



The bridge to possible

Model-Driven DevOps

The Enterprise Automation Framework You've Been Looking For!

Steven Carter, Principal Solutions Architect

Jason King, Systems Architect

Cisco Webex App

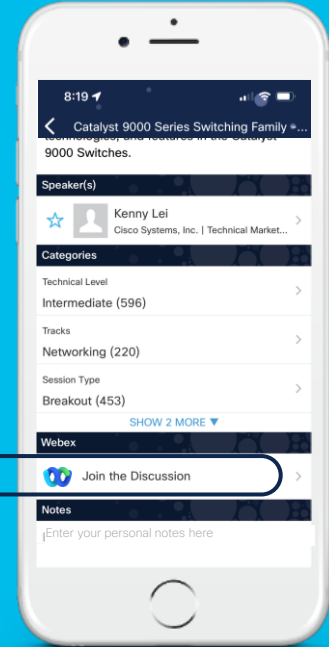
Questions?

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

How

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

Webex spaces will be moderated until February 24, 2023.





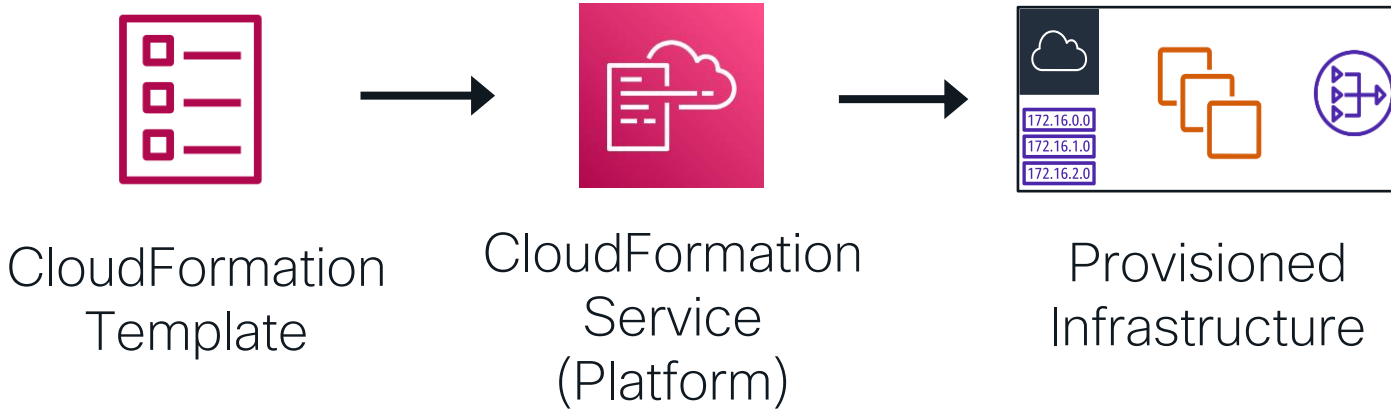
Agenda

- Introduction
- Model-Driven DevOps
- Implementation
- Demo
- Conclusion

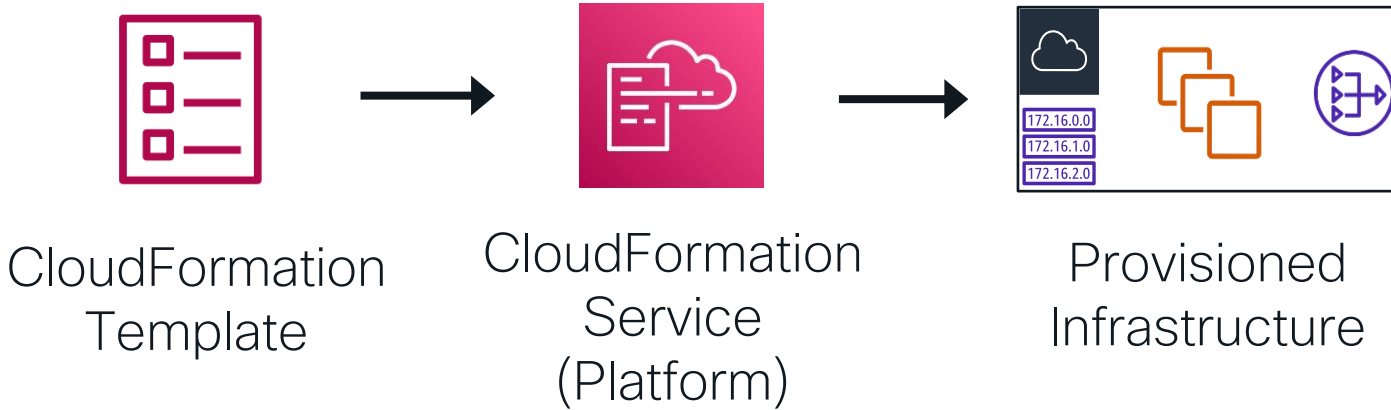
Introduction



Cloud Ops Today



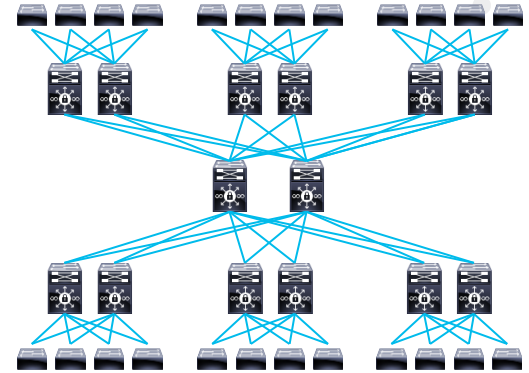
Cloud Ops Today



Network Ops as Cloud Ops

```
bgp:
  global:
    config:
      as: 65082
  neighbors:
    neighbor:
      - neighbor_address: 10.11.12.2
        config:
          peer_group: TST
          peer_as: 65086
```

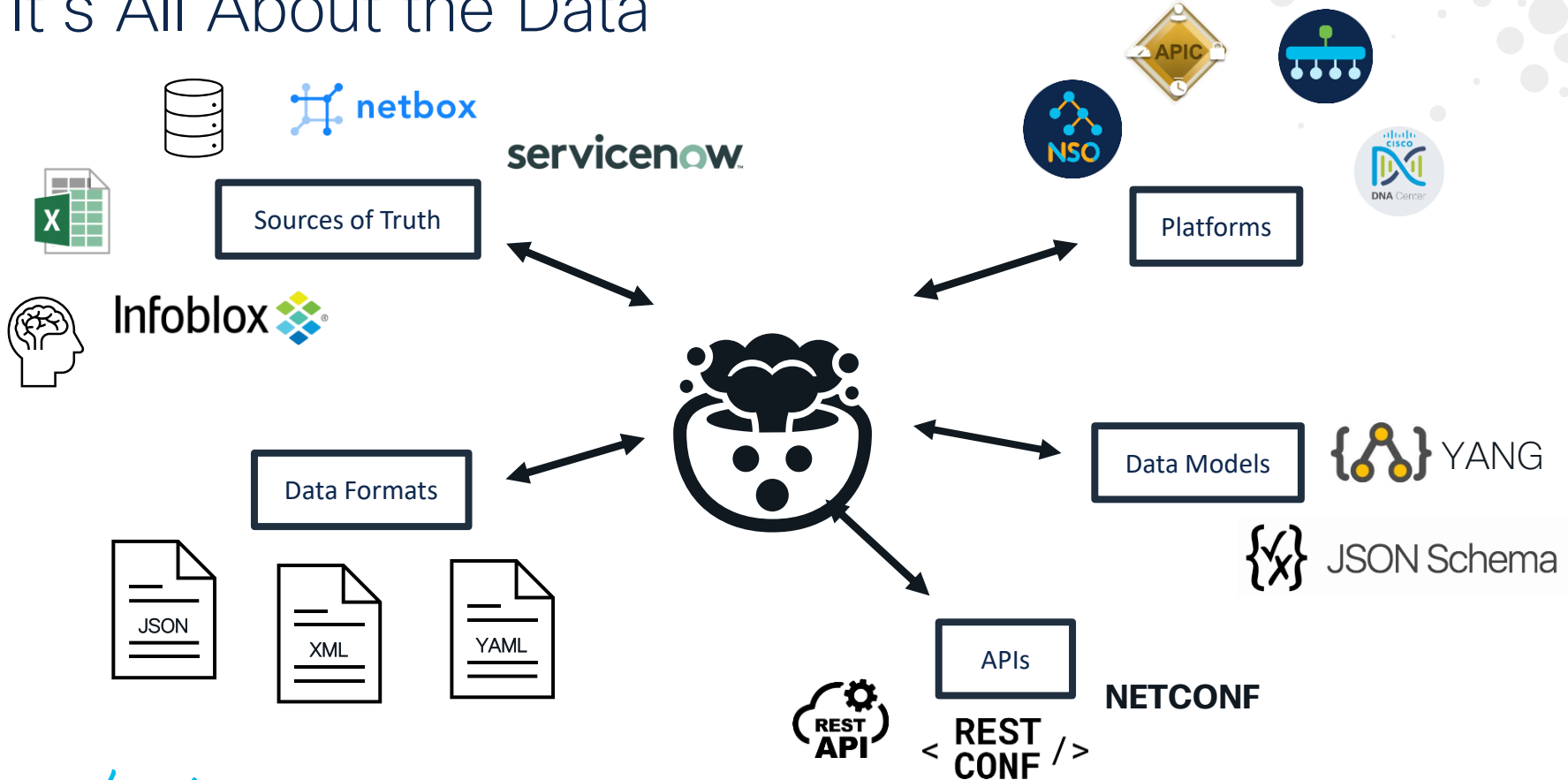
SoT



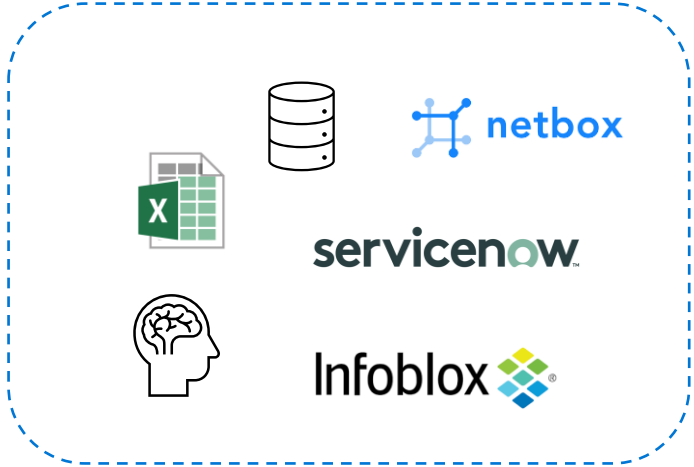
Network
Instance(s)



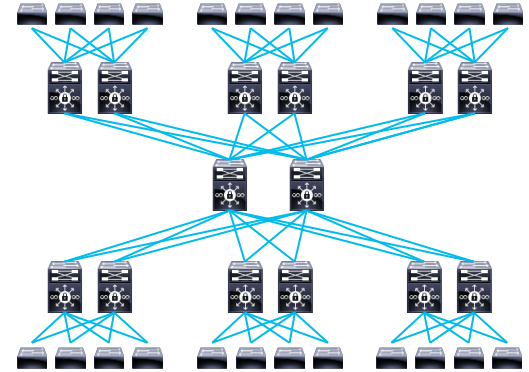
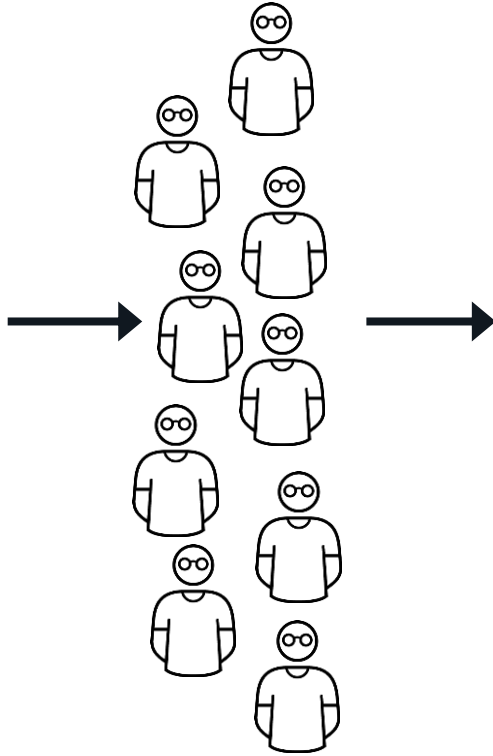
It's All About the Data




Reality Today



SoT



Network
Instance(s)



*“Better to light a candle than curse
the darkness”*

W. L. Watkinson

Model-Driven DevOps



Model-Driven DevOps



A structured approach to Network DevOps based on Data Models:

NOT magic

NOT one application to solve all of your problems

NOT a “Single Pane of Glass”



Industry-standard DevOps Model

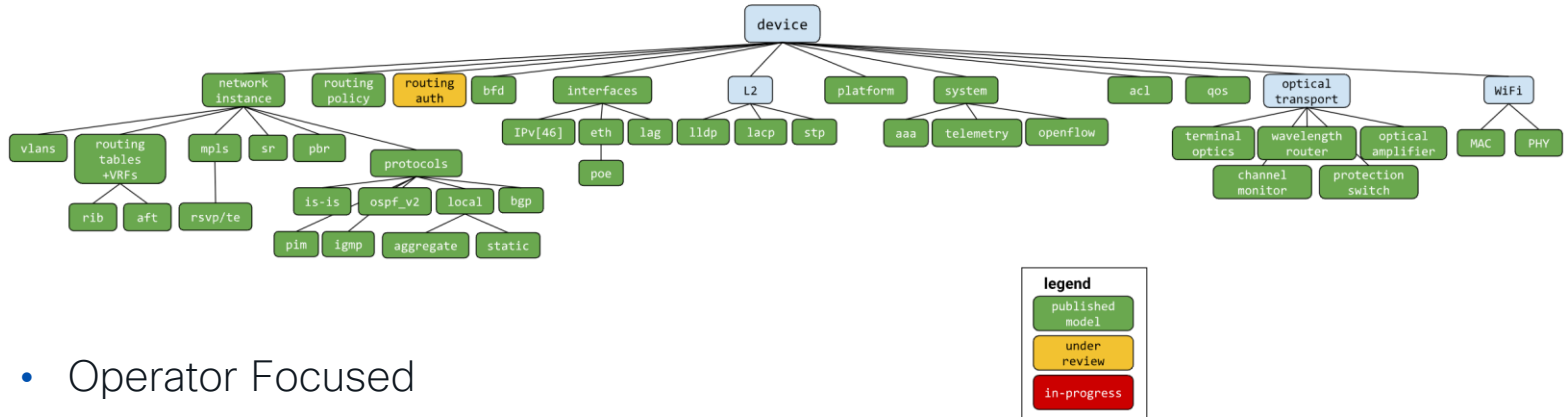


Industry-standard DevOps tooling



Data Models organize and simplify data and reduce coding requirement

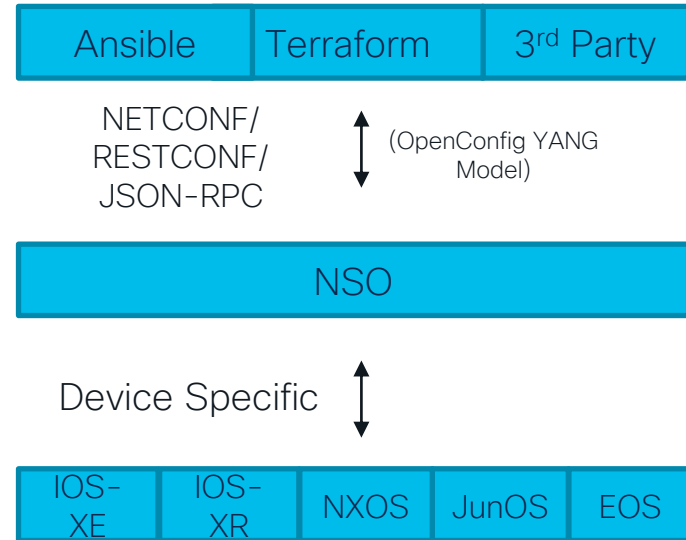
OpenConfig



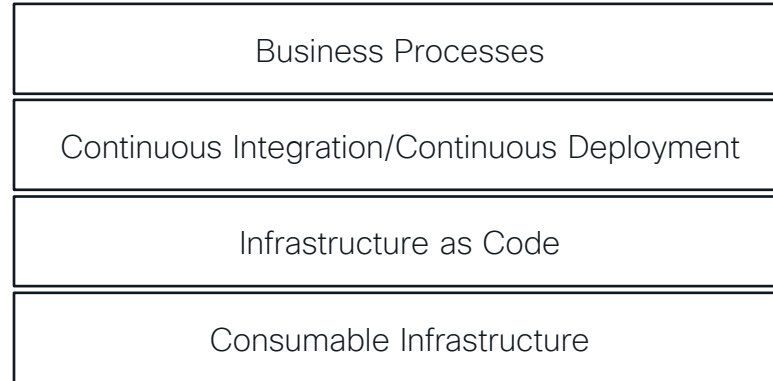
- Operator Focused
- Model-Driven Management
- Foundation for Programmable Infrastructure
- Software-defined, Declarative Configuration

NSO OpenConfig Service

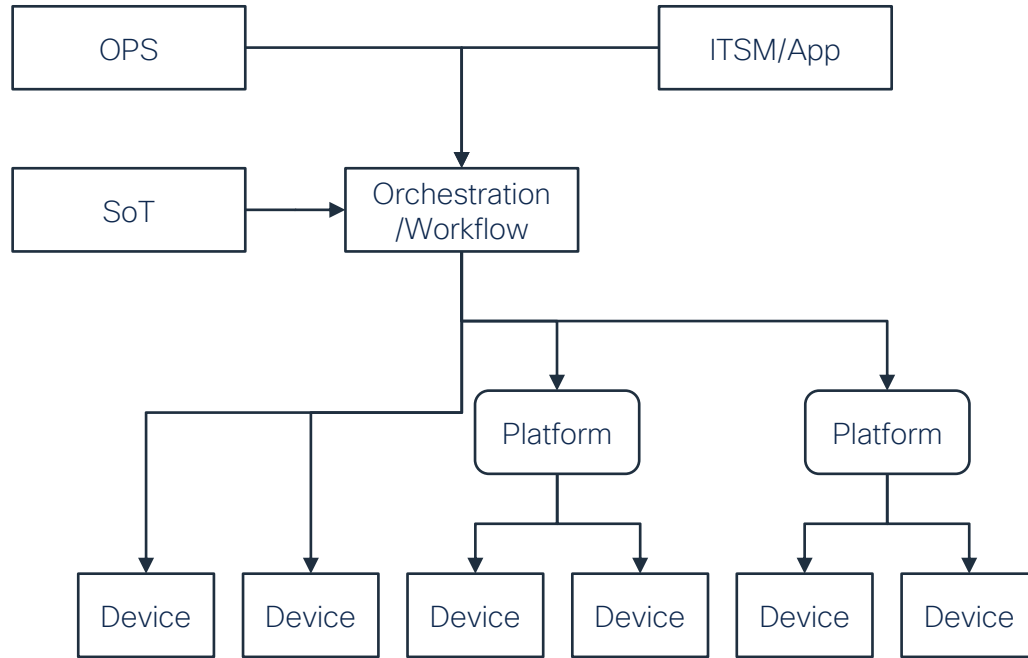
- Use NSO to provide an Open, Consistent, Model-Driven API across R&S to drive innovation
- Service approach enables phased deployment
- Min-diff reduces transitions and increases scalability
- Provides rollback across all platforms
- Provides:
 - Reduced burden on apps
 - Cloud-to-prem bridge for IaC
 - Cisco-as-a-platform



Building Blocks



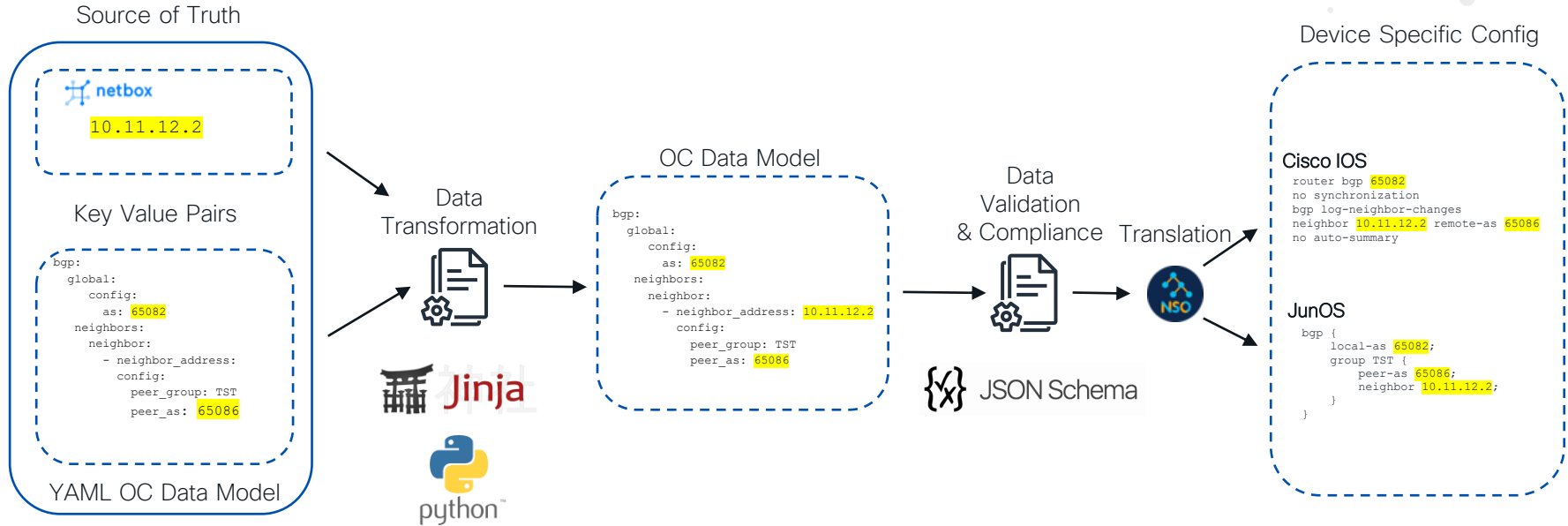
Model-Driven DevOps Framework



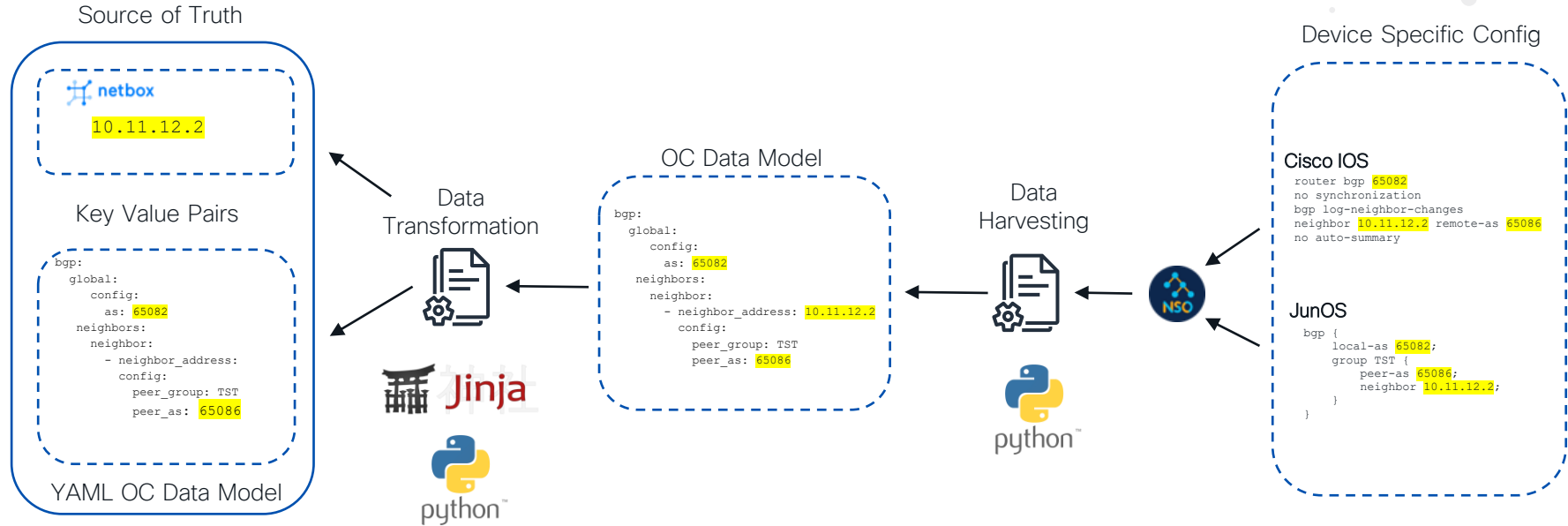
Implementation



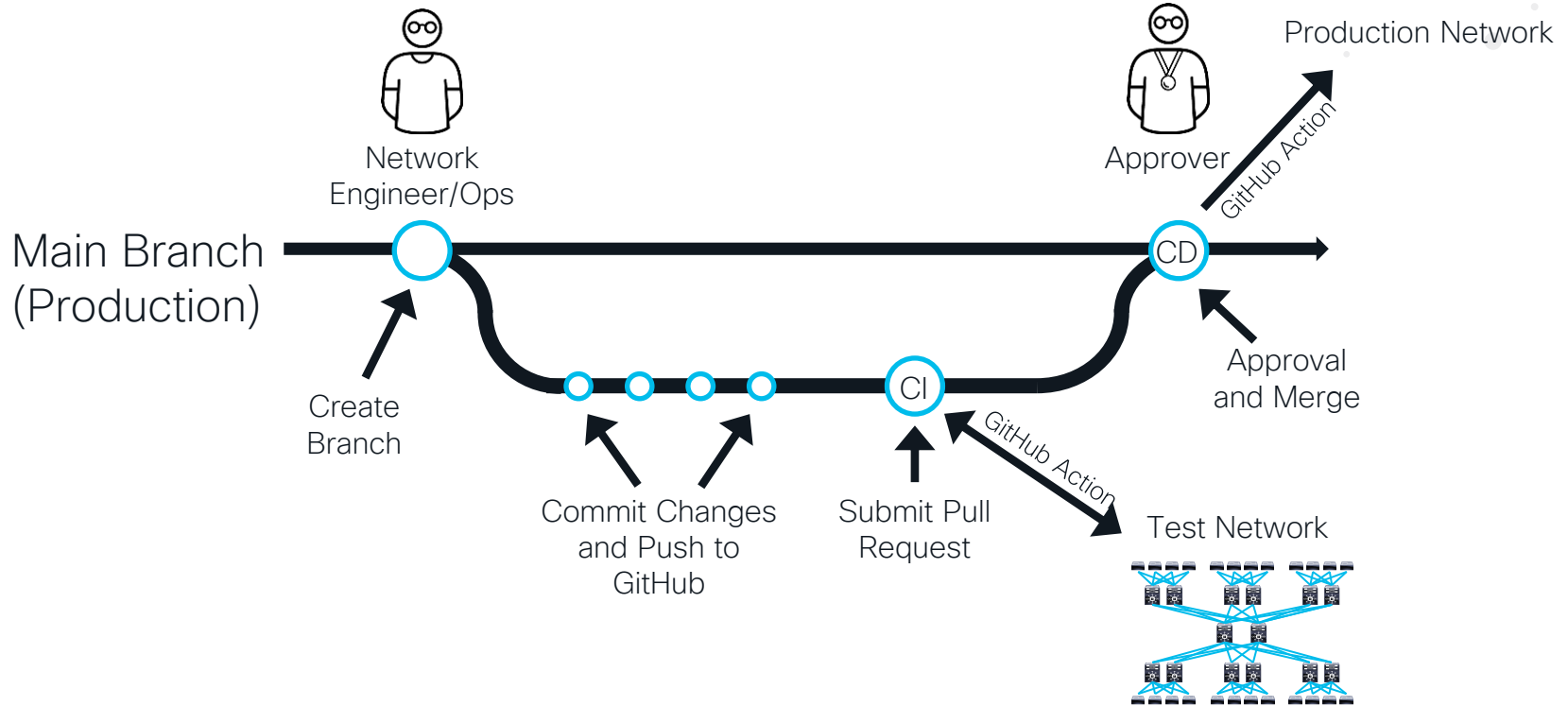
Implementation Overview



Harvesting Data



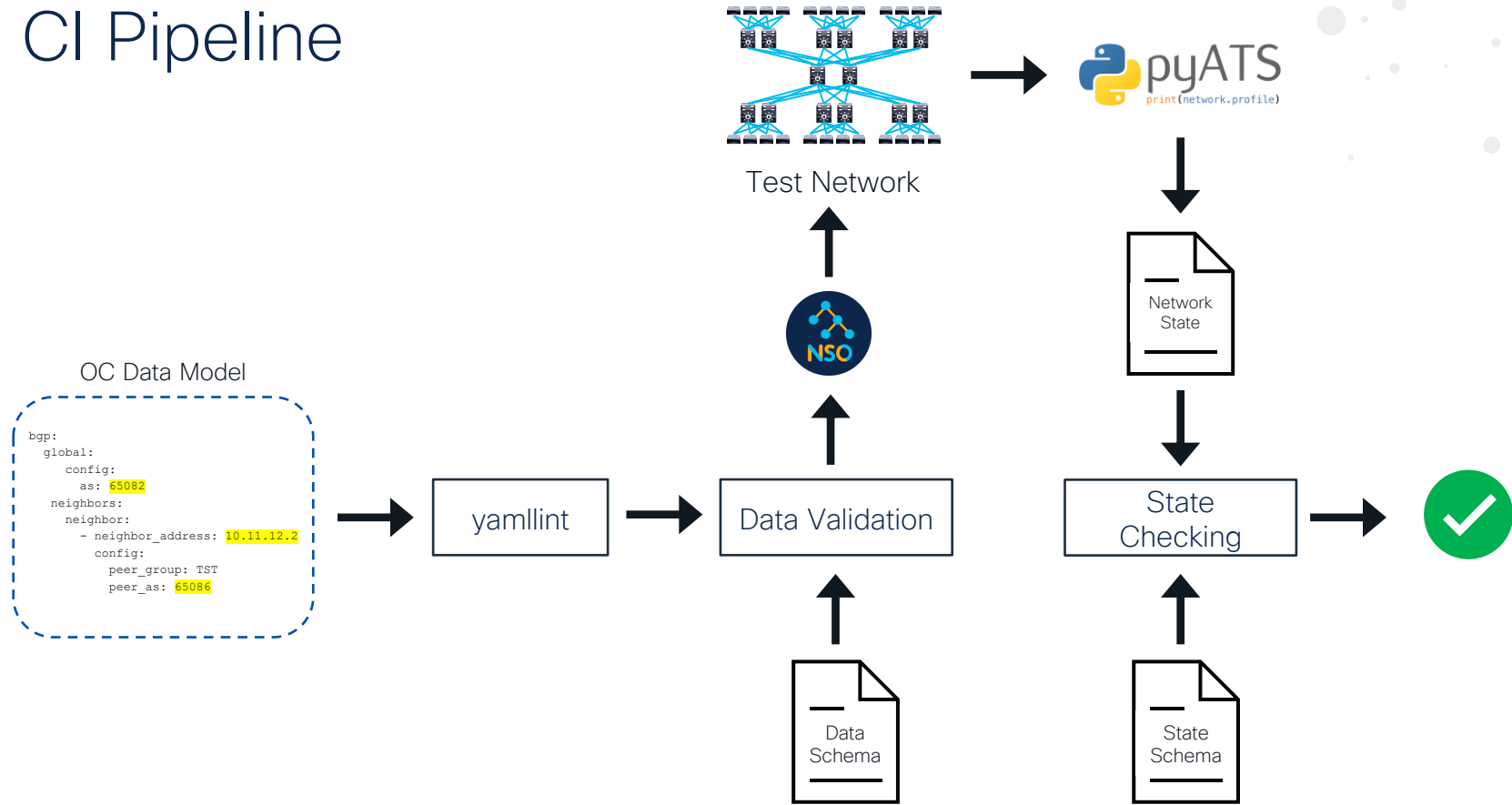
Workflow



CI Pipeline



CI Pipeline



Demo

Conclusion



Key Takeaways

1

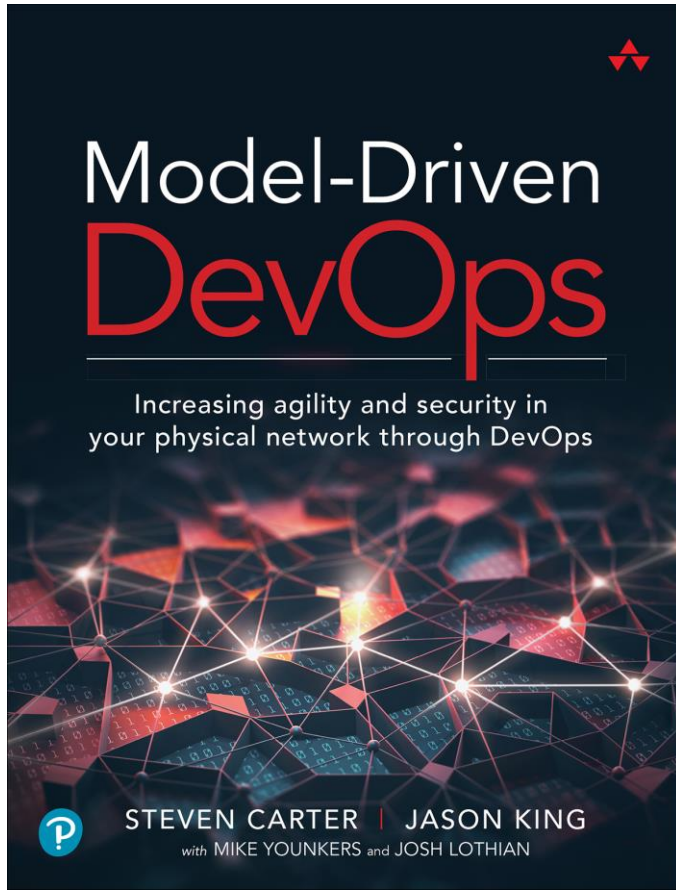
Network automation is largely a data movement/data transformation problem

2

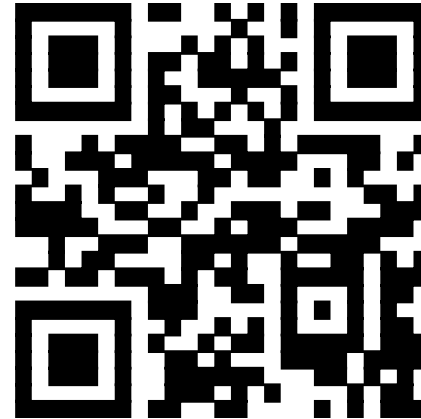
JSON Schema and Jinja2 are useful for validation regardless of the data model you adopt

3

Network Ops and Engineering do NOT need to be programmers! (But, they do need to understand data models and schema..)

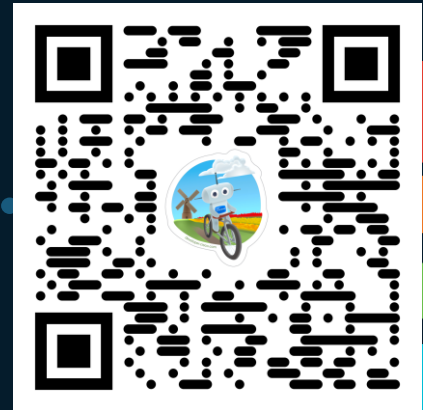


Pre-order Model-Driven DevOps and save 35%* when you use discount code MODOPS during checkout. Shop now at www.informit.com/MDD. Offer expires March 21, 2023.



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The bridge to possible

Thank you

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CISCO *Live!*

