How to manage Ansible from Ansible Tower

Ansible in DevOps

Meetup #1; Bydgoszcz 2019-10-16

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Agenda

- Ansible vs Ansible Tower – 12'
    - Definitions and use cases
    - Architecture review
    - Components dependencies

- Demo – 15'
    - GUI quick overview
    - Ansible Core & Python Modules
        „Managing versions of Ansible in Ansible Tower"

- Q&A – 3'

About me

Professional profile

- Now: Technical Architect in Atos
- Past: PSI, TE, Sygnity, Red Hat
- Focused on:
  - Tooling and Automation
  - Privite and Public Cloud
  - Infrastructure as a Code
  - DevOps and Agile methodologies
  - In love with GNU/Linux ;)

Private profile

- Lives in Bydgoszcz
- Married, have got son
- Interested in:
  - MeetUp like our about Ansible ;)
  - Music production, DAW
  - Guitar & Accordion Player
  - Member of "Half the Way" band
  - Likes spend time on sea side

Definition – Ansible

Ansible® is a powerful open source automation language, also a deployment and orchestration tool.

- *Combines multi-node deployment, ad-hoc task execution, and configuration management in one package.*
- *Runs from Linux command line.*
- *Agentless. Uses SSH for Linux and WinRM for Windows.*
- *Modules work over JSON and can be written in any language.*
- *Uses YAML to express reusable descriptions of systems (Ansible Playbooks).*

Community vs Enterprise?

- Both the Ansible project and Ansible Engine are open source technologies.

- The Ansible (Core) project is built by the community (ansible.com/community) for the benefit of the community.

- Ansible Engine is developed by Red Hat with the explicit intent of being used as an enterprise IT platform.

Definition – Ansible Tower

Red Hat® Ansible® Tower tool enables centralize and control IT infrastructure

- *Web-based GUI with visual dashboard.*

- *Role-based access control.*

- *Enterprise authentication, user accounting and enhanced logging.*

- *Job scheduling.*

- *Integrated notifications.*

- *Graphical inventory management.*

- *Easily embed into existing tools and processes with REST API and CLI.*

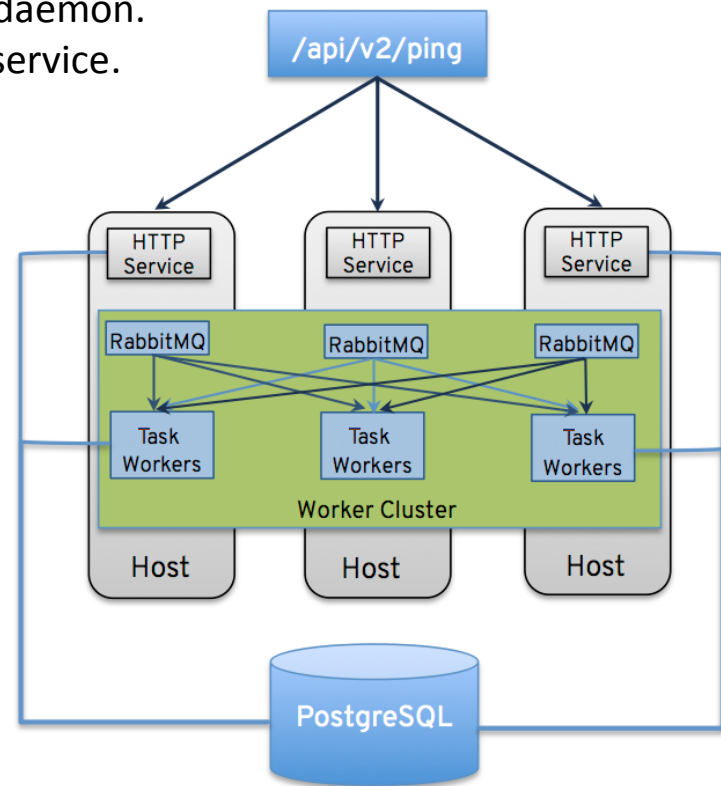- *And more …*

Ansible vs Ansible Tower
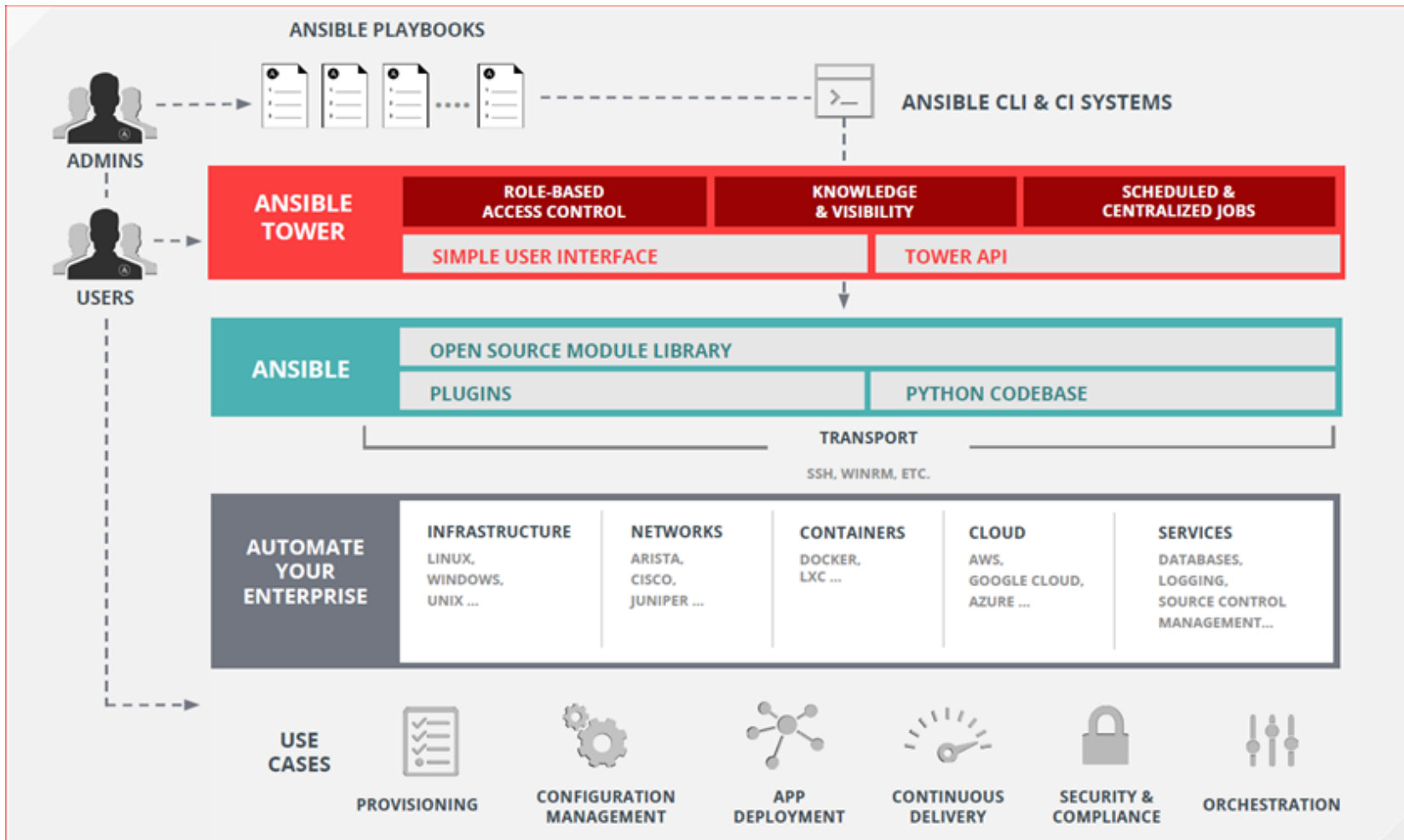
Ansible Tower architecture

Data stored in PostgreSQL database.
Uses RabbitMQ messaging system.
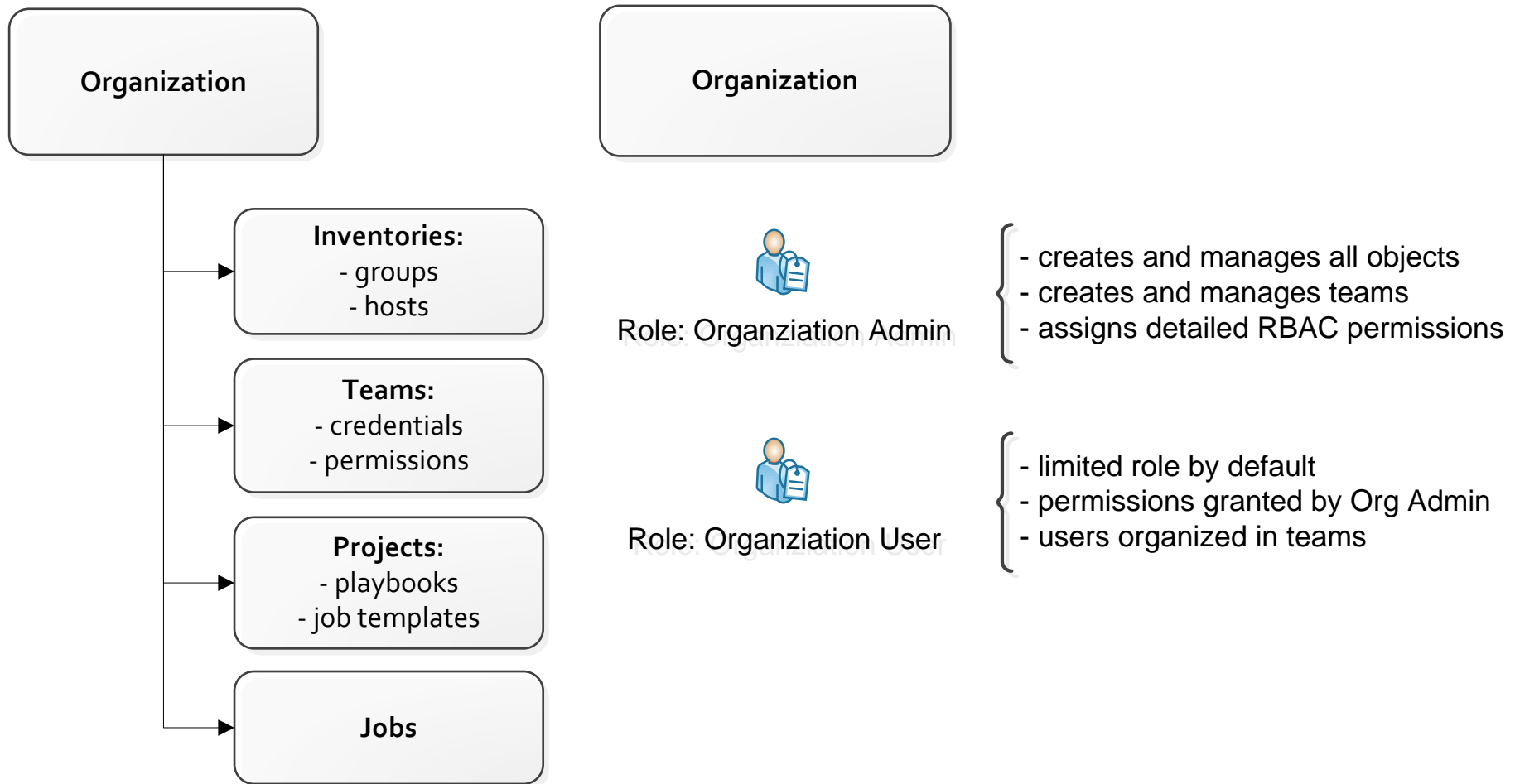Infrastructure runs nginx web server, memcached daemon.
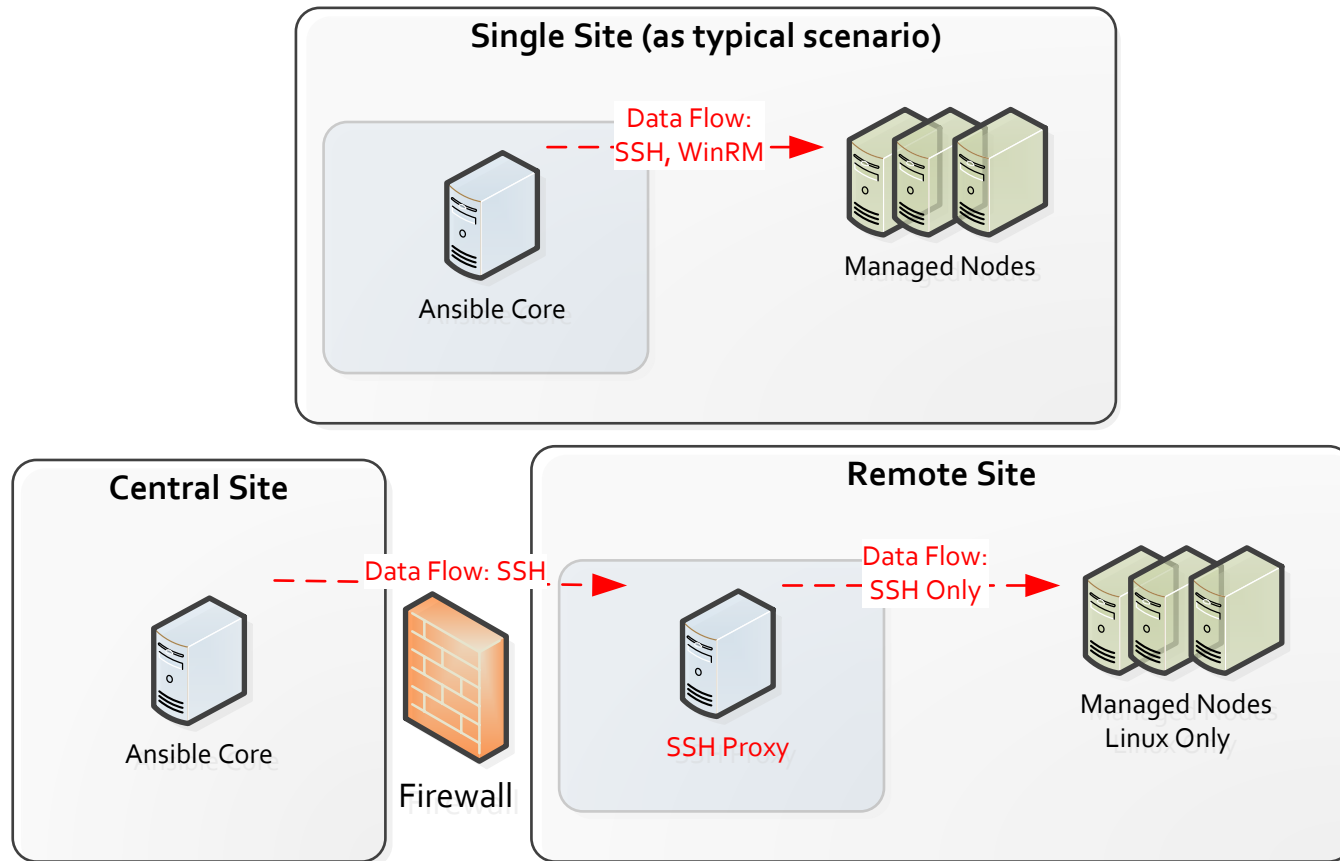Additional components controlled by supervisord service.

Ansible Tower deployment models

- Single machine with integrated database
- Single machine with remote database
- High availability multi-machine cluster

  - *Version >= 3.2:*
    - *Active-Active architecture*
    - *High-availability cluster with multiple active Tower nodes*
  - *Each node in cluster hosts Ansible Tower web frontend and RESTful API backend*
  - *External components are required*
    - *Load Balancer*
    - *PostgreSQL Database HA/Replication*

Ansible Tower RBAC

Organization

Organization

Inventories:
- groups
- hosts

Teams:
- credentials
- permissions

Projects:
- playbooks
- job templates

Jobs

Role: Organziation Admin
- creates and manages all objects
- creates and manages teams
- assigns detailed RBAC permissions

Role: Organziation User
- limited role by default
- permissions granted by Org Admin
- users organized in teams

Ansible Core Landscape

Single Site (as typical scenario)

Data Flow: SSH, WinRM

Ansible Core

Managed Nodes

Central Site

Ansible Core

Firewall

Data Flow: SSH

Remote Site

SSH Proxy

Data Flow: SSH Only

Managed Nodes Linux Only

*Windows via bastion host (SSH Proxy) – Request For Enhancement sent to Ansible Upstream:
https://github.com/ansible/ansible/issues/44141
https://access.redhat.com/solutions/3689891

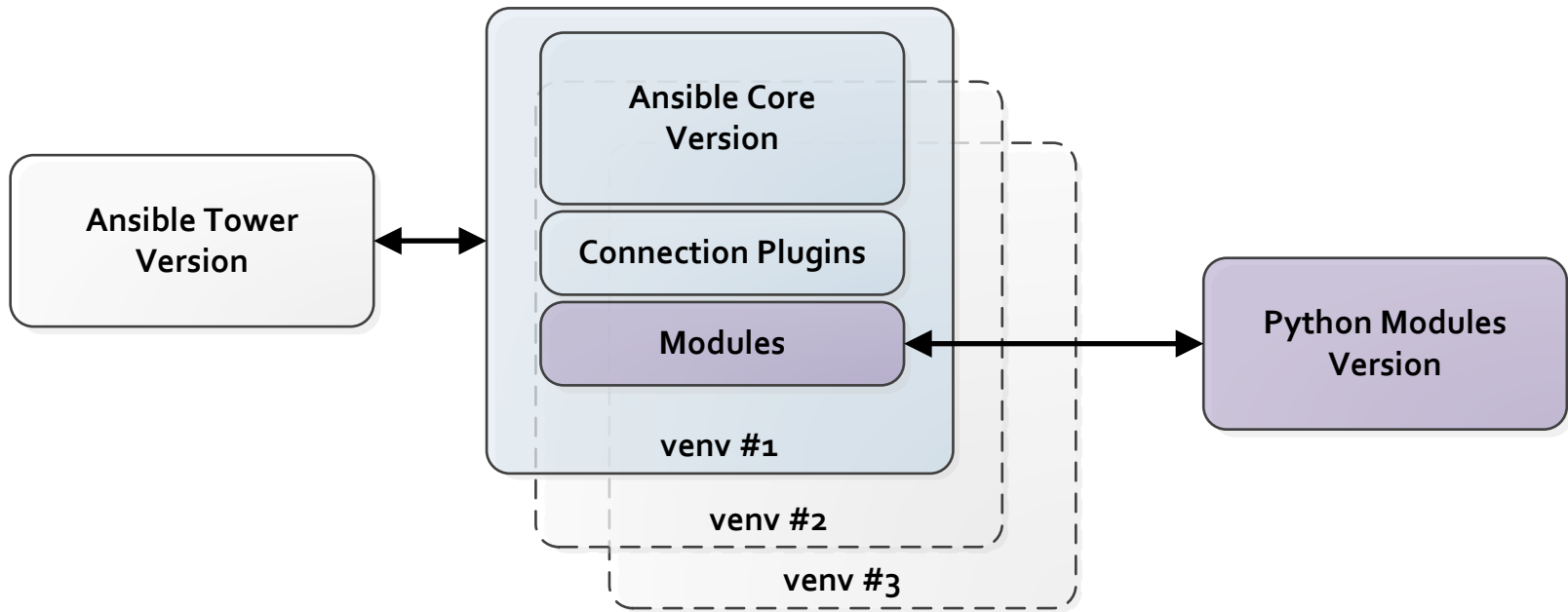Bank Pocztowy

Ansible Tower Landscape
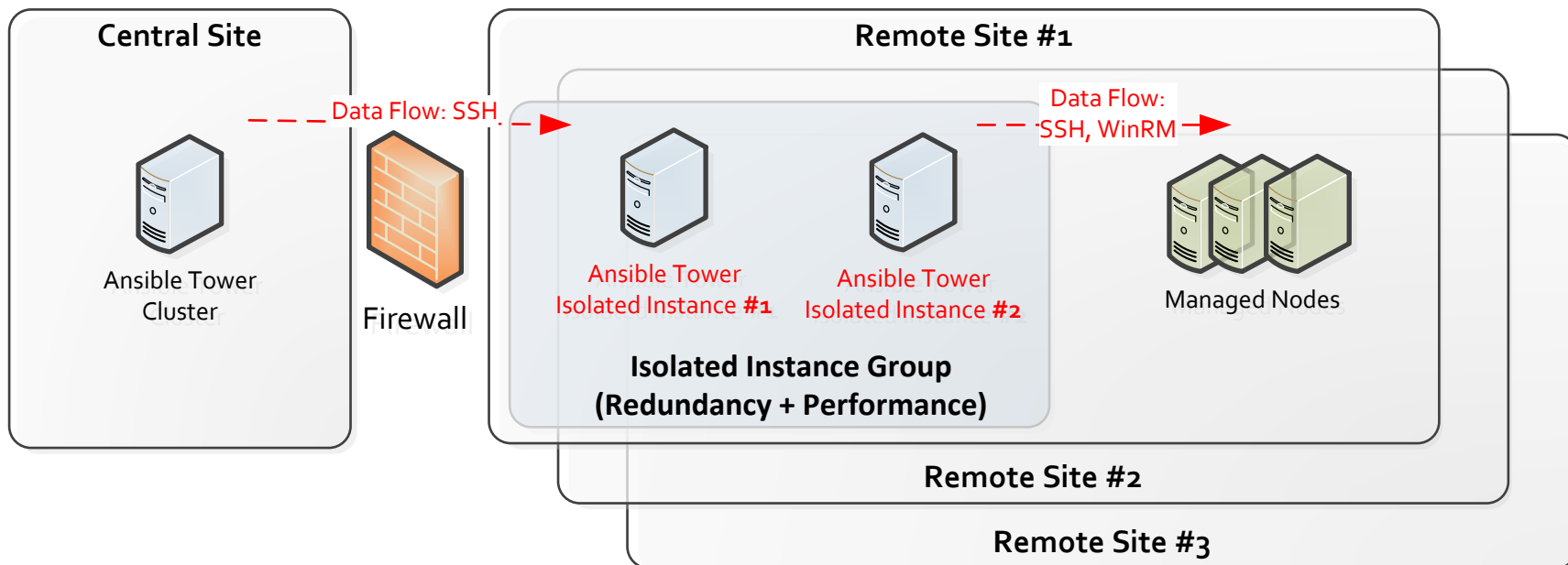
Isolated Instances are located in remote locations.
Used for playbook execution.
Enables to isolate many remote sites in multi-tenant configuration.

Component dependencies

Important for managing the life cycle of Ansible Playbooks in software-defined data centers.

Reference materials

- https://docs.ansible.com/
- https://www.ansible.com/community
  - Our Meetup can be found here ;)
- https://github.com/ansible/awx
- https://www.ansible.com/products/awx-project/faq

Online demo

- GUI quick review

- Python venv

    - Many versions of Ansible Core

    - Additional python modules:

      Example: VMware: vmware-guest -> PyVmomi; AWS: ec2-> boto, boto3;

- Custom venv for Ansible Tower

- Playbook execution via different venv

- https://github.com/Ansible-in-DevOps/meetup1/tree/master/Prelekcja_nr_3

Q&A Session

Questionnaire

https://forms.gle/vx5KrF3rnUDCphr18

Or

https://tiny.pl/tlq18

Thank You