Getting Started with HPE Aruba Networking Central Automation

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Introduction to HPE Aruba Networking Automation
What is Network Automation?

Use of software, scripts, and tools to streamline the configuration and deployment as well as the extensibility of network devices and services

Increase Agility

Simplify

Reduce Human-Induced Errors

When starting with network automation...

Device Management/Onboarding

Network Maintenance & Conformance


Event-Driven Automation

Most Automated Network Workflows

What operations do network operators want to automate?

- NetBox, Infoblox integrations

- CI/CD Integration

- Provisioning/ZTP

- Config Generation

- Config Deployment

- Config backup

- Reporting

- Compliance Check

- Change Validation

- Anomaly Detection

- Firmware Upgrade

- Event Driven Automation

- Analytics

- Fault Remediation

The HPE Aruba Networking Edge Service Platform
Programmable Interfaces At Every Level
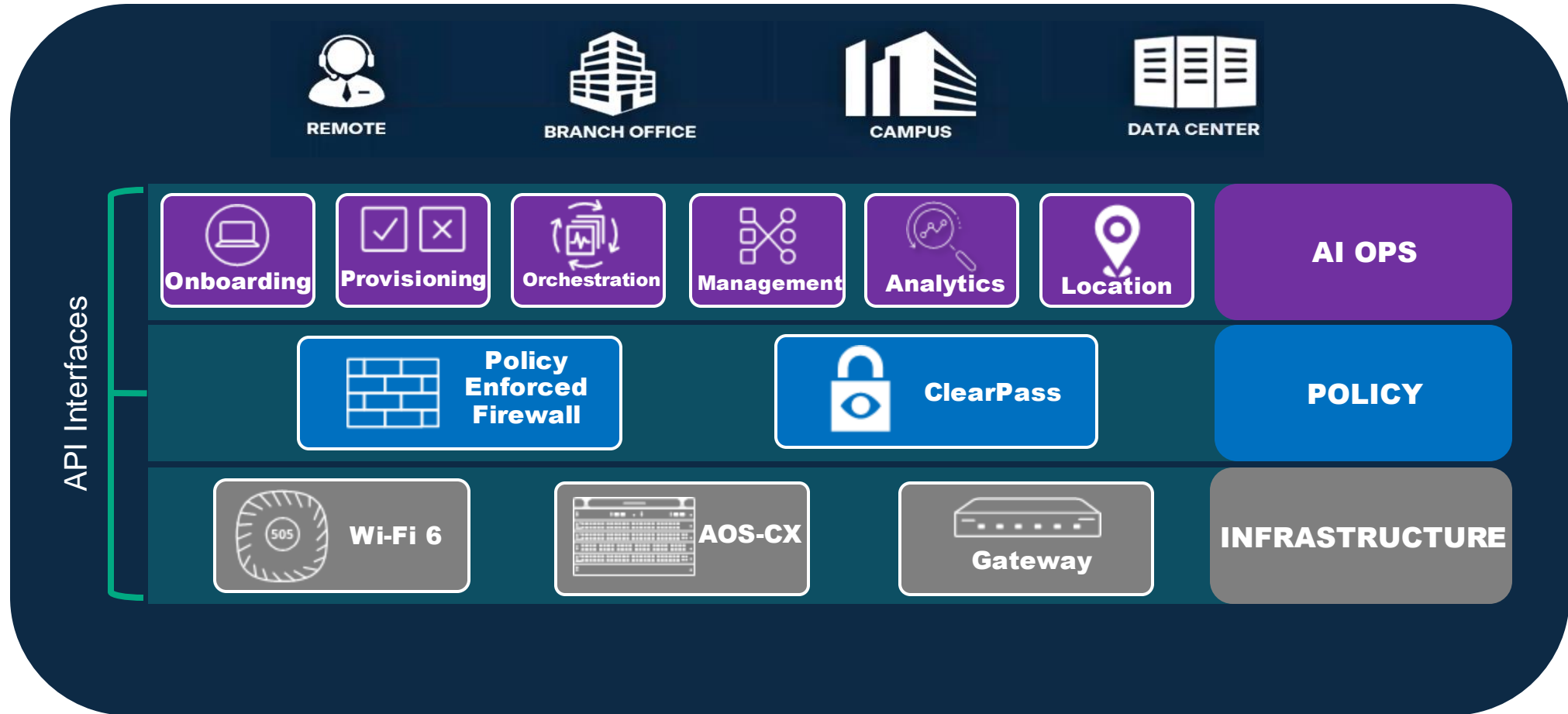
HPE Aruba Networking Automation Tools and Frameworks
The power of Opensource

python

Versatile

Existing modules

Community
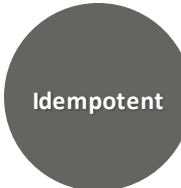
ANSIBLE

Red Hat Ansible Automation

SIMPLE	POWERFUL	AGENTLESS

Idempotent

Vendor Agnostic

POSTMAN

API Platform

Simplify request executions

NAPALM
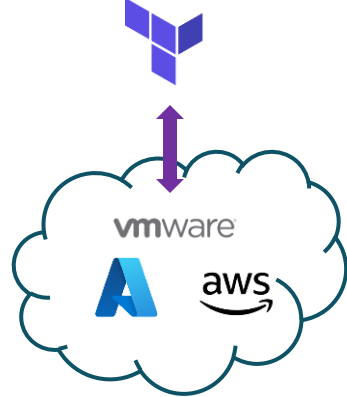
JUNIPER
ARISTA
Pluribus NETWORKS
NAPALM
CISCO
FORTINET
paloalto NETWORKS
aruba

Python interface uniformity

HashiCorp Terraform

vmware
aws

Stateful automation for cloud systems

Central Automation

Aruba Central's Automation Capabilities
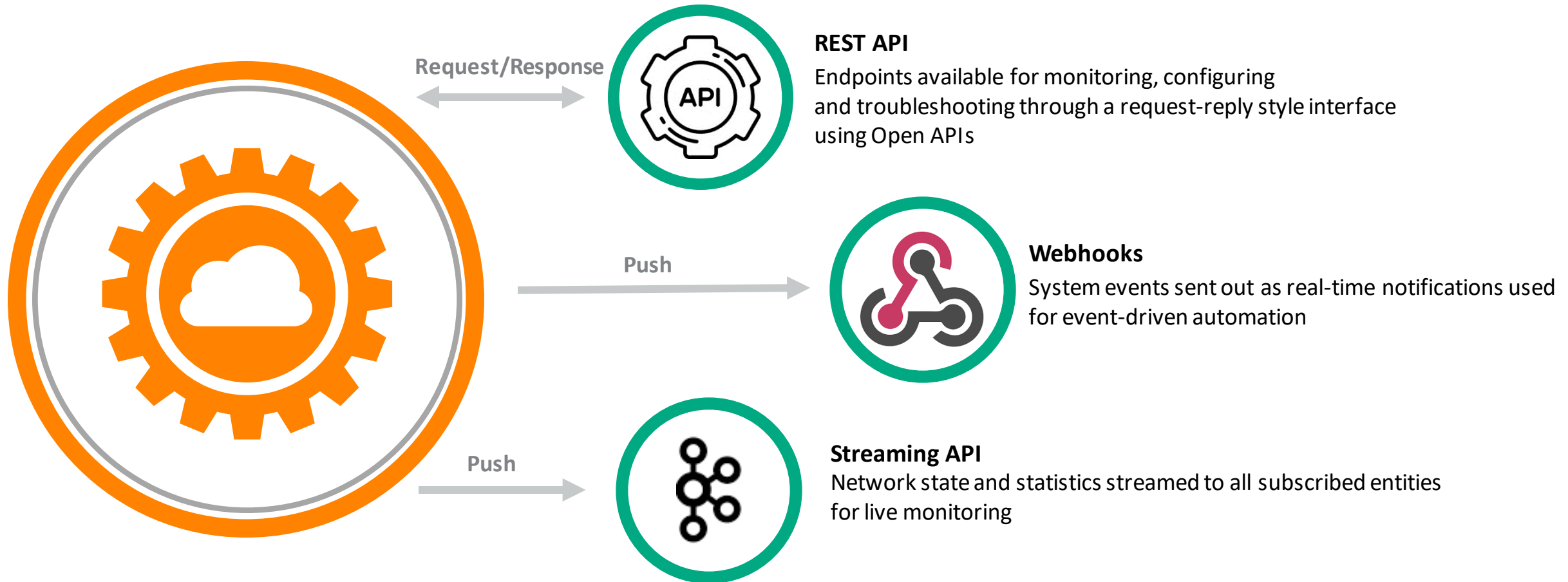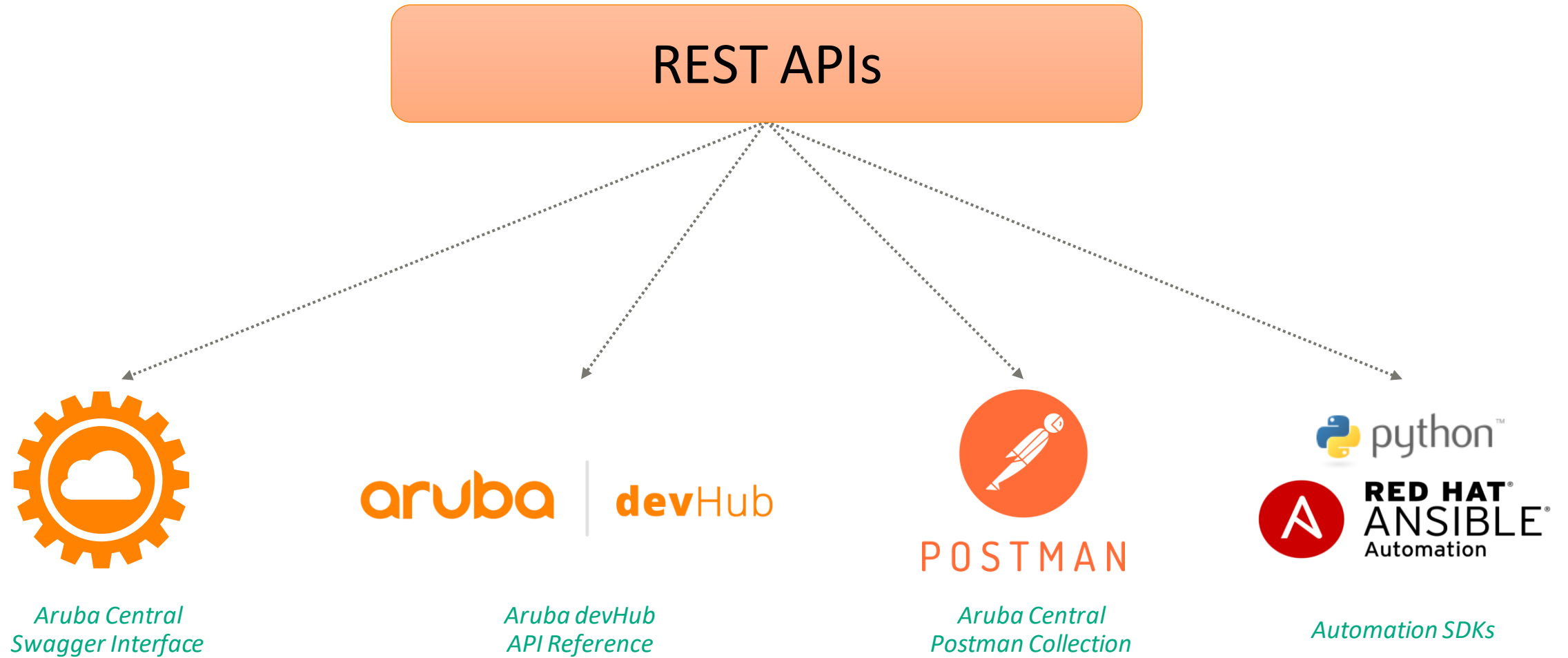
Request/Response

REST API
Endpoints available for monitoring, configuring and troubleshooting through a request-reply style interface using Open APIs

Push

Webhooks
System events sent out as real-time notifications used for event-driven automation

Push

Streaming API
Network state and statistics streamed to all subscribed entities for live monitoring

Using Aruba Central REST API

REST APIs

*Aruba Central
Swagger Interface*

*Aruba devHub
API Reference*

*Aruba Central
Postman Collection*

Automation SDKs

Using Aruba Central REST API

Aruba Central Swagger

Aruba devHub API Reference

Aruba Central Postman Collection

Automation SDKs

- Lists all the supported APIs

- Required parameters for an API Endpoint

- Expected API response sample and model schema

- Try out an API endpoint in the Aruba Central and view the results.

Using Aruba Central REST API

Aruba Central Swagger

Aruba devHub API Reference

Aruba Central Postman Collection

Automation SDKs

- Ability to make API calls to Aruba Central directly from Aruba devHub

- Lists all the supported APIs

- Required parameters for an API Endpoint

- Expected API response sample and model schema

aruba | devHub

Using Aruba Central REST API

- **Aruba Central Swagger**

- **Aruba devHub API Reference**

- **Aruba Central Postman Collection**

- **Automation SDKs**

- Ability to make API calls to Aruba Central directly from Postman

- Capability to store & reuse Aruba Central credentials

- Postman Runner for Automatic Token Management

- Lists all the supported APIs

- Required parameters for an API Endpoint

POSTMAN

Using Aruba Central REST API

Aruba Central Swagger

Aruba devHub API Reference

Aruba Central Postman Collection

Automation SDKs

- Simplify making API calls in programming languages

- Modules for API categories

- Aruba Central SDKs -

    – Ansible - Aruba Central Ansible Collection

    – Python – PyCentral

Central Ansible Collection Published

- Just released the Central Ansible Collection based on the Central Roles
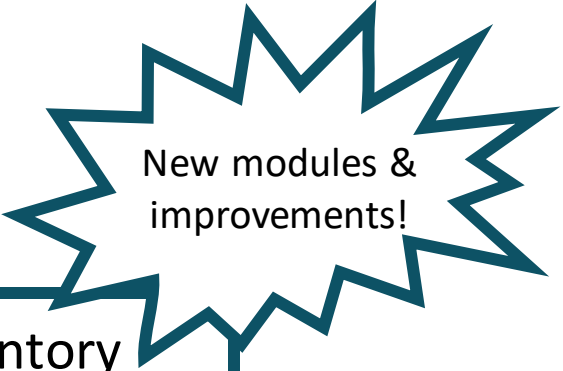
  https://galaxy.ansible.com/ui/repo/published/arubanetworks/aruba_central/

User

Inventory

Playbook

Modules

Plugins

Helper Files

REST API

Add Central cluster and token info along with Ansible connection details

Set of tasks to be performed using Central Ansible modules
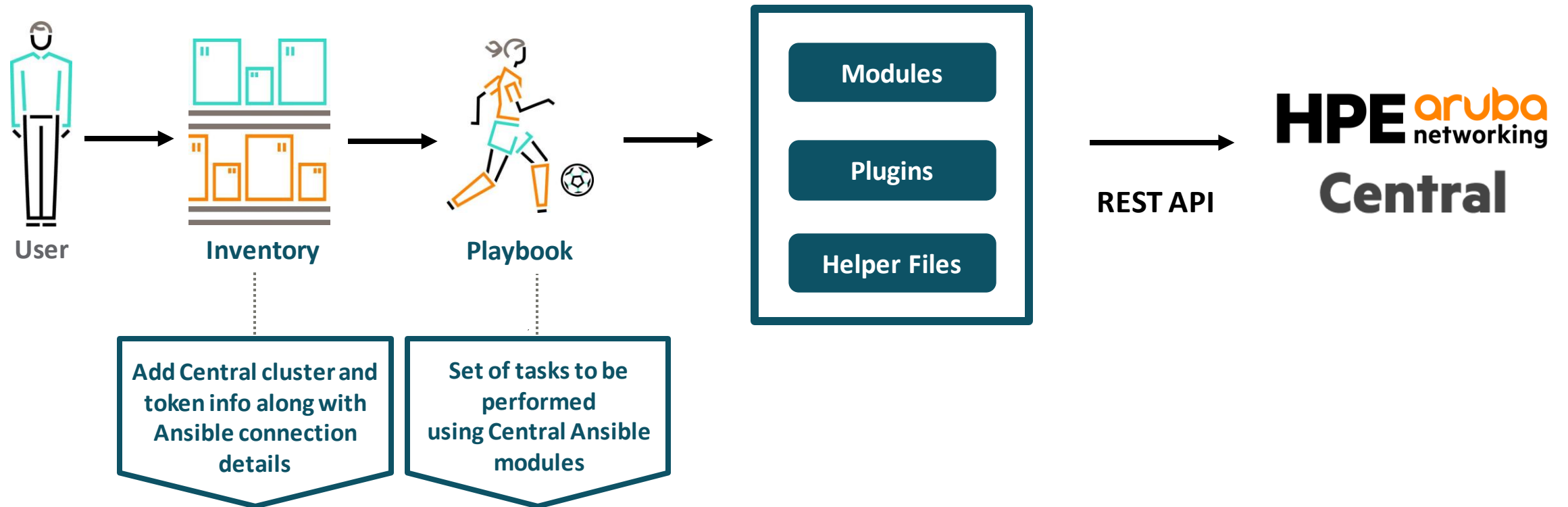
Basic elements of the Aruba Central Collection

PyCentral – Central Python SDK

- Released v1 in August 2023

- Features of PyCentral
  - Automatic Token Generation & Management
  - Wait & retry logic when Central's Per-second API rate limit is reached
  - Log messages when Central's Per-Day API rate limit is exhausted
  - Base Module & several modules for API categories

- Modules that are currently available for PyCentral

  - Audit
  - Monitoring
  - Firmware Management
  - Licensing

  - RAPIDS
  - Topology
  - User Management
  - VisualRF

New modules & improvements!

  - Device Inventory
  - Configuration
  - MSP

Central Automation Pre-created Workflows

central-python-workflows

- This GitHub repository hosts common workflows that customers can utilize to automate their networks in Python
- Some of the new workflows that are now available -

Device Provisioning	Device Onboarding	MSP Customer Onboarding	Device Inventory to Excel
AP CLI Workflows	WLAN Workflows	User Provisioning	Device Inventory Migration

Demo
Device Onboarding

| Move Device(s) to Central app | → | Assign Subscription to device(s) | → | Creating a Group | → | Uploading Configuration to group | → | Moving device(s) to group | → | Creating a site | → | Associating device(s) to site |

Aruba Central

REST API

Groups

Sites

PyCentral Script

Hackshack-Config

Hackshack-Site
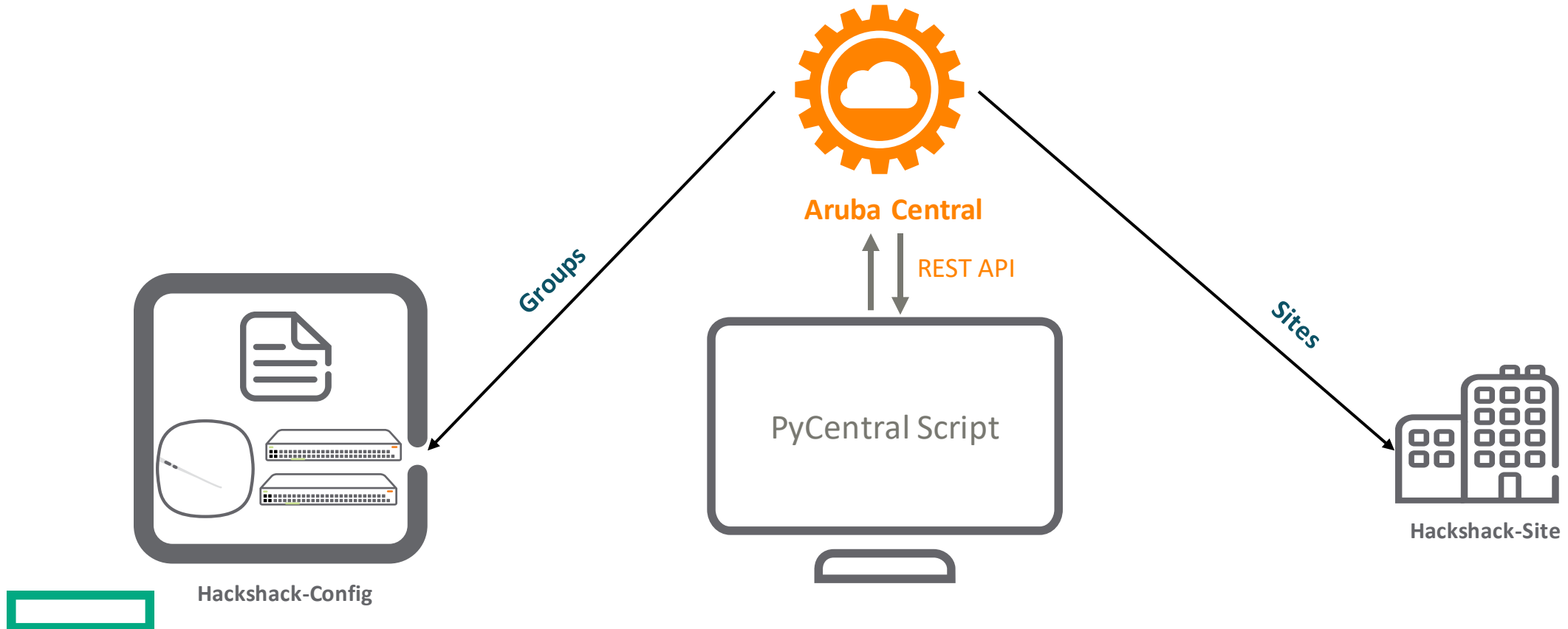
Central Automation Studio

- **Create Custom Dashboards for your Central deployments using Central APIs**
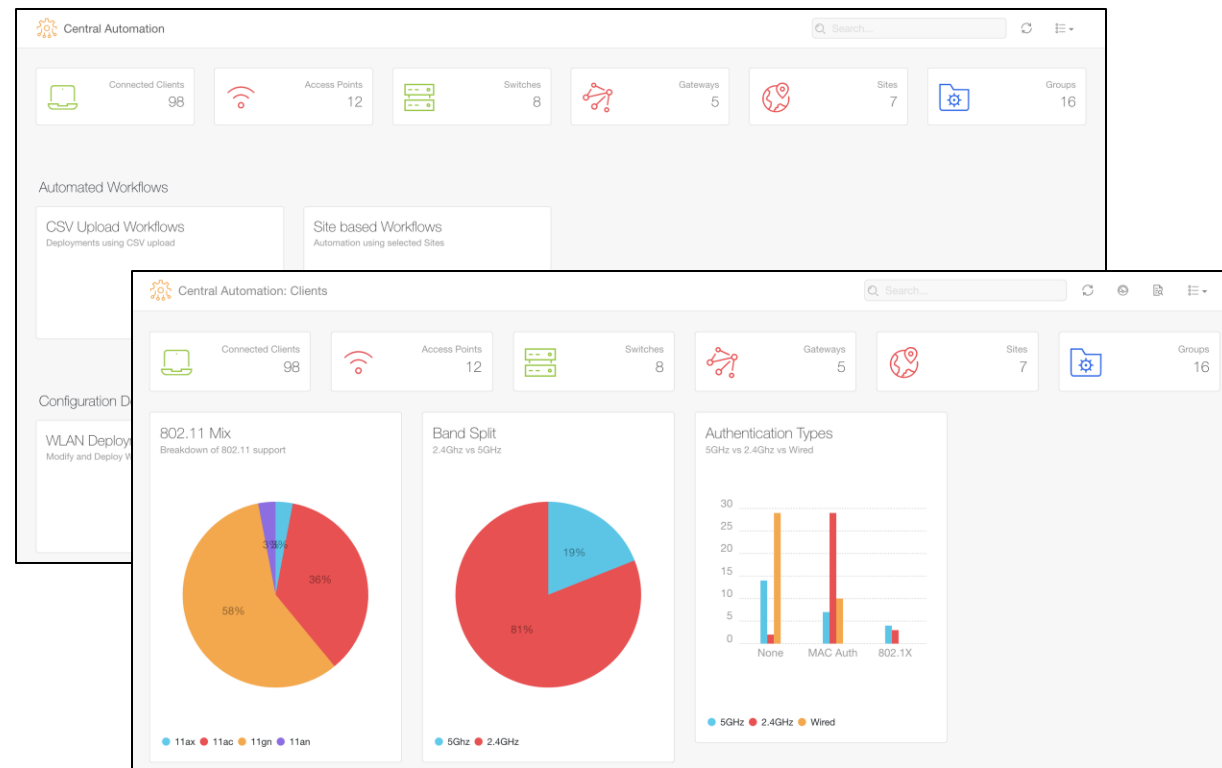- Portable, customizable platform in a Docker Container

Github Repo:
https://github.com/aruba/central-automation-studio

Aaron Scott's Central Custom Dashboard:
https://central.wifidownunder.com/
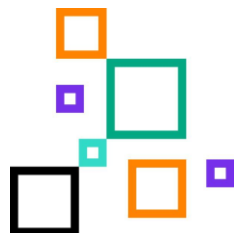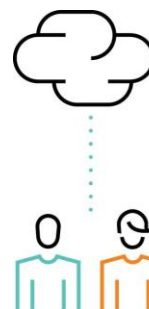
Additional Resources

HPE Aruba Networking Developer Hub

Getting Started

API References

Frameworks & SDKs

Code Exchange

Airheads Dev Community

Videos & Trainings

https://devhub.arubanetworks.com

HPE Dev External Slack Channels
For HPE Aruba Networking Automation

HPE Developer Community Slack

Where you'll find all things software at HPE. Join us to collaborate and build applications and integrations with HPE products using the latest software and open source technologies

Join our Slack Channels in the HPE Dev Workspace

- #aruba-central
- #aruba-clearpass
- #aruba-switching
- #aruba-wireless
- #aruba-edgeconnect-sdwan
- #aruba-axis-sse

Questions?

Thank you

Email us at
aruba-automation@hpe.com

HPE Developer Meetup Survey