Who is this?

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Agenda

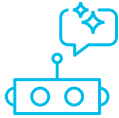AgenticOps in the World of Networking

An AgenticOps Open Ecosystem for my network

Demo 1: Agentic ChatOps for NetAuto

Demo 2: Agentic Reporting & Ticketing for NetAuto

Wrap-up

AgenticOps in the World of Networking

Speaking CLI

Modern LLMs already understand network CLI semantics for multiple vendors and platforms

Reasoning about intent

"Check BGP health" or "Investigate QOS compliance" implies reasoning that LLMs can do

But LLMs are NOT enough

We need to integrate them with deterministic tools and safety controls

An AgenticOps Open Ecosystem for my network

**Ollama
(Local LLM runtime)**

- Open-source runtime for running models locally
- Several models supported (Llama, Qwen, Mistral, etc)
- Enables self-hosted AI
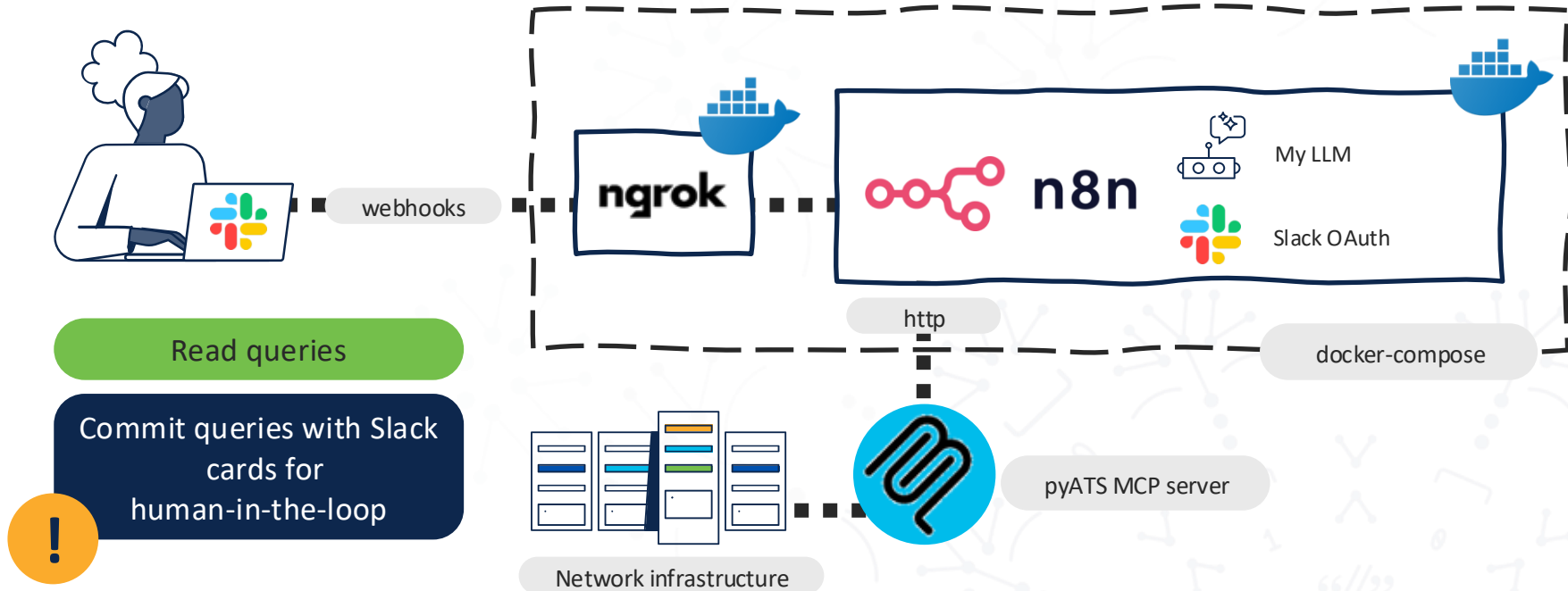
n8n (Low-code orchestration)

- Open-core workflow automation
- Enables auditable, guardrailed workflows
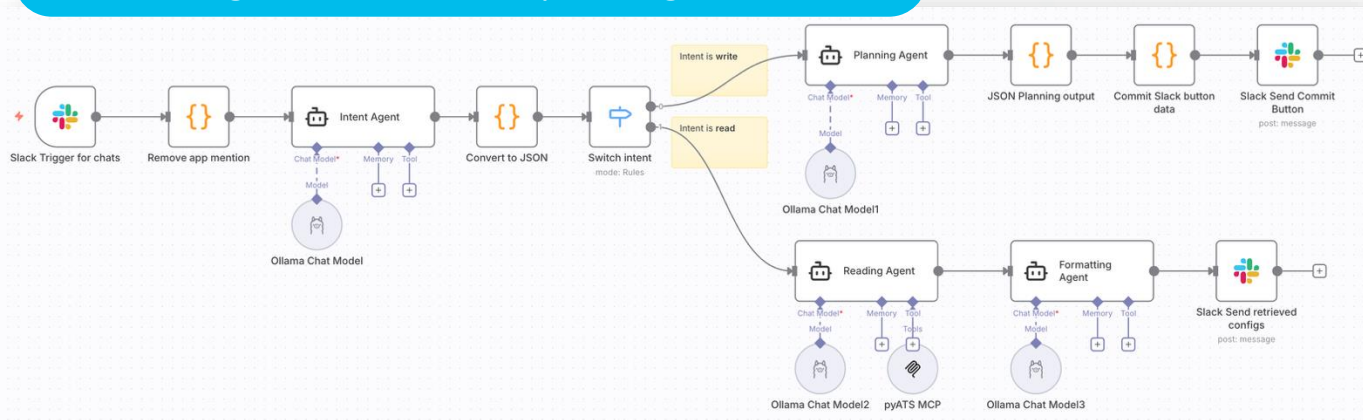- Self-hostable and community-driven

MCP server (based on pyATS framework)

- Built on open-source pyATS (Apache 2.0, Cisco)
- Exposed series of tools
- Enforces safe R/W operations on real infrastructure

Demo 1: Agentic ChatOps for NetAuto
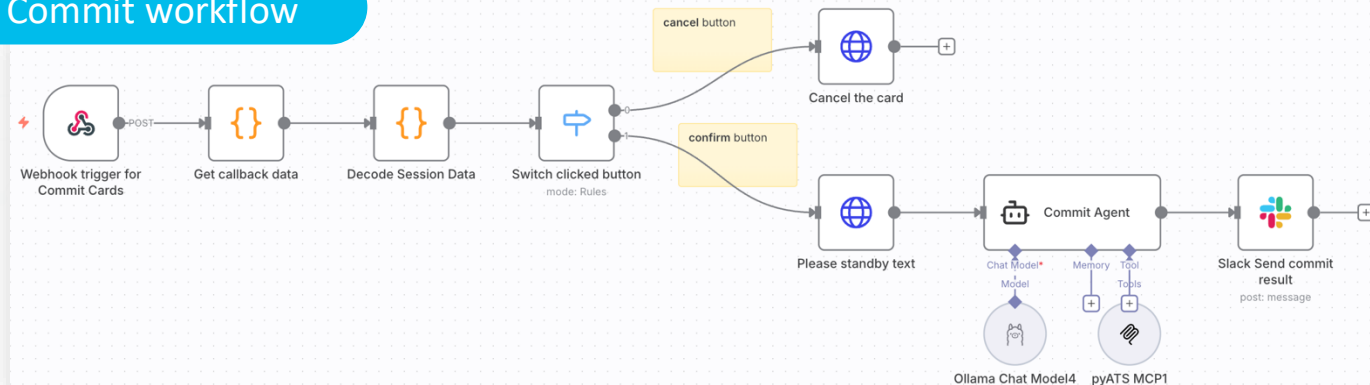

webhooks

ngrok

n8n

My LLM

Slack OAuth

http

docker-compose

Read queries

Commit queries with Slack cards for human-in-the-loop

pyATS MCP server

Network infrastructure

Reading + Commit intent (planning) workflow

Commit workflow

Reading interaction

Commit interaction

net-hot-gossip

Poncho Sandoval 7:33 AM
Cool! @packetl please create a table with the VLANs of device SW1, including their names and other details

packetl APP 7:35 AM
Here are the VLAN details for device SW1:

```
VLAN Name                             Status    Ports
---- --------------------------------  ------    ----------------------------
                                                 ----------
1    default                           active
10   VLAN0010                          active    Et0/0, Et0/2
20   VLAN0020                          active    Et0/1

...

Primary Secondary Type                Ports
------- --------- ------------------  -----------------------------------------
                                      ----------
```

The output shows the current VLAN configuration on SW1, including VLAN ID, name, status, and ports associated with each VLAN. Note that some VLANs like fddi-default, token-ring-default, etc., are not user-configurable by default.

net-hot-gossip

Poncho Sandoval 7:38 AM
Perfect! Now @packetl, please create a new primary VLAN on SW1. The name shall be MGMT. Attach it to port Ethernet0/1.

packetl APP 7:39 AM
Configuration Plan for SW1

Create primary VLAN 1 named MGMT and assign it to Ethernet0/1 interface
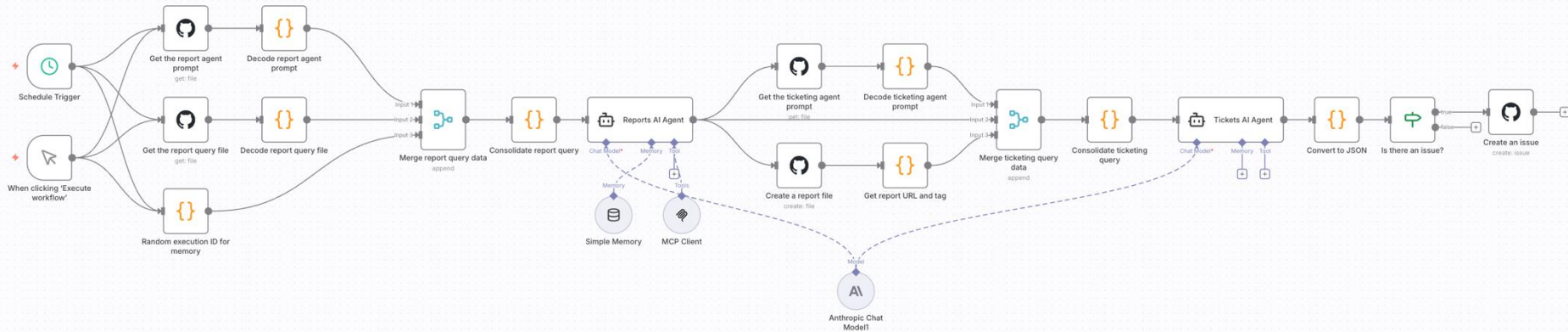
Risk Level: MEDIUM

Commands to execute:

```
configure terminal
vlan database
vlan 1 name MGMT
exit
interface Ethernet0/1
switchport mode access
switchport access vlan 1
end
```

✅ Confirm & Apply   ❌ Cancel

Demo 2: Agentic Reporting & Ticketing for NetAuto

Reports definition

Agents prompts

Reports creation

Issues creation

n8n

Scheduler trigger

My LLM

GitHub Auth

http

docker-compose

pyATS MCP server

My GitHub repository

Network infrastructure

Reporting & ticketing workflow

ponchotitlan interfaces_status report gen

Preview | Code | Blame | 95 lines (70 loc) · 4.28 KB

Report generation

Network Interface Status Summary Report

Executive Summary

Analysis of interface operational states across the network infrastructure reveals **14 operational interfaces** and **4 administratively down interfaces** across 4 devices. The network demonstrates healthy connectivity with active traffic on management interfaces and no packet drops or queue congestion detected.

Scope & Assumptions

- **Scope**: Complete interface status analysis for all devices (`R1` , `R2` , `SW1` , `SW2`)
- **Data Source**: Real-time interface status via `show ip interface brief` and `show interfaces summary`
- **Assessment Period**: Current operational state snapshot

Environment Overview

Infrastructure Components:

- **Routers**: 2 IOS-XE devices (`R1` , `R2`)
- **Switches**: 2 IOS-XE devices (`SW1` , `SW2`)
- **Total Interfaces**: 18 interfaces analyzed
- **Platform**: IOL (IOS on Linux) virtual environment

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[interfaces_status report gen] [⚠️medium] Address interface redundancy and documentation gaps on Router R1 #17

Edit   New issue

⊙ Open

ponchotitlan opened last week   Owner   •••

Context

Router R1 interface analysis reveals healthy operations with 3/4 interfaces functional and zero errors. However, several operational improvements are needed to enhance network reliability and maintainability.

Key Issues Identified

- **Single Point of Failure**: Ethernet0/3 remains unused, reducing redundancy options
- **Documentation Gap**: Missing interface descriptions on Ethernet0/0 and Ethernet0/1
- **Traffic Concentration**: All traffic flowing through only 3 active interfaces
- **Monitoring Gap**: Lack of standardized interface monitoring

Action Items

Immediate Actions

- ☐ Add descriptions to Ethernet0/0 and Ethernet0/1 for operational clarity   •••
- ☐ Evaluate Ethernet0/3 - determine if it should be activated for redundancy or permanently removed   •••

Operational Improvements

- ☐ Implement regular interface health checks focusing on error counters and utilization trends   •••
- ☐ Establish consistent interface naming and description conventions   •••

Assignees   ⚙️
No one - <u>Assign yourself</u>

Labels   ⚙️
No labels

Projects   ⚙️
No projects

Milestone   ⚙️
No milestone

Relationships   ⚙️
None yet

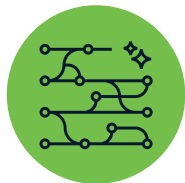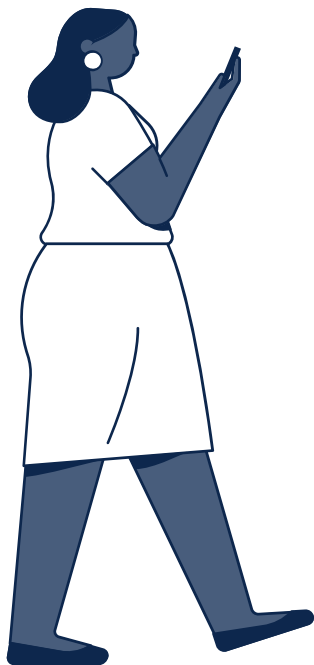**Development**   ⚙️
🖥️ Code with agent mode   ▾

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Start small: build single-purpose agents for well-defined operational tasks

Treat LLM agents like junior network engineers: restrict what they can touch and how

Build agents on top of real network tools (CLI, APIs, pyATS) – Also, low-code is your ally!

About n8n
docs.n8n.io/

About pyATS
developer.cisco.com/docs/pyats/

Our demo repo: pyATS loves AgenticOps
cs.co/pyATS-loves-agenticops

FOSDEM

CISCO

The bridge to possible