

>>> network .toCode()

ITSM-Driven Enterprise Network Operations

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Tonight

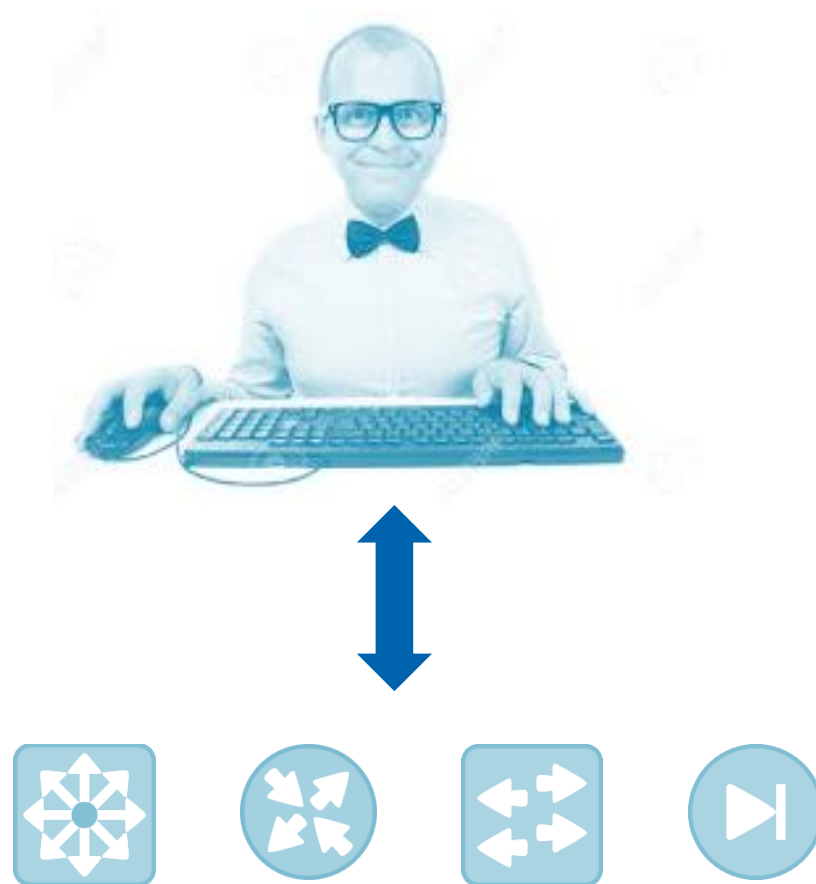
- Who am I?
- Network Operations
- Demo

Who am I?

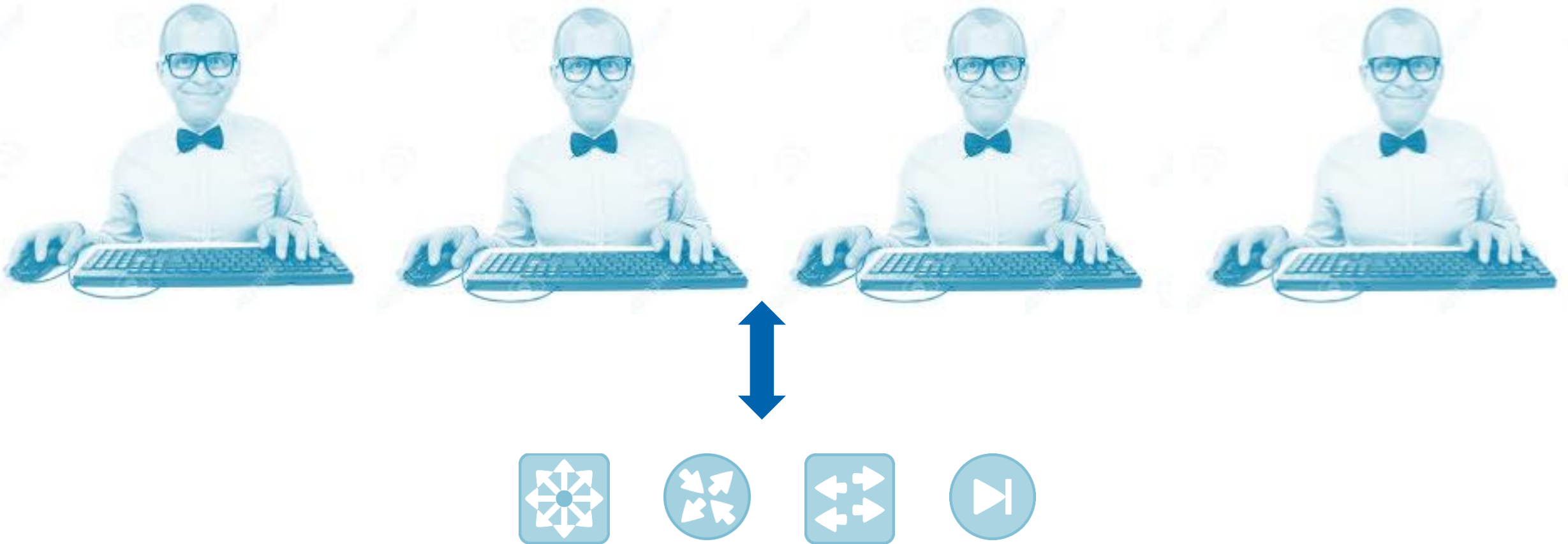
>>> network **.toCode()**

- **Name** => Jason Edelman
- **Work** => Network to Code
- **Do** => Network Automation
- **Work with** => Clients on their automation journey
- **Was Network Engineer** => CCIE (I think)
- **From** => New York

Traditional Network Operations



Scaling Network Operations



Getting Started with Network Automation



Some ad-hoc scripting



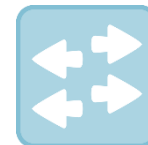
Stuck with the CLI



More ad-hoc scripting

- backups.py
- vlans.py
- MySQL
- Saved on HDD
- ...

- get_neighbors.py
- vlan_check.py
- Custom web app in PHP
- YAML Data
- Git (all push)
- ...



Getting Started with Network Automation (cont'd)

Common Approach



Issues

1. 1-2 network engineers attend training or use prior programming experience
2. Ad-hoc Python scripts
3. The same engineers start exploring web frameworks and front-end programming
4. Ad-hoc Ansible Playbooks
5. Dedicated Ansible server with local playbooks
6. Continued specialized Python scripts
7. Continued front-end development

1. Disparate scripts
2. **No version control**
3. **No peer review**
4. **No platform**
5. Tool sprawl
6. You get so far down the path it's hard to change, so instead you pivot, and "buy" multiple tools to solve the problem
7. Limited database integration

Common Manual Workflow

- Is there even a MOP?
- Is the MOP completed correctly the first time?
- Is the MOP reviewed?

- Manual or Automated Change?

- Is this done by you?
- Do you use a Linux diff?

**Open
Change
Request**

- Who opens the change?
- Is enough detailed in the ticket?

Complete MOP

**Execute Show
Commands**

- Do you really issue all commands in the MOP?
- Do you store them any where?
- Are they attached back to the CR?

**Make
Change**

**Execute Show
Commands**

- Do you really issue all commands in the MOP?
- Do you store them any where?
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**Compare
Show
Commands**



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**Execute Show
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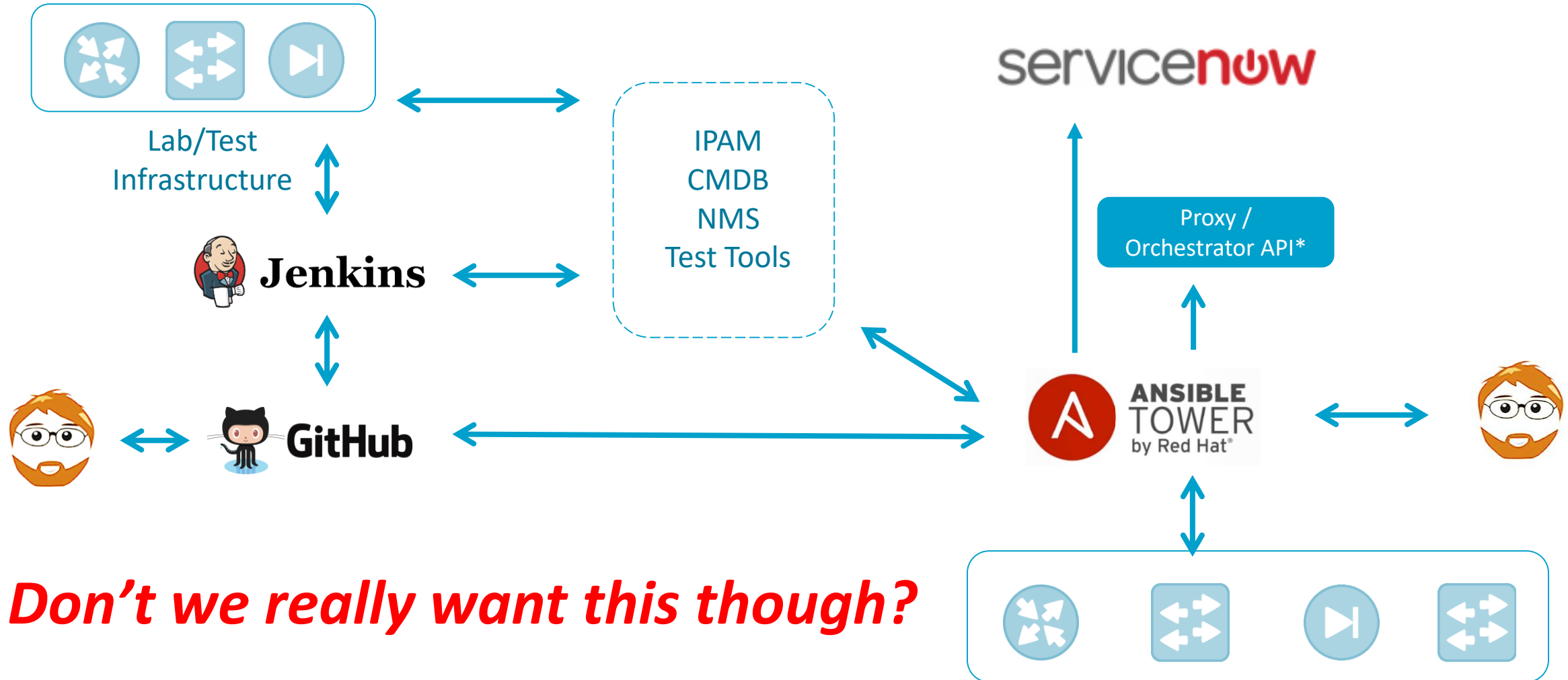
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- Is this done by you?
- Do you use a Linux diff?

**Compare
Show
Commands**

Can we start automation by automating this?

CI/CD Pipeline for Network Operations



Get Started.

Or you never will.

>>> network .toCode()

ITSM & CI/CD Network Automation Workflows

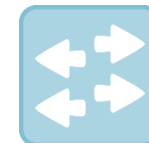
Demo Review

ITSM & Chat Driven Network Automation

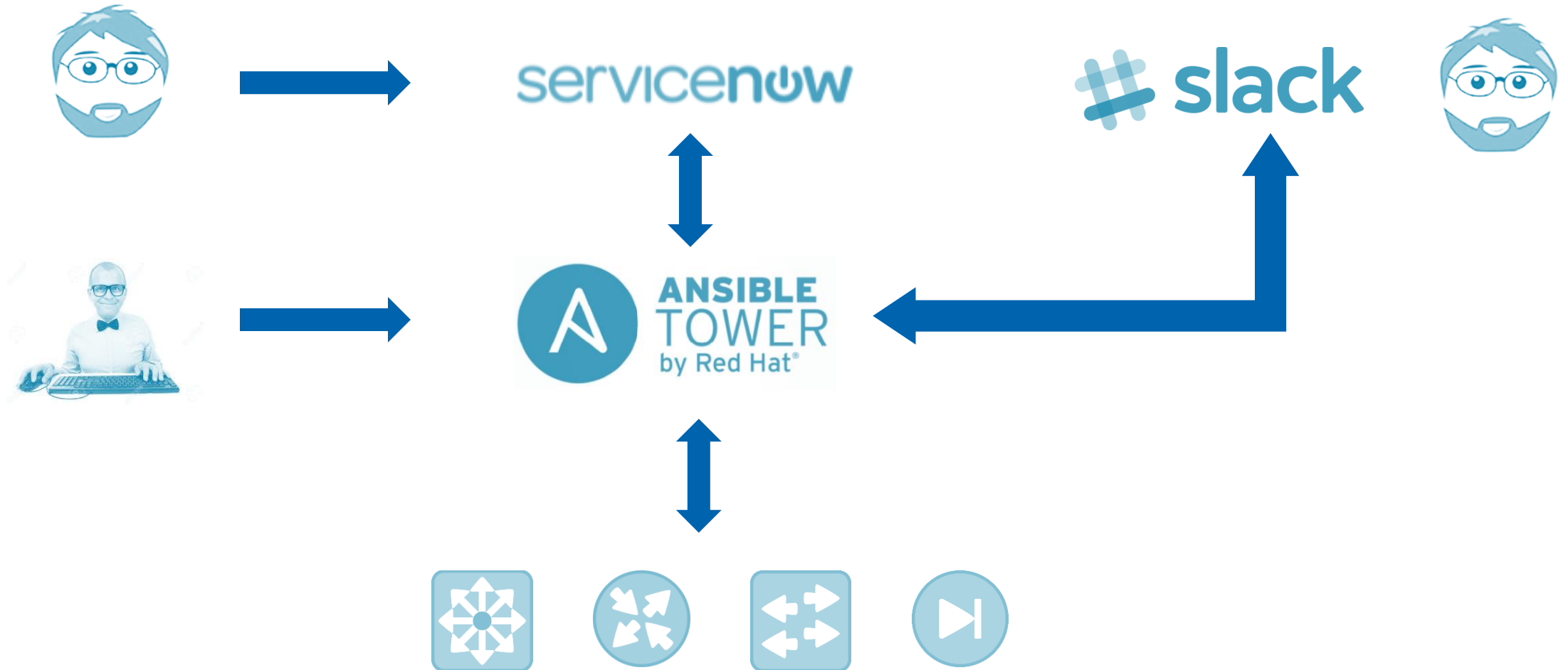
servicenow



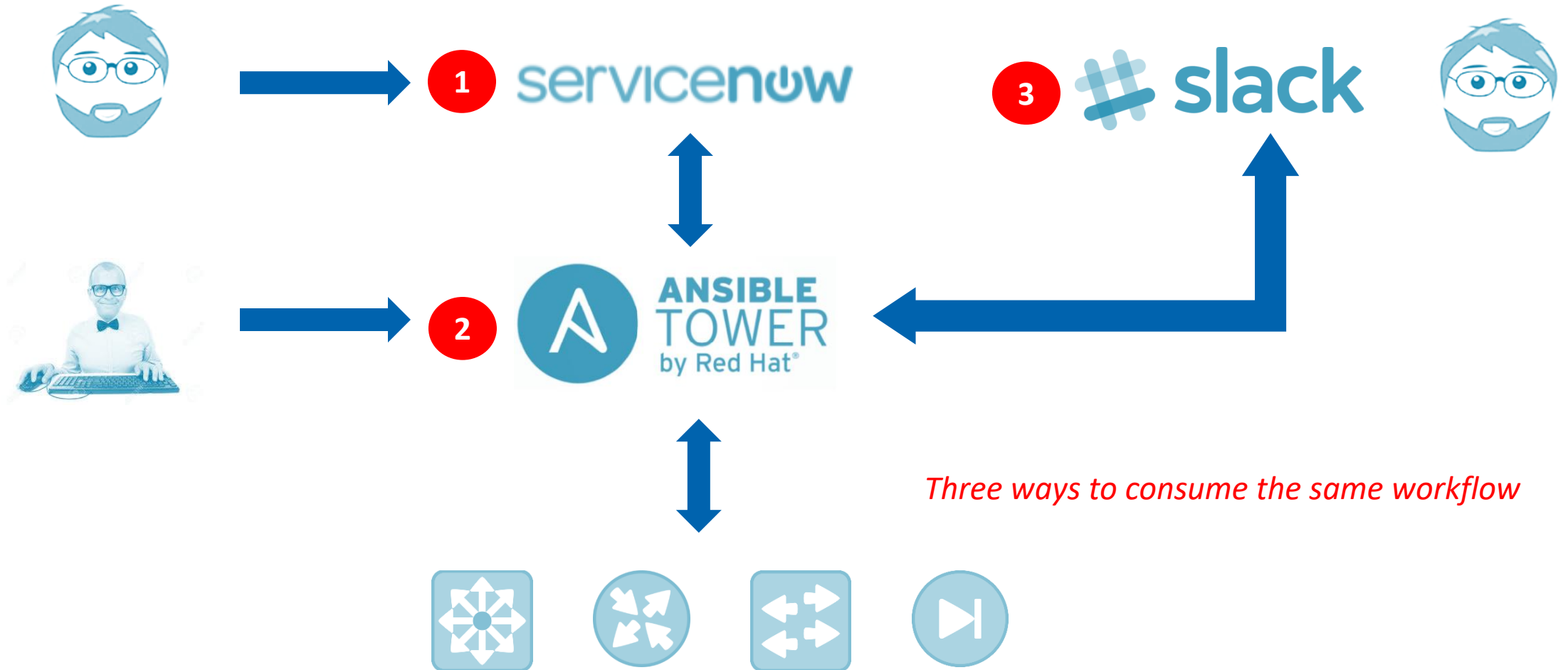
Added Bonus



ITSM & Chat Driven Network Automation



ITSM & Chat Driven Network Automation



Automating Common Workflows

- They will always be executed
- It's automated

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- It's automated

**Open
ServiceNow
Change
Request**

**Execute Show
Commands**

**Make
Change**

**Execute Show
Commands**

**Compare
Show
Commands**

**Attach
Results to
Ticket**

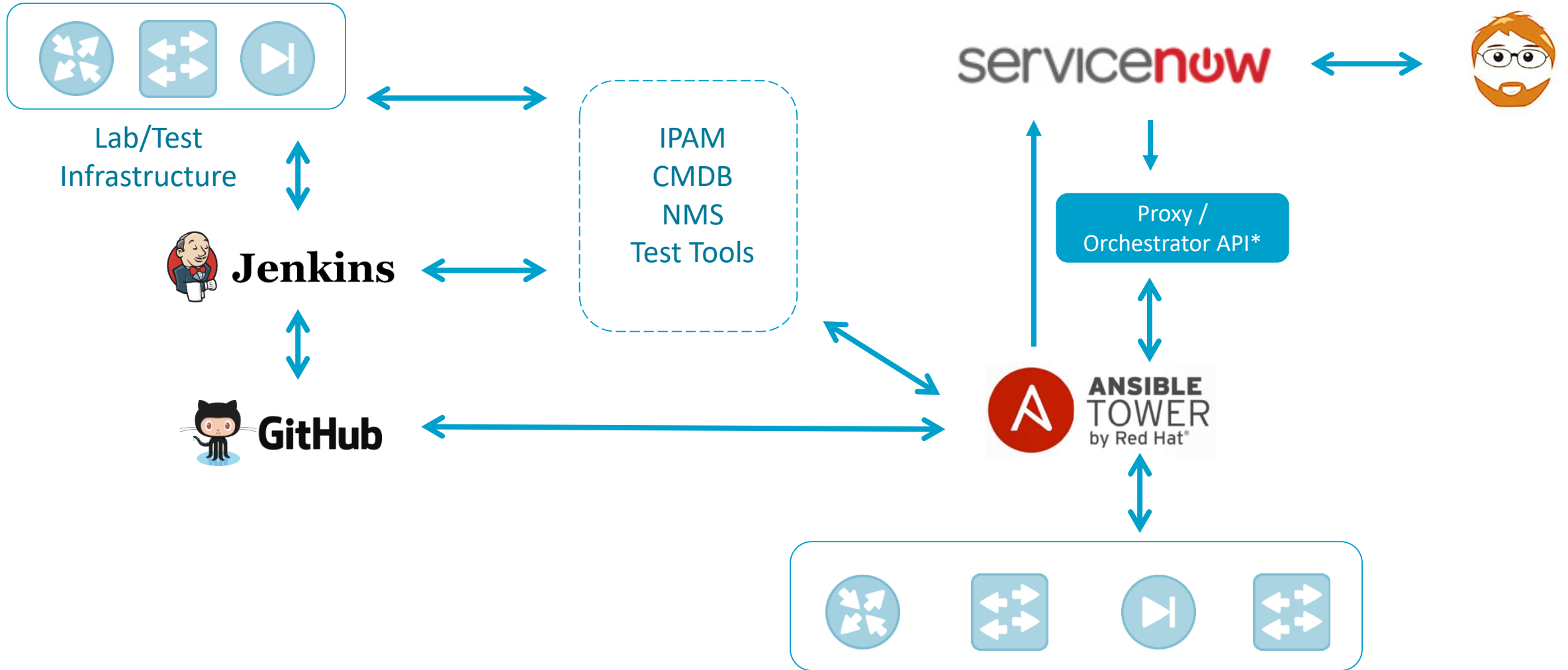
- It requires all data needed

- Pre-build the execution engine for safe, pre-approved, common changes

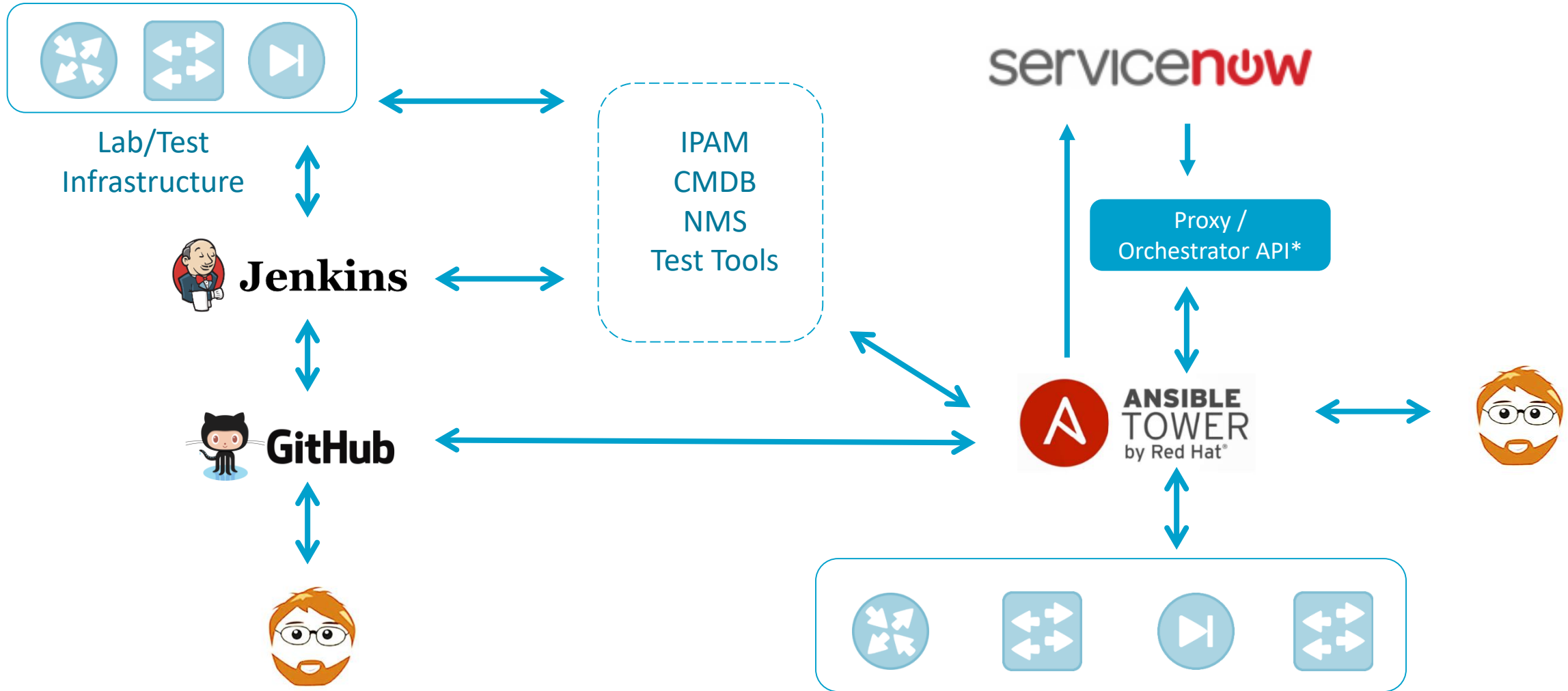
- You define it
- It'll always happen

Good starting point. Absolutely.

Self Service Network Automation



Infra as Code Network Automation



DEMO TIME