

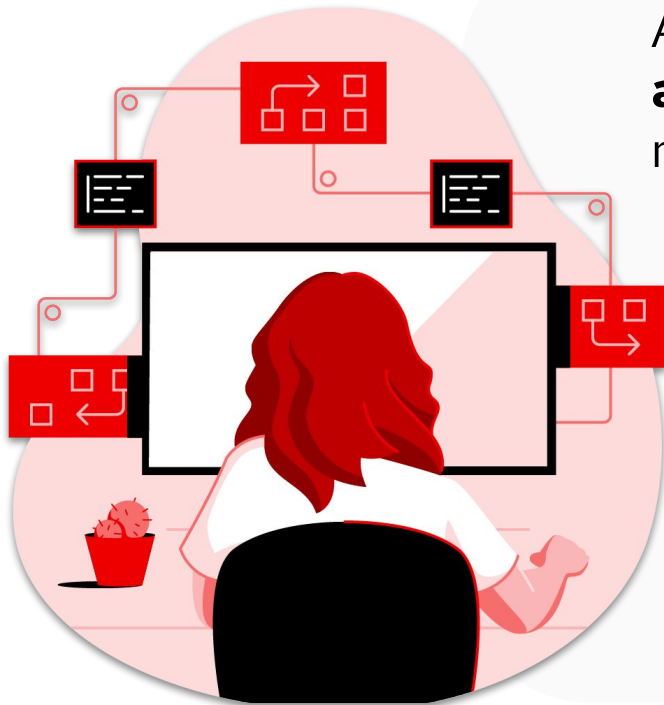
Red Hat
Summit

Connect

Generative AI & Infrastructure Automation

Matti Nieminen
Automation Sales Specialist

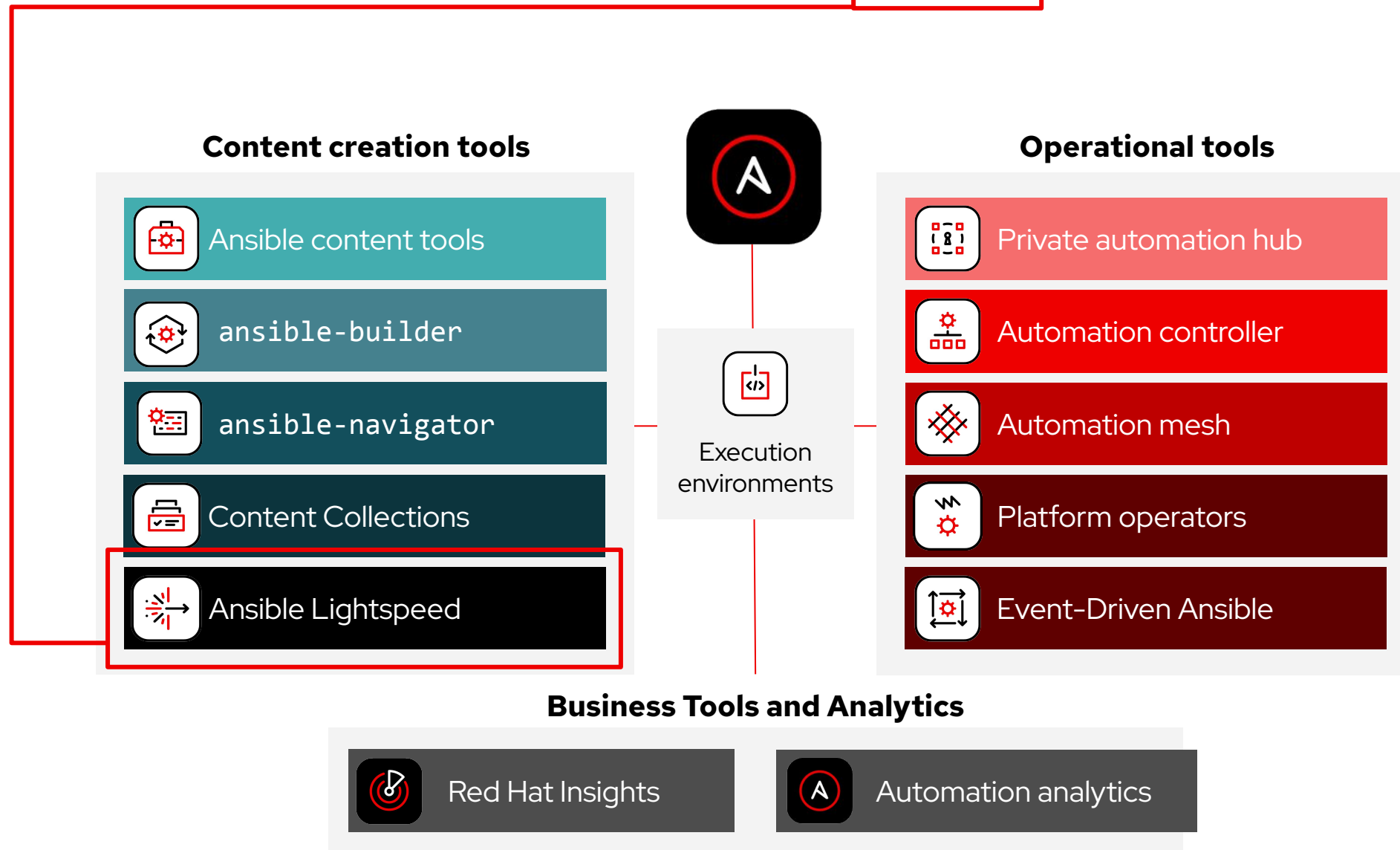
Better code is the key to unlocking automation acceleration



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.



Red Hat Ansible Lightspeed with IBM watsonx Code Assistant



```
deploy_monitoring.yml x
local_dev > lightspeed_tp > deploy_monitoring.yml
1 ---
2 - name: Deploy monitoring
3   hosts: monitoring
4   become: true
5
6   # module_defaults:
7   #   ansible.posix.firewallld:
8   #     permanent: true
9
10  tasks:
11    # - name: Include redhat.rhel_system_roles.cockpit
12
13    # - name: Copy files/cockpit.conf to /etc/cockpit/
14
15    # - name: Restart cockpit service
16
17    # - name: Allow cockpit through firewall
```

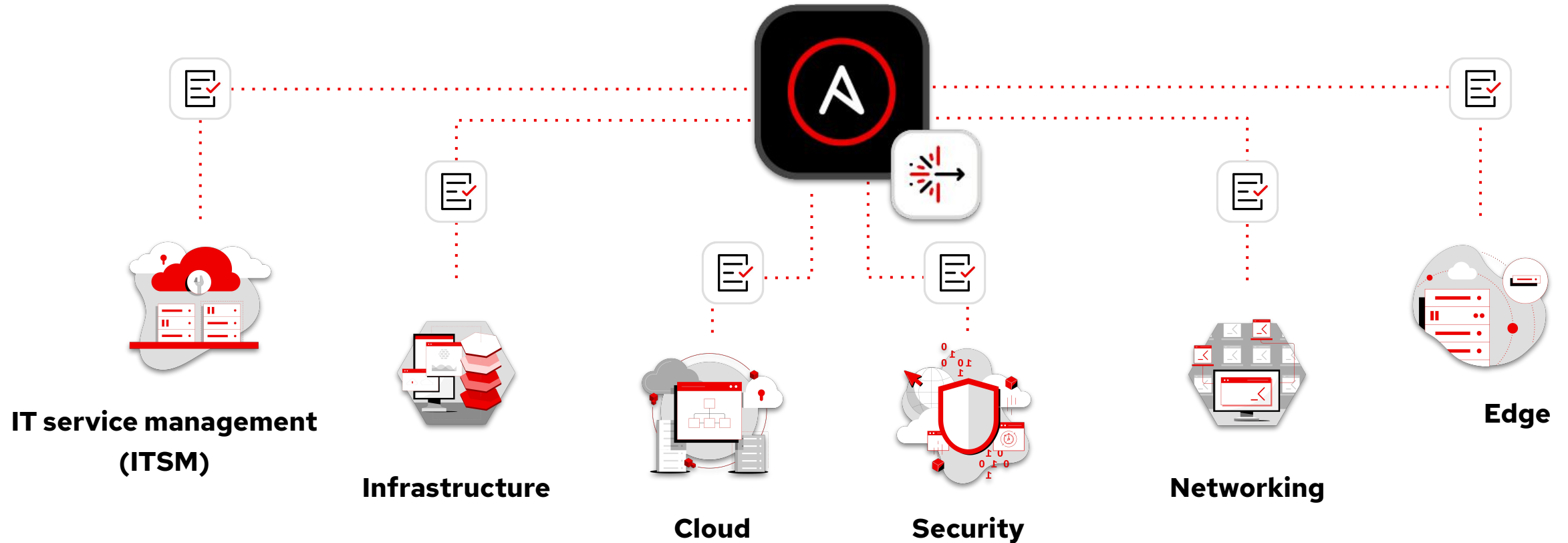


The developer interface, delivered natively in the VS Code via the Ansible extension.

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

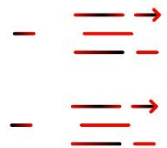
Accelerate automation content development across domains



AI capabilities for the automation code lifecycle

Create

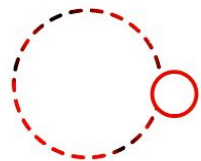
- > *Generate multiple task suggestions* for Ansible Task files and Playbooks with natural language prompts.
- > *Automation-specific* foundation model trained on Ansible datasets offers more accurate recommendations than general purpose gen AI tools.



Efficiency

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



Transparency

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.



Accuracy



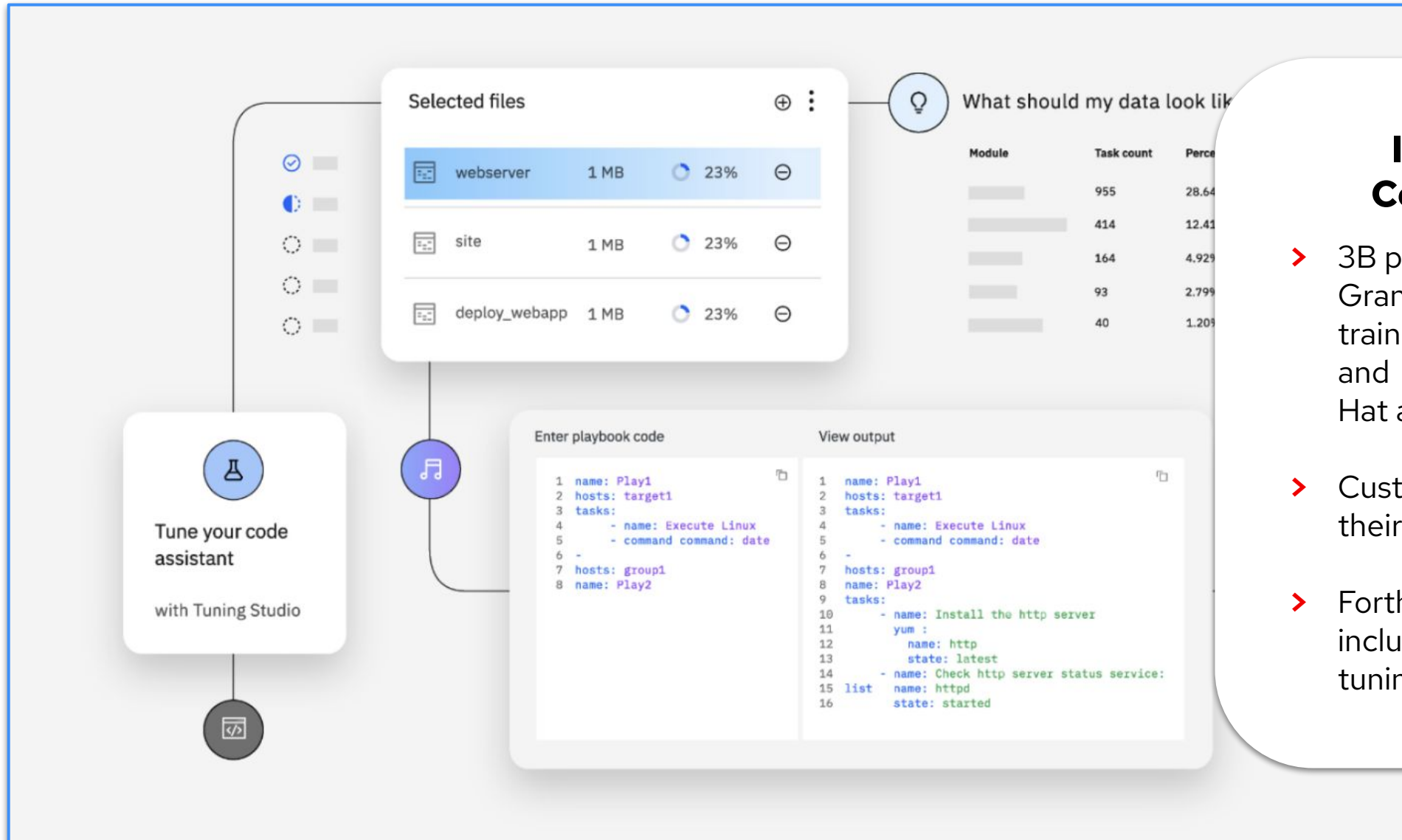
Trust

```
configure_postgres.yml
playbooks > configure_postgres.yml
1 ---
2 - name: Configure Database servers
3   hosts: databases
4   become: true
5
6   tasks:
7     # Install postgresql-server & Run postgresql-setup command & Start and enable postgresql service & Allow the traffic
```

Ln 7, Col 121 Spaces: 2 UTF-8 LF Ansible [EE] 2.15.3 Lightspeed Python 3.10.12

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


```
local_dev > lightspeed_tp > deploy_monitoring.yml
2  name: deploy_monitoring
3  hosts: monitoring
4  become: true
5
6  # module_defaults:
7  #   ansible.posix.firewalld:
8  #     permanent: true
9
10 tasks:
11   - name: Include redhat.rhel_system_roles.cockpit
12     ansible.builtin.include_role:
13       name: redhat.rhel_system_roles.cockpit
14
15   - name: Copy files/cockpit.conf to /etc/cockpit/
16
17   - name: Restart cockpit service
18     ansible.builtin.service:
19       name: cockpit
20       state: restarted
21
22   - name: Allow cockpit through firewall
23     ansible.posix.firewalld:
24       service: cockpit
25       permanent: true
26       state: enabled
27
```

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**.

```
≡ deploy_monitoring.yml ×
```

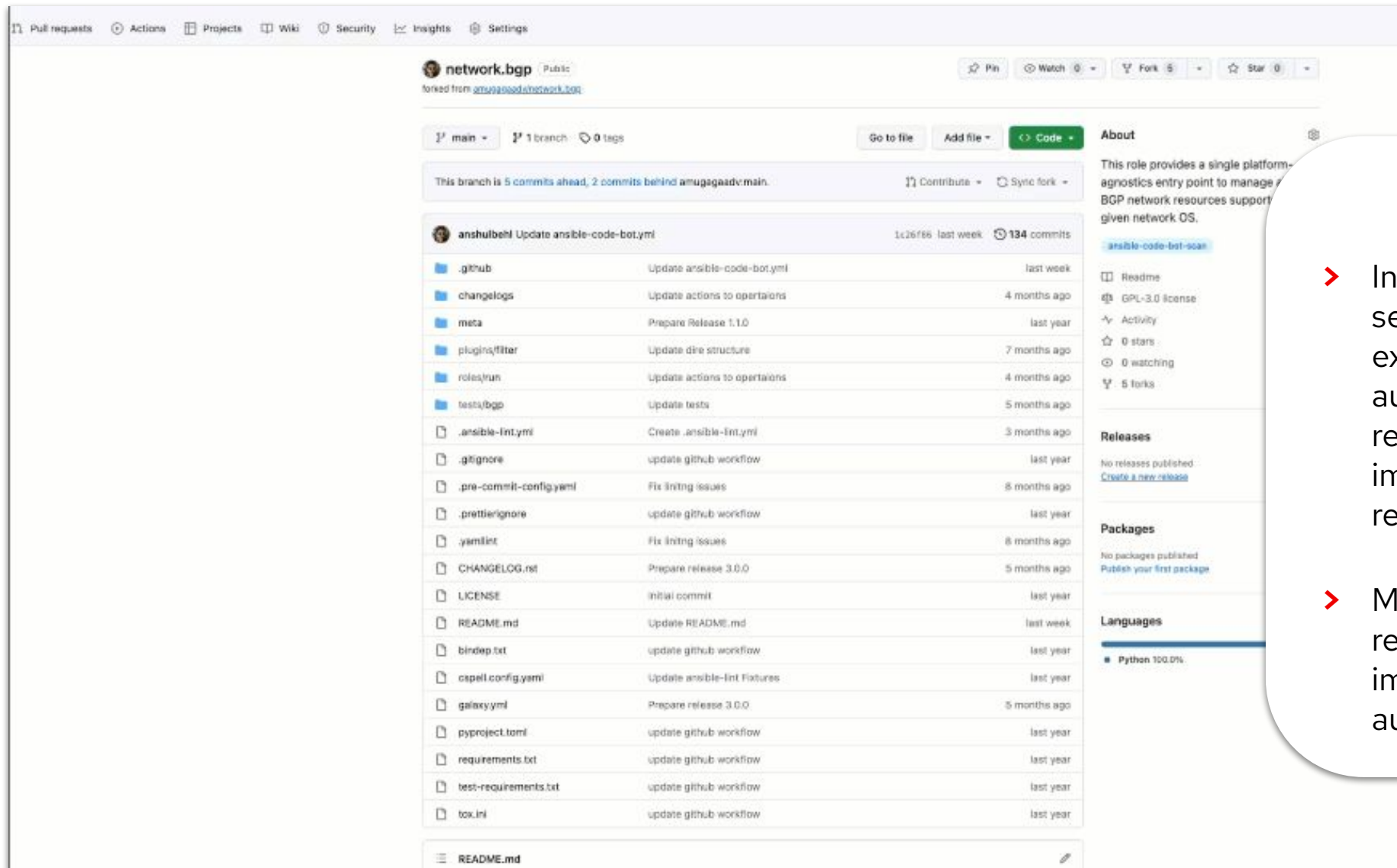
```
local_dev > lightspeed_tp > ≡ deploy_monitoring.yml
```

```
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16
17    # - 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.



The screenshot shows a GitHub repository for 'network.bgp' (Public) forked from 'amugagaad/network.bgp'. The repository is on the 'main' branch, which is 5 commits ahead and 2 commits behind the upstream. The repository has 134 commits and 5 forks. The file list includes:

File	Commit Message	Time
.github	Update ansible-code-bot.yml	last week
changelogs	Update actions to optaiaons	4 months ago
meta	Prepare Release 1.1.0	last year
plugins/filter	Update dire structure	7 months ago
roles/run	Update actions to optaiaons	4 months ago
tests/bgp	Update tests	5 months ago
.ansible-lint.yml	Create .ansible-lint.yml	3 months ago
.gitignore	update github workflow	last year
.pre-commit-config.yml	Fix lintng issues	8 months ago
.prettiignore	update github workflow	last year
.yamllint	Fix lintng issues	8 months ago
CHANGELOG.rst	Prepare release 3.0.0	5 months ago
LICENSE	initial commit	last year
README.md	Update README.md	last week
bindp.txt	update github workflow	last year
csPELL.config.yml	Update ansible-lint Features	last year
galaxy.yml	Prepare release 3.0.0	5 months ago
pyproject.toml	update github workflow	last year
requirements.txt	update github workflow	last year
test-requirements.txt	update github workflow	last year
tox.ini	update github workflow	last year

The repository also shows a sidebar with 'About' (single platform-agnostic entry point), 'Releases' (no releases published), 'Packages' (no packages published), and 'Languages' (Python 100.0%).

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.

Create

Adopt

Maintain

Red Hat Hybrid Cloud Console

Services

Search for services

Preview on

Your name

Ansible Automation Platform

Ansible Lightspeed with IBM watsonx Code Assistant

Seat Management

Seats available: 9 of 30

Assign users Remove users

Username	First name	Last name
lightspeed-username1	User 1	User 1
lightspeed-username2	User 2	User 2
lightspeed-username3	User 3	User 3
lightspeed-username4	User 4	User 4
lightspeed-username5	User 5	User 5
lightspeed-username6	User 6	User 6
lightspeed-username7	User 7	User 7
lightspeed-username8	User 8	User 8
lightspeed-username9	User 9	User 9
lightspeed-username10	User 10	User 10

1 - 10 of 10

Feedback

Seat management

- Manage Ansible Lightspeed seats/users from the AAP console

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

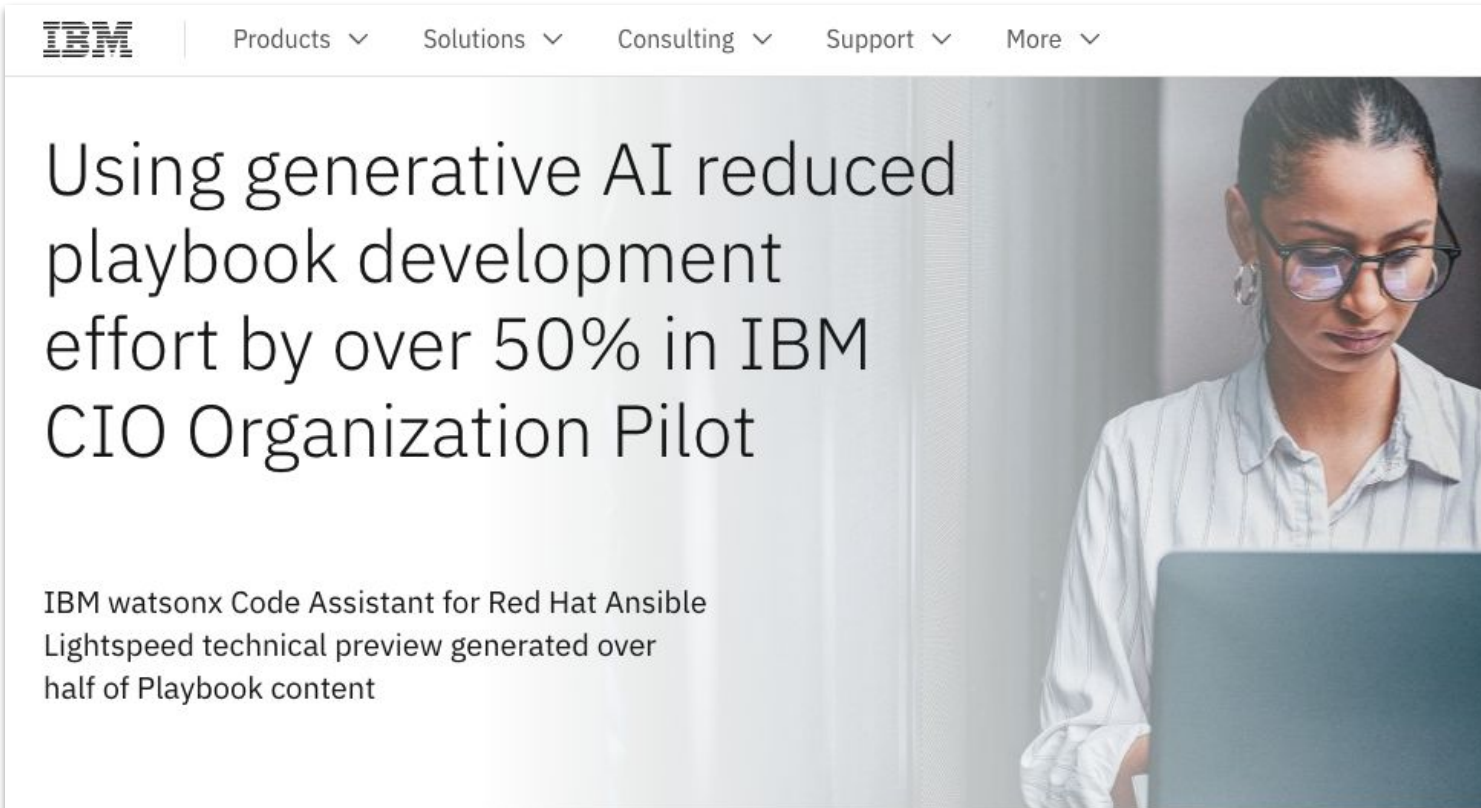
Automation SMEs

- > 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%

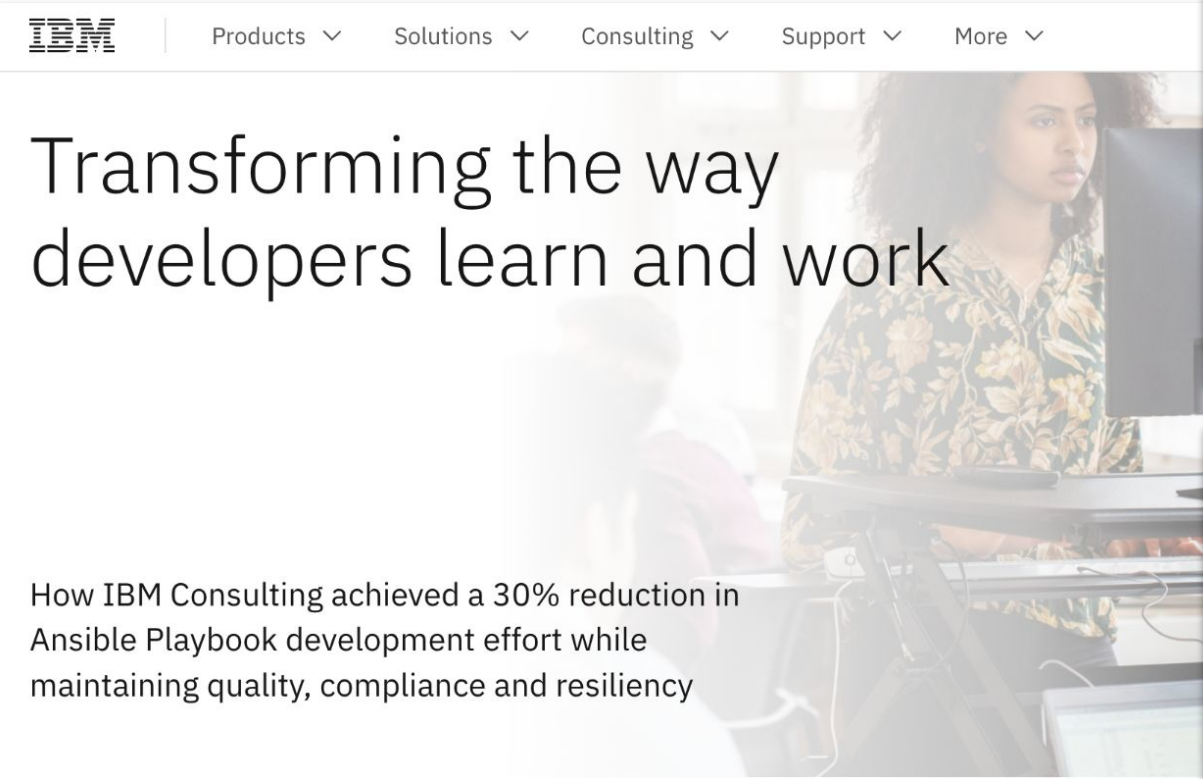
Of IBM's Ansible Playbook content was automatically generated by watsonx Code Assistant for Red Hat Ansible Lightspeed in tech preview

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.”

Ansible Lightspeed will transform the automation content experience

```
> Generate  
playbook content  
from a natural  
language request
```

**Content
Generation**

```
> Find me a  
playbook or role  
similar to what  
I'm writing
```

**Content
Discovery**

```
> Review my  
playbook and  
help make it  
better
```

**Content
Optimization**

```
> Tell me what  
this playbook is  
doing - and it's  
impact
```

**Content
Explanation**

Features on roadmap for 2024

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

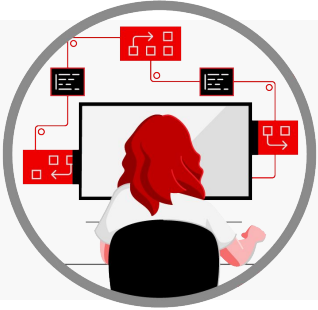
Near term

- > **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

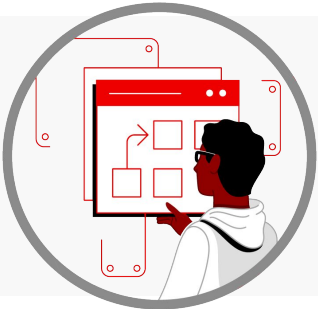
Long term

- > **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

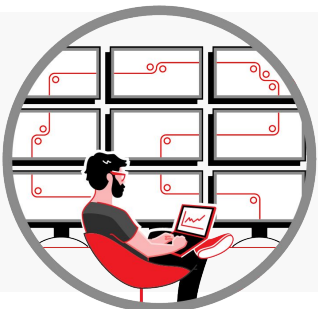
Ansible Lightspeed will make an impact for your organization



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.

Red Hat
Summit

Connect

Thank you



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