



Migrating to Ansible Automation Platform 2 Considerations

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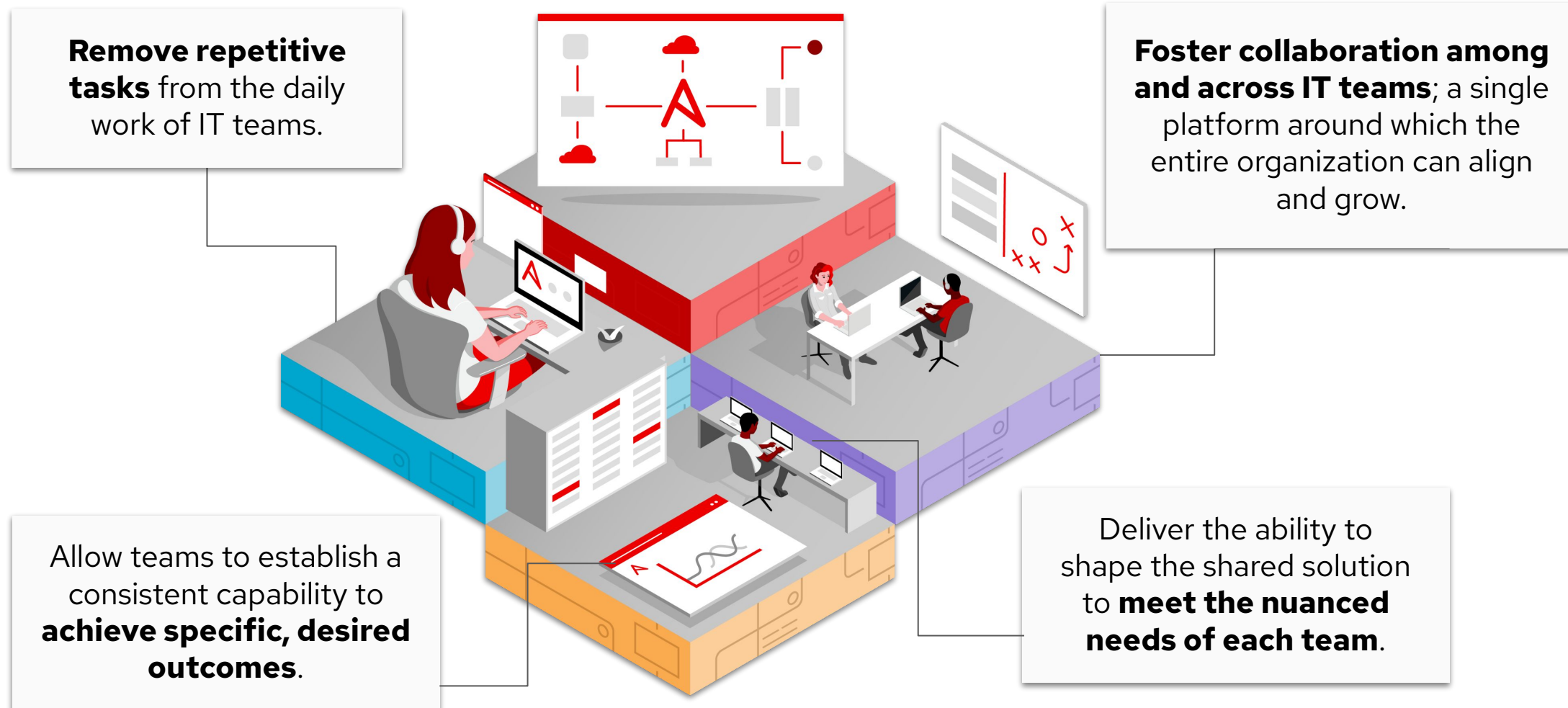
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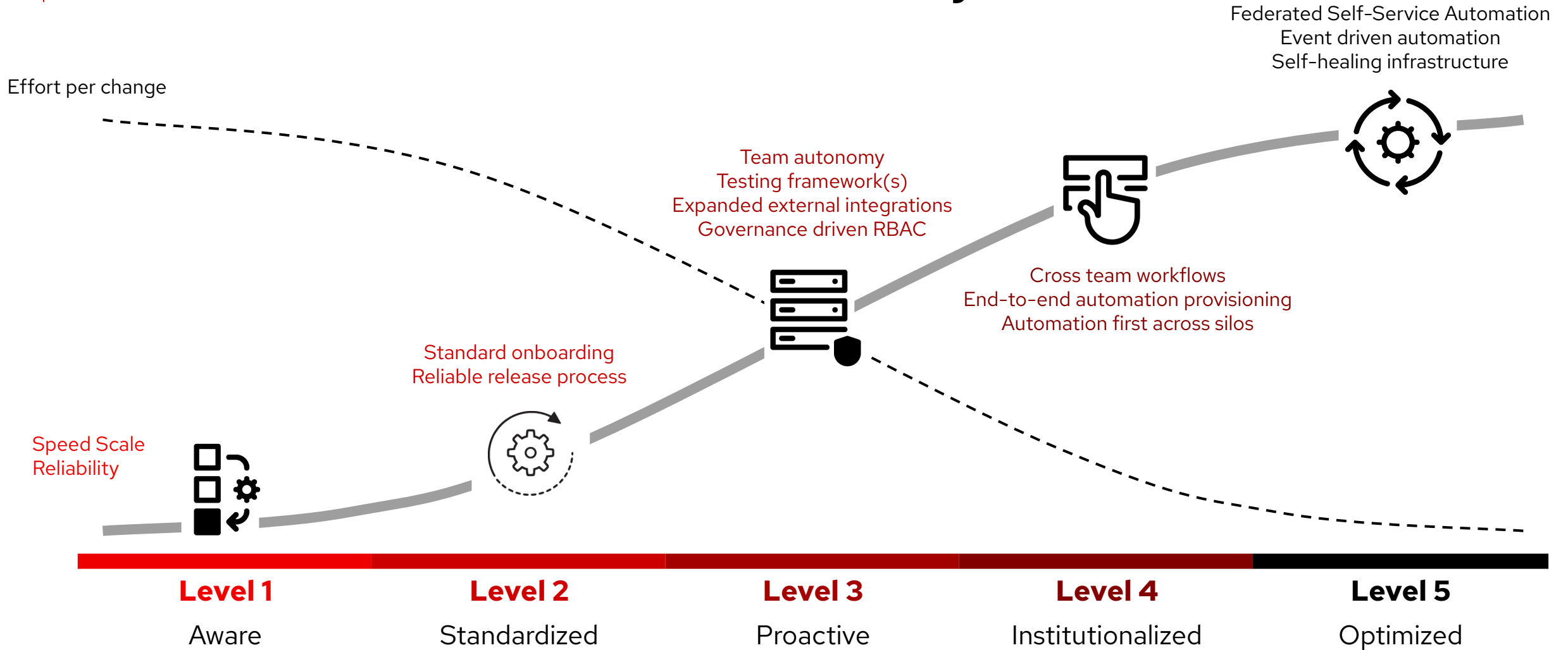
What we'll discuss today

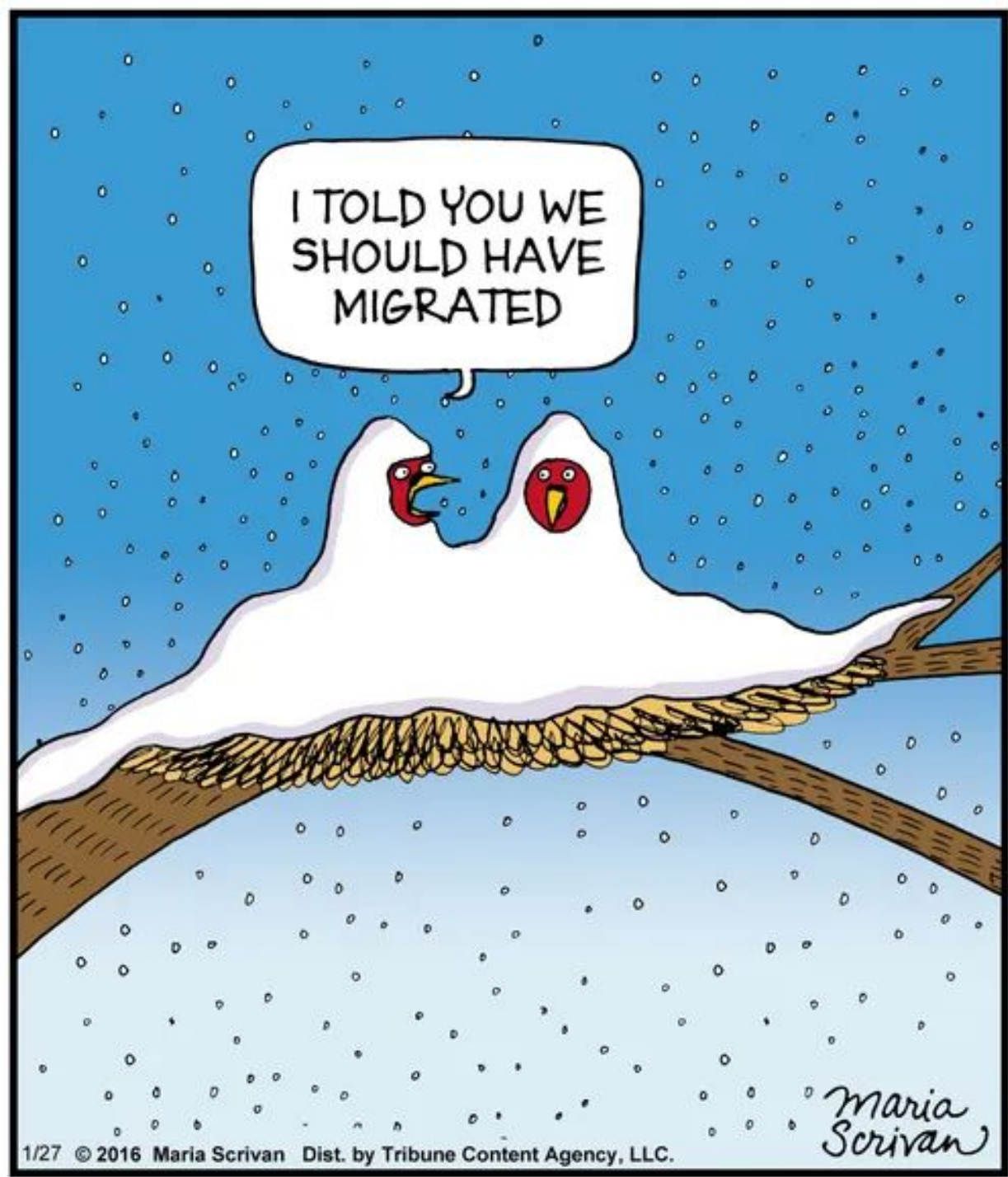
- ▶ Value of Red Hat Ansible Automation Platform
- ▶ Product Strategy
- ▶ Why upgrade?
- ▶ Migration considerations
- ▶ Migration process overview
- ▶ FAQ
- ▶ Resources
- ▶ Q+A

Red Hat Ansible is built around four core principles



Automation Maturity Curve





I TOLD YOU WE
SHOULD HAVE
MIGRATED

Why upgrade?

- ▶ New containerized architecture
- ▶ New tools for better experiences
- ▶ Bring automation teams together
- ▶ Flexibility to scale up and out
- ▶ Improved performance

maria
Scrivan

Red Hat Ansible Automation Platform Life Cycle

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Life Cycle Dates

Ansible Automation Platform Life Cycle

Version	General availability	Full support ends	Maintenance Support 1 ends	Maintenance support 2 ends
Full support				
2.3	November 29, 2022	June 30, 2023	November 29, 2023	May 31, 2024
Maintenance support				
2.2	May 26, 2022	November 24, 2022	May 24, 2023	November 26, 2023
2.1	December 2, 2021	June 2, 2022	December 2, 2022	June 2, 2023
1.2	November 18, 2019	May 18, 2021	May 18, 2022	September 29, 2023
End of life				
2.0	July 15, 2021	January 15, 2022	July 15, 2022	August 26, 2022

<https://access.redhat.com/support/policy/updates/ansible-automation-platform>

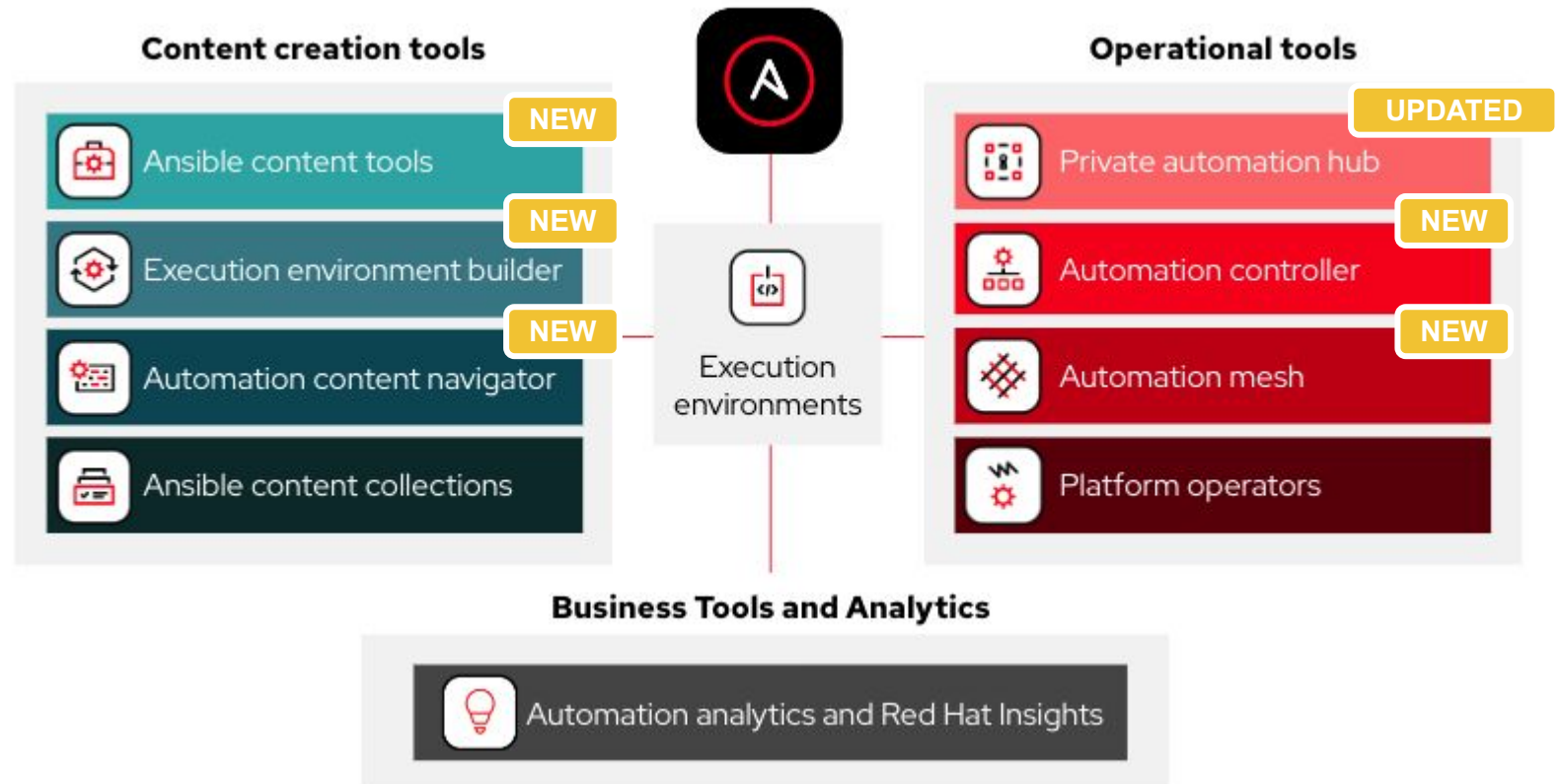
Red Hat Ansible Automation Platform 2

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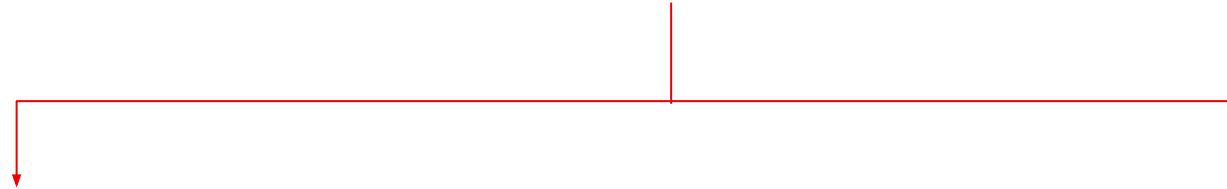


A better automation experience,
with new capabilities that help teams:

- ▶ **Create** automation content in a more consistent and efficient way
- ▶ **Manage** automation processes more effectively across the entire organization
- ▶ **Scale** automation capacity easily and on-demand.



Ansible Automation Platform hosting options



Red Hat Enterprise Linux 8.3+
x86_64 (physical, virtual)



Red Hat OpenShift via dedicated Ansible
Automation Platform operator (physical,
virtual)



On Microsoft **Azure marketplace**



On Amazon **AWS marketplace**



On Google **GCP marketplace**

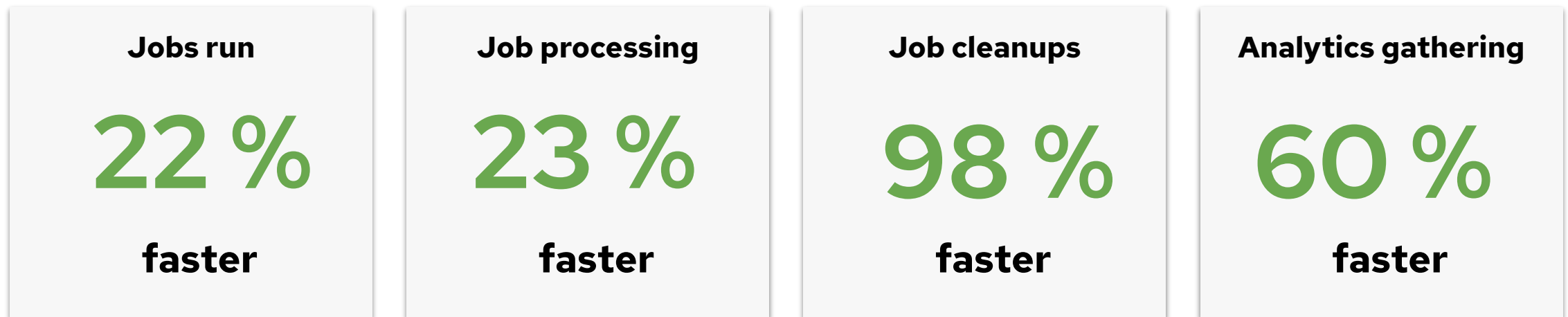
Self Managed (on-premises or cloud)

Customer deployed
Managed by Red Hat

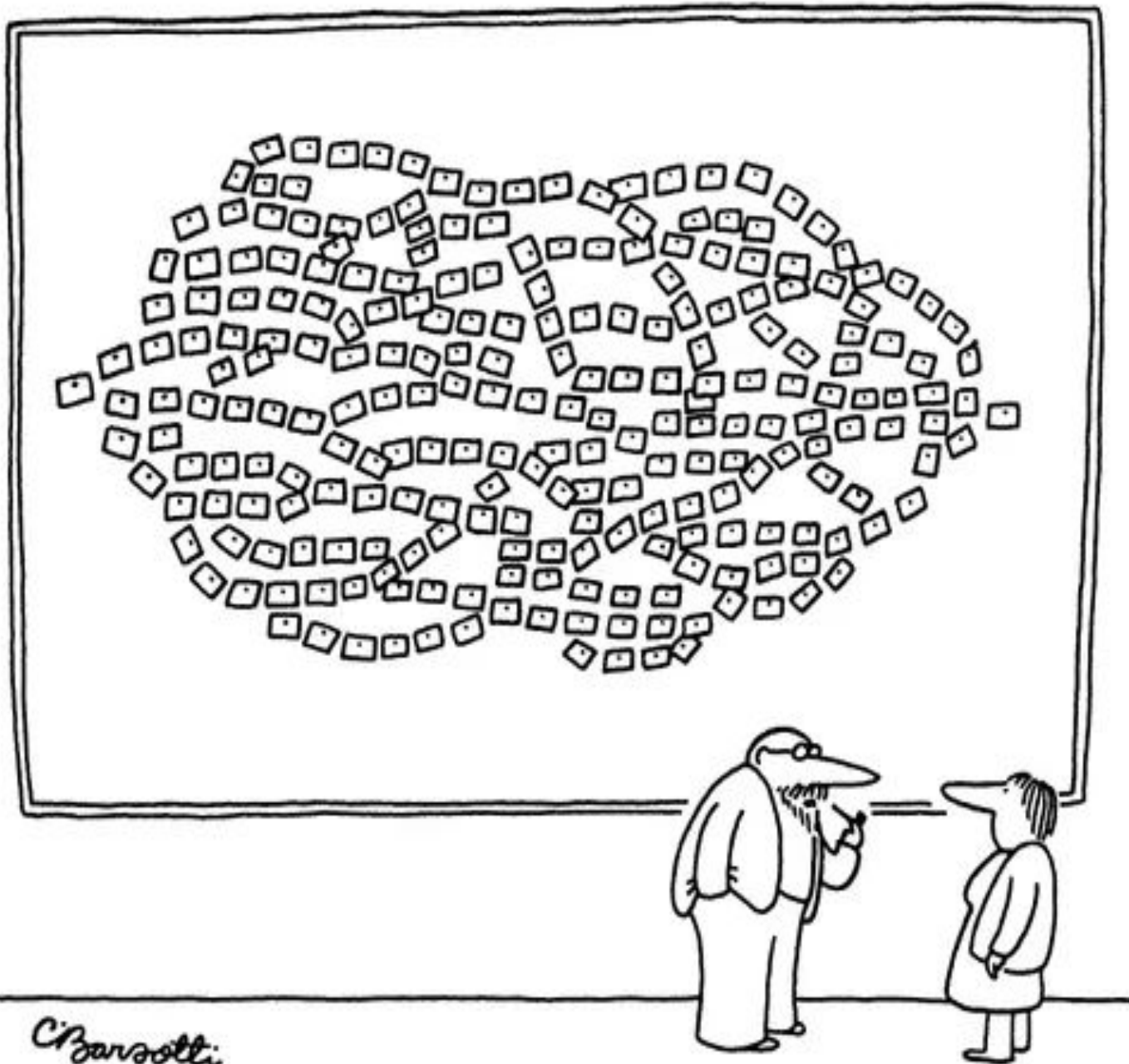
Customer deployed
Self-Managed

Performance improvements

With automation controller 4.1, there are significant performance improvements in different aspects. Performance testing has been conducted comparing **Tower 3.8.5** and **Automation Controller 4.1**. Some key improvements include:



NOTE: these results may vary by customer environment



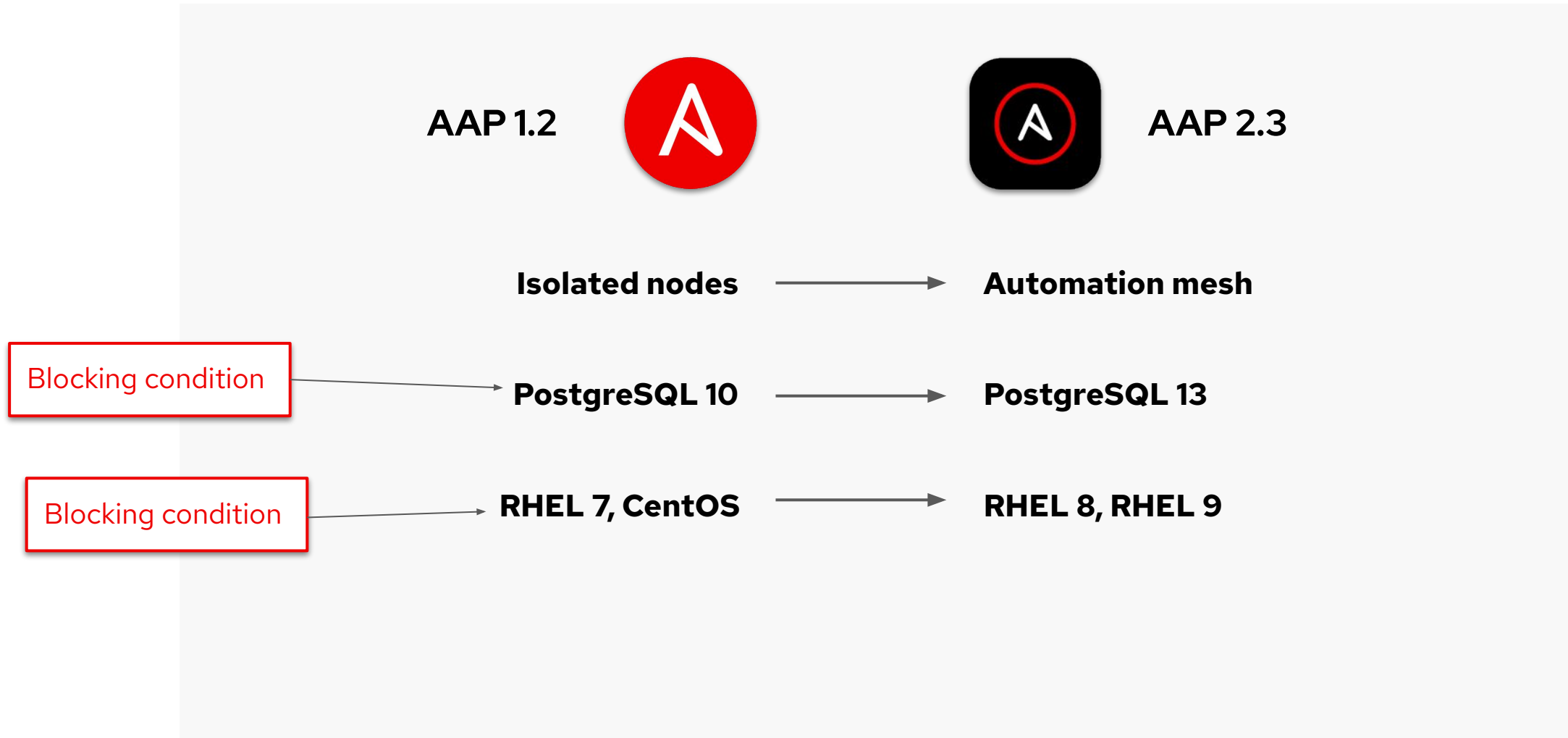
C. Barzotti

"It's plotted out. I just have to write it."

AAP 1.2 to AAP 2 migration process

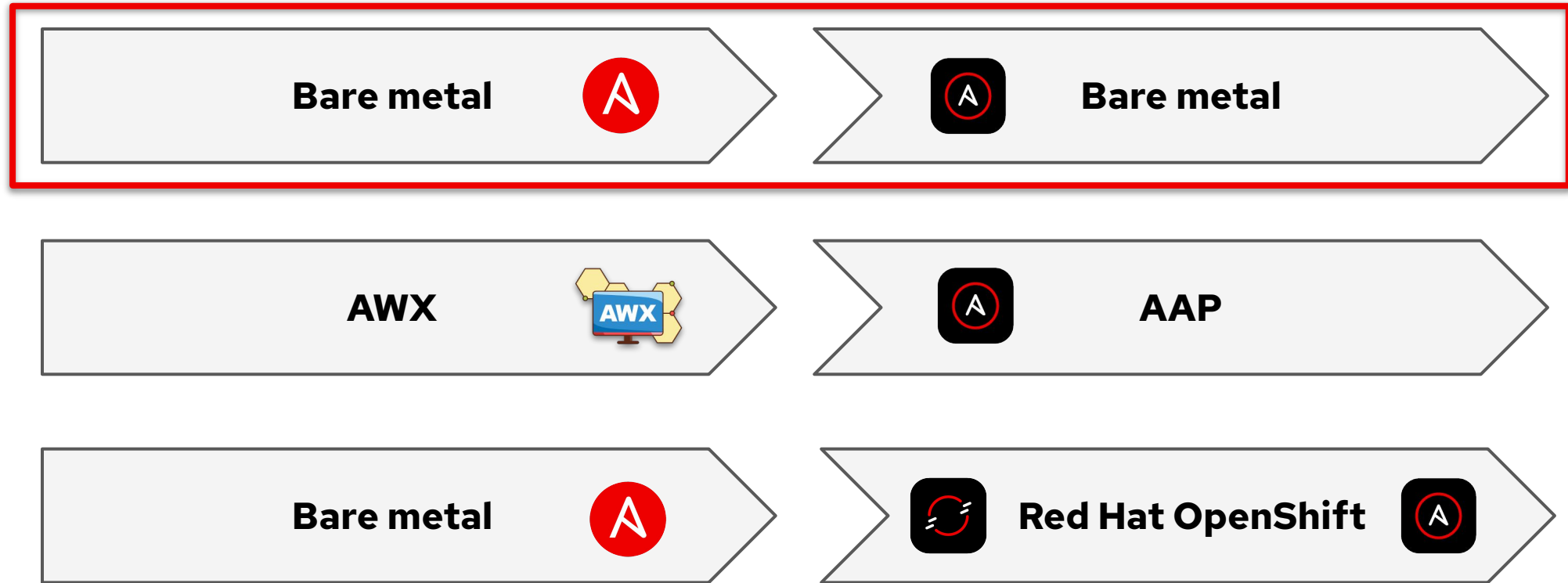
Infrastructure migration considerations

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There are multiple pathways

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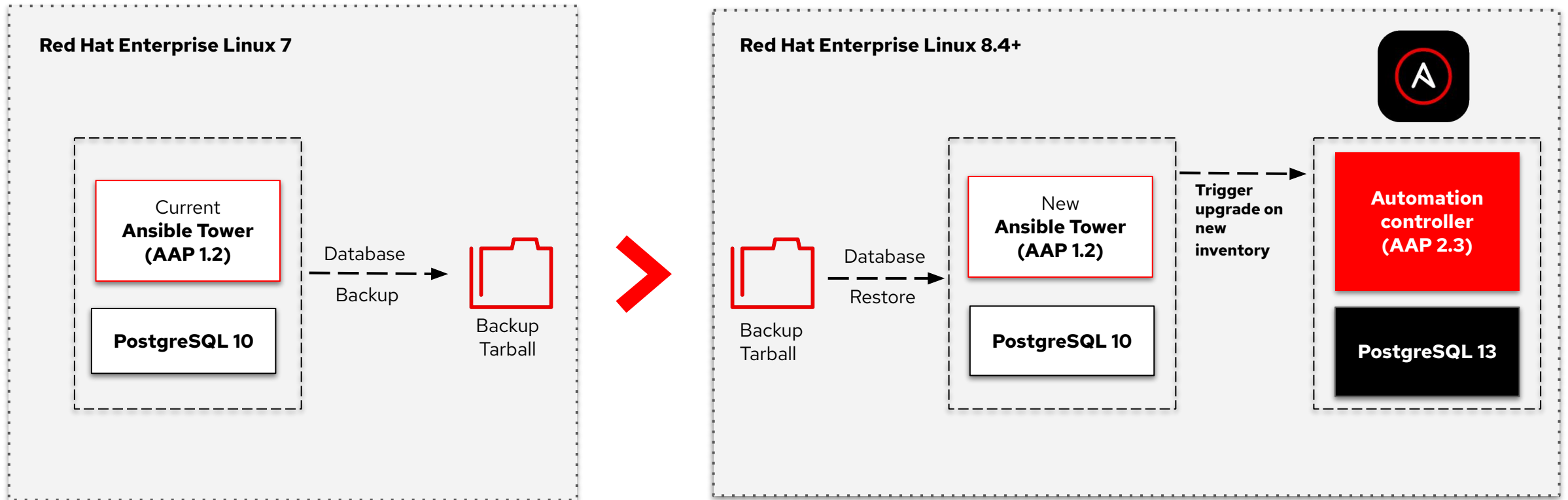
Migration process overview

The migration process employs a **side-by-side methodology** that uses the Ansible Automation Platform installer to do the backup, restore and an upgrade from AAP 1.2 -> AAP 2

PHASES	1	2	3
Under the hood	<p>Database Backup</p> <p><i>A DB backup of your original Ansible Tower environment running 3.8.5 is created and stored as a backup tarball</i></p>	<p>Database Restore</p> <p><i>A new Ansible Tower 3.8.5 running on RHEL8.4+ is installed and restored with a copy of the backed up Ansible Tower database</i></p>	<p>Upgrade to AAP 2</p> <p><i>The Ansible Tower 3.8.5 is upgraded to Ansible Automation Platform 2 using a newly generated AAP 2 inventory</i></p>

Migration process detailed

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Infrastructure Migration Prerequisites

Hardware

- ▶ 16 GB of RAM for controller nodes, database node, execution nodes and hop nodes
- ▶ 4 CPUs for controller nodes, database nodes, execution nodes and hop nodes
- ▶ 150 GB+ disk space for database node
- ▶ 40 GB+ disk space for non-database nodes

Software

- ▶ Red Hat Enterprise Linux 8.4 or later 64-bit (x86) installed for all nodes on the soon-to-be Ansible Automation Platform 2 environment
- ▶ Red Hat Subscription Manager with all systems registered with a Ansible Automation Platform subscription.
- ▶ Installation of firewalld on all systems and enabling mesh network port (default 27199) on your execution nodes and hop nodes (if any)

Setup

- ▶ DHCP reservations use infinite leases to deploy the cluster with static IP addresses
- ▶ DNS records for all nodes
- ▶ Chrony configured for all nodes for synchronization of the system clock
- ▶ Non-root user with sudo privileges to initiate the installation
- ▶ Copying SSH keys to all nodes to ensure that installer runs without the need of a password when attempting to SSH

Backup Ansible Automation Platform 1.2 on Environment A

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Procedure Breakdown

- ▶ Ensure no current running jobs or scheduled future jobs are to run
- ▶ Log into AAP 1.2 controller host command prompt and access the Ansible Tower setup directory.
- ▶ Run the `setup.sh` script to create the backup

```
$ ssh ansible@enva_controller1.example.com

$ cd /path/to/ansible-tower-setup-3.8.5-X

$ ./setup.sh -e 'backup_dest=<mount_point>' \
> -e 'use_compression=True' -e @credentials.yml -b \
-- --ask-vault-pass
```


Import Ansible Automation Platform 1.2 DB to Environment B

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Procedure Breakdown

- ▶ Environment B requires a clean install of AAP 1.2 on RHEL 8.4+
- ▶ Accessible backup file from Environment A as a mount point on Environment B
- ▶ Log into AAP 1.2 controller on environment B and access the ansible tower setup directory
- ▶ Run the setup.sh script to import the database

```
$ ssh ansible@envb_controller1.example.com

$ cd /path/to/ansible-tower-setup-3.8.5-X

$ ./setup.sh \
> -e 'restore_backup_file=<mount_point>/tower-backup-latest.tar.gz' \
> -e 'use_compression=True' \
> -e @credentials.yml \
> -r -- --ask-vault-pass
```

Upgrade Environment B to Ansible Automation Platform 2

Procedure Breakdown

- ▶ Log into AAP 1.2 controller on environment B
- ▶ Download latest Ansible Automation Platform 2
- ▶ Untar the ansible-automation-platform-setup tar file and access the ansible-automation-platform directory
- ▶ Copy the Ansible Automation Platform 1.2 inventory to the ansible-automation-platform-setup directory
- ▶ Generate an Ansible Automation Platform 2 installation inventory proposal
- ▶ Create a encrypted credentials.yml file
- ▶ Run the setup.sh with updated inventory

```
$ ssh ansible@envb_controller1.example.com

$ tar zxvf ansible-automation-platform-setup-2.x.x-x.tar.gz

$ cd /path/to/ansible-automation-platform-2.x.x-x/

$ cp /path/to/ansible-tower-setup-3.8.5.X/inventory .

#Generate AAP2 inventory from AAP1 inventory
$ ./setup.sh

#Create a credentials.yml file to encrypt passwords
$ echo -e "admin_password: password\npg_password:
pg_password\nregistry_password: registry_password" >
credentials.yml

#encrypt the password
$ ansible-vault encrypt credentials.yml

#Run AAP2 installer to upgrade
$ ./setup.sh -i inventory.new.ini -e @credentials.yml \
-- -ask-vault-pass
```

Upgrade Environment B to Ansible Automation Platform 2 - Generated Inventory

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```
[all:vars]
pg_host='10.0.188.133'
pg_port='5432'
pg_database='awx'
pg_username='awx'
pg_sslmode='prefer'
ansible_become='true'
ansible_user='ansible'
tower_package_name='automation-controller'
tower_package_version='4.1.1'
automationhub_package_name='automation-hub'
automationhub_package_version='4.4.1'
automation_platform_version='2.1.1'
automation_platform_channel='ansible-automation-platform-2.1-for-rhel-8-x86_64-rpms'
minimum_ansible_version='2.11'

# In AAP 2.X [tower] has been renamed to [automationcontroller]
# Nodes in [automationcontroller] will be hybrid by default, capable of
# executing user jobs.
# To specify that any of these nodes should be control-only instead, give
# them a host var of `node_type=control`

[automationcontroller]
envb_controller1.example.com
envb_controller2.example.com
envb_controller3.example.com

[database]
envb_database.example.com
```

Upgrade Environment B to Ansible Automation Platform 2: Simple Scenario

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```
[all:vars]
pg_host='10.0.188.133'
pg_port='5432'
pg_database='awx'
pg_username='awx'
pg_sslmode='prefer'
ansible_become='true'
ansible_user='ansible'
tower_package_name='automation-controller'
tower_package_version='4.1.1'
automationhub_package_name='automation-hub'
automationhub_package_version='4.4.1'
automation_platform_version='2.1.1'
automation_platform_channel='ansible-automation-platform-2.1-for-rhel-8-x86_64-rpms'
minimum_ansible_version='2.11'
registry_url='registry.redhat.io' <1>
registry_username='myusername' <2>

# In AAP 2.X [tower] has been renamed to [automationcontroller]
# Nodes in [automationcontroller] will be hybrid by default,
# capable of executing user jobs.
# To specify that any of these nodes should be control-only
# instead, give them a host var of `node_type=control`
```

```
[automationcontroller]
envb_controller1.example.com
envb_controller2.example.com
envb_controller3.example.com

[database]
envb_database.example.com

[automationcontroller:vars]
node_type=control <3>
peers=execution_nodes <4>

[execution_nodes] <5>
envb_executionnode-1.example.com
```

Upgrade Environment B to Ansible Automation Platform 2: Complex Scenario

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```
[all:vars]
pg_host='10.0.188.133'
pg_port='5432'
pg_database='awx'
pg_username='awx'
pg_sslmode='prefer'
ansible_become='true'
ansible_user='ansible'
tower_package_name='automation-controller'
tower_package_version='4.1.1'
automationhub_package_name='automation-hub'
automationhub_package_version='4.4.1'
automation_platform_version='2.1.1'
automation_platform_channel='ansible-automation-platform-2.1-for-rhel-8-x86_64-rpms'
minimum_ansible_version='2.11'
registry_url='registry.redhat.io' <1>
registry_username='myusername' <2>
```

```
# In AAP 2.X [tower] has been renamed to [automationcontroller]
# Nodes in [automationcontroller] will be hybrid by default,
# capable of executing user jobs.
# To specify that any of these nodes should be control-only
# instead, give them a host var of `node_type=control`
```

```
[automationcontroller]
envb_controller1.example.com
envb_controller2.example.com
envb_controller3.example.com

[database]
envb_database.example.com

[automationcontroller:vars]
node_type=control <3>
peers=envb_dcenter_exec_nodes,envb_dcenter_hop_nodes <4>

[execution_nodes]
envb_executionnode-1.example.com
envb_executionnode-2.example.com
envb-hop-miami.example.com type=hop peers=miami_exec_nodes <5>

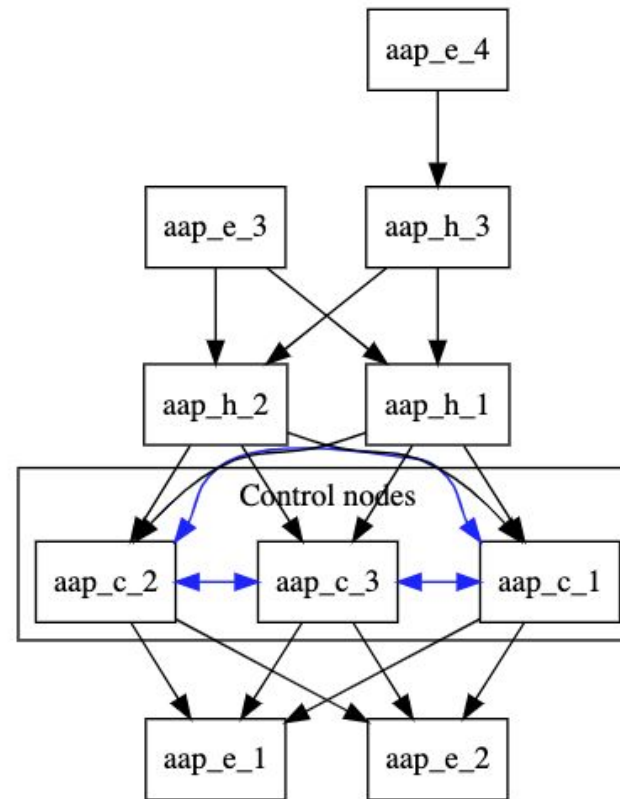
[envb_dcenter_exec_nodes] <6>
envb_executionnode-1.example.com

[envb_dcenter_hop_nodes] <7>
envb-hopnode-miami.example.com

[miami_exec_nodes] <8>
envb_executionnode-2.example.com
```

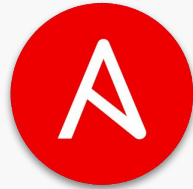
Using the graphviz generator tool

```
./setup.sh -i inventory.new.ini -- --tag generate_dot_file
```



General migration considerations

AAP 1.2



AAP 2.3+

Not using Collection in Playbook



Collections in Use

Using localhost in Playbook



Re-design Playbook

Python virtual environments



Automation execution environments

Designing with isolated nodes



Designing with automation mesh

Ansible Automation Platform 1.x

- ▶ Running a job on localhost translated into running on the underlying tower host.
- ▶ You could use controller host to store data and persistent artifacts
- ▶ This was not always a good idea or best practice.
- ▶ E.g If you have a multi-node cluster, then you could hit a different host each time.

```
---
- hosts: localhost
  gather_facts: false
  vars:
    myfile: /mydata/file

  tasks:
    - name: "Read pre-existing file..."
      ansible.builtin.debug:
        msg: "{{ lookup('file', '{{ myfile }}_read') }}"
```


Using localhost in playbooks

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With Ansible Automation Platform 2...

- ▶ Localhost means you're running inside a container, which is ephemeral in nature.
- ▶ Use some form of shared storage solution, like Amazon S3, or even rsync data to your data endpoint.
- ▶ You can also use isolated jobs path option, to inject data and configuration into container at runtime.
- ▶ Provides a way to mount directories and files into an execution environment at runtime.
- ▶ Caveats - The volume mount has to **pre-exist** on all nodes capable of automation execution and beware of SELinux file permissions.

Paths to expose to isolated jobs [X]

List of paths that would otherwise be hidden to expose to isolated jobs. Enter one path per line. Volumes will be mounted from the execution node to the container. The supported format is HOST-DIR[:CONTAINER-DIR[:OPTIONS]].

Paths to expose to isolated jobs ?

1 []

Using collections in playbooks

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```
---
- name: Install NGINX Plus
  hosts: all
  tasks:
    - name: Install NGINX App Protect
      include_role:
        name: nginx_app_protect
      vars:
        nginx_app_protect_setup_license: false
        nginx_app_protect_remove_license: false
        nginx_app_protect_install_signatures: false
```

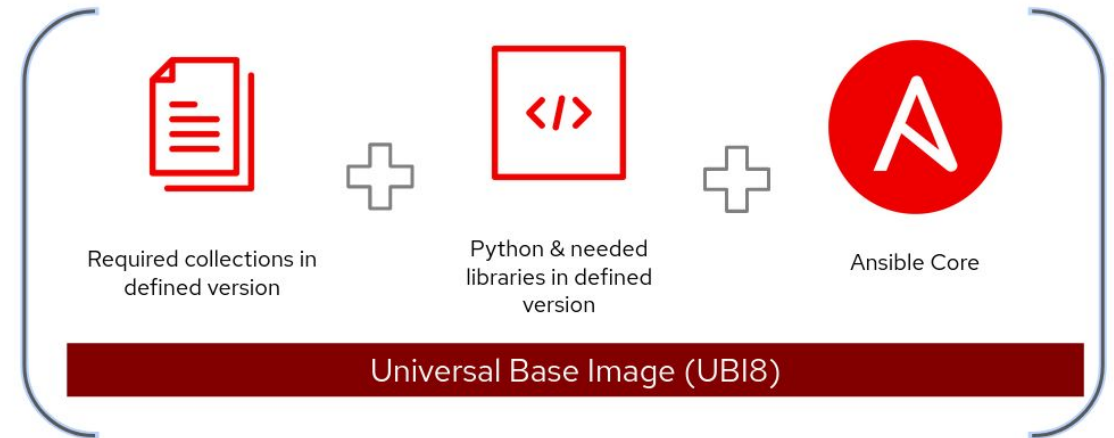
```
---
- name: Install NGINX Plus
  hosts: all
  collections:
    - nginxinc.nginx_core
  tasks:
    - name: Install NGINX
      include_role:
        name: nginx
      vars:
        nginx_type: plus
    - name: Install NGINX App Protect
      ansible.builtin.include_role:
        name: nginx_app_protect
      vars:
        nginx_app_protect_setup_license: false
        nginx_app_protect_remove_license: false
        nginx_app_protect_install_signatures: false
```

Using collections in playbooks

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Understanding execution environments

- ▶ Minimal (ee-minimal-rhel8) - Contains a version of Ansible core corresponding to the platform release. (Doesn't include any collections)
- ▶ Supported (ee-supported-rhel8) - Layered on top of ee-minimal this contains the collections maintained by Red Hat and their dependencies.
- ▶ Compatibility (ee-29-rhel8) - Compatibility execution environment that contains Ansible-2.9 to help customers ease into the transition.



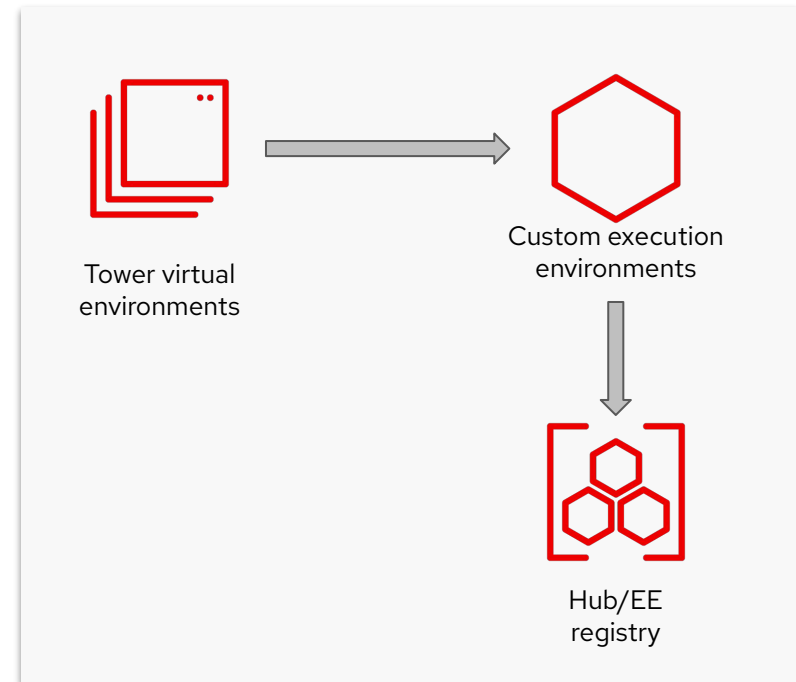
Note: A customer needs understand their automation dependencies and the collections included in each execution environment to make the decision of building custom execution environments using `ansible-builder`.

Migrating tower virtual environments

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Streamlining Transition

- ▶ Use the `awx-manage` command line utility to get a custom list of Python virtual environments from AAP 1.2 setup
- ▶ Running the `awx-manage export_custom_venv` command on each Python virtual environment to get the list of Python packages installed.
- ▶ Checking the association of a Python virtual environment using the `awx-manage custom_venv_associations` command
- ▶ Filtering the above information to create execution environments using the `ansible-builder` tool



Migrating tower virtual environments

Automated Process

- ▶ Pulling a list of packages from each custom Python virtual environments present on the Ansible Automation Platform 1.2 environment
- ▶ Comparing the package lists from the previous step with the package list of the minimal execution environment.
- ▶ Create a new custom execution environment that uses the Ansible-2.9 execution environment as the base and including the missing dependencies from the list in the previous step.

```
---  
- name: Review custom virtualenvs and pull requirements  
  hosts: enva_tower  
  become: true  
  tasks:  
    - name: Include venv role  
      ansible.builtin.include_role:  
        name: redhat_cop.ee_utilities.virtualenv_migrate
```

Frequently Asked Questions

Can I use the same subscription manifest when migrating between versions of Ansible Automation Platform?

- ▶ Yes! You can use the same manifest for upgrading as long as the managed node inventory is the same for both clusters/instances. The migration period may not exceed six months without an approved exception from the Ansible Business Unit.

When should I consider creating a custom execution environment (EE)?

- ▶ It really depends on your requirements, but the two most important factors here would be python requirements and the portability feature of execution environments.
 - ▶ Custom EE/s would ease moving of automation from development environments to production AAP.
 - ▶ If your automation depends on collections (with only roles) and the python/binary requirements are satisfied by the default EE, in that case it might be better to have a collection requirements file, at the end it depends what model you want to go for.

What is the easiest way to create a custom EE?

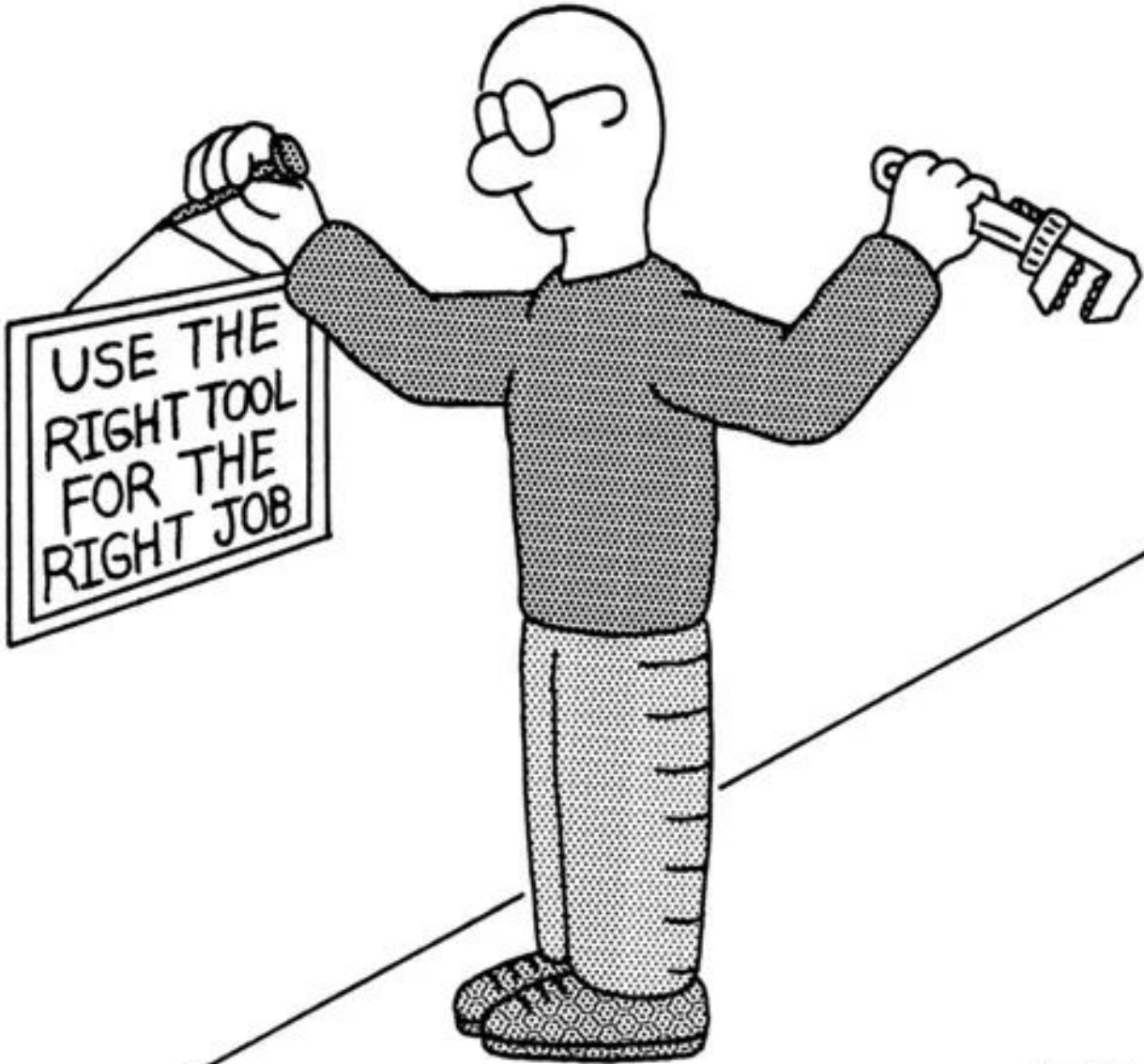
- ▶ The easiest way is to use the `ansible-builder` CLI tool, but there are Ansible roles/collections available to help you assist in EE creation and based on your requirements you can build CI around the available tools.

What is the minimum version of Ansible Engine my Ansible Playbooks must run on for compatibility with EEs?

- ▶ The minimum version is Ansible Engine 2.9.10

When does Ansible Automation Platform 1.2 reach End of Life (EOL)?

- ▶ September 29, 2023



Migration resources

Reference Architecture

The screenshot shows the Red Hat Customer Portal interface. The breadcrumb trail is: Products & Services > Product Documentation > Reference Architectures > 2022 > Ansible Automation Platform 1.2 to 2 Migration Guide. The page title is 'ANSIBLE AUTOMATION PLATFORM 1.2 TO 2 MIGRATION GUIDE'. Below the title, it says 'REFERENCE ARCHITECTURES 2022'. On the left, there is a sidebar with a table of contents: '1. Overview' (with sub-item '1.1. Architectural Overview') and '2. Migration considerations'. The top navigation bar includes the Red Hat logo, 'Red Hat Customer Portal', a menu icon, search, language (English), and 'All Red Hat'.

Customer Portal: Migration Assistant tool

The screenshot shows the 'Ansible Automation Platform Upgrade Assistant' tool. It has a sidebar with a table of contents: '1 Upgrade Options', '2 Removed and Deprecated Functionalities', '3 Prerequisites', '4 Environment Checks', and '5 Upgrade Steps'. The main content area is titled 'Ansible Automation Platform Upgrade Options'. It features two dropdown menus: 'Current Version' set to '1.2 (Controller 3.8)' and 'Target Version' set to '2.1 (Controller 4.1)'. Below these are two informational sections: 'Note' (stating that 'Automation Controller' refers to 'Ansible Tower' in this context) and 'Supported Upgrade Paths' (listing paths like 'Tower 3.6 → 1.2 (Controller 3.8)', 'Tower 3.7 → 1.2 (Controller 3.8)', and '1.2 (Controller 3.8) → 2.1 (Controller 4.1)'). A 'Next' button is located at the bottom right.

Checklists

The image shows two overlapping document thumbnails. The top one is titled "5 reasons to migrate to Red Hat Ansible Automation Platform 2" and features the Red Hat logo and a list of reasons. The bottom one is titled "5 ways to prepare for migration to Red Hat Ansible Automation Platform 2" and also features the Red Hat logo and a list of preparation steps. Both documents have a clean, professional layout with red accents.

[HTML](#) | [PDF](#)

[HTML](#) | [PDF](#)

Customer portal: [Migration FAQ](#)

The screenshot shows the Red Hat Customer Portal interface. The navigation bar includes "Products & Services", "Tools", "Security", and "Community". The main content area is titled "Ansible Automation Platform 2 Release FAQ" and includes a sub-header "Updated February 23 2022 at 11:41 AM - English". The page content starts with a paragraph explaining the purpose of the document and lists several links: "Ansible Automation Platform (migration and general)", "Automation Controller", "Automation mesh", "Private Automation Hub", "Ansible Certified Content", "Execution Environments", "Ansible content navigator", "Ansible Core", "Red Hat Insights for Ansible Automation Platform", and "Automation Services Catalog".

Customer portal: [Buying Guide](#)

The screenshot shows the Red Hat Customer Portal interface for the buying guide. The navigation bar is similar to the previous screenshot. The main content area is titled "Ansible Automation Platform buying guide" and includes a sub-header "Updated March 24 2023 at 6:28 PM - English". The page content starts with an "Introduction to Ansible Automation Platform" section, followed by a paragraph explaining the platform's capabilities and a section titled "About this document" which provides context on the document's purpose and how to use it.

Experience hands-on learning with Ansible Automation Platform 2 CONFIDENTIAL designator



EXPERIENCE

Experience self-paced interactive hands-on labs with Ansible Automation Platform

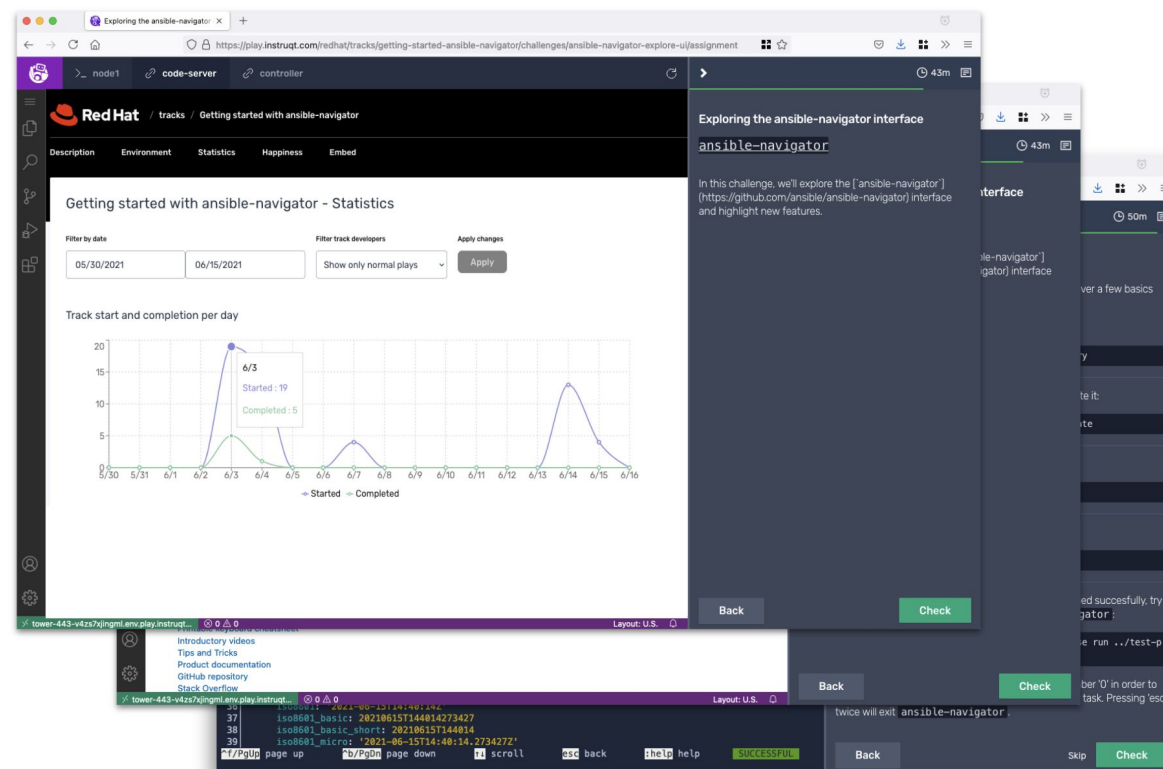
Real-world interactive learning scenarios solving IT challenges

These interactive learning scenarios provide you with a pre-configured Red Hat® Ansible® Automation Platform environment to experiment on, learn about, and see how the platform can help you solve actual IT challenges and help free up time from performing routine tasks over and over again.

The environment for these learning scenarios runs entirely in your browser so you can learn at your convenience and at your own pace.

Submit the form to access the labs and start learning now.

Access the labs and progress at your own pace



Migrate with the help of Red Hat Services

Red Hat Consulting

- Validates and reviews your environment and current automation workflows and assists with defining and executing a migration strategy.
- Prepares your teams for Ansible Automation Platform 2 integration, including enabling and training administrators to manage the new platform and providing best practices to ensure future success.

Red Hat Technical Account Management

- Runs workshops with your teams to explore product capabilities and increase practical skills to build a reliable, resilient and secure Ansible Automation Platform.
- Provides immediate assistance to overcome migration roadblocks and assists teams in monitoring new platform performance to drive continuous improvement.

Red Hat Training and Certification

- Adopt the newest Ansible features and ensure your team is ready to automate, configure, and manage Ansible Automation Platform 2 with training.
- Advance your Ansible skills with our recommended technical training:
 - [DO374](#): Developing Advanced Automation with Red Hat Ansible Automation Platform
 - [DO467](#): Managing Enterprise Automation with Red Hat Ansible Automation Platform

Get started: red.ht/aap2-migration




"Any questions?"


Questions?

Thank you

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