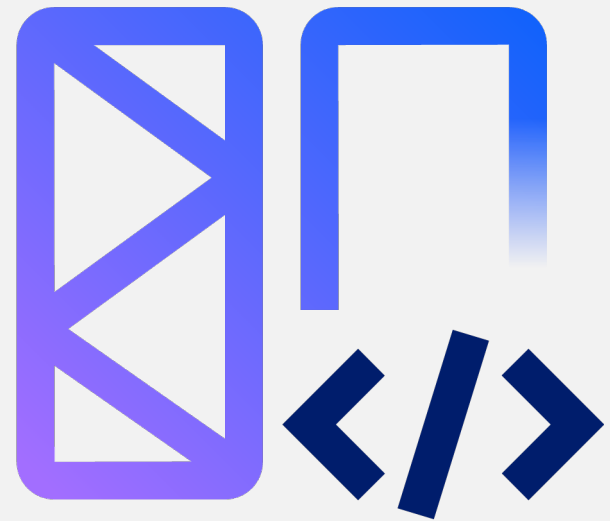


AI-assisted mainframe application modernization

with IBM watsonx Code Assistant for Z



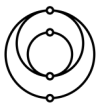
One principal challenge in
organizations today is accelerating
mainframe application modernization

230+ billion

lines of COBOL are estimated to be
actively running by enterprises¹

1. Source: Reuters Survey (2020)

Mainframe application modernization challenges



Agility

With enterprise DevOps, we have gone from doing code commits once a quarter to 20 times a day



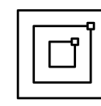
Skills

Reduce the talent gap with common tools and operating models across platforms



Costs

Leveraging consumption-based pricing on the mainframe (Tailored-fit-pricing) to add new apps to the mainframe



How

What are the proven patterns and best practices for modernizing mainframe applications?

Generative AI helps address modernization challenges

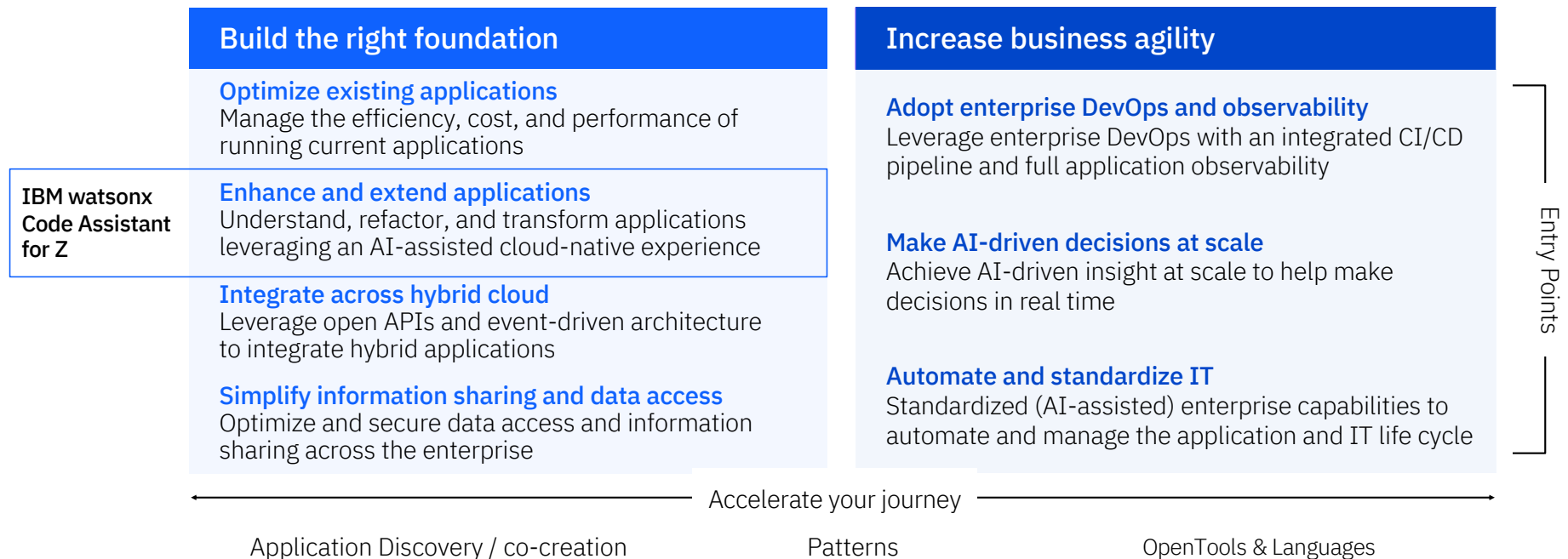
30%

Reduction in time to complete coding tasks through the combination of human & AI assistants working in tandem by 2028

80%

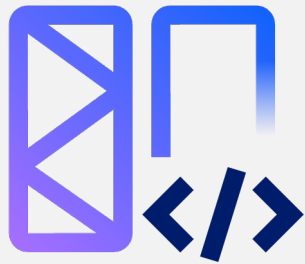
Of the product development lifecycle will make use of generative AI code generation by 2025

IBM is accelerating application modernization with generative AI



IBM watsonx Code Assistant for Z

AI-assisted mainframe application modernization



Faster, lower cost,
and less risk than
alternatives

Accelerated application lifecycle

New automated and AI-assisted capabilities to support end to end application modernization lifecycle with auto discovery, refactor, test, and fit-for-purpose deployment

AI-generated high-quality code

Leverage the power of generative AI to make it easier for developers to selectively modernize COBOL business services to well architected high-quality Java code

Flexibility with rich interoperability

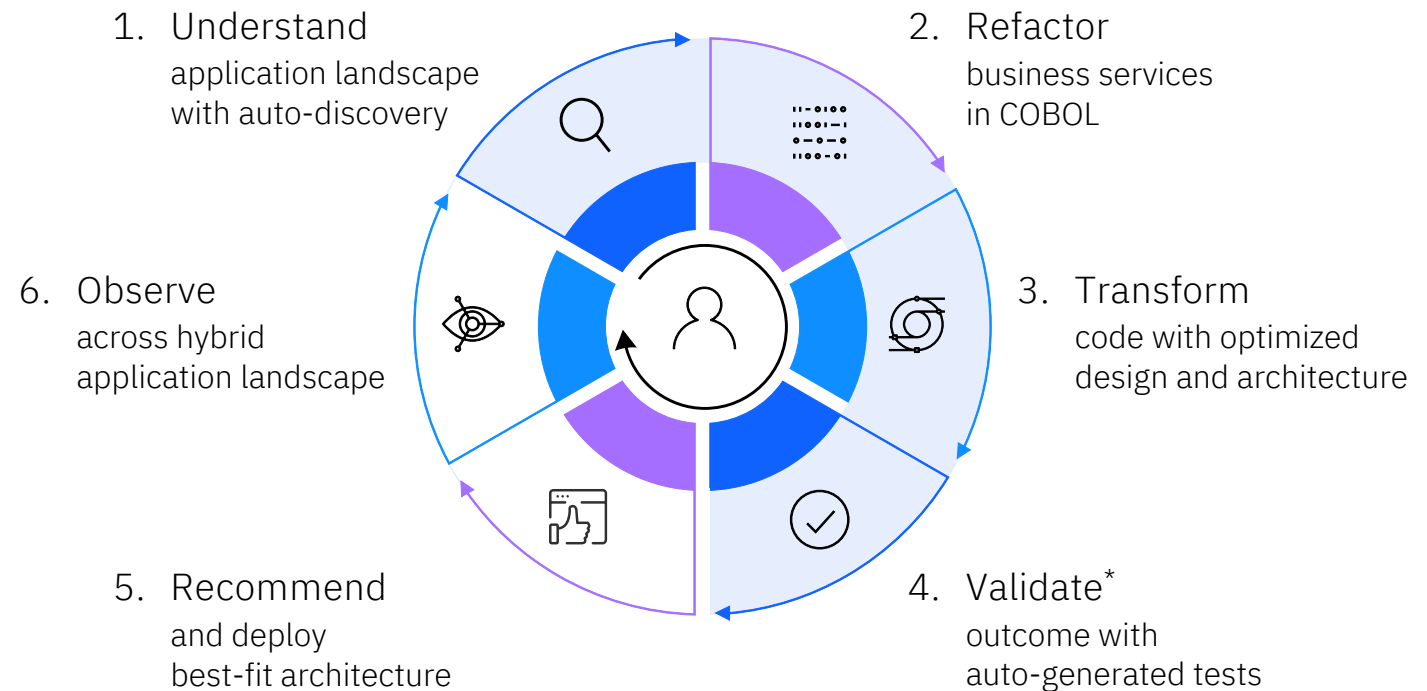
Easily integrate into existing core business applications with the flexibility to leverage COBOL and Java with full interoperability.

Accelerated application lifecycle

Objectives:

- Address skills and productivity challenges with automation and AI
- Ensure IBM Z qualities of service with mixed language interoperability
- Align with industry standard DevOps approaches

IBM watsonx Code Assistant for Z modernization experience

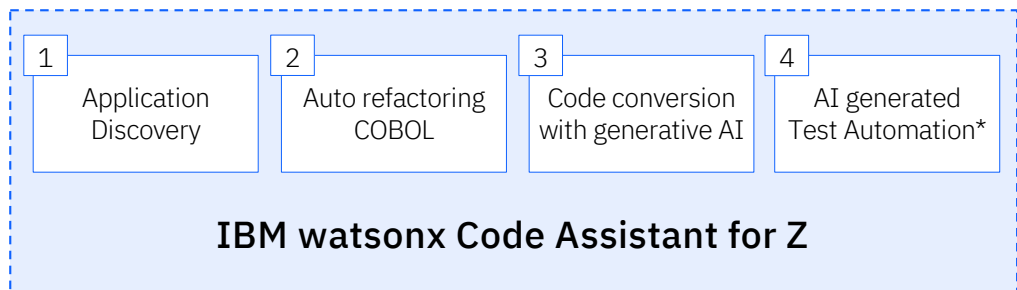
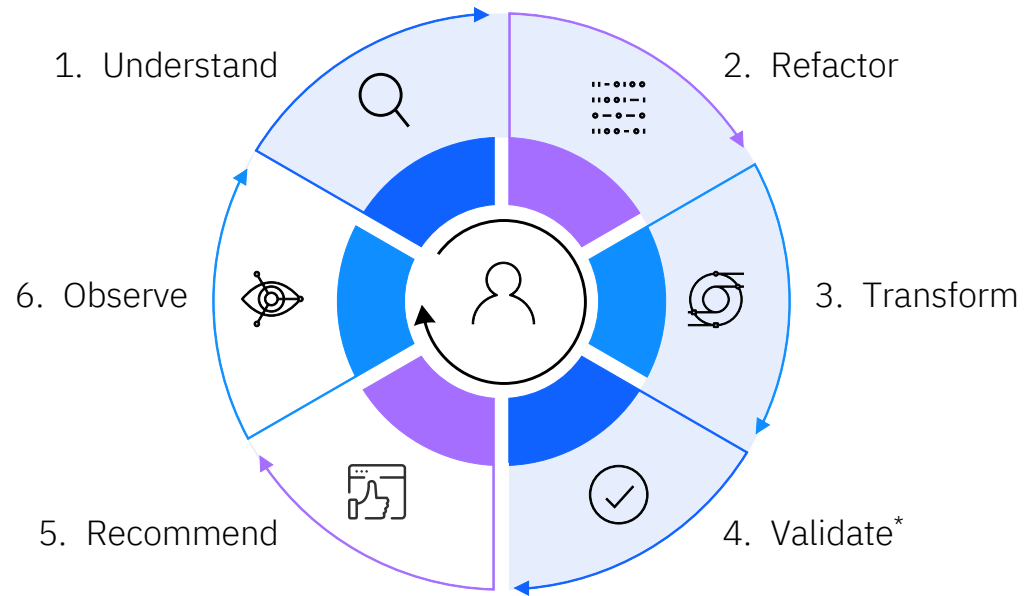
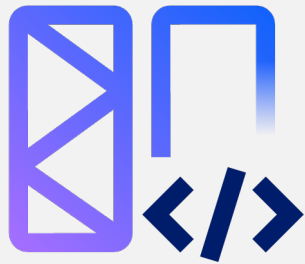


Initial Scope

*not available initially, will be available shortly after

IBM watsonx Code Assistant for Z

AI-assisted mainframe application modernization



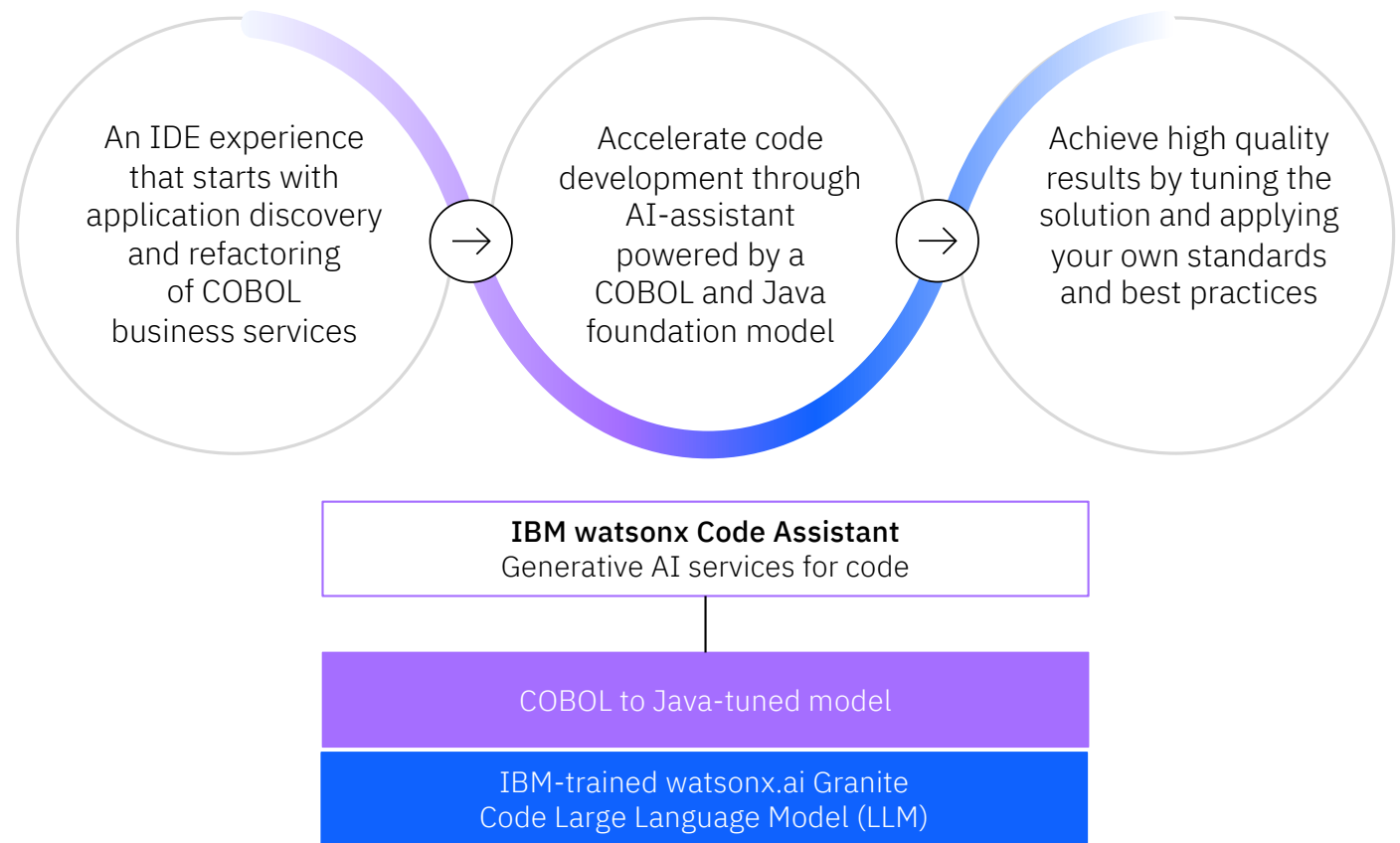
*not available initially, will be available shortly after

AI-generated high-quality code

Objectives:

- Well-architected object-oriented AI generated Java
- Finely-tuned model improves accuracy and code quality
- Easy to maintain code that can be enhanced with your standards and best practices

Leverage the power of **generative AI** to make it easier for developers to write code with AI-generated recommendations



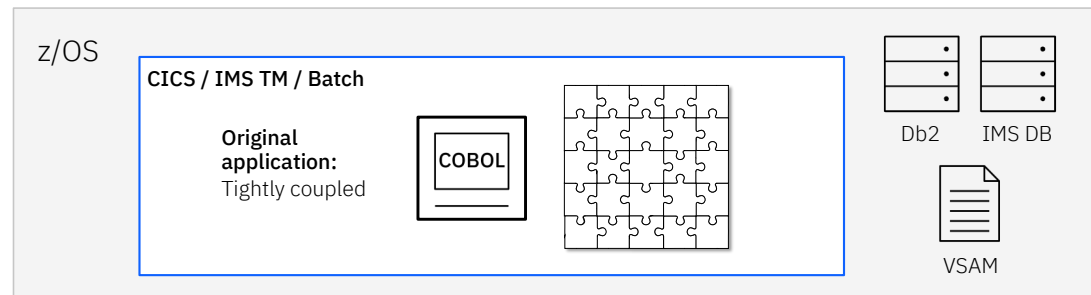
Flexibility with rich interoperability

Objectives:

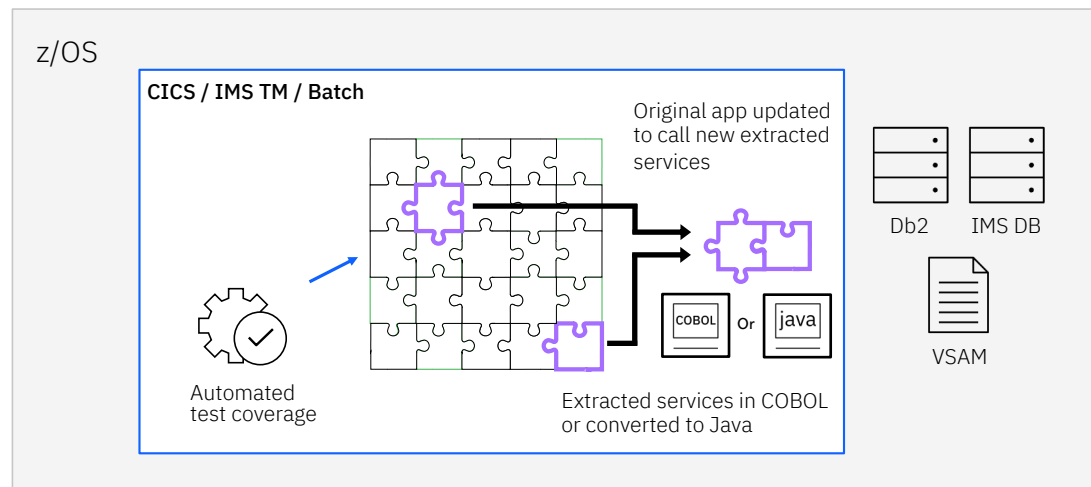
- Minimize risk with an iterative approach to modernization
- Target and selectively modernize based on business need
- Maintain flexibility to leverage COBOL and Java with complete interoperability

Transformation with a best-fit approach

Baseline



IBM watsonx Code Assistant for Z



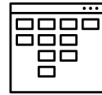
IBM watsonx Code Assistant for Z differentiation

Faster, lower cost, and less risk than alternatives



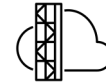
Continuous and targeted modernization

driven by business process needs to get value faster with less risk while protecting existing investments



Well-designed Java based on a differentiated LLM

that is object-oriented and domain-aligned, powered by COBOL and Java large language model



Maintain flexibility and choice

of programming language, of how much of the application to modernize and where best to deploy it.



Talent pool

expand access to a broader pool of IT skills & accelerate developer onboarding

Business value framework

<i>Goal</i>	<i>Value drivers</i>	<i>Business impact</i>
Enhance Developer Productivity	Application discovery & understanding	Reduce Developer time to visualize and document existing COBOL code. Better understanding of legacy and monolithic applications on IBM Z
	Automated refactoring capabilities	Refactoring Assistant can automatically refactor COBOL code
	Generative Artificial COBOL to Java	Increase code accuracy with finely tuned LLM supporting COBOL to Java
		Expand talent pool to include Java programmers
Increase Business Agility	Automation and DevOps integration	Integrate watsonx Code Assistant for Z into DevOps pipeline Synergistic and fully integrated into DevOps experience
	Selective and targeted application modernization	Decrease time spent in modifying applications Focus on only changing the most critical part as new business requirements come in
Operational Efficiency	Lower application modernization project cost	Reduce total project cost by developer productivity uplift and targeted application modernization approach versus complete rewrite
	Leverage Best-fit deployment option	Easy integration with existing core COBOL applications on IBM Z to support fit-for-purpose deployment or maintain the option of off-load
Lower Risk	Targeted application modernization	Reduce complexity by targeting only required changes Less risky than completely rewriting entire application
	Lower key personnel risk	Reduce exposure in application understanding & COBOL programmer dependency
	Maintain mainframe (IBM Z) Qualities of Service after transformation	Achieving non-functional requirements in scalability, performance and security where the application requires it. Preserve SLAs.

Vision: IBM watsonx Code Assistant for Z starts the journey of bringing generative AI to z/OS application modernization



Content generation

Generate an object-oriented Java equivalent service from an enterprise COBOL service



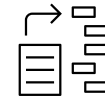
Content validation

Generate test cases to validate a new service & surrounding application



Content optimization

Review a COBOL or Java service and help make it better



Content explanation

Explain what a COBOL or Java application is doing – and its impact



Initial scope

Get ready to accelerate your application modernization journey

Learn more:

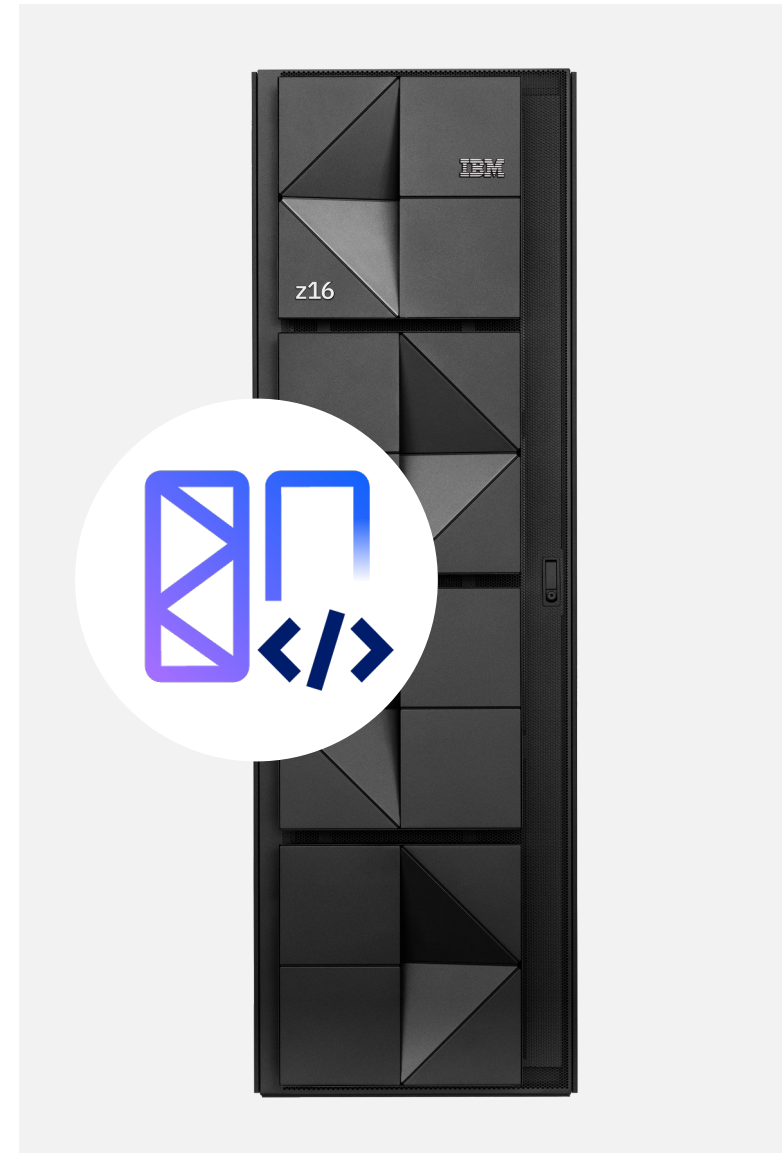
- Read the [Accelerate Mainframe Application Modernization with Hybrid Cloud](#) (IBM Redpaper)
- Visit the [IBM watsonx Code Assistant for z](#) web page

Lay the groundwork:

- Drive IBM Z software currency to exploit new features
 - [Enterprise COBOL](#), [Semeru Runtime](#) (Java) & [ABO](#)
- Accelerate [IBM Z DevOps](#) adoption

Get Started with **watsonx Code Assistant for Z:**

- Contract your IBM representative to schedule a briefing, demonstration, workshop, or proof of concept



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