Red Hat Summit

Connect

# Generative AI & Infrastructure Automation

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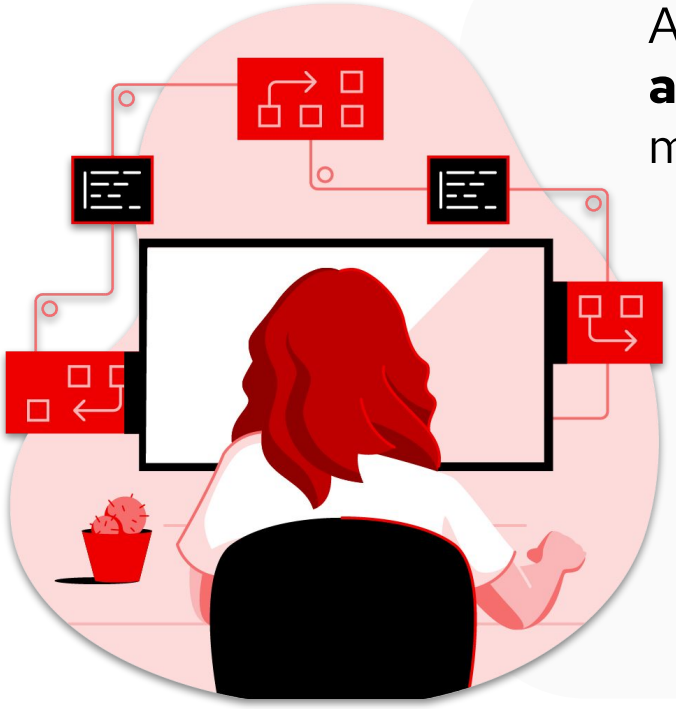
Automation Sales Specialist

Red Hat

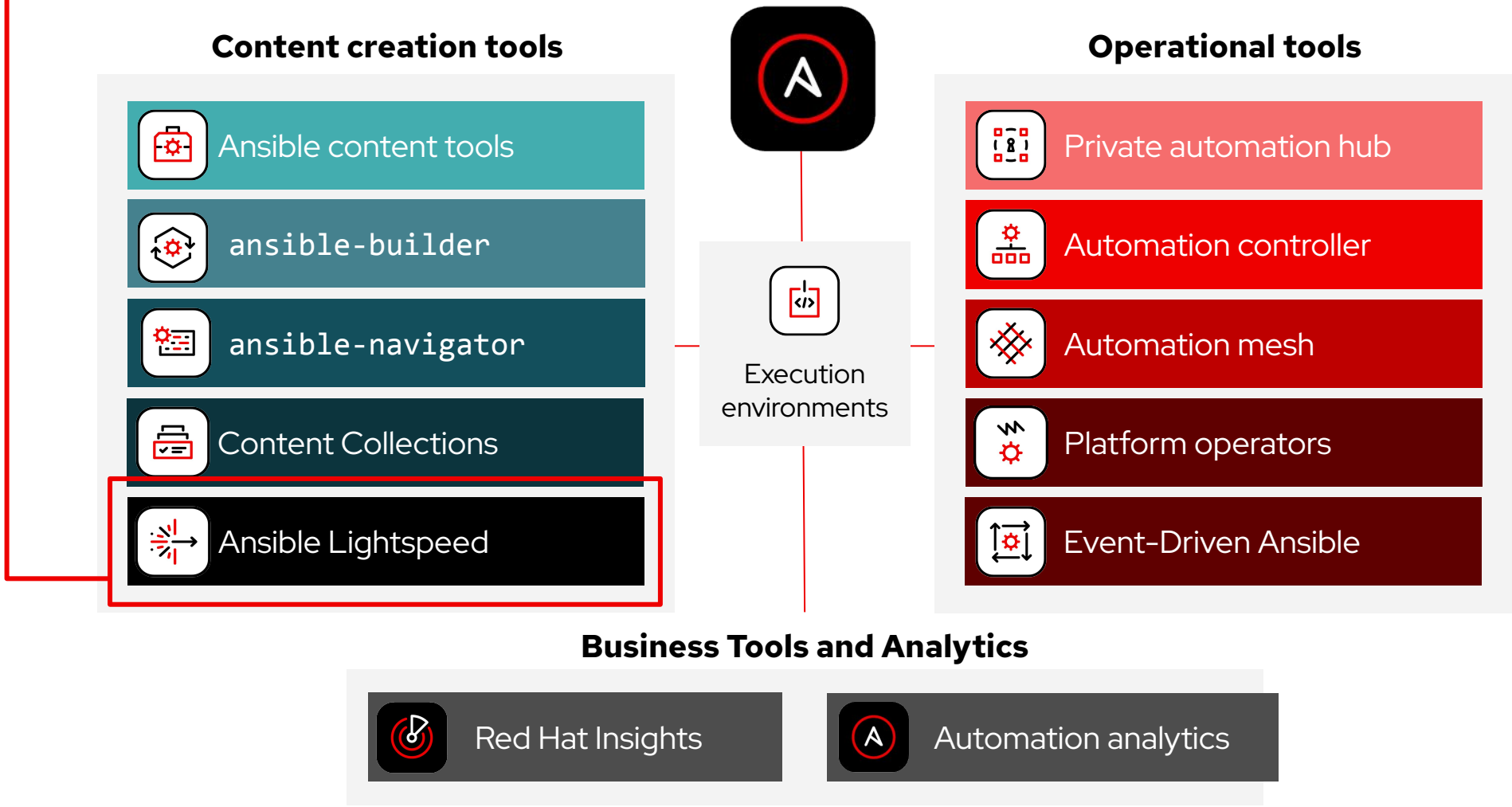
# Better code is the key to unlocking automation acceleration



At Red Hat, we believe that the key **to getting the most out of automation is to drive it from an enterprise level**. That involves multiple teams working together to create automation code.

- Code that **scales across domains.**
- Code that **meets the varied needs of the teams using it.**
- Code that is **trusted** and **well-maintained**

# Ansible Automation Platform: Create. Manage. Scale.

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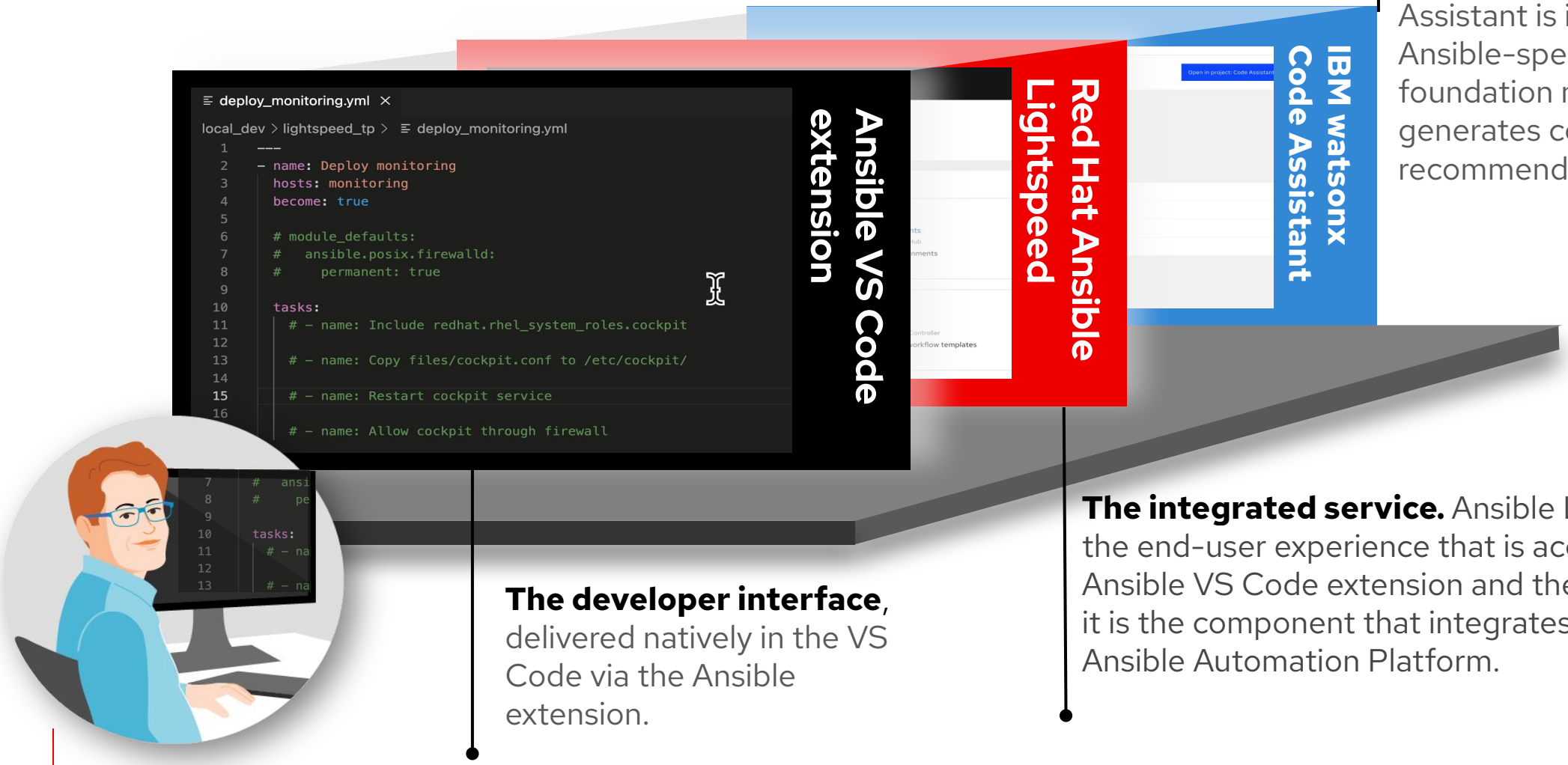
# Red Hat Ansible Lightspeed with IBM watsonx Code Assistant




**The AI:** IBM watsonx Code Assistant is infused with the Ansible-specific watsonx.ai foundation model that generates code recommendations.

**The integrated service.** Ansible Lightspeed connects the end-user experience that is accessed through the Ansible VS Code extension and the watsonx.ai service; it is the component that integrates AI services into the Ansible Automation Platform.

**The developer interface**, delivered natively in the VS Code via the Ansible extension.

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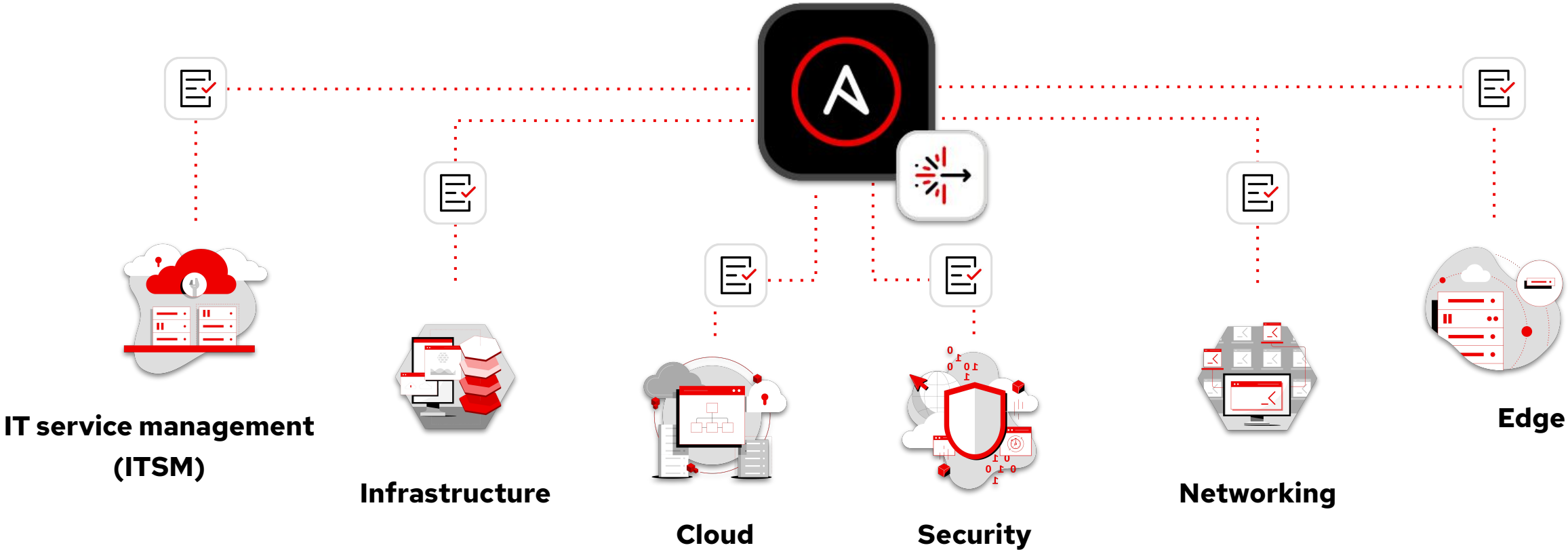
Ansible Automation
Platform

# Accelerate automation content development across domains

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# AI capabilities for the automation code lifecycle

## Create

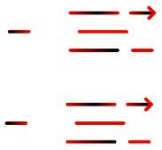
- *Generate multiple task suggestions* for Ansible Task files and Playbooks with natural language prompts.
- *Automation-specific* foundation model trained on Ansible datasets offers more accurate recommendations than general purpose gen AI tools.

## Adopt

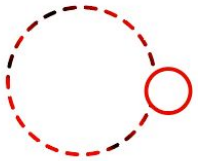
- *Content source matching* feature provides transparency into origins of code recommendations, fostering more trust in AI generated code.
- *Post-processing* capabilities help ensure that generated code adheres to accepted Ansible best practices

## Maintain

- The new *Ansible code bot* integrates natively into user selected git repos; then scans existing Ansible content and automatically submits pull requests with code improvement recommendations.
- Makes it easier for teams to review, test, and apply improvements to the automation code base.



Efficiency



Transparency

Accuracy

Trust

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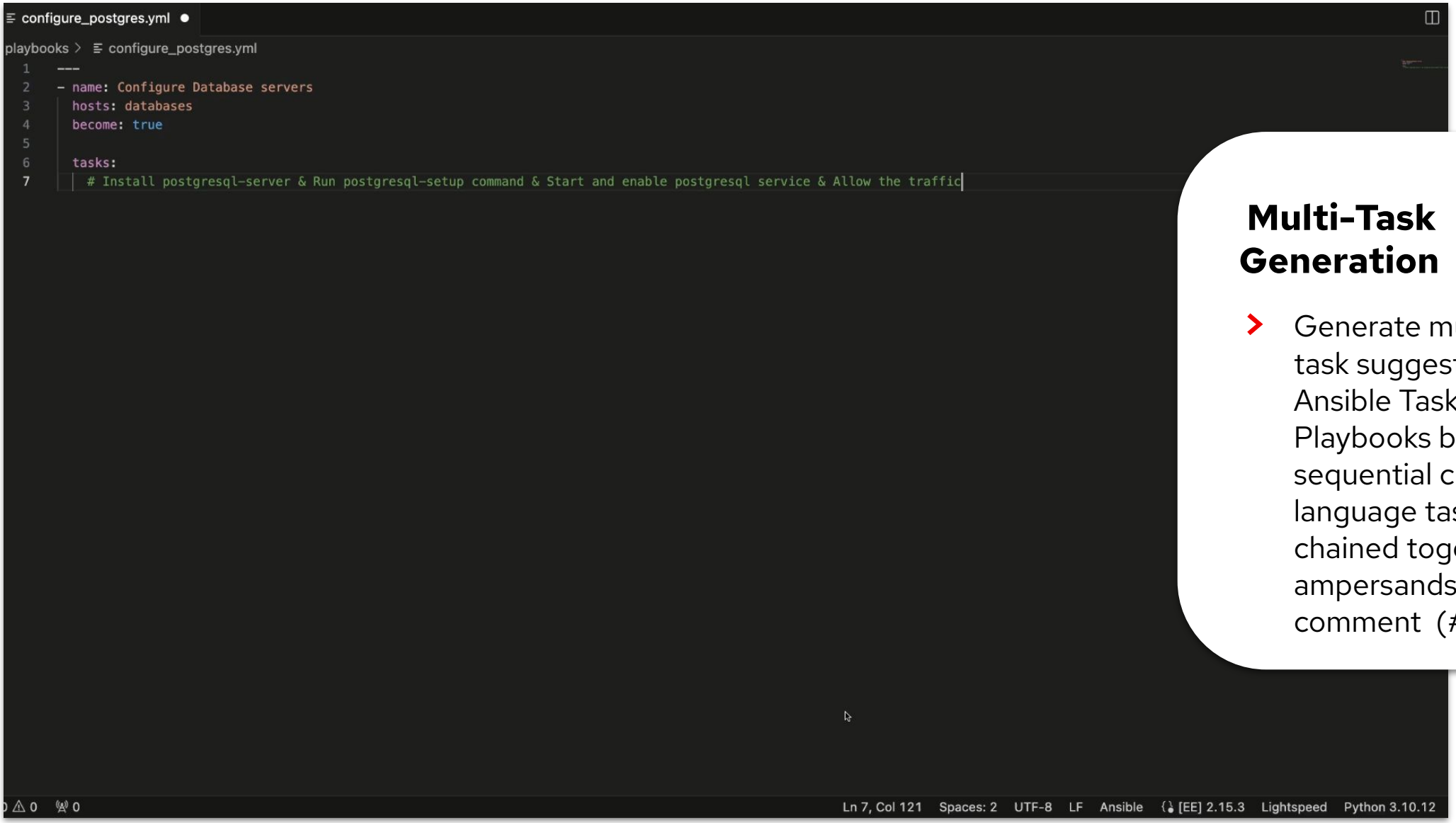
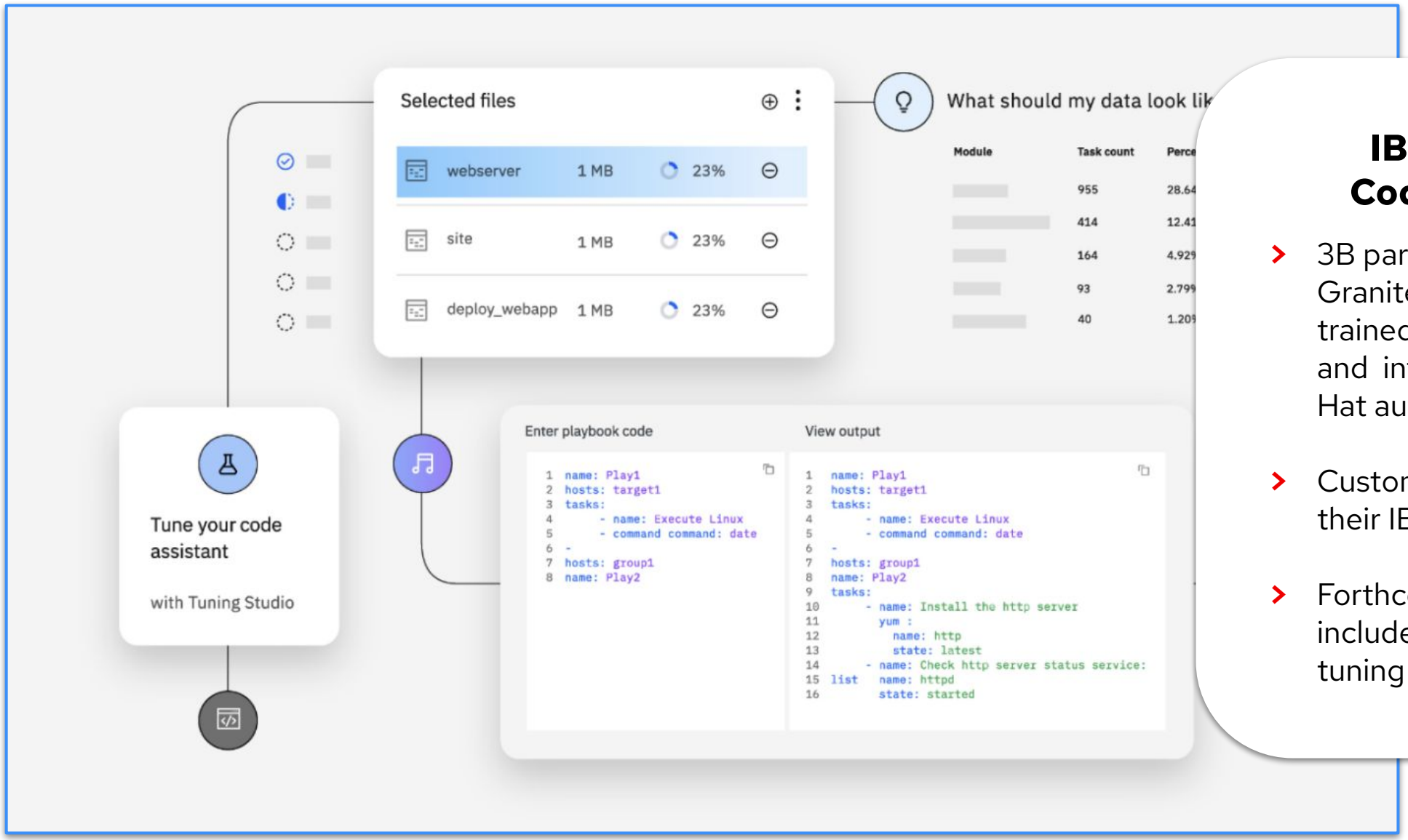



## Multi-Task Generation

- Generate multiple Ansible task suggestions for Ansible Task files and Playbooks by providing a sequential chain of natural language task prompts chained together using ampersands (&) in YAML comment (#) lines.




## IBM watsonx Code Assistant

- 3B parameter IBM watsonx Granite foundation model, trained on Ansible datasets and infused with IBM + Red Hat automation expertise
- Customer data is isolated to their IBM Cloud instance
- Forthcoming capabilities will include custom model tuning

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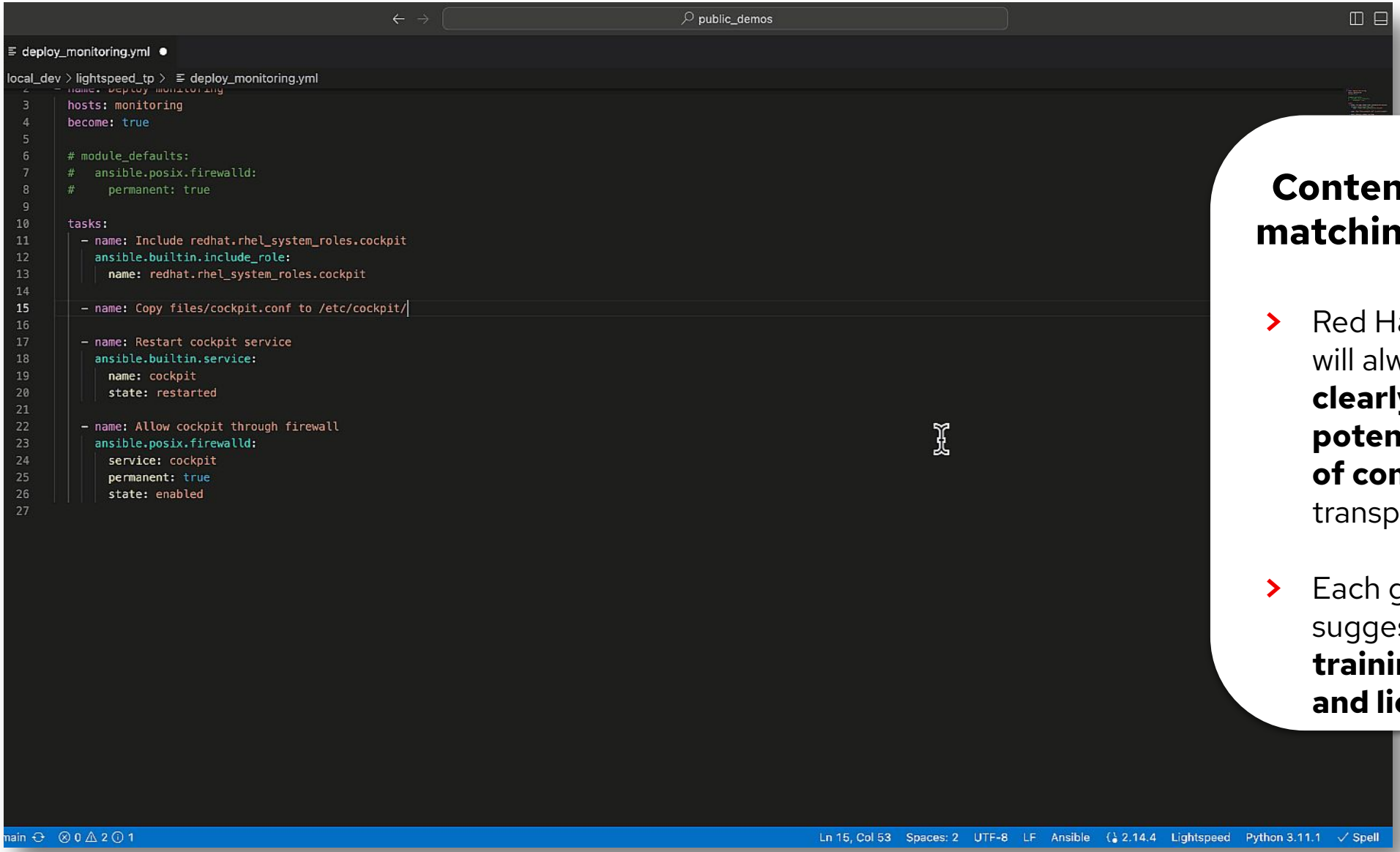


## Content source matching

- Red Hat Ansible Lightspeed will always **attempt to clearly reference the potential training sources of content,** for maximum transparency and trust.
- Each generated code suggestion will provide a **training source, author and license.**

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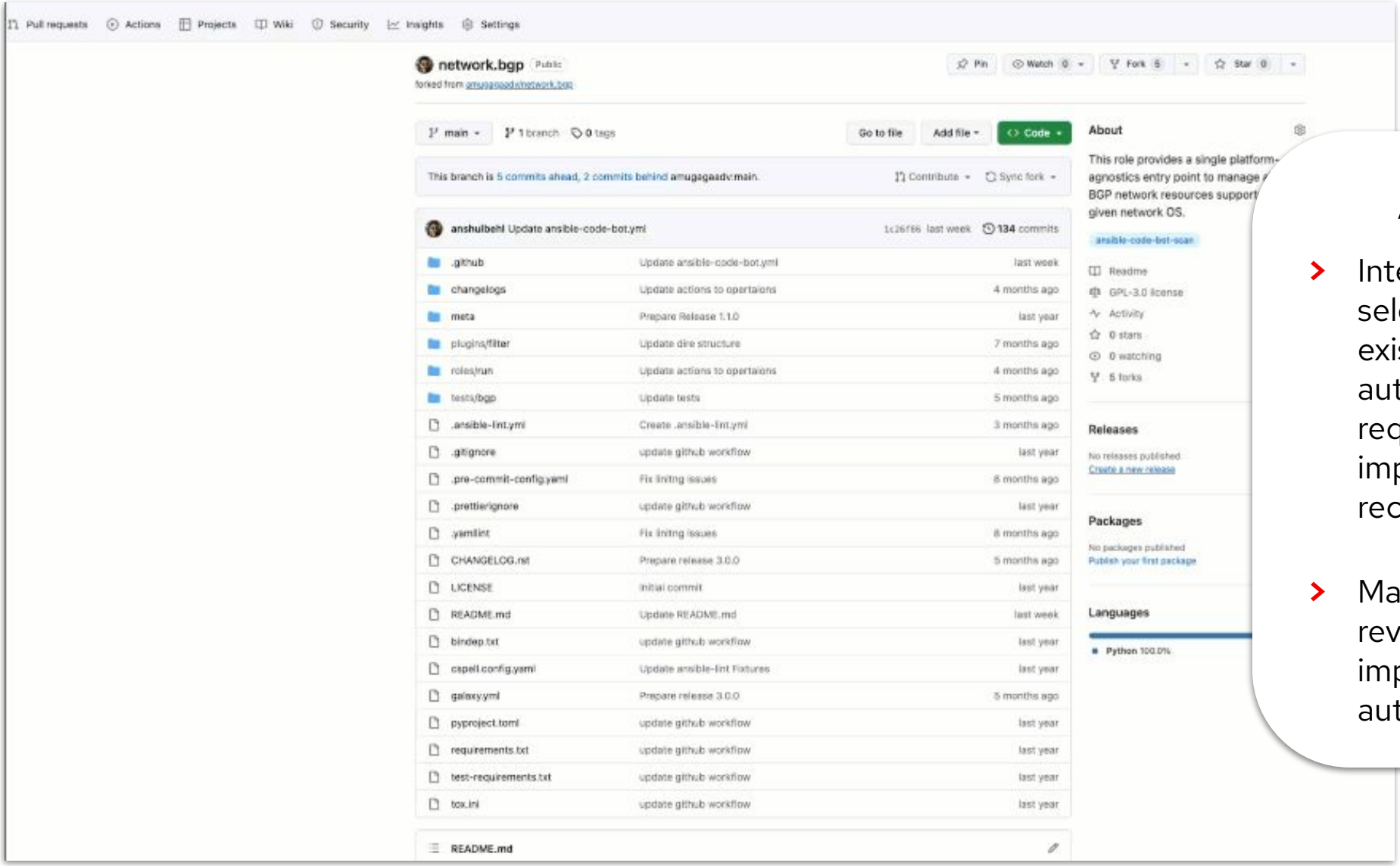
deploy_monitoring.yml

local_dev > lightspeed_tp > deploy_monitoring.yml

```yaml
---
- name: Deploy monitoring
  hosts: monitoring
  become: true

  # module_defaults:
  #   ansible.posix.firewalld:
  #     permanent: true

  tasks:
    # - name: Include redhat.rhel_system_roles.cockpit

    # - name: Copy files/cockpit.conf to /etc/cockpit/

    # - name: Restart cockpit service

    # - name: Allow cockpit through firewall
```

## Post-processing

- Ansible Lightspeed's **post-processing** capability augments model suggestions with Ansible best practices, subject matter expertise, and more.
- This processing and **strong contextual awareness** stems from our unique insight into the Ansible code base, and proven experience helping customers automate at scale.




## Ansible code bot

- Integrates natively into user selected git repos; then scans existing Ansible content and automatically submits pull requests with code improvement recommendations.
- Makes it easier for teams to review, test, and apply improvements to the automation code base.

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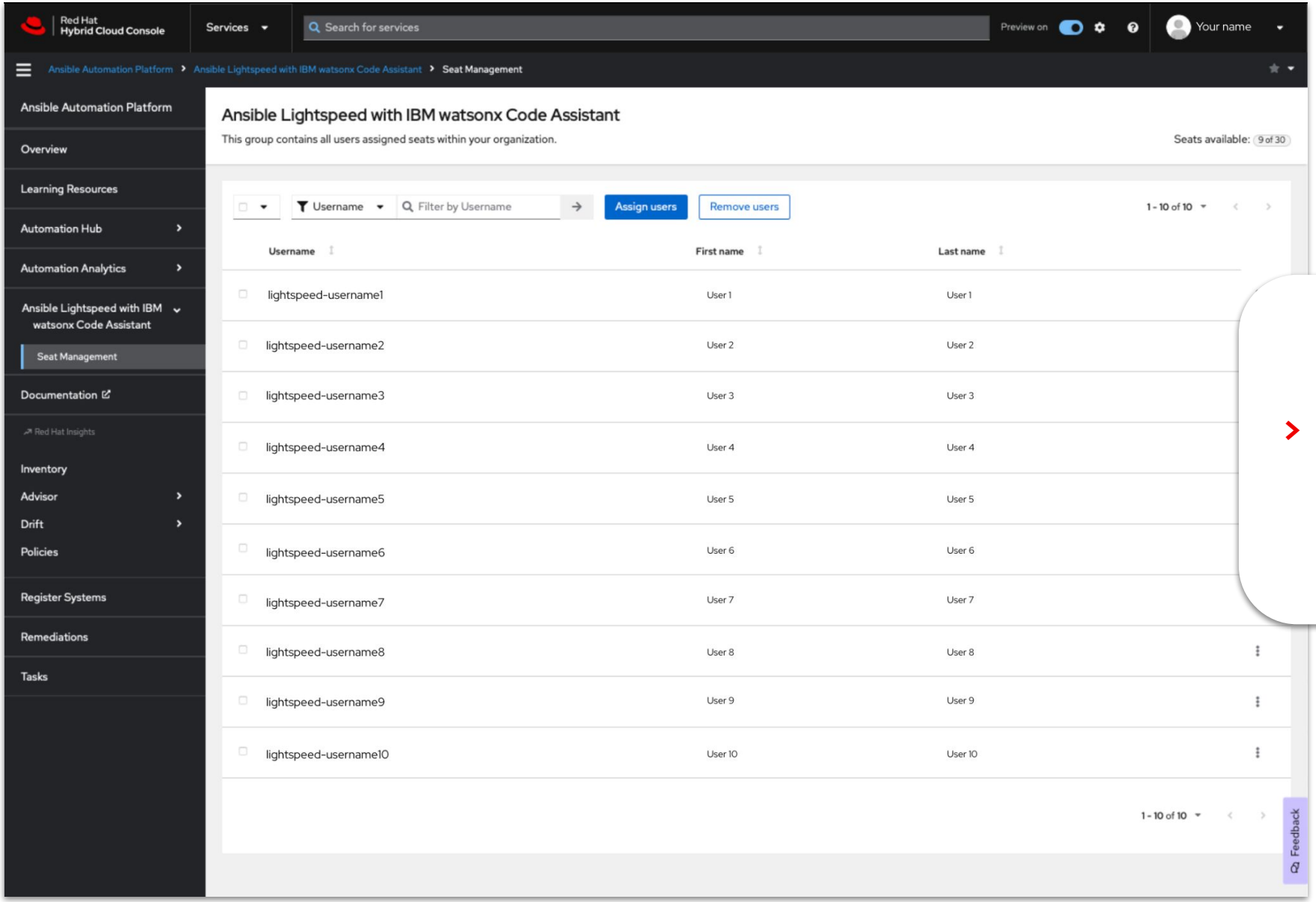
Create | Adopt | **Maintain**




## Seat management

- Manage Ansible Lightspeed seats/users from the AAP console

Red Hat Ansible Automation Platform

# Benefits for the entire IT automation team

## Automation novices

- Reduced Ansible + YAML learning curve
- Help ensure that created automation content adheres to best practices
- Boost skill development + confidence

## Automation developers

- Enhanced productivity for Ansible Playbook creation
- Integrated into existing workflows and tools for efficient adoption
- Ansible code bot tools streamline ongoing code maintenance

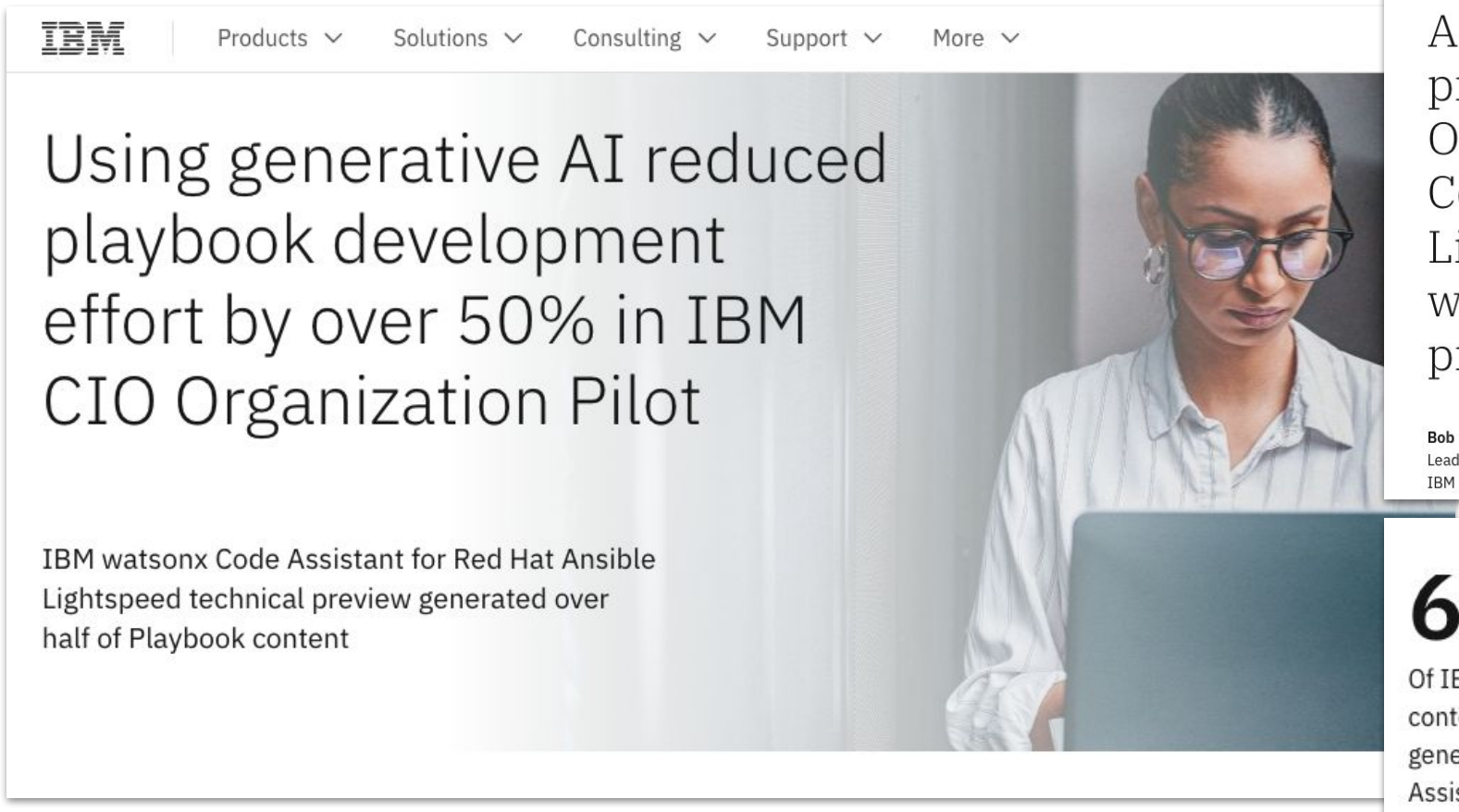
## Automation SMEs

- Bridge gap between automation ideas and Ansible content creation
- Tap into a data model trained across automation domains, expanding expertise

## Automation operations

- Generated code adheres to Ansible best practices, for more confidence running it at scale.
- Integrated enhancement to familiar Ansible Automation Platform experience

# Early returns are promising: IBM CIO organization




"Our team of people who could produce Ansible Playbooks before the technical preview program began was around 10. Once the Enterprise Version of watsonx Code Assistant for Red Hat Ansible Lightspeed becomes Generally Available, we can ask our entire team of 100 to produce Ansible content."

**Bob Epstein**
Leader
IBM CIO Hybrid Cloud Platforms

**60%**

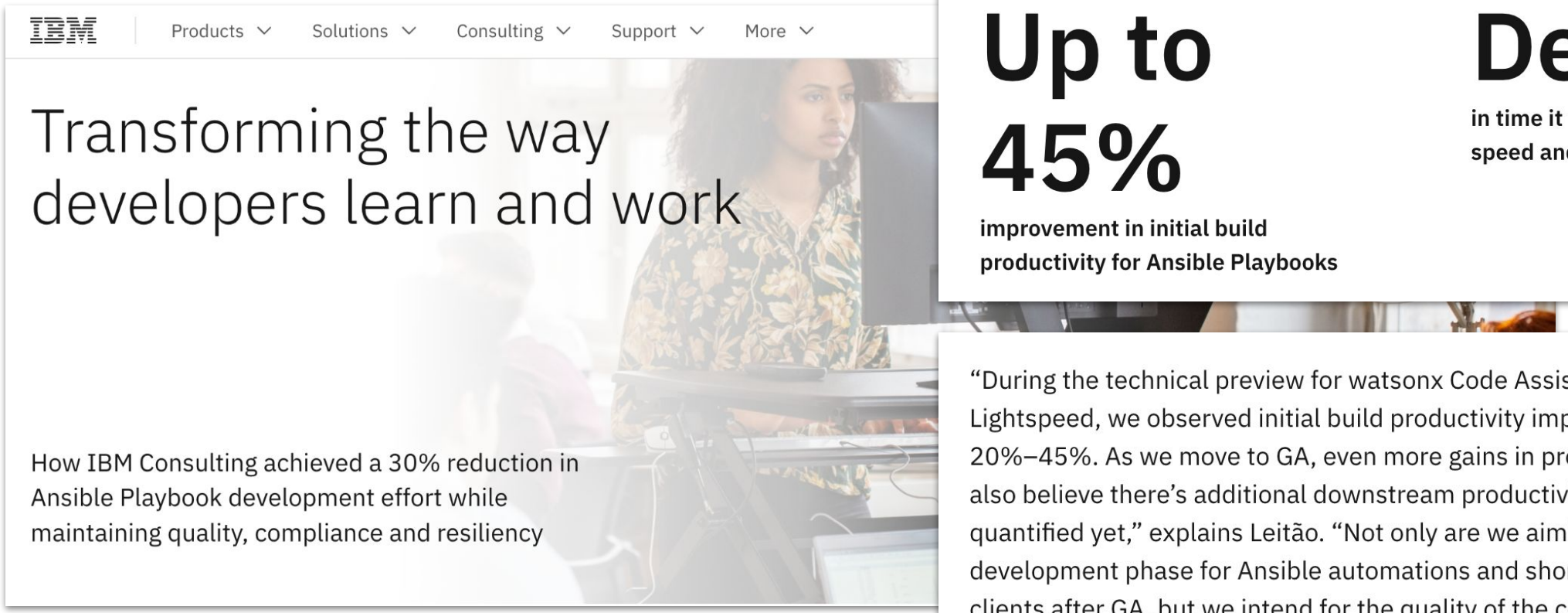
Of IBM's Ansible Playbook content was automatically generated by watsonx Code Assistant for Red Hat Ansible Lightspeed in tech preview

**10X**

Expected increase in members of the IBM CIO team who can help produce Ansible Playbooks going forward

Source: https://www.ibm.com/case-studies/ibm-cio-organization-wca

# Early returns are promising: IBM Consulting




**Up to 45%**

**improvement in initial build productivity for Ansible Playbooks**

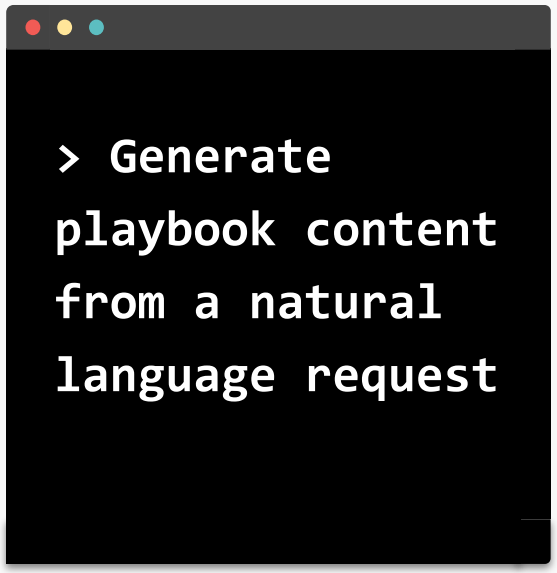
**Decrease**

**in time it takes a new user to get up to speed and be productive in Ansible**

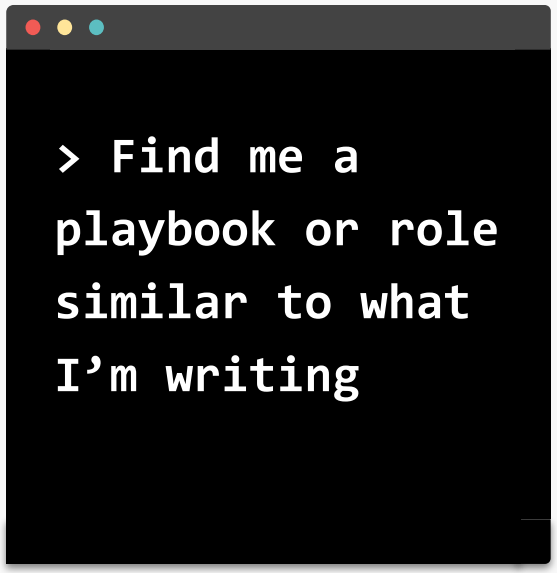
"During the technical preview for watsonx Code Assistant for Red Hat Ansible Lightspeed, we observed initial build productivity improvements in the range of 20%–45%. As we move to GA, even more gains in productivity are expected. We also believe there's additional downstream productivity that has not been fully quantified yet," explains Leitão. "Not only are we aiming to accelerate the development phase for Ansible automations and shorten time-to-value for our clients after GA, but we intend for the quality of the content to be higher."

Source: https://www.ibm.com/case-studies/ibm-consulting-watsonx-code-assistant

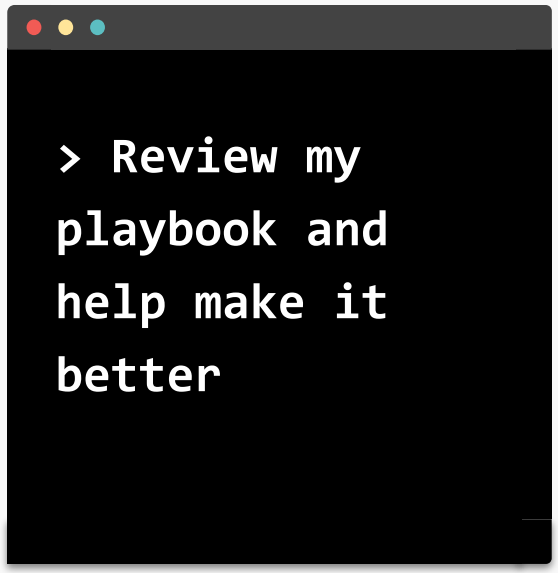
# Ansible Lightspeed will transform the automation content experience




**Content Generation**




**Content Discovery**




**Content Optimization**

**Content Explanation**

**Features on roadmap for 2024**

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# Ansible Lightspeed service offering roadmap

## Now

- **Multi-task generation**
  - Generate multiple related tasks from a single prompt to create full playbooks
- **Content Monitoring and Improvement**
  - Monitor Ansible content repositories for improvements and receive automatic pull requests

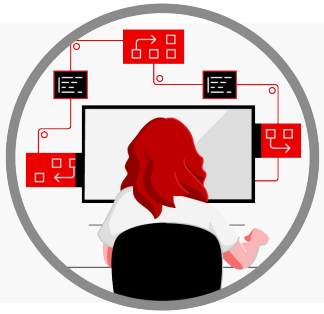
## Near term

- **Full playbook generation**
  - Interactive interface(s) that allow for better automation generation
- **REST APIs**
  - Integrate CI/CD pipelines, developer tools, and other systems
- **Model Fine Tuning**
  - Use watsonx Code Assistant to create custom Ansible recommendation models

## Long term

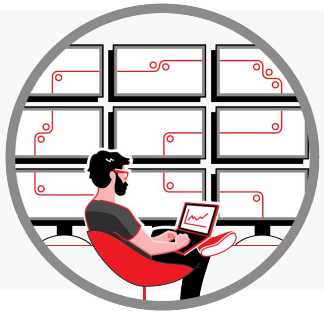
- **Content Discovery**
  - Find existing Ansible content instead of writing from scratch
- **Content Description**
  - Generate descriptive documentation about the automation you build
- **Content Controls**
  - Specific controls around data sent to Ansible Lightspeed
- **New User Interfaces**
  - Web-based, CLI, and other code editors
- **Custom Post-Processing**
  - Parse unstructured data into structures
- **Rulebook Recommendations**
  - Support recommendations for Event-Driven Ansible

# Ansible Lightspeed will make an impact for your organization



**Enhance productivity**, with AI-generated code recommendations that are more accurate, more reliable, and integrated into your automation developers' existing Ansible workflows.

**Expand who can create**, by reducing barriers to entry for automation code creation, and empowering automation SMEs with basic coding knowledge to translate their expertise into functional Ansible content. .



**Extend trust**, with an automation code base that adheres to accepted Ansible best practices, options to customize data models, and significant data safeguards in place.

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# Thank you

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