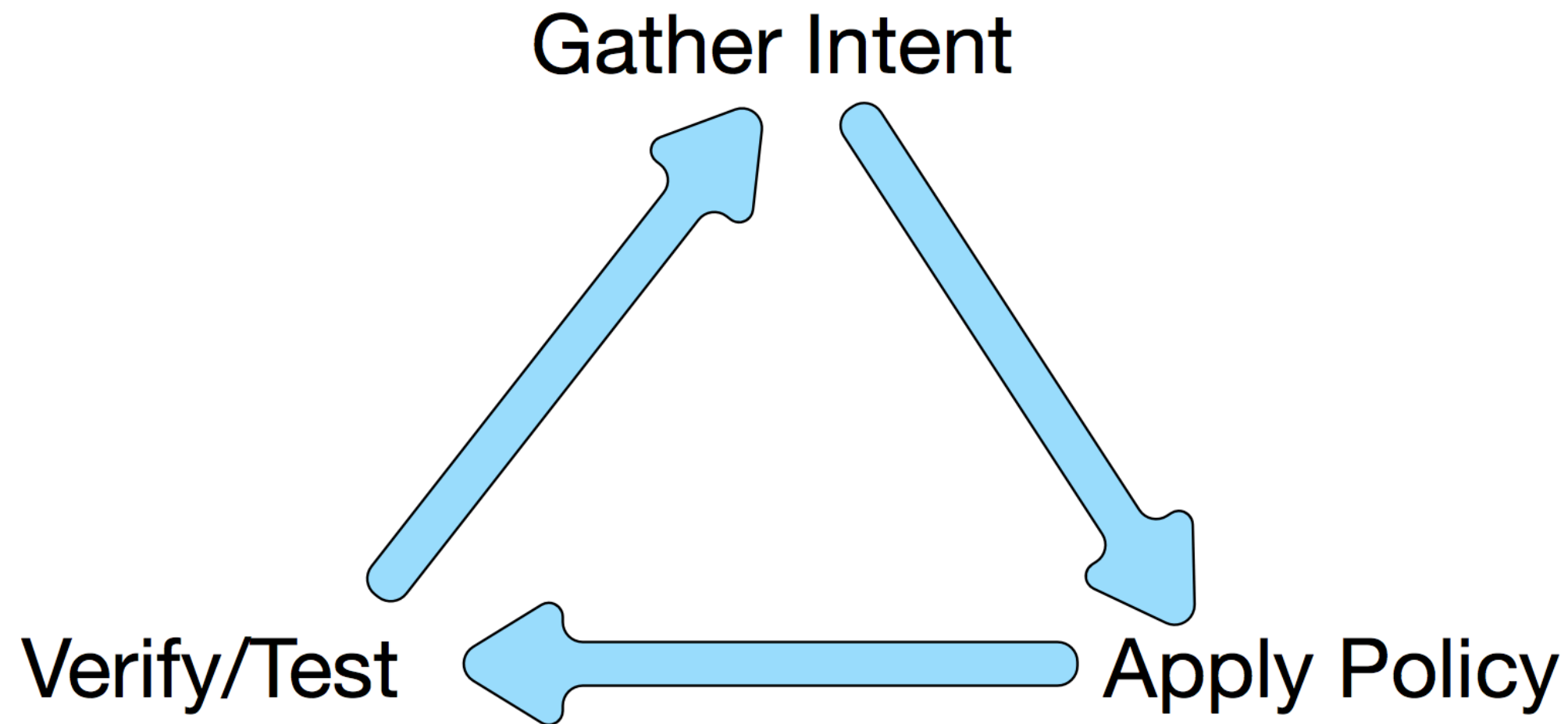
Matt Oswalt

@Mierdin

keepingitclassless.net

Problem Statement:
Firewall Configuration Sucks

Continuous Deployment and Testing for Networks



Why We Test



Mark Imbriaco

@markimbriaco

Follow



When you're thinking about monitoring, start with the question "How do I know that the system is working?" Don't try to skip ahead to "How do I know what's wrong?" until you answer the first question.

12:14 PM - 16 Jan 2018

218 Retweets 478 Likes



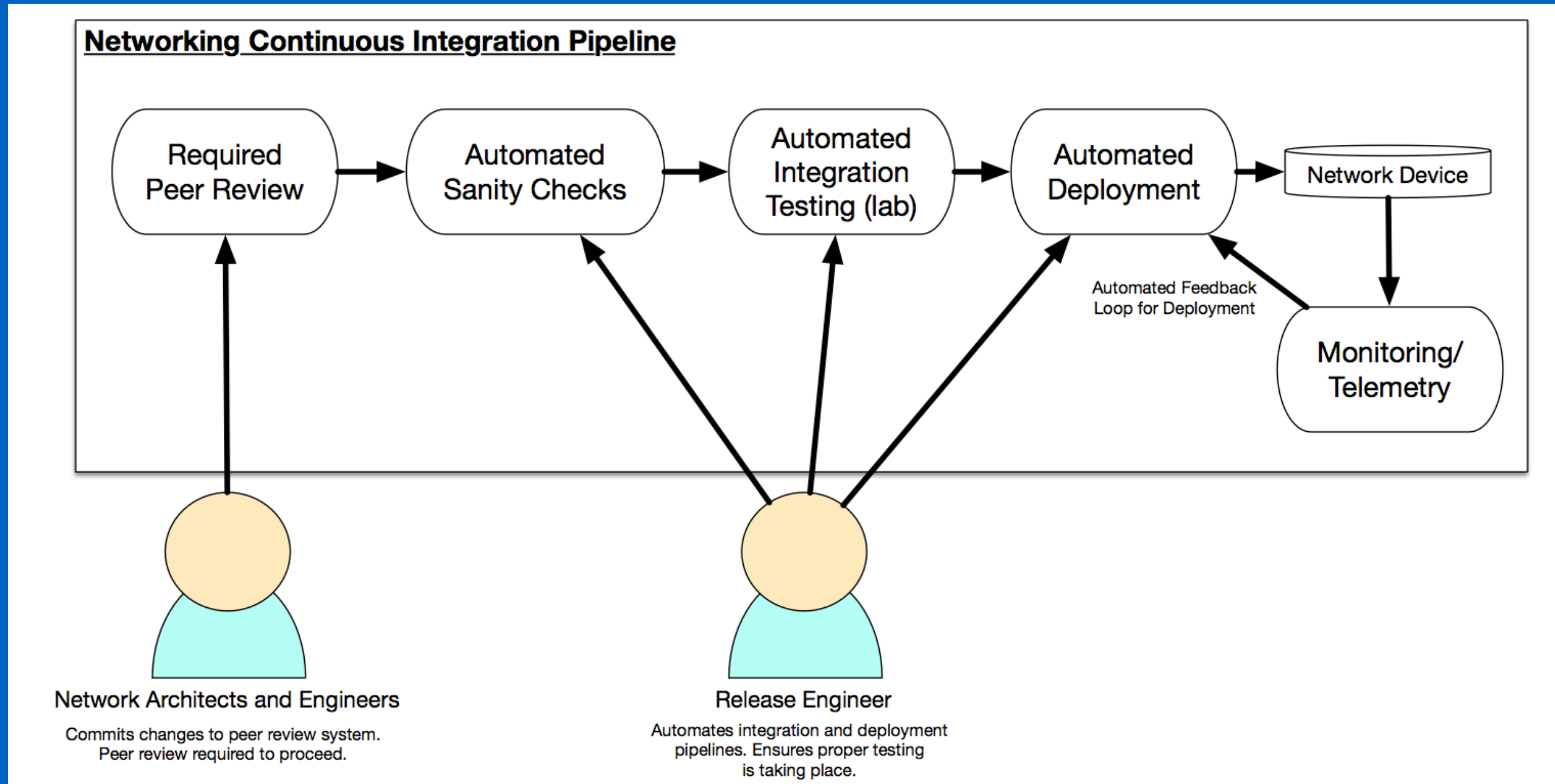
16

218

478



Continuous Integration for Networking



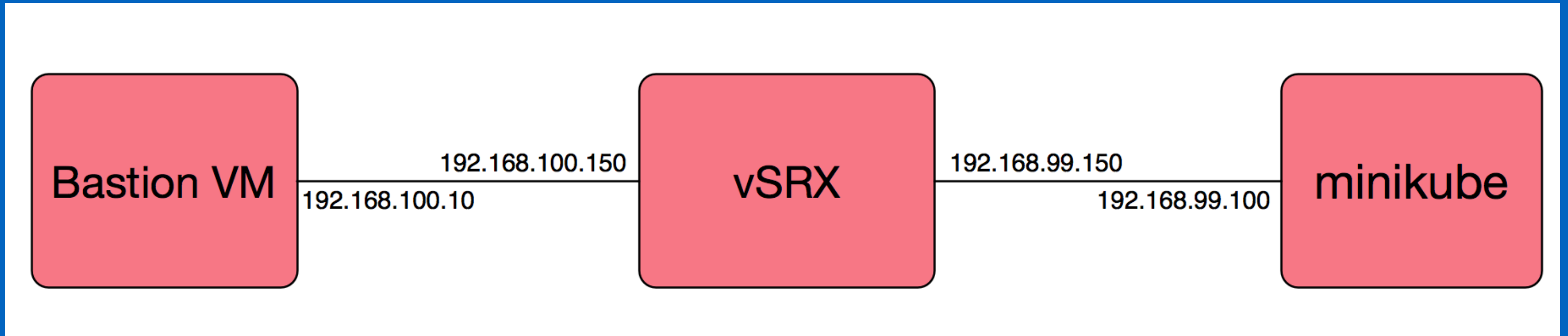
Continuous Integration for Networking

- Input can be humans, or external systems (i.e. Kubernetes)
- Regardless of input, you should have tests ready
- Config and Tests can/should be generated from same source of truth

Types of Tests

- Config Tests
- State Tests
- Application Tests

DEMO TOPOLOGY



Config Testing - Design Imperatives

- Specific to neteng workflow (apps folks don't care what config is on a switch)
- Diff WISB (golden config) vs WIRI (running-config)
- "Unit tests" on specific configuration syntaxes (targeted audit)

Config Testing - Tools

- JSNAPy
- Python scripts (unittest)
- Behave

State Testing - Design Imperatives

- Closer to "real world" but still neteng-centric
- Configured BGP peers actually exist, routes are seen
- Interface statistics are within norms
- Can "go get" info, or perform assertions on streamed telemetry

State Testing - Tools

- JSNAPy
- NAPALM

Application Testing - Design Imperatives

- Application-sympathetic testing
- Faithfully replicate real-world traffic and run assertions resulting metrics
- Establish baselines

Application Testing - Tools

- ToDD
- ThousandEyes(API with paid subscription)
- jmeter
- perfSONAR

Questions?

- <https://github.com/Mierdin/netverify-demo>