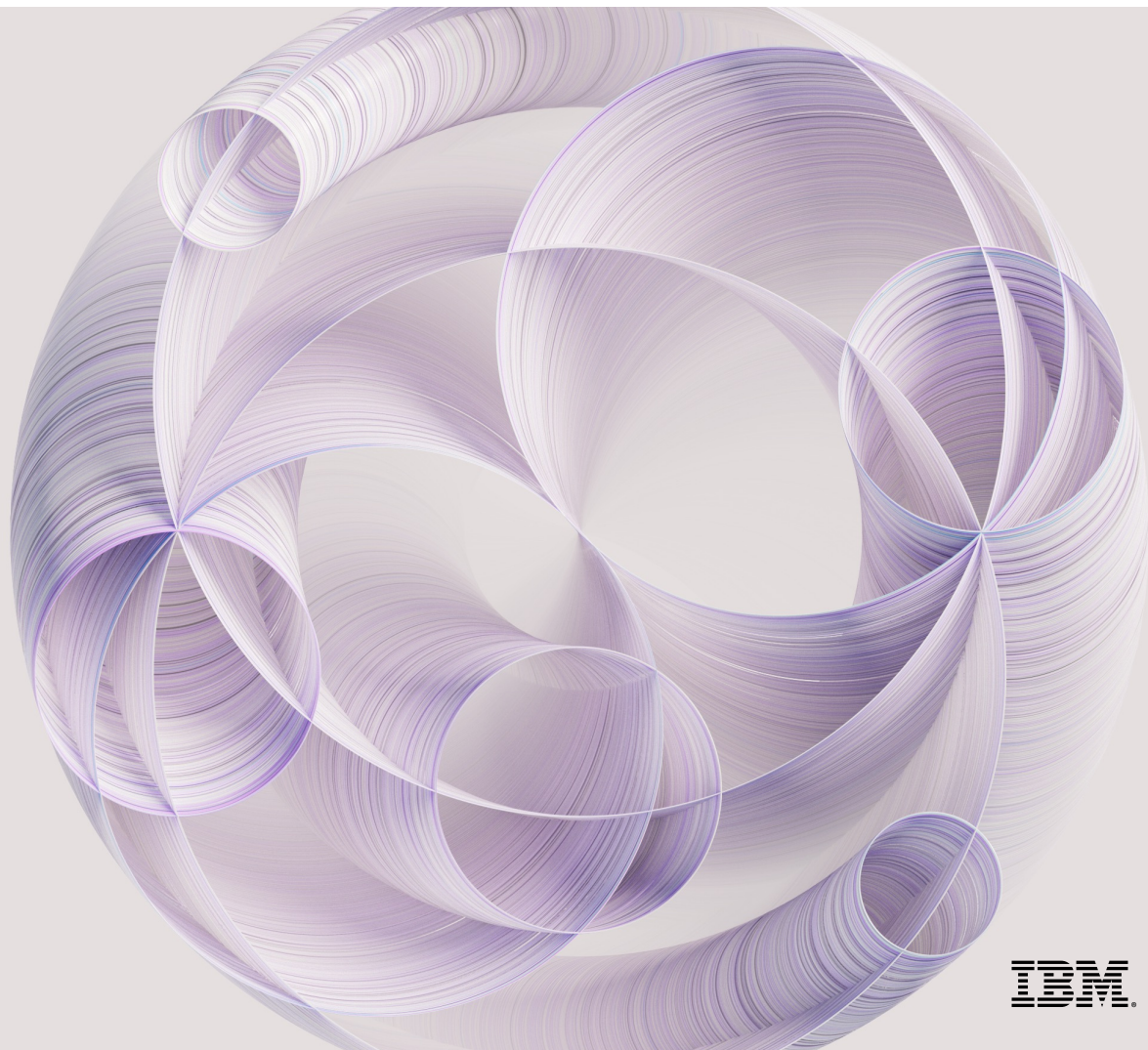# Let's put AI to work

IBM®

Developer experience with Ansible

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IBM

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Today

Let's elevate
automation mindset as a critical part of developer experience across the enterprise

Let's study
some resources & use cases of how Ansible automates Z & improves app dev, systems admin, & network management

Let's create
confidence & enthusiasm in how Ansible automation can help you elevate developer experience & go faster

On elevating developer experience

On developer experience

Pair programming is a highly effective method in software development. It enables developers to achieve **focus, flow, and joy** while fostering key developer experience ideals like those listed at right.

Enhancing developer productivity is vital for organizations aiming to elevate customer and employee experiences while improving system efficiency. The goal is to expedite the creation of optimized, self-documenting code aligned with industry best practices, allowing developers to solve bigger problems.

"Locality & Simplicity," "Focus, Flow, & Joy," "Improvement of Daily Work," "Psychological Safety," and "Customer Focus" are the five ideals from *The Unicorn Project* by Gene Kim.

Engineering team cohesion	Improvement of daily work	Enhance systems that provide customer value
Locality & simplicity	Psychological safety	Upskilling
Customer focus	Reusability	Immediate feedback

We can connect the dots between...

Developer happiness
- **creativity**
- productivity
- **learning**
- flow state
- **cognitive load**
- feedback loops

Engineering team cohesion
- **code quality**
- less tech debt
- **code coverage**
- swift onboarding
- **psychological safety**
- intuitive processes

Organizational goals
- **driving innovation**
- retaining talent
- **maximizing profit**
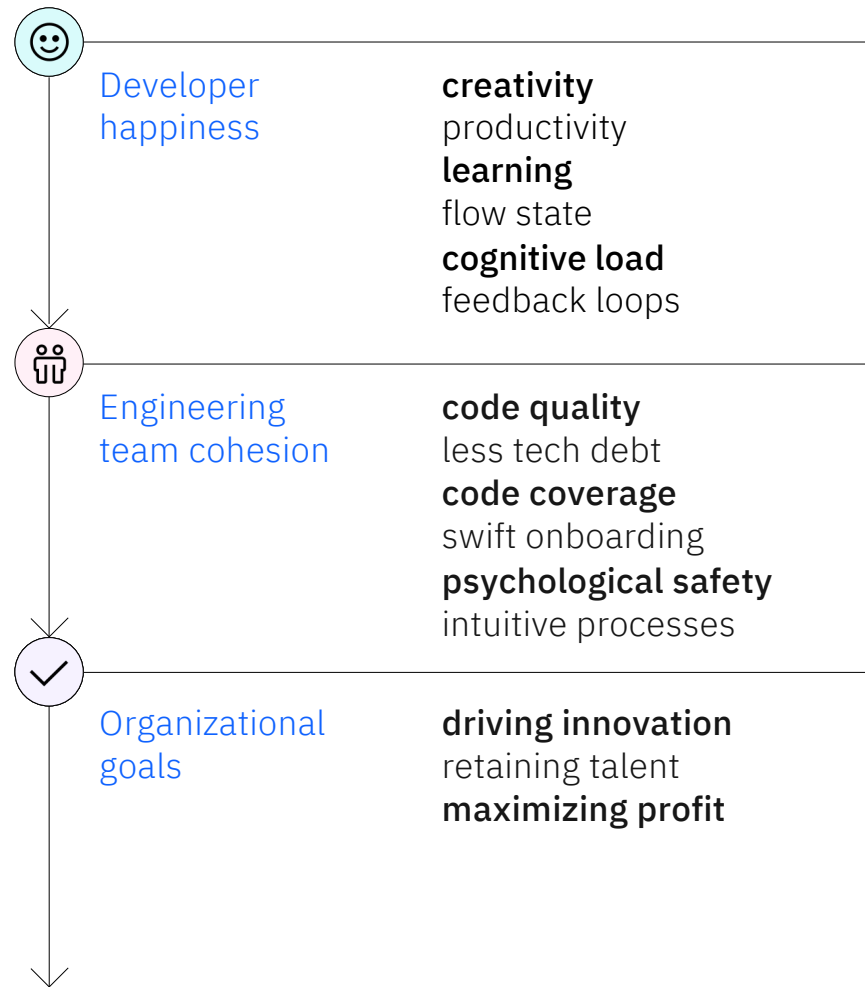
...and how IBM's automation and AI solutions support these outcomes.

On automation mindset

On automation mindset

What does **automation mindset** mean?

What does it mean to **augment developer experience** with automation mindset?

How might we **overcome the perception** that automation comes with a steep learning curve? **Would AI help?**

Declarative first	Idempotency & consistency	Elevate architecture improvements
Rehearse changes repeatedly	Rapid infra (de)provisioning for automated e2e testing	Immediate feedback loops
Improve percent complete & accurate %CA	Share leading practices across platforms & towers	Bias for ~~action~~ automation

What can Ansible for Z automate?

Quite a lot.

And it's all in one place.

[Red Hat Ansible Certified Content for Z](#)

- Up & Running
- Collections
- Roles
- Playbooks
- Documentation

Image & config management

Install/config new CICS, DB2, MQ, & IMS subsystems
SMP/E install + post-install config of software
Install/config sample applications
Update/activate DFSMS configurations

CI/CD

Deploy applications
Compile/build binaries/load modules/program objects
Extend pipelines: Jenkins, ServiceNow, GitHub, Artifactory, URI, etc.
Rapid provisioning & deprovisioning of test environments
Testing

Security

Certificate renew / create / revoke
User management, password resets
Sync with source of truth
Network configuration
Investigation & compliance, fact collecting

Ansible for IBM Z

Key Client Use Cases

Provisioning, Maintenance & Configuration
- Build and provision middleware
- Roll out fix packs to thousand of servers
- Self-service provisioning portals
- Middleware configuration
- Network and security configuration

CI/CD and Application Deployment
- Integrate infrastructure provisioning and IBM Z application deployment into CI/CD pipelines
- Bring together populate tools in your pipelines such as Jenkins, ServiceNow, Github and more

Migration and Recovery
- Disaster recovery information collection
- Moving data and application across systems

Orchestration
- Orchestrate and replace existing siloed in-house automation
- Integrate existing automation into overall workflow
- Job verification programs

Security Automation
- SSL certification renewal process
- Password resets, create new users

Mainframe Fact Collection
- Install verification programs
- Collect audit and security configuration details, system status and health checks

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How might Ansible improve developer experience & CI/CD?

Developer experience management

maintain the entire pipeline as code
small incremental changes
roll forward and back
pipeline version control
CICD as ansible roles

Rapid resource standup / teardown

storage
networking
images
security
middleware
identity

End-to-end testing

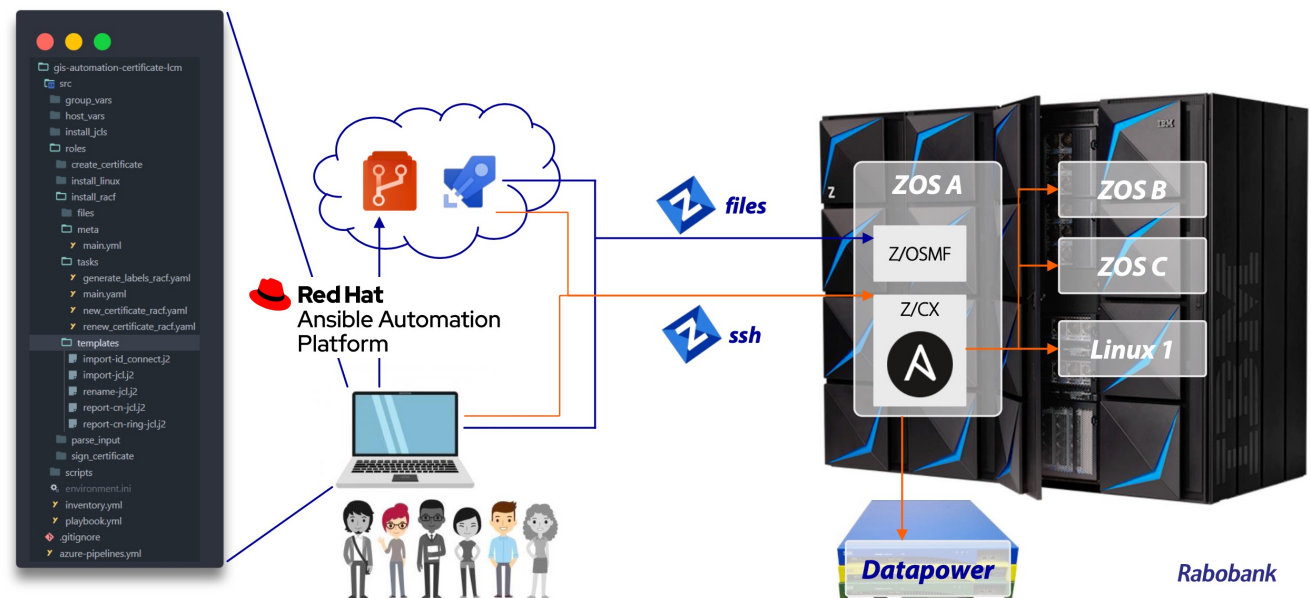**integration testing**
security testing / DAST

Major US Bank
Manage and automate z/OS certificates with Ansible

– Currently managing **3000 certificates a year**

– Current process takes **1 hour** per refresh.

– Ansible managed process estimated to reduce to minutes resulting in a savings of **100+ hours per week.**

Watch

- Demo video

- Rabobank talk about their Certificate Management solution


```
gis-automation-certificate-lcm
  src
    group_vars
    host_vars
    install_jcls
    roles
      create_certificate
      install_linux
      install_racf
        files
        meta
          main.yml
        tasks
          generate_labels_racf.yaml
          main.yaml
          new_certificate_racf.yaml
          renew_certificate_racf.yaml
        templates
          import-id_connect.j2
          import-jcl.j2
          rename-jcl.j2
          report-cn-jcl.j2
          report-cn-ring-jcl.j2
      parse_input
      sign_certificate
    scripts
    environment.ini
    inventory.yml
    playbook.yml
  .gitignore
  azure-pipelines.yml
```

Red Hat
Ansible Automation Platform

files

ssh

ZOS A

Z/OSMF

Z/CX

ZOS B

ZOS C

Linux 1

Datapower

Rabobank

Review the certified content

A quick demo

IBM watsonx Code Assistant
for Red Hat Ansible Lightspeed

Ansible Role Generation

User Needs / Pain Points

- Needs a more effective way for the team to develop reusable Ansible automation
- They developed many standalone playbooks, but they are monolithic and need to be more reusable
- Spend a lot of their time writing the supporting files

DevEx Value

- Reduced tool switching, improved flow state
- Reusability & simplicity
- Swift onboarding

Ansible Playbook Generation & Explanation

User Needs / Pain Points

- Needs a simple way to automate management tasks for the IBM i operating system
- Shell scripts he has been using are out-of-date and hard to teach to new team members
- Little to no budget for training

DevEx Value

- Find documentation without switching tools
- Swift onboarding
- Up & running quickly

Ansible Content Generation (SysAdmin)

User Needs / Pain Points

- Needs a quick, automated, and consistent way to stand up and tear down a test database
- Spending too much time building test databases and loading sample data
- Heavy housekeeping and pruning which take time away from testing tasks

DevEx Value

- Improve focus, flow state, cognitive load, and joy
- Eliminate toil & waiting
- Find documentation without switching tools

Ansible Content Generation (NetAdmin)

User Needs / Pain Points

- Needs a way to automate the configuration of her company's network devices
- Desire to use a declarative approach so their work aligns more with the Operating Systems team that uses Ansible
- Need to onboard new engineers to use the latest automation approaches

DevEx Value

- Simplicity
- Eliminate toil
- Swift onboarding

Calls to action

Next steps

Step 1	Step 2	Step 3
See a demo of Ansible4Z and watsonx Code Assistant for Ansible	Explore the [Red Hat Certified Content for Z](#)	Conduct an Ansible4Z pilot with IBM Client Engineering