Automating Smart Management Workshop

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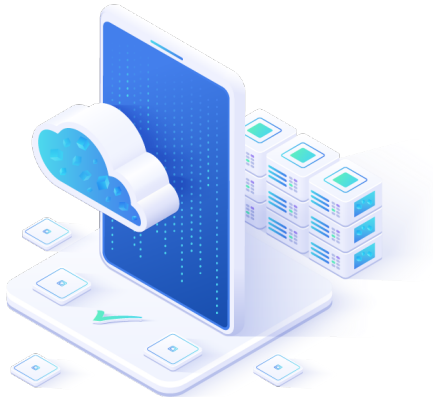
International Integrated Solutions

The annual listing of 10 companies that are at the forefront of providing Red Hat consulting/services and transforming businesses

IIS Value Proposition



IIS has a proven track record of uncovering and closing strategic, multi-year opportunities. This is achieved through:

- Deep Product Knowledge / APEX Partner
- Knowledge Sharing / Workshops
- Crucible / Flexible Proving Ground for technologies
- Delivery Capabilities – Deliver on Red Hat paper as Red Hat
- Flexibility / Agility

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What you will learn...

- Introduction & Workshop Setup Walkthrough
- Exercise 1: Compliance / Vulnerability Management
- Exercise 2: Patch Management / OS
- Exercise 3: System Baseline / Drift + Insights
- Exercise 4: CentOS to RHEL conversion + upgrade
- Exercise 5: Custom Repositories
- Re-Cap/Q&A

Introduction

Topics Covered:

What is Smart Management and Automation

- Ansible Automation Platform
- Satellite
- Red Hat Enterprise Linux (Insights)

Smart Management enables you to improve the reliability, availability, security and compliance of your RHEL systems, running on any platform, while reducing TCO and repetitive tasks

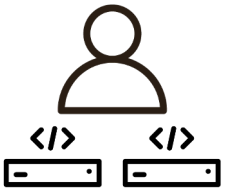
Customers losing $300,000–$400,000 per hour on average due to IT downtime

Manage sprawl

More infrastructure and complexity than ever to manage

Reducing risk

Lack of proactive assessment and management of known issues creates exposure



Limited resourcing

Teams are stretched and lacking Linux skills being asked to do more with flat or decreasing budgets

Source: The cost of IT downtime

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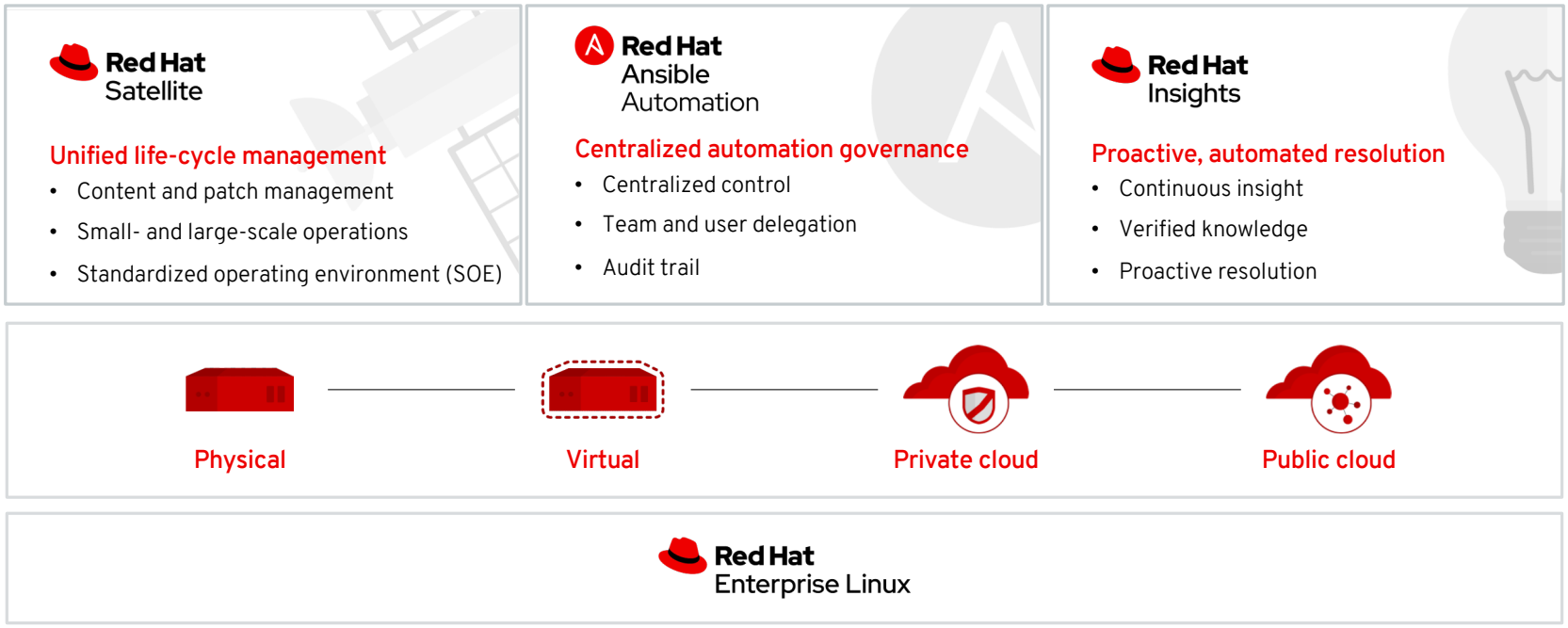
Red Hat Automation and Smart Management

Life-cycle Management, Automated Operations, and Predictive Analytics



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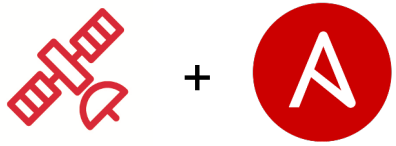
Working together to manage your Red Hat environment

Satellite can ….

- Manage content repositories
- Manage content lifecycles
- Patch RHEL servers
- Provision RHEL servers physical, virtual or cloud

AAP can ….

- Orchestration across platforms
- Automate all the things
- Integrate multiple tools and workflows



Together Satellite and AAP can …

- Orchestrate provisioning
- Automate patching
- Full cross platform management

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Insights can...

Uptime and efficiency

- Manage more with fewer admins
- Move to a managed service provider
- Consolidate operations teams

Security

- Keep up with vulnerabilities
- Harden infrastructure proactively
- Reduce unreasonable demands from security teams

Insights combines with other tools to enhance the Red Hat Enterprise Linux investment.

Insights + technical account manager (TAM) encourages deeper customer conversations and delivers regular assessments.

Insights + Satellite identifies and prioritizes risks and patches so customers can resolve issues faster

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About Your Lab

Topics Covered:

- Understanding the workshop Infrastructure
- Check prerequisites
- Walkthrough Demo

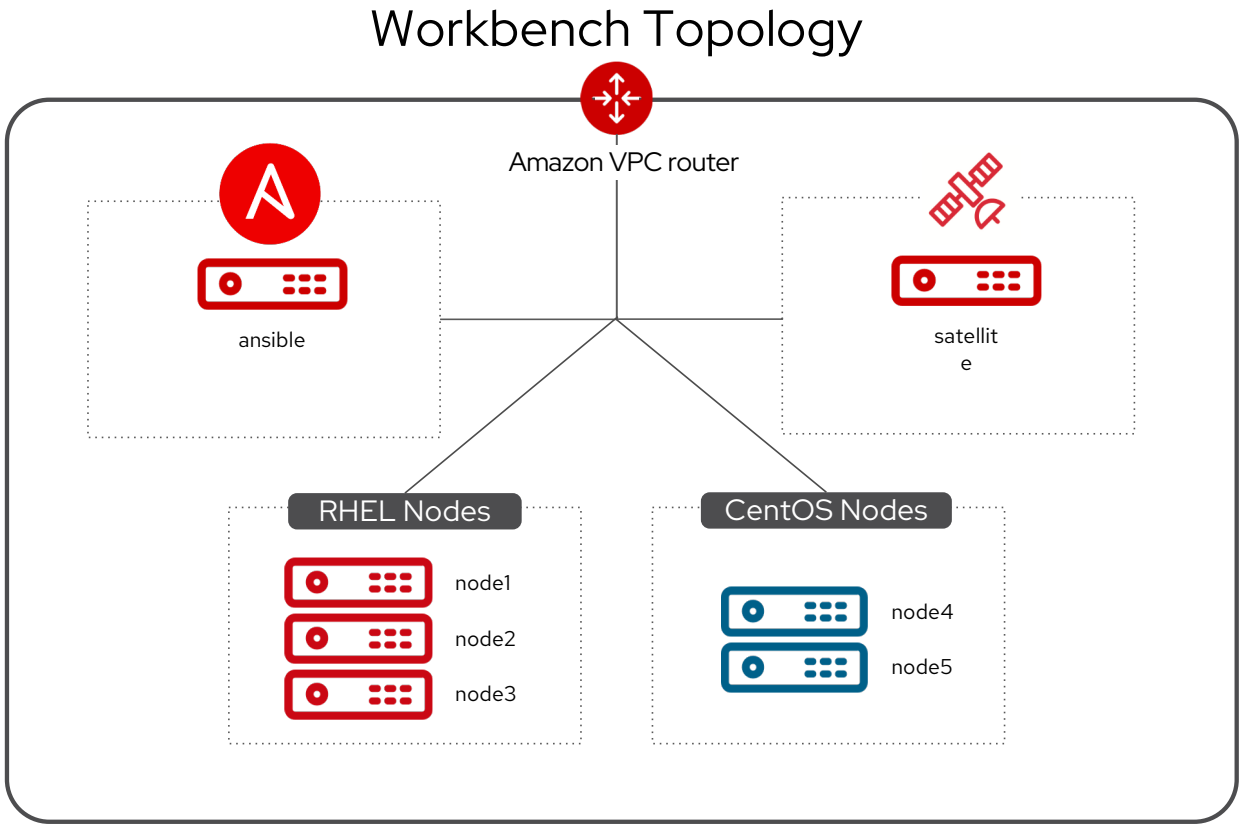
The lab environment today

- **Practice what we preach**
  Provisioned by, configured by, and managed by Red Hat Ansible Automation Platform.
  https://github.com/ansible/workshops

- **Learn with the real thing**
  Every student will have their own fully licensed Red Hat Ansible Tower node and Red Hat Satellite node. No emulators or simulators here.

- **Red Hat Enterprise Linux**
  Three nodes are basic RHEL nodes, allowing exploration of real life use-cases to help spark ideas for what you can automate today.

- **CentOS Linux**
  Two nodes are basic CentOS nodes, providing the means to work through **convert2rhel** scenarios



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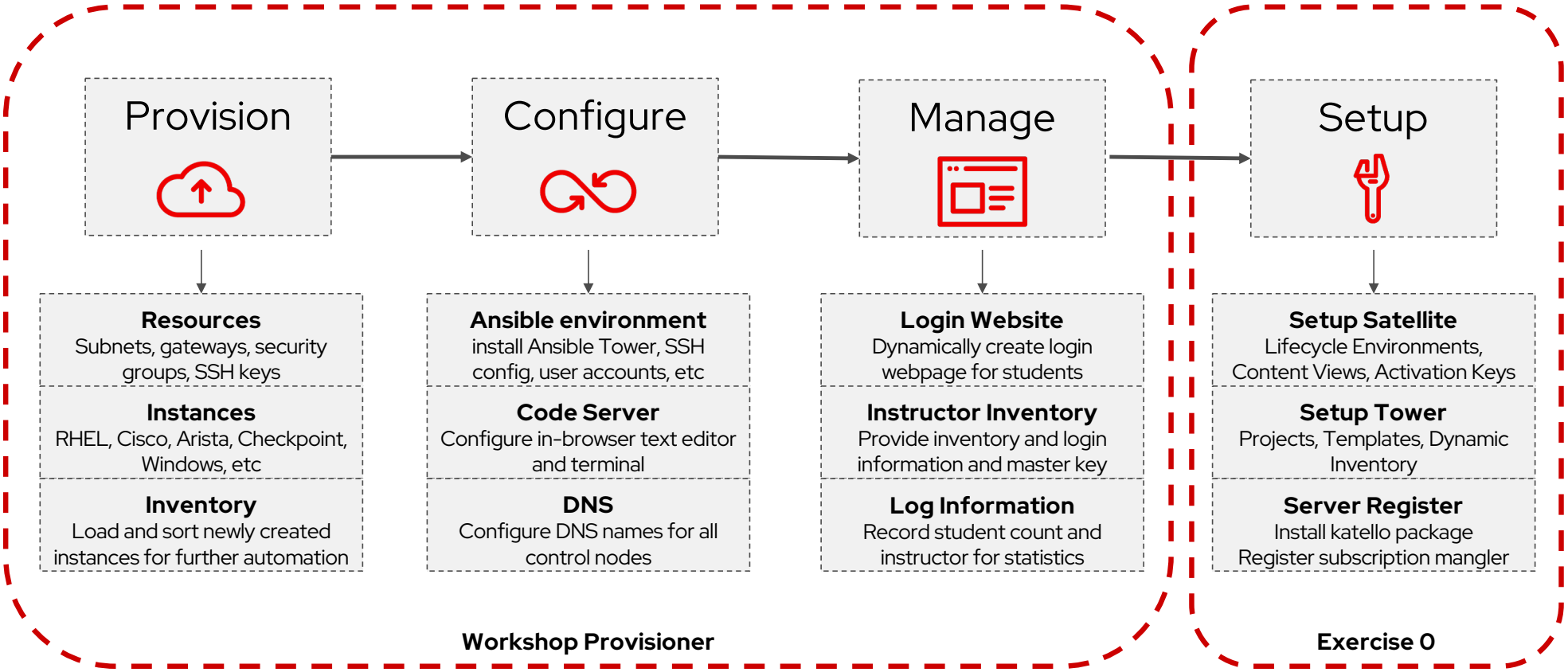
How does it work?



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Ansible Automation
Platform
Workshop Environment Demo
Setting up your workshop environment
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Exercise 1

Compliance / Vulnerability Management

- Create an OpenSCAP compliance policy
- Create an Ansible template and automate an OpenSCAP scan
- Review ARF reporting in Satellite

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Approximately

51%

Spent 40% or more of the IT Security budgets on compliance

Top 5

Misconfiguration accounted for top 5 of threat action varieties

Most exploited vulnerabilities are already known.

Source:

1 Coalfire White Paper - Cloud Security Intelligence Report https://www.coalfire.com/resources/white-papers/cloud-security-intelligence-report

2 CISA - RVA Mapped Mitre Attack Framework https://www.cisa.gov/publication/rva-mapped-mitre-attck-framework-infographic

3 Verizon - DBIR Report https://enterprise.verizon.com/resources/reports/2020-data-breach-investigations-report.pdf

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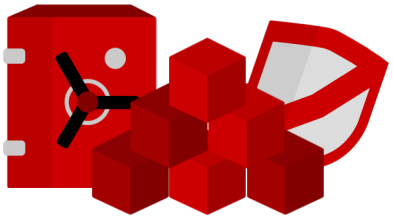
Compliance management adds complexity

Regulatory and industry standards

- National Institute of Standards and Technology (NIST)
- National Cybersecurity Agency of France (ANSSI)
- Health Insurance Portability and Accountability Act (HIPAA)
- Federal Risk and Authorization Management Program (FedRAMP) and more



Compliance and security artifacts creation

- System security plans
- Security compliance audit documentation
- Gap analysis reports
- Audit and remediation baselines

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Security automation with OpenSCAP

Red Hat's security scanner is included with Red Hat Enterprise Linux and Red Hat Satellite

Validated and certified tool
National Institute of Standards and Technology (NIST) certified Security Content Automation Protocol (SCAP) scanner with National Checklist content

System and container scanning
Known vulnerability and security policy compliance scanning

Automation support
Red Hat® Ansible® Automation remediation Playbooks provided and supported by Red Hat

Customizable content
Content customization through SCAP Workbench graphical interface

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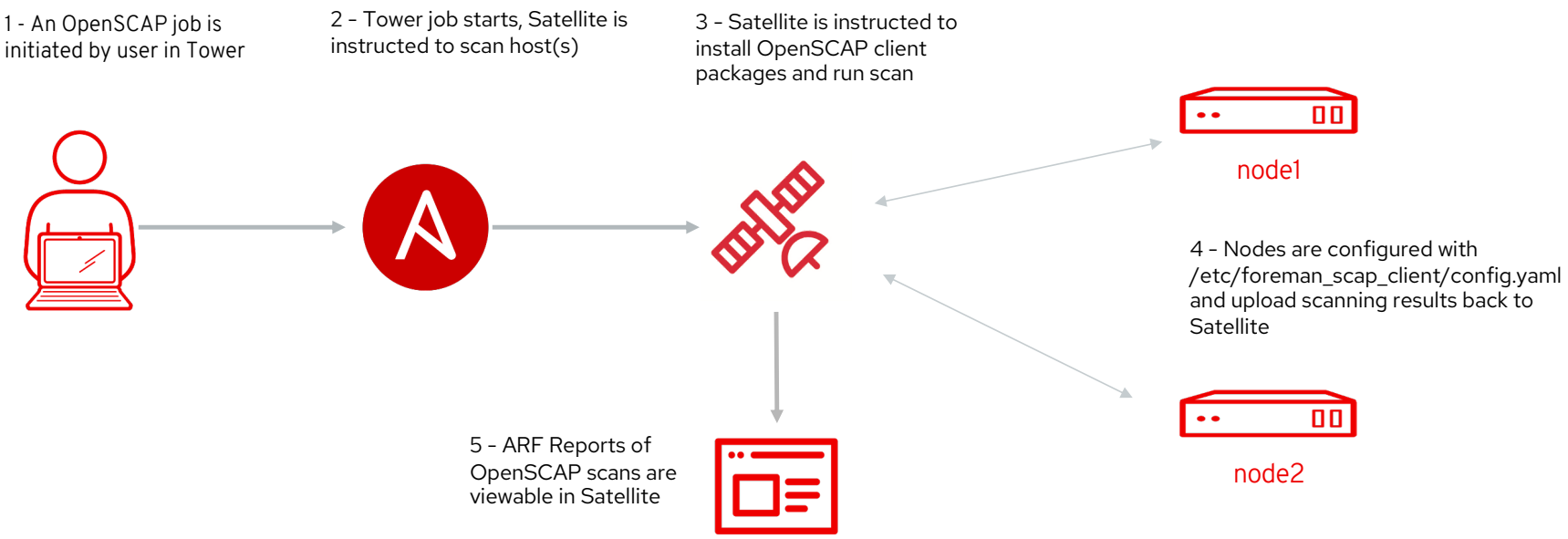
OpenSCAP workflow

Using Tower to automate OpenSCAP in your environment



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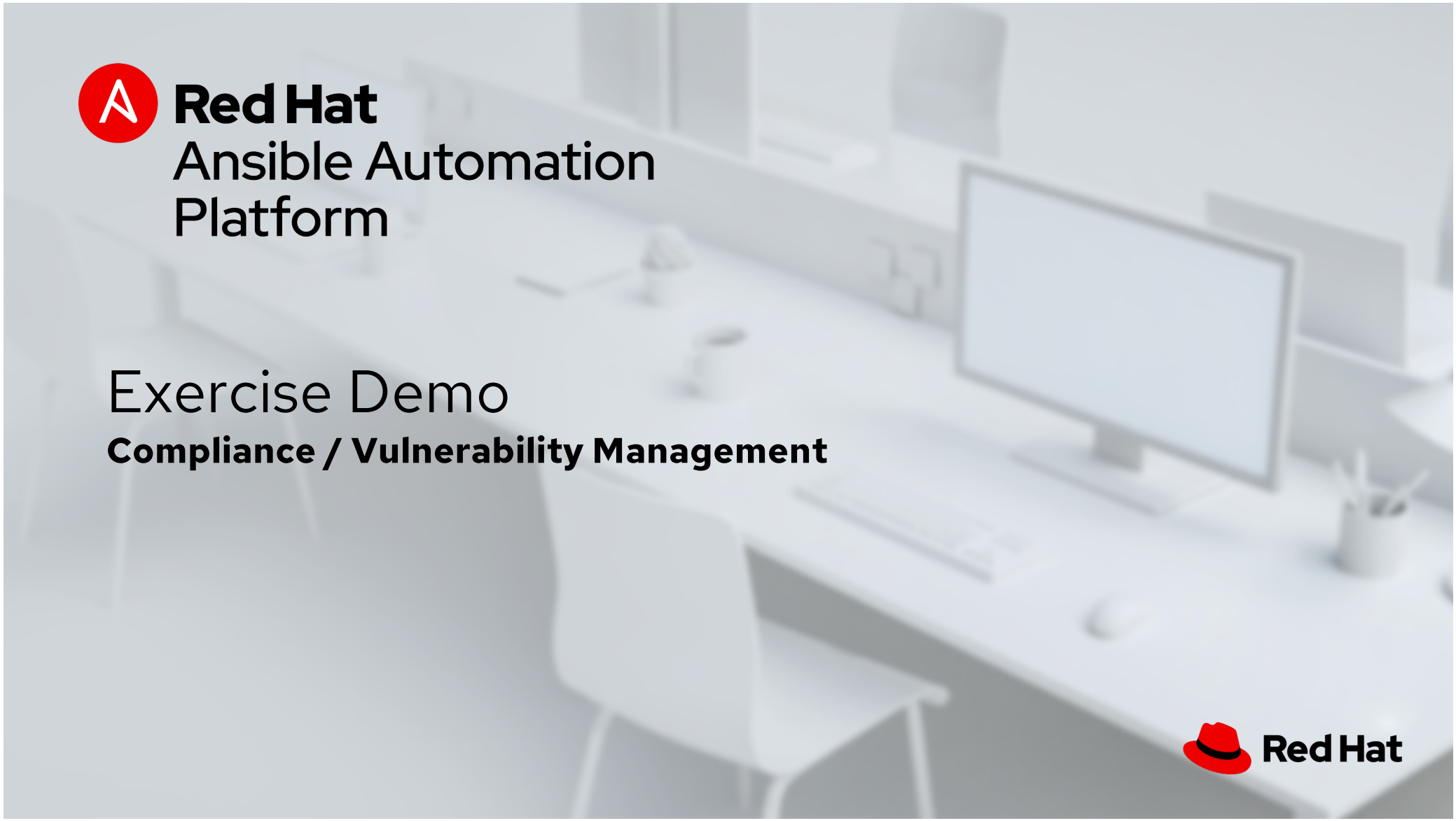
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Exercise Demo
Compliance / Vulnerability Management
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Exercise 2

Patch Management

- Automate Patching Prerequisites
- Automate Patch Deployment

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Automate where possible

Multiple tools for the job

CONTENT LIBRARY	DEVELOPMENT	QUALITY ASSURANCE	PRODUCTION
All content	Uses the newest packages Includes development packages	Removes development packages Includes some automation tools Promoted from development	Uses known stable libraries Does not include development packages or automation tools Promoted from quality assurance

"Using multiple tools for patch automation is unavoidable and will improve both execution efficiency and patching success."

-Gartner

"Ansible reduced the time required for regular patching by 75%"

- Global Infrastructure Provider

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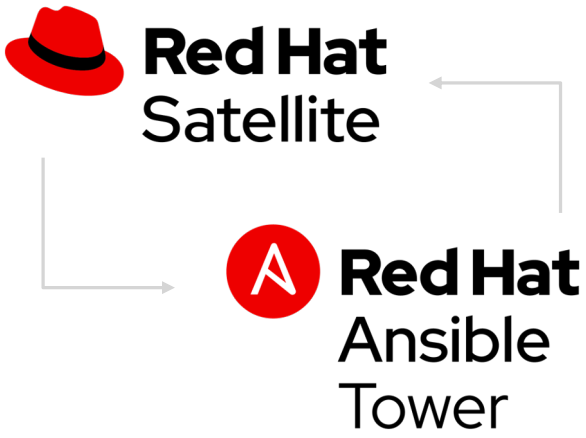
Satellite and Ansible Tower Integration

Documented best practices to help optimize use of both products



Dynamic Inventory
Allows Ansible Tower to use Satellite as a dynamic inventory source

Satellite Content Collection
Ansible modules and roles for automating administrative tasks in Red Hat Satellite

Post-Provision
Allows systems provisioned via Satellite to “callback” to Ansible Tower so that playbook runs can happen post-provisioning

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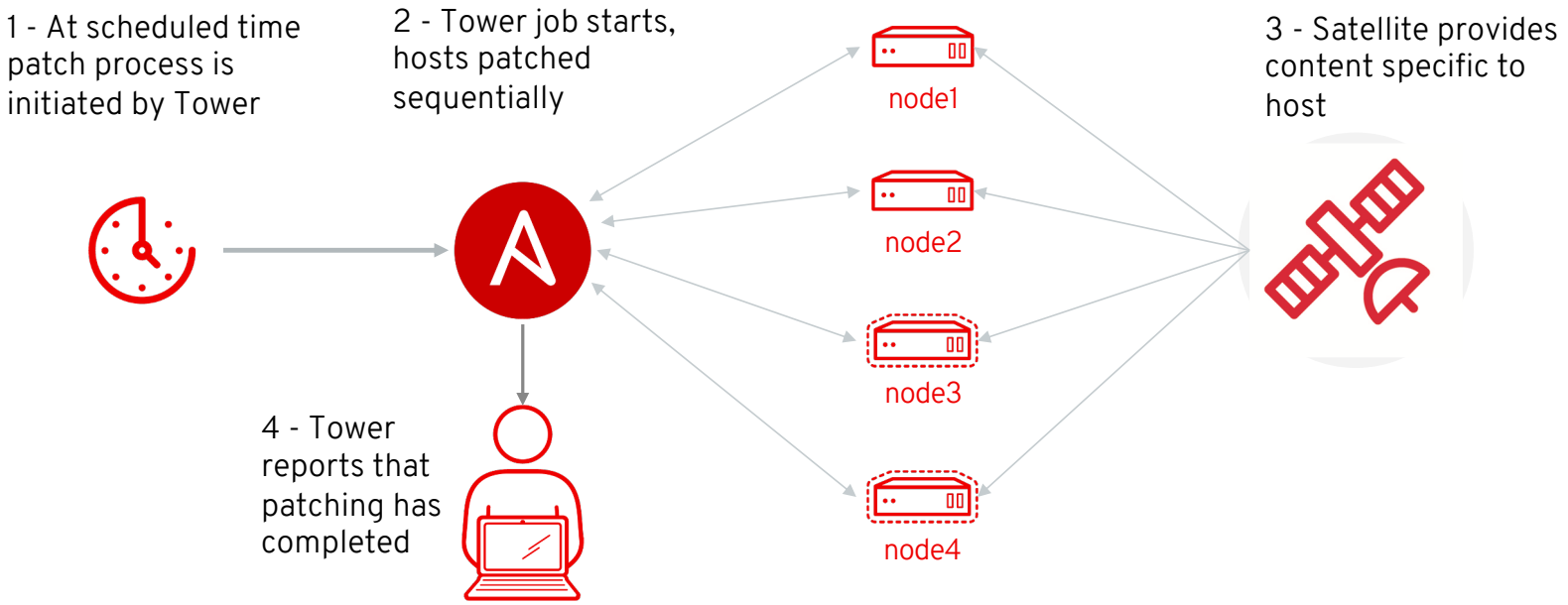
Automated patching solution

Using Tower to automate patches through your environment



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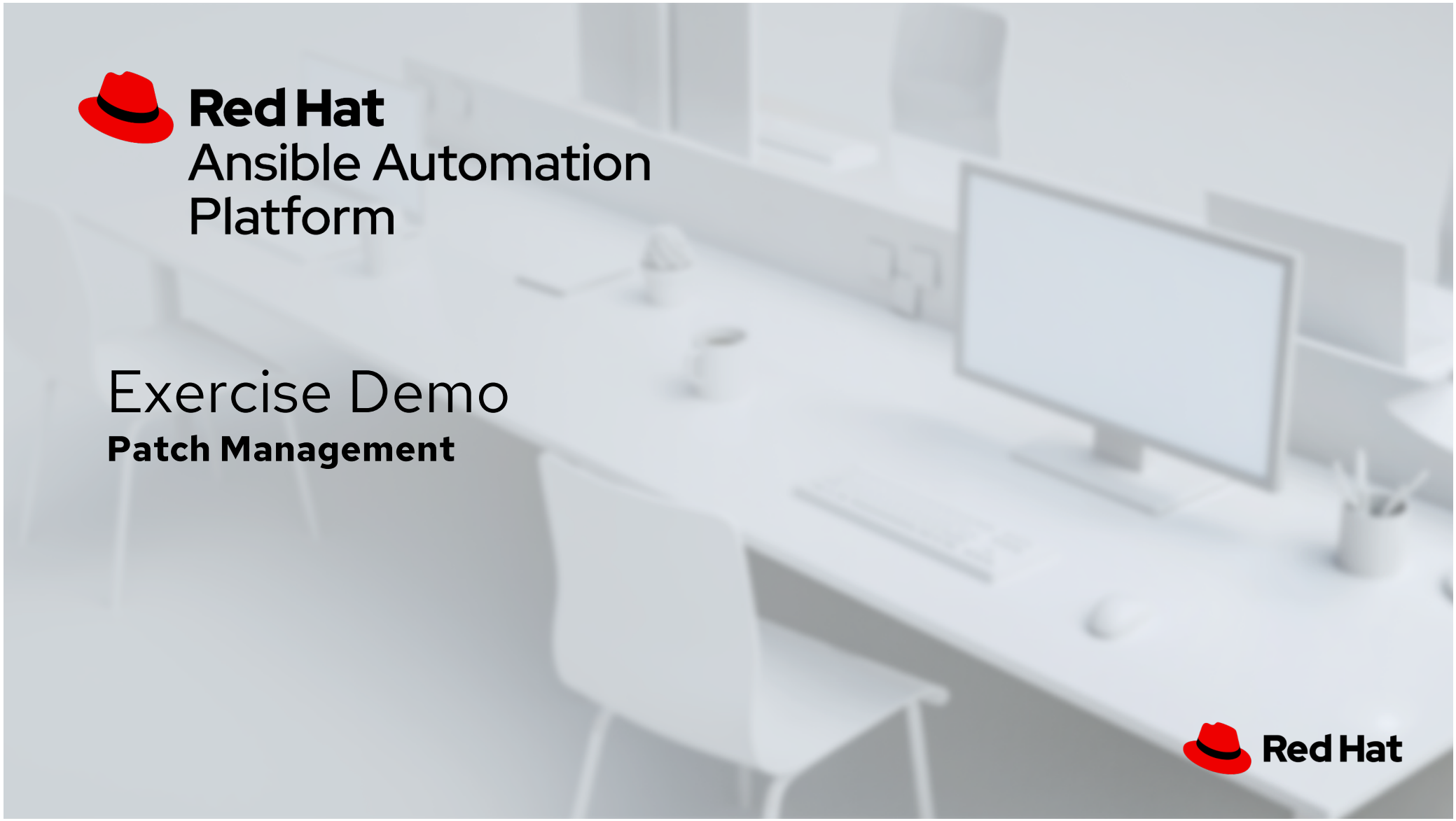
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Exercise Demo
Patch Management
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Exercise 3

System Baseline / Drift

- Compare a system to a baseline
- Compare systems to other systems

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Red Hat Insights

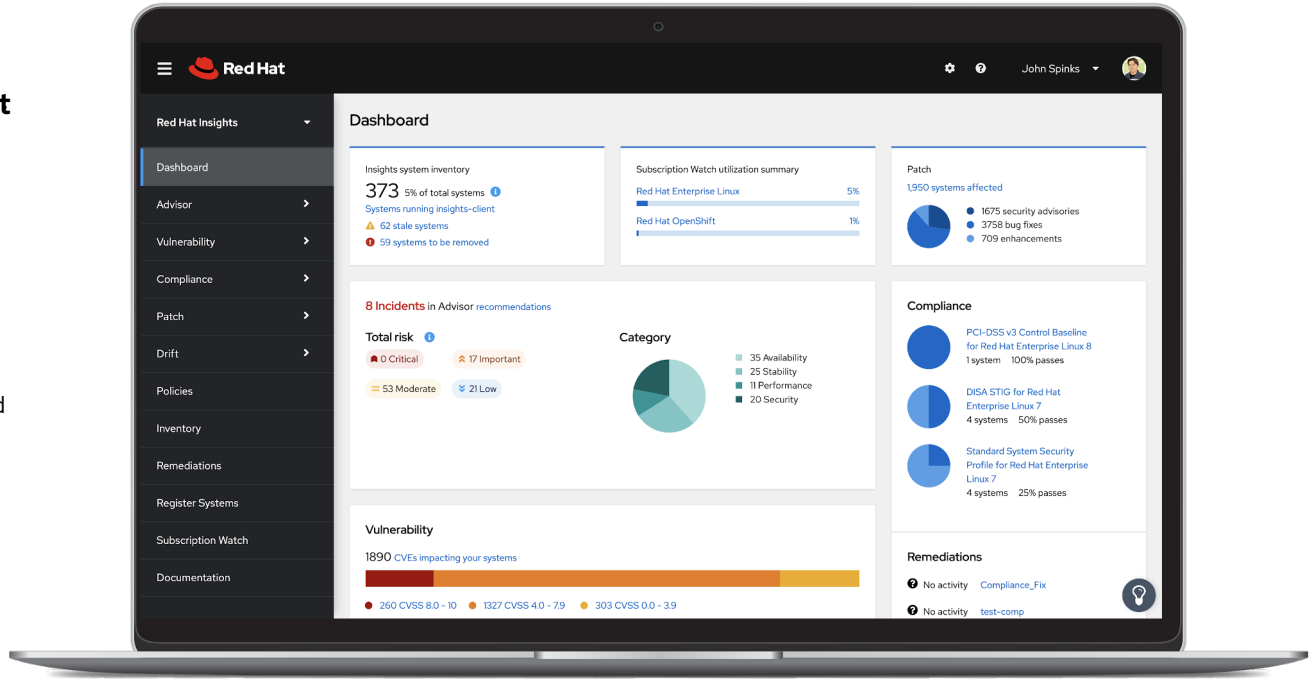
Included with Red Hat Enterprise Linux subscription, now with more value

Operational and vulnerability risk management
for RHEL environments

Included with active subscriptions
For Red Hat Enterprise Linux,
versions 6.4 and higher

Risk analysis
Performance, security, compliance, availability, stability and workload-specific

Simplified management
Patching efficiency, system comparison and alerting for internally-defined policies



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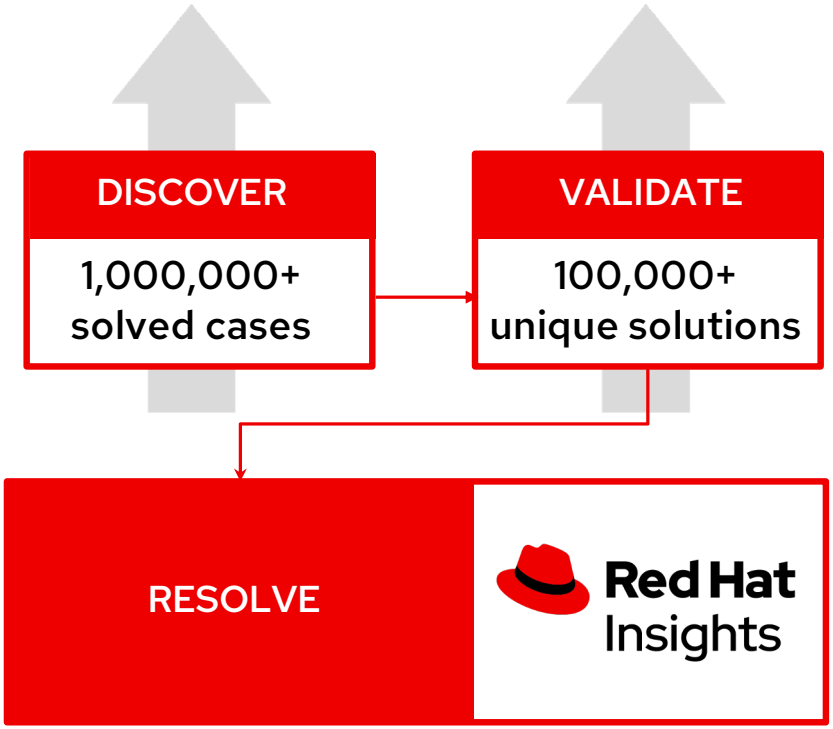
Value of experience



" 85% of critical issues raised to Red Hat® support are already known to Red Hat or our partners."

– RED HAT GLOBAL SUPPORT SERVICES

Continuous identification of new risks driven by unique industry data

Based on real-world results from millions of enterprise deployments

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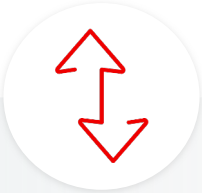
Drift

Track configuration changes in RHEL systems
Define baselines and ensure systems are compliant



Compare system configuration over time or to other systems

Define Baselines as standard configuration systems must adhere to

Filter facts or categories of interest, or all matches, differencies, and facts with missing information

Generate comparison reports as JSON or CSV exports

Assist troubleshooting by identifying drift in RHEL configuration over time, between systems, or defined baselines

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Insights Baseline/Drift Demo

cloud.redhat.com

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A day in the life of a System Admin

Stay productive in managing day-to-day operations

- Has anything changed recently in this RHEL configuration?
- Are we using the same configuration in Test and Production?
- How are these systems different from our baseline?
- How can I validate that servers A and B adhere to the same standards?

Use analytics instead of time-consuming manual comparisons

Exercise 4

CentOS to RHEL conversion + upgrade

- CentOS - current/future state
- Using Satellite + Ansible Automation Platform w/ existing CentOS
- RHEL Conversion + Upgrade Walkthrough

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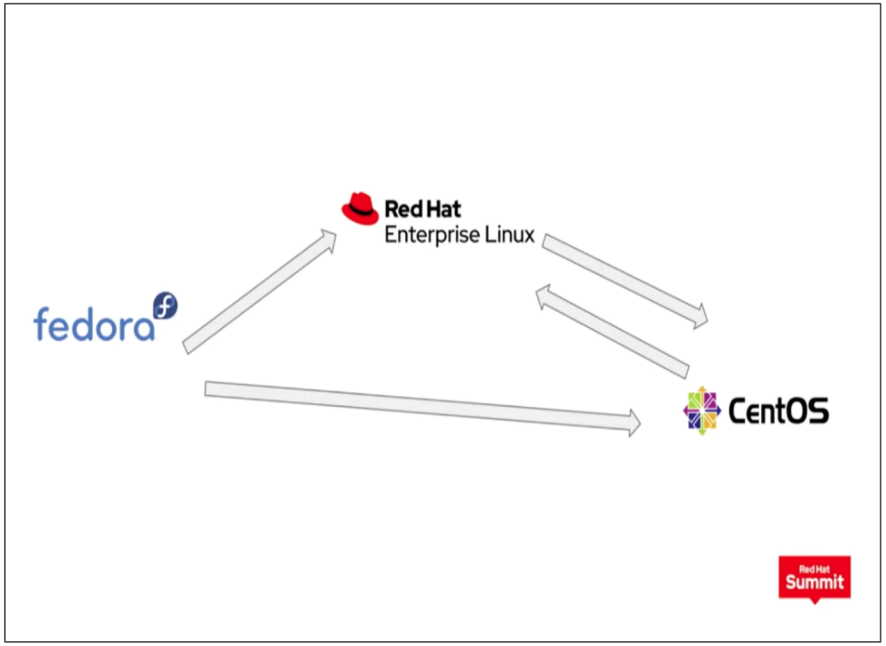
Current State - CentOS Linux

- CentOS Linux 7 will continue to receive updates until June 30, 2024
- CentOS Linux 8 will be retired on December 31, 2021
- Customers running CentOS Linux 7/8 will need to migrate to an alternative OS.



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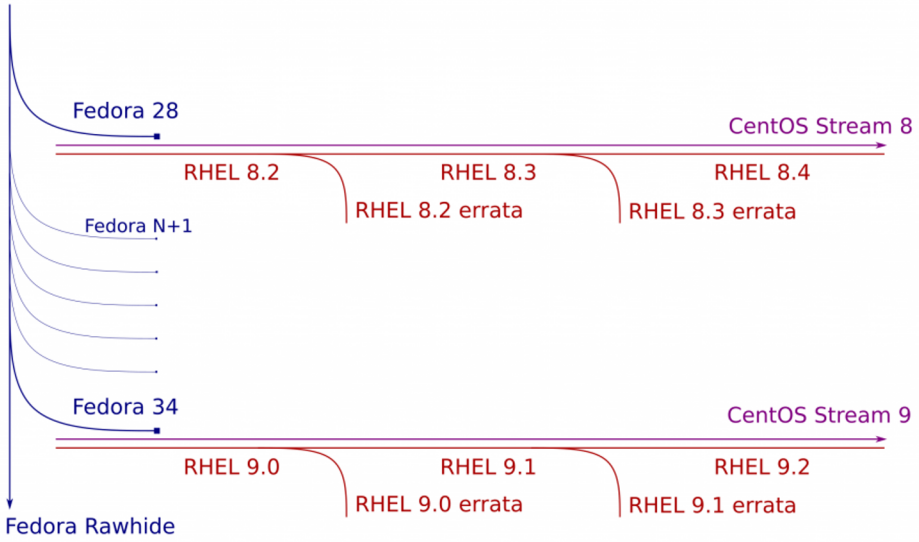
Future State - CentOS Stream

- Provides a **Continuous Delivery model**, for the development of RHEL

- A **rolling preview of the next minor release of RHEL**

- **Faster feedback/features in RHEL** -- the upstream **community** can merge/pull request against CentOS Stream, tracks closer to RHEL



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CentOS Stream: Moving Upstream

- We believe CentOS Stream represents the best way to further drive Linux innovation by giving customers and the broader ecosystem a closer connection to the development of Red Hat Enterprise Linux
- Positive interest in CentOS Stream since its introduction in 2019, including public statements from Facebook and Intel
- As an open source platform for development, CentOS Stream will become an innovation hub for Red Hat Enterprise Linux
- Red Hat is offering low- and no-cost options to ease the transition from CentOS Linux

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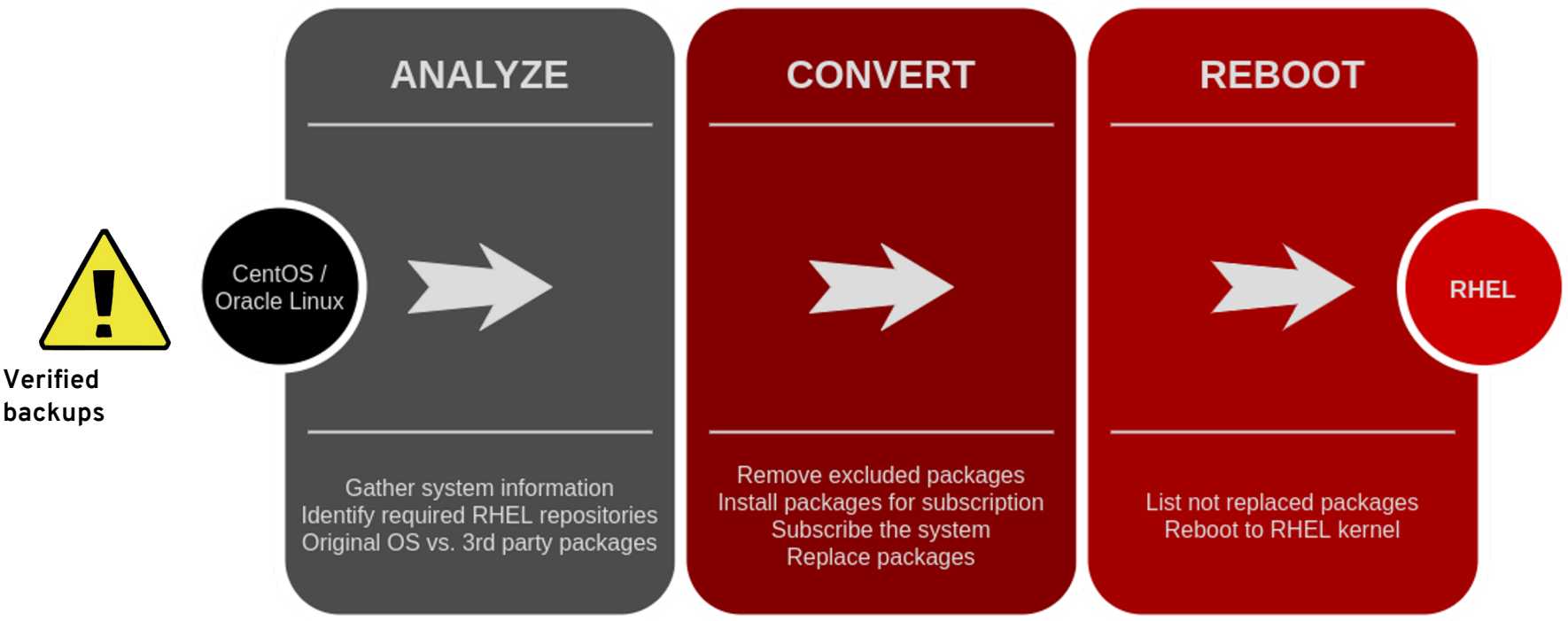
Which Platform is right for You?

- Operating System development and desktop use cases: **Fedora**
- Hassle-free and secure OS for your home lab: **Red Hat Developer program** (developers.redhat.com)
  - Red Hat Developer Subscription
- Dev & CI/CD to ensure RHEL compatibility: **Red Hat Developer program** (developers.redhat.com)
  - Red Hat Developer Subscription for Teams
- Dev & CI/CD to ensure RHEL+1 compatibility: **CentOS Stream**
- Developing containerized applications: **RHEL UBI**
- Participate in RHEL development: **CentOS Stream**
- Running mission critical workloads: **RHEL**
- Developing software for resale or hardware: **Red Hat Partner Connect Program** (connect.redhat.com)

Convert to RHEL?

- Common request: help converting other Linux systems to RHEL
- Recommended: Perform new install of RHEL and re-install Apps and DBs, but if not feasible...
- Convert2RHEL: tool for the conversion of other-than-RHEL systems to RHEL
- Scope: RHEL-like systems such as CentOS or Oracle Linux
- Recommended:
  - Red Hat Consulting...however, tool is available for those who want DIY
  - Have tested/verified backups and maintain existing vendor support agreement as...
  - although limited rollback capabilities are present, once past "point of no return"
  - system may be degraded/unusable if process fails/cancels before completion
- Recommended:
  - Perform pre/post-conversion application state, db data, etc verification
  - Utilize automation for bulk node conversions

Convert2RHEL tool overview



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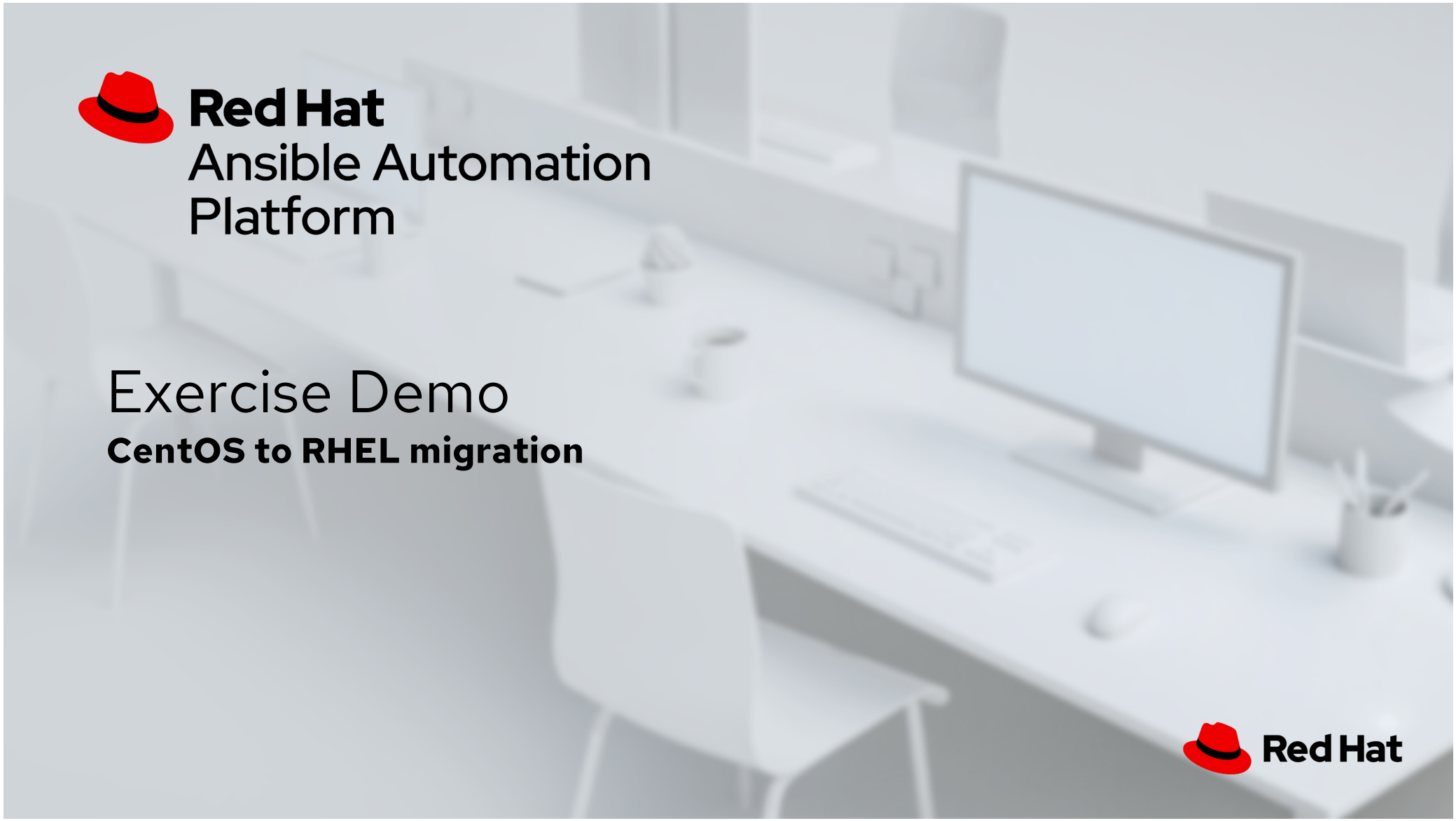
Convert2RHEL Exercise Details

1. Our CentOS 7 nodes are registered to the Satellite system via a complete CV/LE/Activation Key arrangement where we are mirroring what a traditional RHEL7_Dev, RHEL7_QA, RHEL7_Prod env looks like and doing the same, only backed by custom CentOS repositories underpinning everything. We use subscription-manager on the CentOS nodes to register the nodes with the Satellite
2. Utilize the Convert2RHEL tool *(Disclaimer: remember, verify functional backups before proceeding)*
3. Conversion source of RHEL packages:
    a. Custom repositories (FTP, mounted ISO, etc.)
    b. Red Hat Subscription Manager (CDN or Satellite) -- utilized for this exercise
4. Roll back is possible up to the point-of-no-return, but users are advised to perform a complete system backup prior running the utility.
5. All actions accomplished via Ansible roles, providing a greater understanding and following of migration process, permitting easier customization/specialization for individual conversion/migration requirements on a case-by-case basis.

Convert2RHEL Exercise Resources

- Knowledge base articles + videos
  - KB Article: How to convert from CentOS or Oracle Linux to RHEL (Jan 2021)
  - Blog: Converting from CentOS to RHEL with Convert2RHEL and Satellite (March 2020)
  - Blog: Convert2RHEL: How to update RHEL-like systems in place to subscribe to RHEL (Jan 2020)
  - YouTube: Converting from CentOS Linux 8 to CentOS Stream (Jan 2021)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Exercise Demo
CentOS to RHEL migration
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Exercise 5

Managing Extra Software Packages

- Custom Products
- Custom Repositories
- Content View

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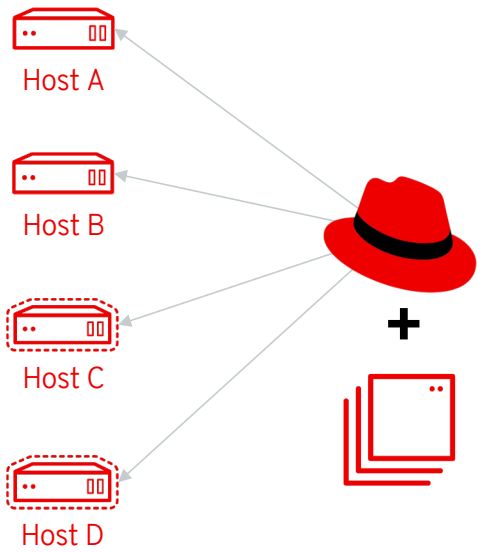
Managing Extra Software Packages



- Out of the box, Satellite has the ability to manage software packages from Red Hat repositories
- Additionally, Satellite can be configured to manage extra software packages by using custom repositories of your choice
- Use cases:
  - An image editor software packages for the Creative team
  - A payroll application for the Human Resources team
  - Etc.

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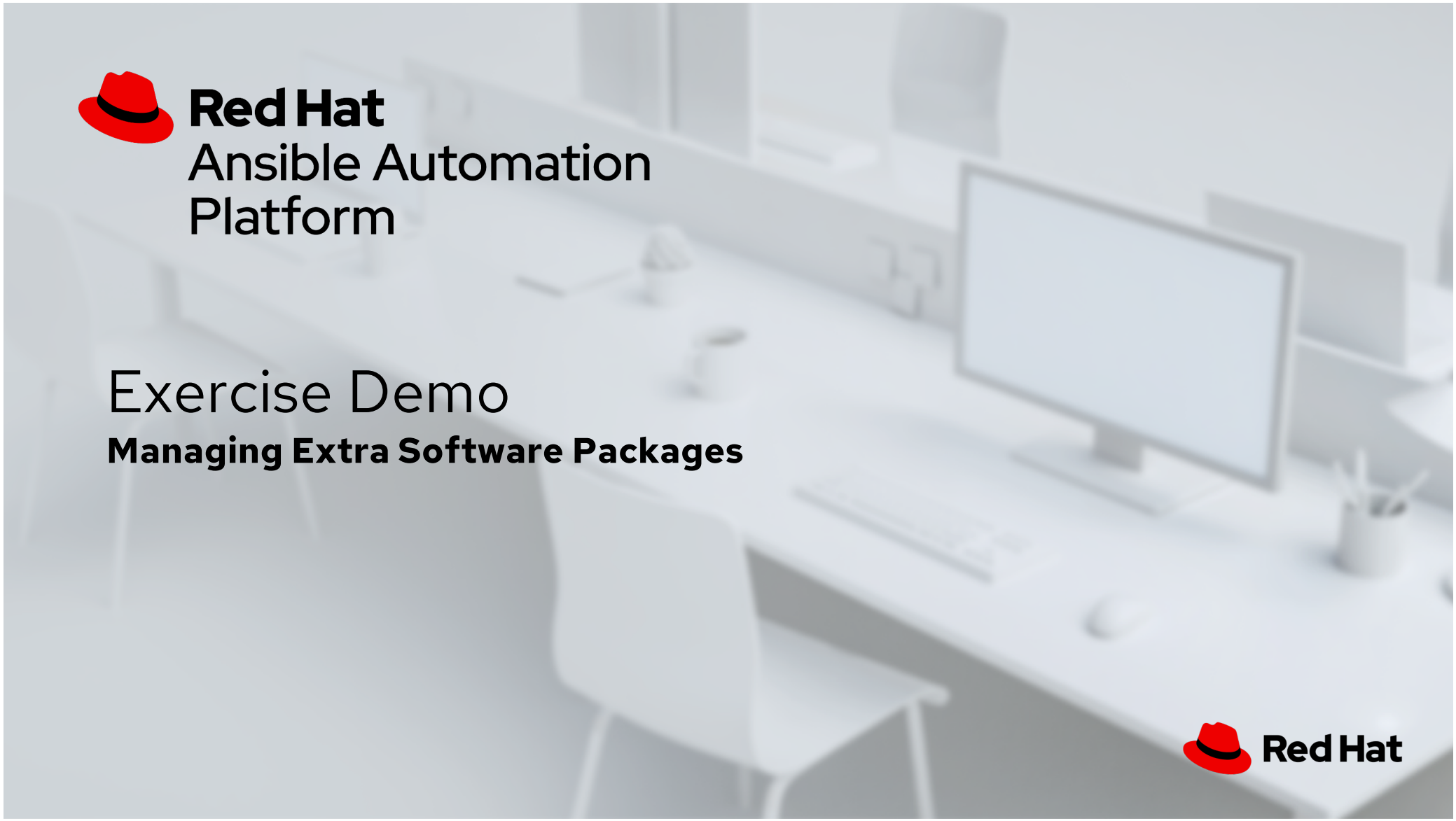
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Exercise Demo
Managing Extra Software Packages
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Summary

- Ansible Automation Platform
- Satellite
- Red Hat Enterprise Linux (Insights)

Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.

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OPTIONAL

TEXT

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