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Automated BGP with IOx and Guest Shell

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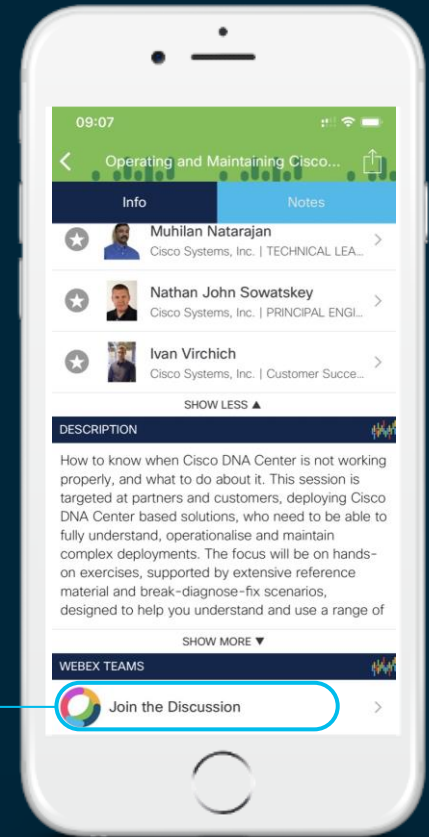
Cisco Webex Teams

Questions?

Use Cisco Webex Teams to chat with the speaker after the session

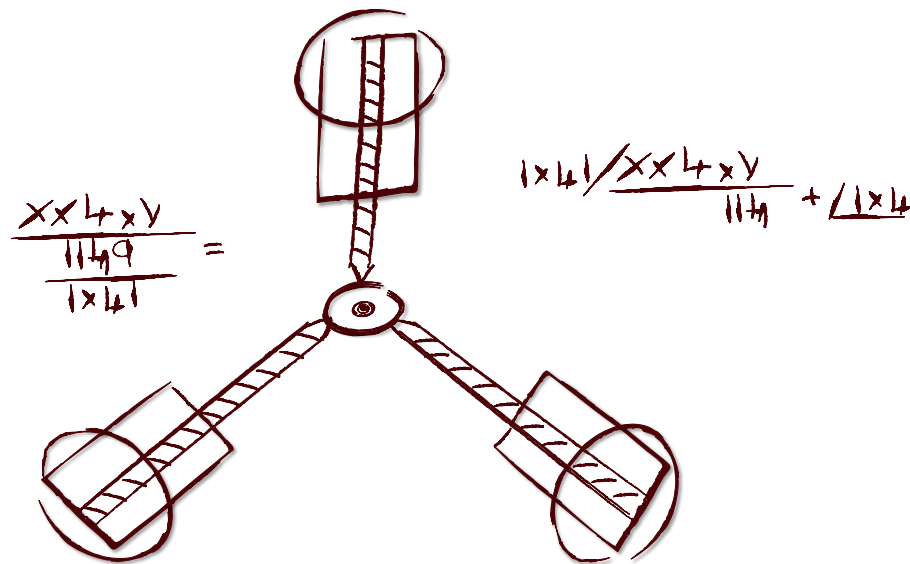
How

- 1 Find this session in the Cisco Events Mobile App
- 2 Click “Join the Discussion”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space



Agenda

- Learning services and getting context
- Find the largest sources of stress
- IOS XE Guest Shell Configuration
- Device Management with:
Embedded Event Manager / Python
CLI / RESTCONF
- Executed Python scripts to detect
any BGP changes
- Tie this to event-driven telemetry

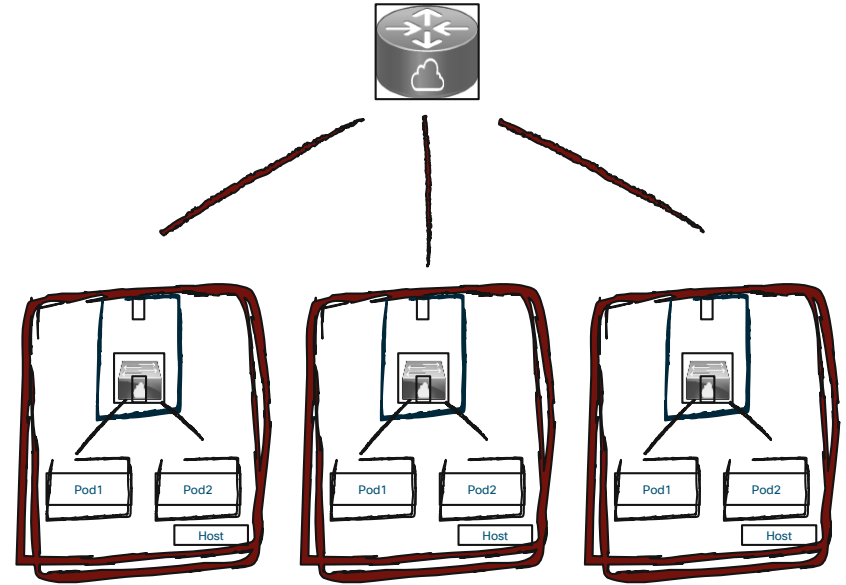


The tasks we want to solve

Simplify operations to gain speed, agility, and efficiency

Deliver relevant and customized services that address consumer needs

Support tremendous scale and resiliency



Automate time-consuming, repetitive configuration tasks!

Generally, it makes sense to automate an IT task or process if:

- You can run the automation enough times to spread out the cost of creating the automation capability (hours of development, testing, and ongoing maintenance).

Pattern – “I’m going to do this task X times in the next year and it will take me a couple hours of writing, testing, and updating a script to add to my bag of tools.”

- Each automated execution has a lower cost than performing the work manually.

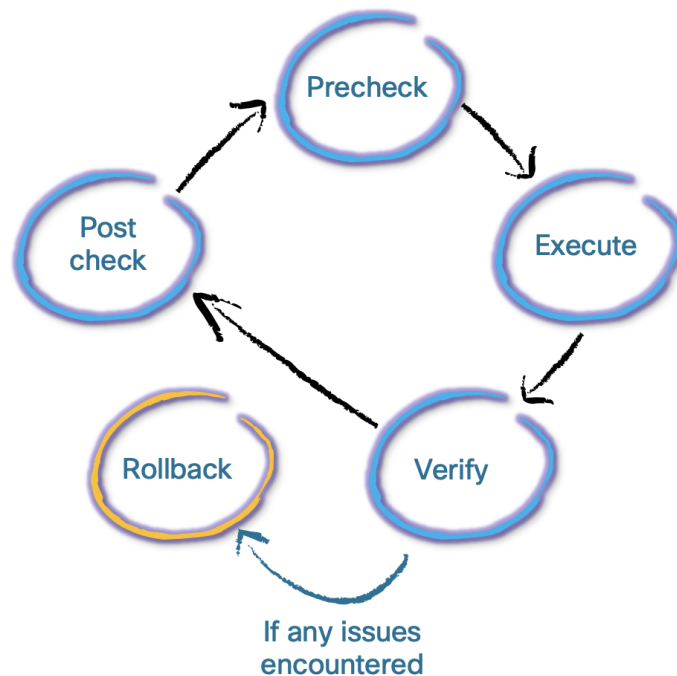
Anti-Pattern – every time I run the automation I end up spending more time tweaking things because the environment or process keeps changing.

Codify your workflows

Change in network device configurations

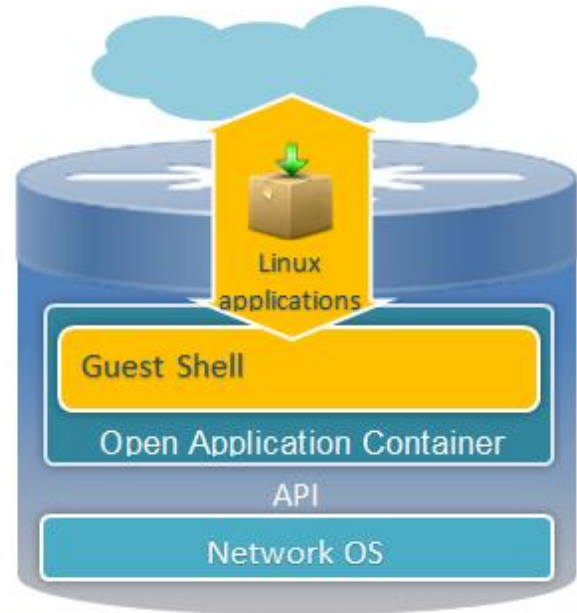
Change in service configurations

Maintenance window work orders



Guest Shell

- Guest Shell runs in a LXC container
- It gives you native Linux Shell (Command) access to run customized scripts
- Access to IOS - XE CLI, boot flash
- Python is the language we support today
- EEM can be leveraged to create Crontab tasks calling Guest Shell scripts



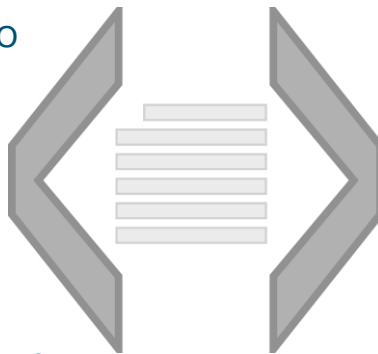
RESTCONF: Why/what?

- IETF driven
- Extends the idea of NETCONF
- RESTCONF promises a standardized / vendor agnostic management approach to network device management
- Using REST as a popular access method
- Modular and extensible
- Model definition in YANG
- JSON or XML are used for data representation

Event driven telemetry

Streaming telemetry uses a policy-based approach, enabling the devices to know what data is required, the frequency of collection, and where the data needs to be sent

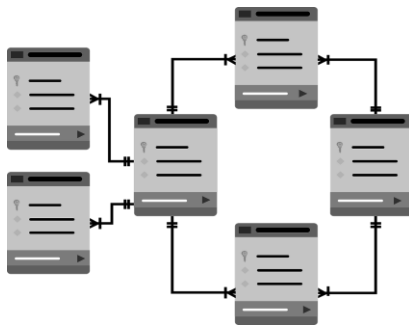
Streaming eliminates the inefficiencies of polling and is the mechanism that gives network operators the operational data they need to stay on top of next-gen networks and infrastructures



For teams, this real-time, analytics-ready data helps them to work more effectively across a range of areas including:

- Network automation
- Traffic optimization
- Preventative interventions
- Faster, more effective incident remediation

The Necessity of a Network Telemetry Framework



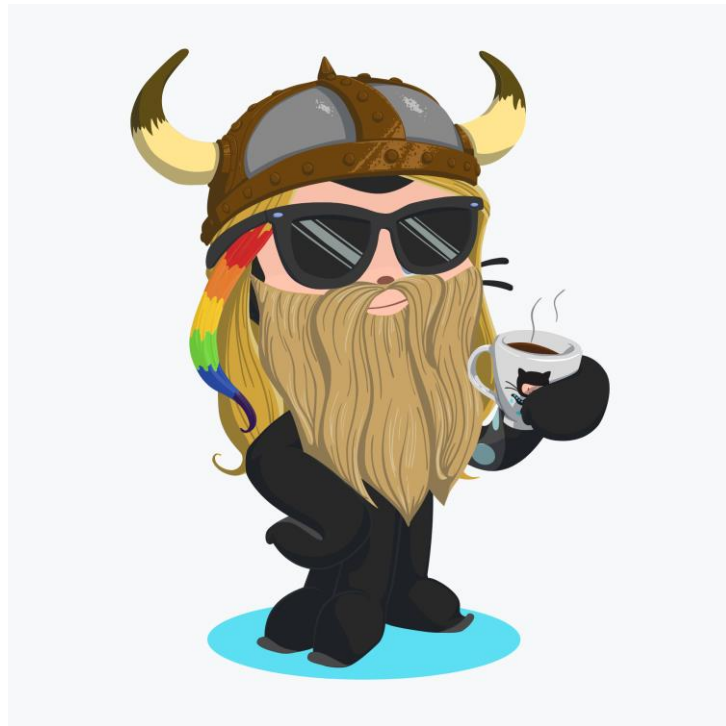
Network device viewpoint takes the network infrastructure as the monitoring object from which the network topology and device status can be acquired

Traffic viewpoint takes the flows or packets as the monitoring object from which the traffic quality and path can be acquired. An application may need to switch its viewpoint during operation.

Applications require network telemetry to be elastic in order to efficiently use the network resource and reduce the performance impact.

Summary

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- Executed Python scripts to detect any BGP changes
- Tie this to event-driven telemetry



Got more questions? Stay in touch!



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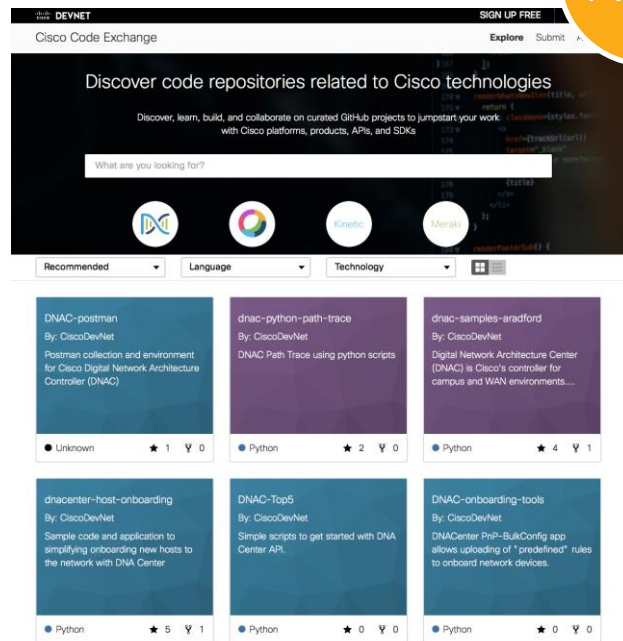
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by the community

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