



# The 4 Paths to Digital Transformation in IMS

Haley Fung  
[hfung@us.ibm.com](mailto:hfung@us.ibm.com)

IBM Offering Manager –  
API, Java, DevOps for IMS  
and Ansible for Z

# Please note

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice and at IBM's sole discretion.

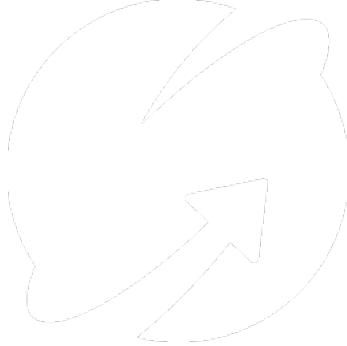
Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract.

The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

IBM IMS



**IBM IMS**

# From IBM Z Value Drivers to a successful Hybrid Cloud Policy

## IBM Z Value Drivers

- Open and connected to public and private cloud environments
- Optimized for Java workloads
- Optimized for Machine Learning, Spark and real time insights / decision
- Unmatched reliability, security, and availability
- Industry first pervasive encryption capabilities
- Transparent and predictable container pricing for new workloads

STAMFORD, Conn., June 22, 2016

[View All Press Releases](#)

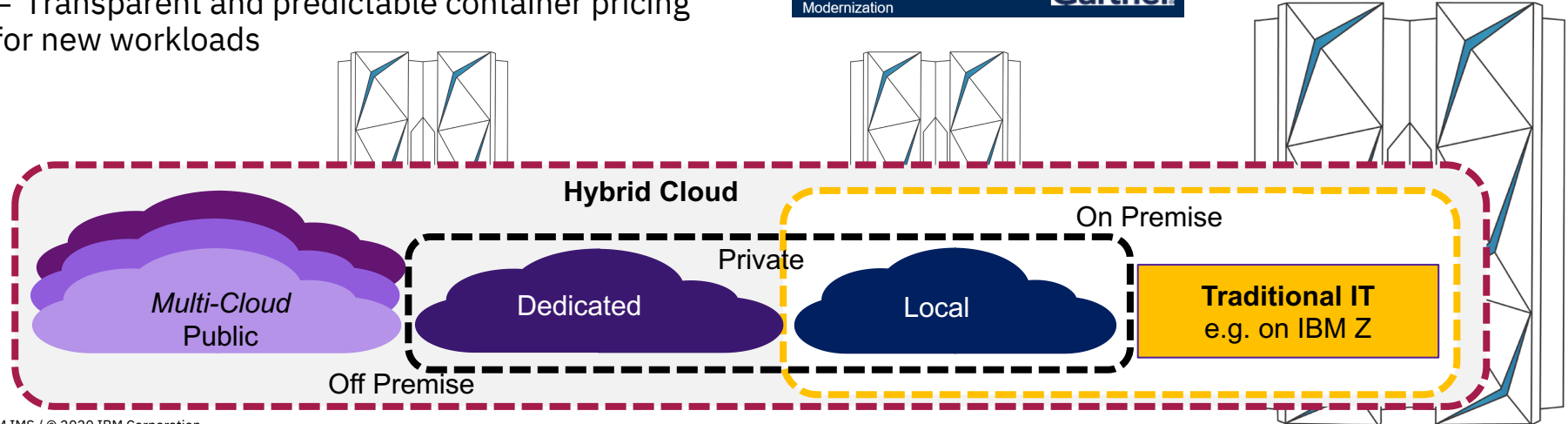
Gartner Says By 2020, a Corporate "No-Cloud" Policy Will Be as Rare as a "No-Internet" Policy Is Today

Hybrid Will Be the Most Common Use of the Cloud

## The IBM Mainframe Platform: Ongoing Challenges, New Opportunities

Thomas Klinect  
Sr. Director Analyst  
Modernization

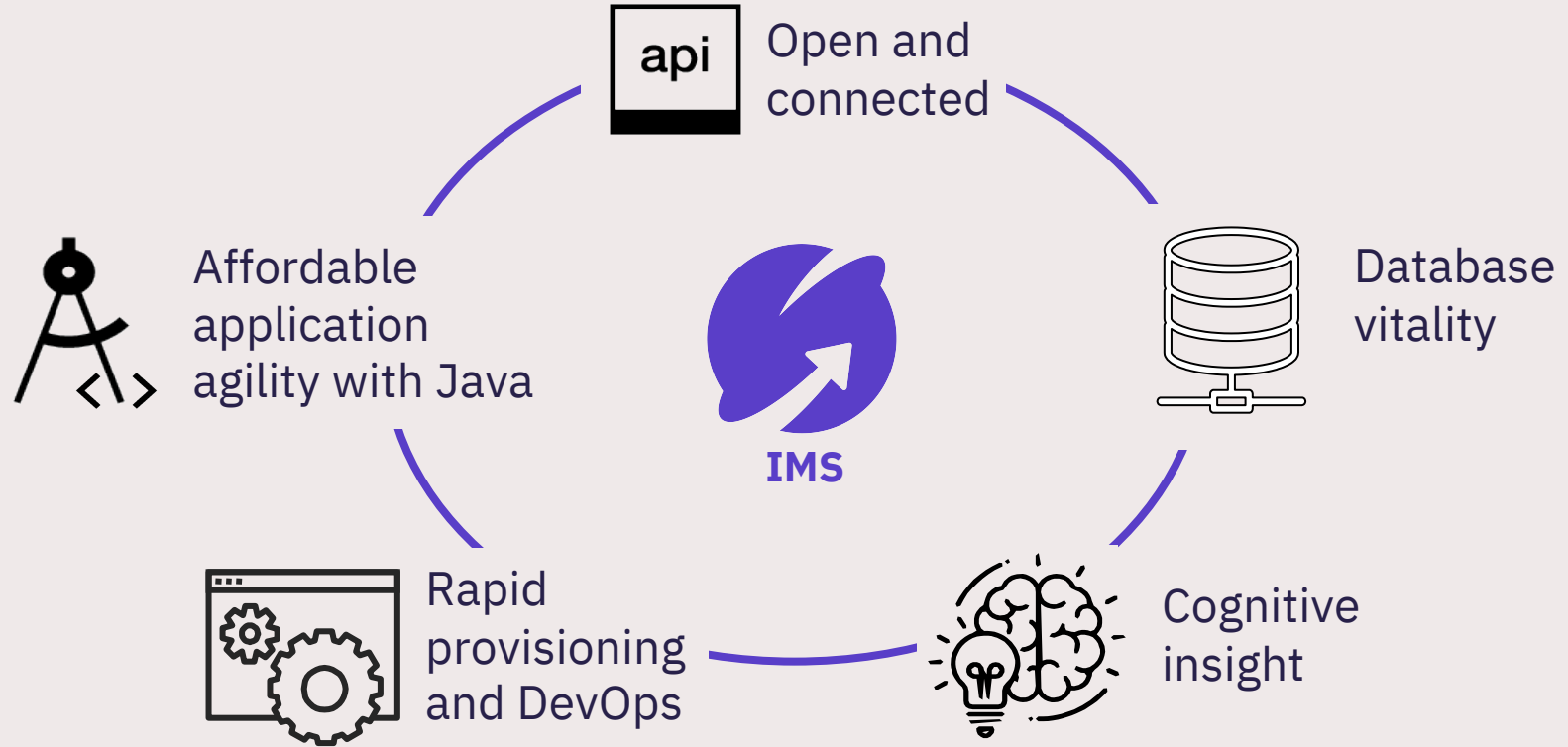
**Gartner**



**How can we help you to  
keep IMS modern?**

**Embrace change**

# IMS in a Connected Mainframe World



# Common IMS Modernization Patterns



API

IMS assets as  
API



DevOps  
and Cloud

Rapid IMS provisioning  
and Integrated DevOps



Java

Application  
Agility with Java in IMS

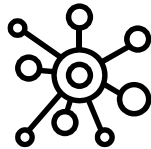
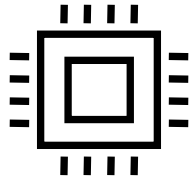


Open  
database

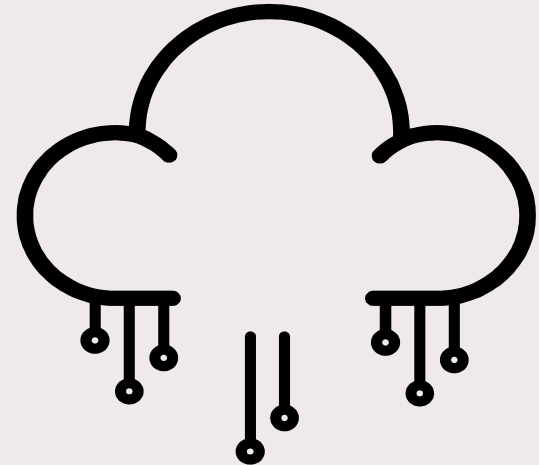
Open IMS data access  
with JDBC and SQL

# IMS and API

- Open access to IMS data and transactions
- Create RESTful APIs from your IMS transaction assets
- Harness new opportunities with your growing API portfolio
- Maximize opportunity by connecting IMS on-prem assets to the Cloud
- Convert IMS from cost center to revenue center



*Innovate and extend  
your IMS investment  
to the Cloud*

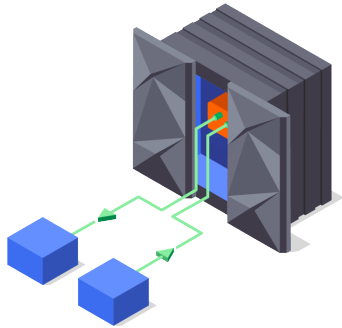




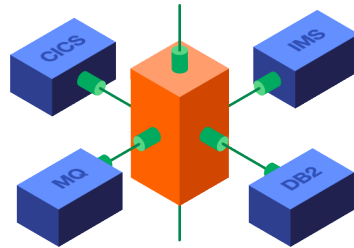


# Truly RESTful APIs to and from your mainframe

for building microservices and succeeding in the API economy



APIs to and from the mainframe



Comprehensive subsystem support



Point-and-click API creation

Call external APIs from your mainframe applications, or expose those applications as easily consumable RESTful APIs with OpenAPI descriptions - with simple integration into enterprise API management solutions.



IMS



API

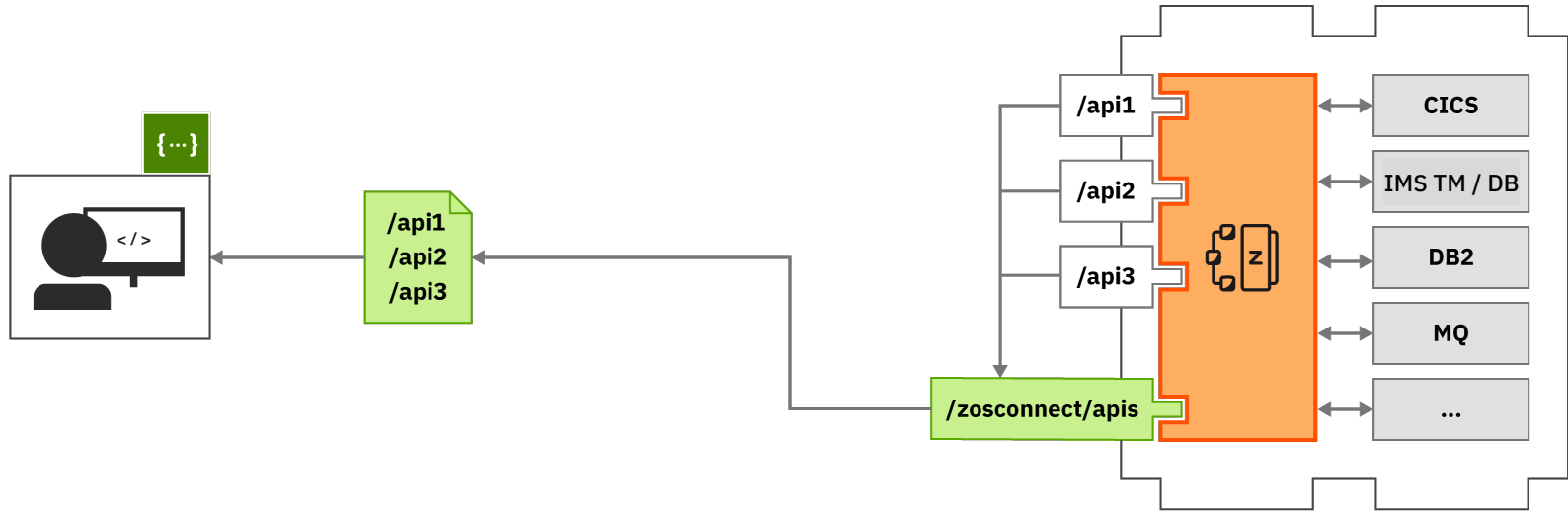
API to  
IMS Transaction

API to  
IMS Data

IMS Application  
to external API

# z/OS Connect Enterprise Edition

## Expose IMS and z/OS assets as RESTful APIs without writing any code.

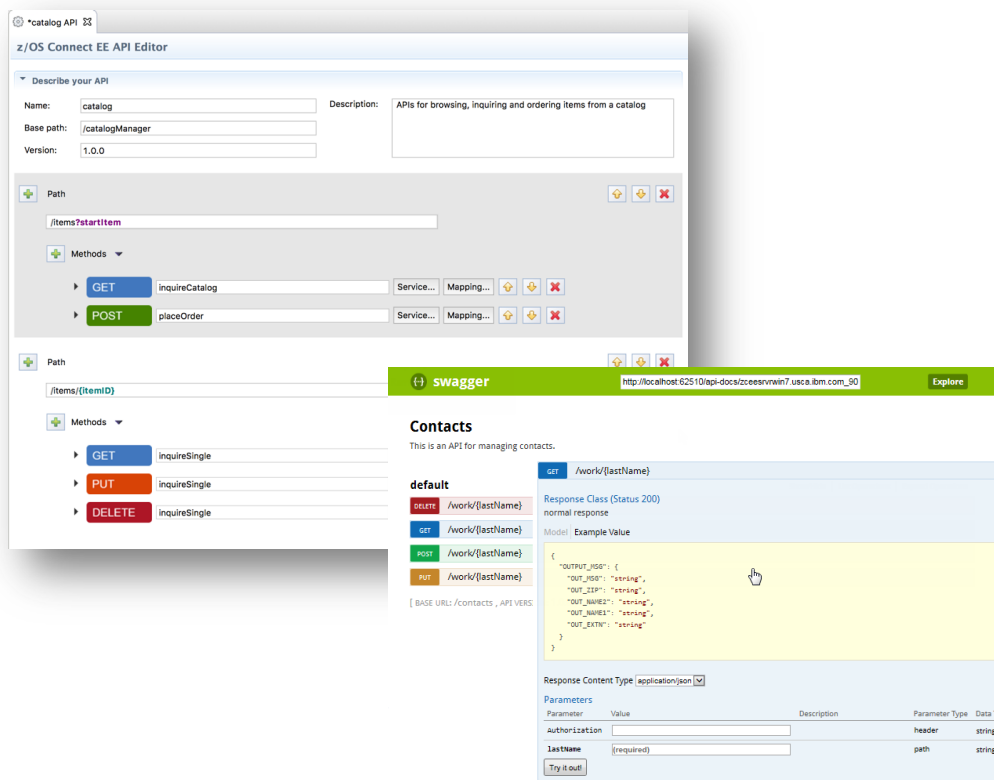


No mainframe skills to use mainframe apps as APIs.

API-enable both **IMS transaction** and **IMS data** directly

# API toolkit – Easy creation of API for your z/OS Assets

## API definition



The screenshot displays the 'z/OS Connect EE API Editor' interface. The top section, 'Describe your API', shows fields for Name (catalog), Base path (/catalogManager), and Version (1.0.0), with a description: 'APIs for browsing, inquiring and ordering items from a catalog'. Below this, two API methods are defined: a GET method 'inquireCatalog' and a POST method 'placeOrder'. A second API definition is shown for 'contacts', with methods GET 'inquireSingle', PUT 'inquireSingle', and DELETE 'inquireSingle'. The interface includes a Swagger UI preview for the 'contacts' API, showing a 'GET /work/{lastName}' endpoint with a response class 'Response Class (Status 200) normal response' and a JSON model 'Example Value' containing fields like 'OUT\_JSD', 'OUT\_IP', 'OUT\_NAME1', and 'OUT\_EXTN'. A table of parameters is also visible, including 'authorization' (header, string) and 'lastName' (path, string).

The **API toolkit** is designed to encourage RESTful API design.

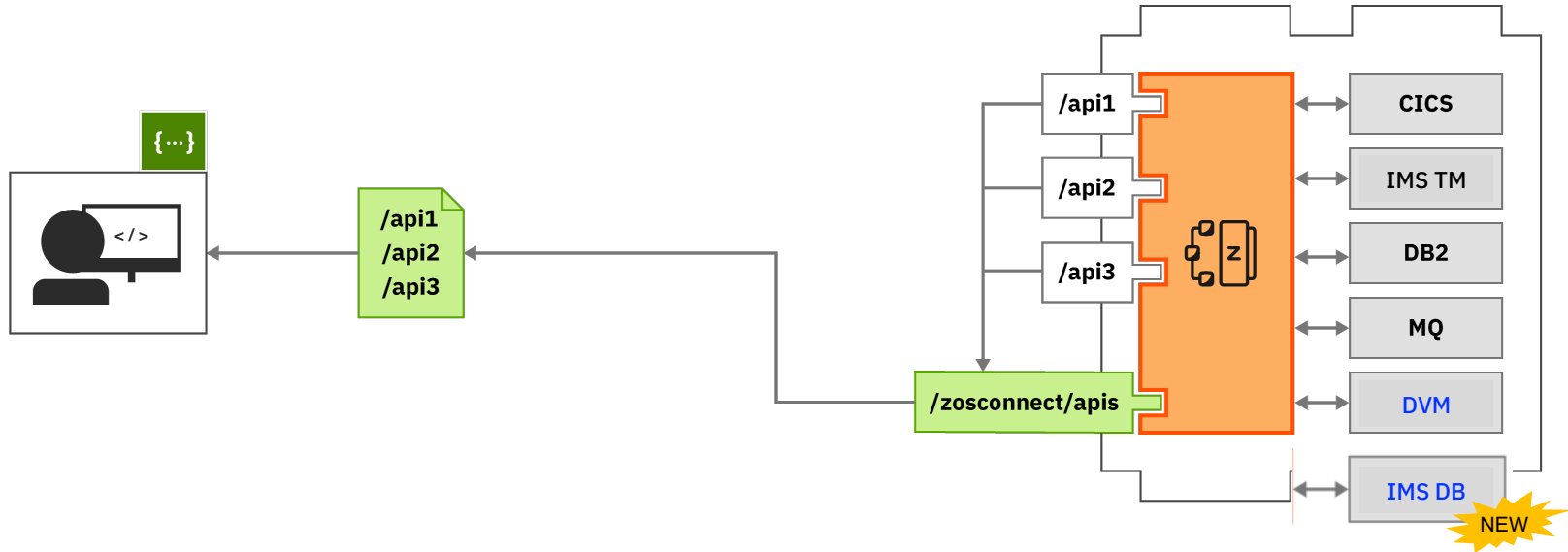
Once you define your API, you can map backend services to each request.

Your services are represented by **.sar** files, which you import into the API toolkit.

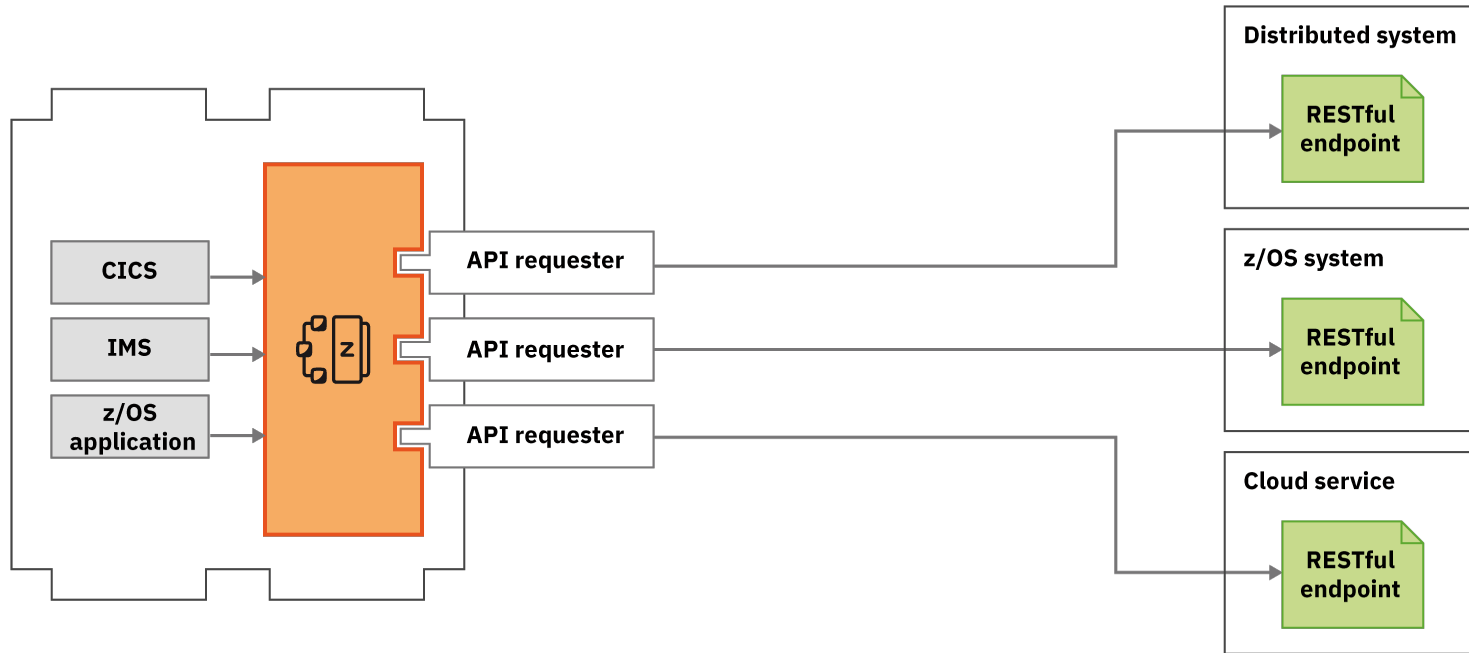
Your IMS assets are discoverable as Swagger docs served from **z/OS Connect EE**

Test your deployed APIs directly with **Swagger UI** inside the editor.

# z/OS Connect access to IMS Data



# IMS and z/OS assets to call external APIs with API requester



# IMS and API success stories

## Australian bank

Modernize Account Open application with API and reduce process time from 3 days to sub-second. In first 3 months, gained 5500 new accounts, 150M in ledger 3 days longer, 750 hours saved in call center.

## Major Insurance company

z/OS Connect EE was used to enable z applications to consume API that allows them to add new real-time quotes capability that requires information from other APIs.

## Major Equipment Manufacturer

Using z/OS Connect enabled their existing APIs in the cloud to get the data needed directly from IBM Z, without requiring additional connection options or driving additional transactions.

## Canadian bank

Align z assets with company's cloud and API strategy via micro services using z/OS Connect and API with IMS. Reduced cost of integration and increase speed of delivery as no coding needed. Plan to deliver over 100 zAPIs in the next year

## finanz informatik technologie service

Provide IT services and help their clients to API-enable IMS application and database access with z/OS Connect.

- Build new web-based front-end to a complex and important applications to get rid of the 3270 access
- Quickly deployed services and APIs for mainframe services to avoid double development of the same functionality in both the mainframe and the distributed world

# Common IMS Modernization Patterns



API

IMS assets as  
API

DevOps  
and Cloud

Rapid IMS provisioning  
and Integrated DevOps

Java

Application  
Agility with Java in IMS

Open  
database

Open IMS data access  
with JDBC and SQL

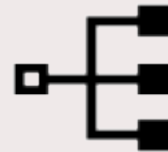


**15+ years in  
IMS, Java and  
SQL support**

# IMS and Java: affordable application agility

- Modern languages, tooling and frameworks improve application developer productivity and shrink time-to-value
- Leverage 14 million Java developers worldwide to keep trusted IMS applications thriving
- Reduce time, MIPs, and stress with cloud-hosted development and test
- Java in IMS, has been available for over 15 years – is proven production ready solution for your enterprise!

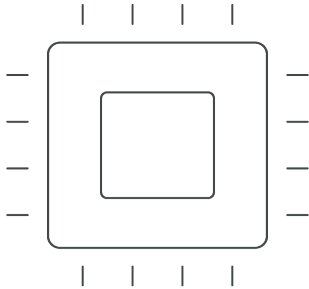
*Innovate and extend  
your core applications  
with speed and  
confidence*



**IOIO**

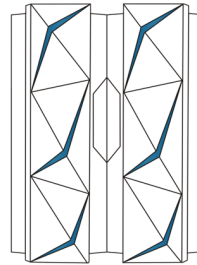
# Java and IBM Z: Perfect Partners

## zIIP



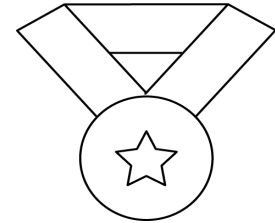
Cost efficiency ensured  
through offload to  
specialty engines

## Co-location



Improved performance  
through eliminating  
network latency  
\*vs a distributed architecture

## Extend Agility



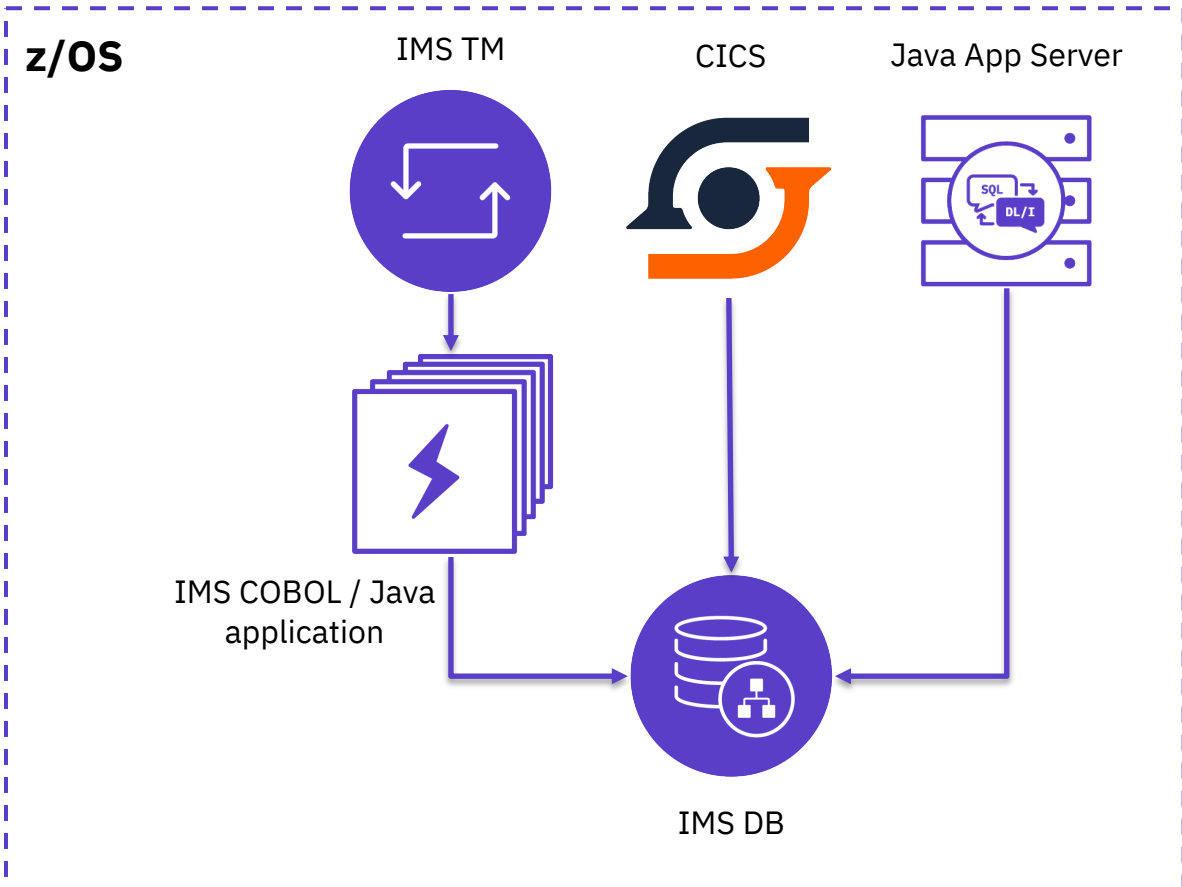
Easy to find Java skills  
Proven versatile and  
performing language  
DevOps ready

# Java on z with IMS

Java running in **IMS dependent regions**

**CICS Java** application accessing IMS data

**Java EE server** on z access IMS



# How do you use Java on Z with IMS?

## **Extend existing IMS applications with Java**

Leverages Java in their existing COBOL applications

Convert heavy CPU consumption routines to Java

Transitions development from COBOL to Java

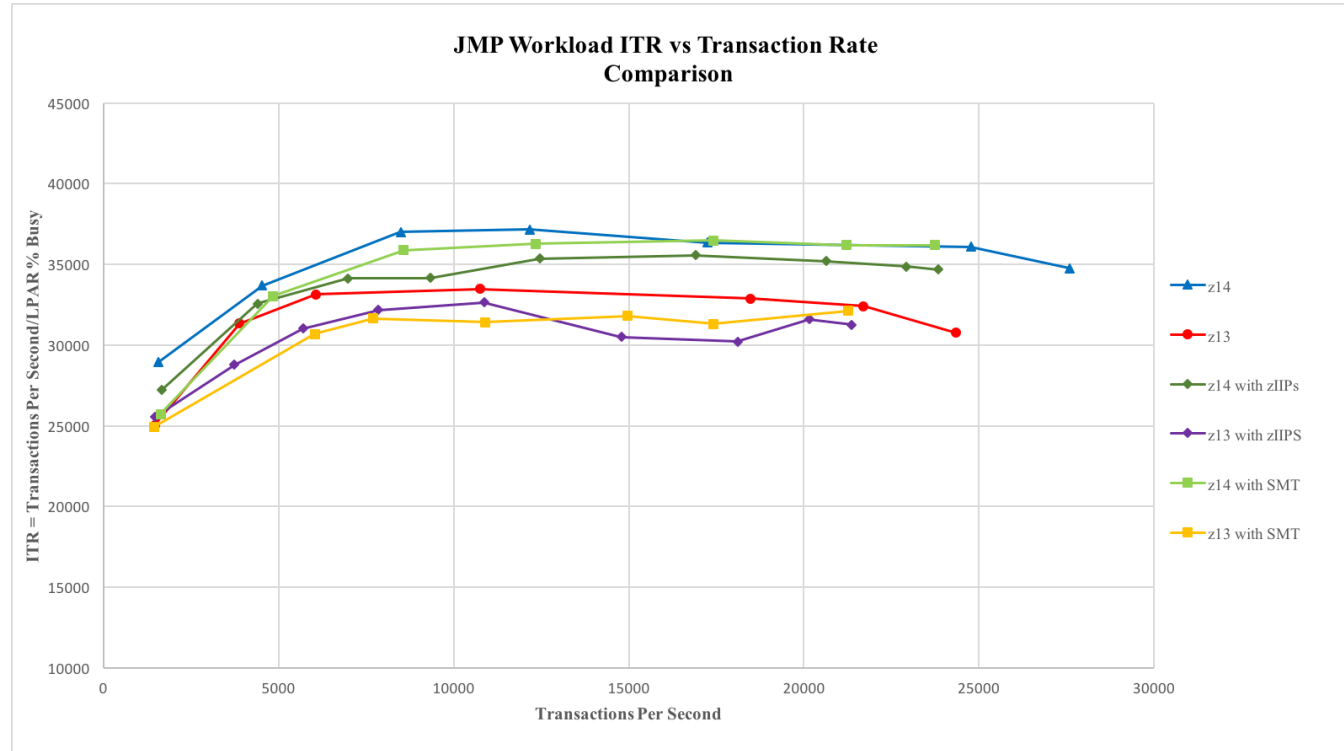
## **Write new or Convert IMS applications in Java**

Places most of the business logic in Java allowing for better offload

Allows for easier maintenance

# IMS Java Transaction Processing Workload

Over  
25000 tps  
with  
IMS 14  
and z14



z14 and IMS Performance white paper

<https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=54013754USEN&>

# IMS and Java success stories



“Combining IMS, Java and COBOL technologies is an effective strategic way of modernizing existing mainframe applications with minimal disruption, operational risk and costs.”  
- Carsten Pfläging, CIO Fiducia & GAD

## Major International Bank based in North America

Convert business-critical IMS applications to pure Java improve application maintenance and cost-savings using Java in IMS

## finanz informatik technologie service

Modernize IMS application with Java and SQL that needs to access a complex IMS database (1.2 billion segment HALDB with a data structure dependency). Cut down development time and easier to maintain.

- Able to replace/remove distributed partial copy of the database, vendor software packages (saving hardware, software license and management cost)
- Reduce batch processing and data replication to distributed
- Remove legacy assembler code that is maintained by vendors

# A Java on the Mainframe Success Story

Fiducia & GAD IT - Bringing high-speed, low-cost, low-risk development to core banking systems

## Business Challenge

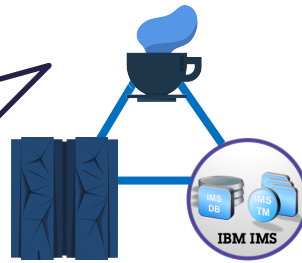
To enable member banks to launch new applications and services faster and at lower cost, Fiducia & GAD IT AG needed to make it easier and more transparent to call existing services from new software.

## Transformation

Fiducia & GAD IT AG introduced Java alongside COBOL in IBM IMS on IBM Z, accelerating the creation of new services and extending the life and value of its applications.

“Combining IMS, Java and COBOL technologies is an effective strategic way of modernizing existing mainframe applications with minimal disruption, operational risk and costs.”

- Carsten Pfläging, CIO Fiducia & GAD



## Results:

- ✓ Ensures the best delivery by making code open, agile, and portable.
- ✓ Accelerates application delivery
- ✓ Cuts costs with modern frameworks and APIs
- ✓ Enriches existing apps fast and at low risk, using more easily accessible skills

See whitepaper - <https://developer.ibm.com/zsystems/documentation/java/ims/>

Case study - <http://ecc.ibm.com/case-study/us-en/ECCF-ZSC03341USEN>



# Common IMS Modernization Patterns



API

IMS assets as  
API



DevOps  
and Cloud

Rapid IMS provisioning  
and Integrated DevOps



Java

Application  
Agility with Java in IMS

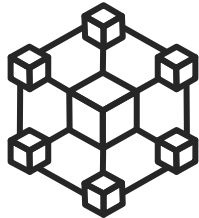
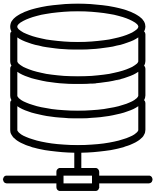


Open  
database

Open IMS data access  
with JDBC and SQL

# IMS and Open database

- IMS is open and connected via Open Database solution
- Enable data modeling and data insight with Catalog
- Focus on DBA to broaden the available skill base for managing IMS
- Increased currency of insights from reduced latency and elimination of ETL



IOIO

*Innovate and extend  
your IMS database  
and your most trusted  
data*



Make your **IMS data more accessible**

**Instant data access** with reduced latency and elimination of ETL

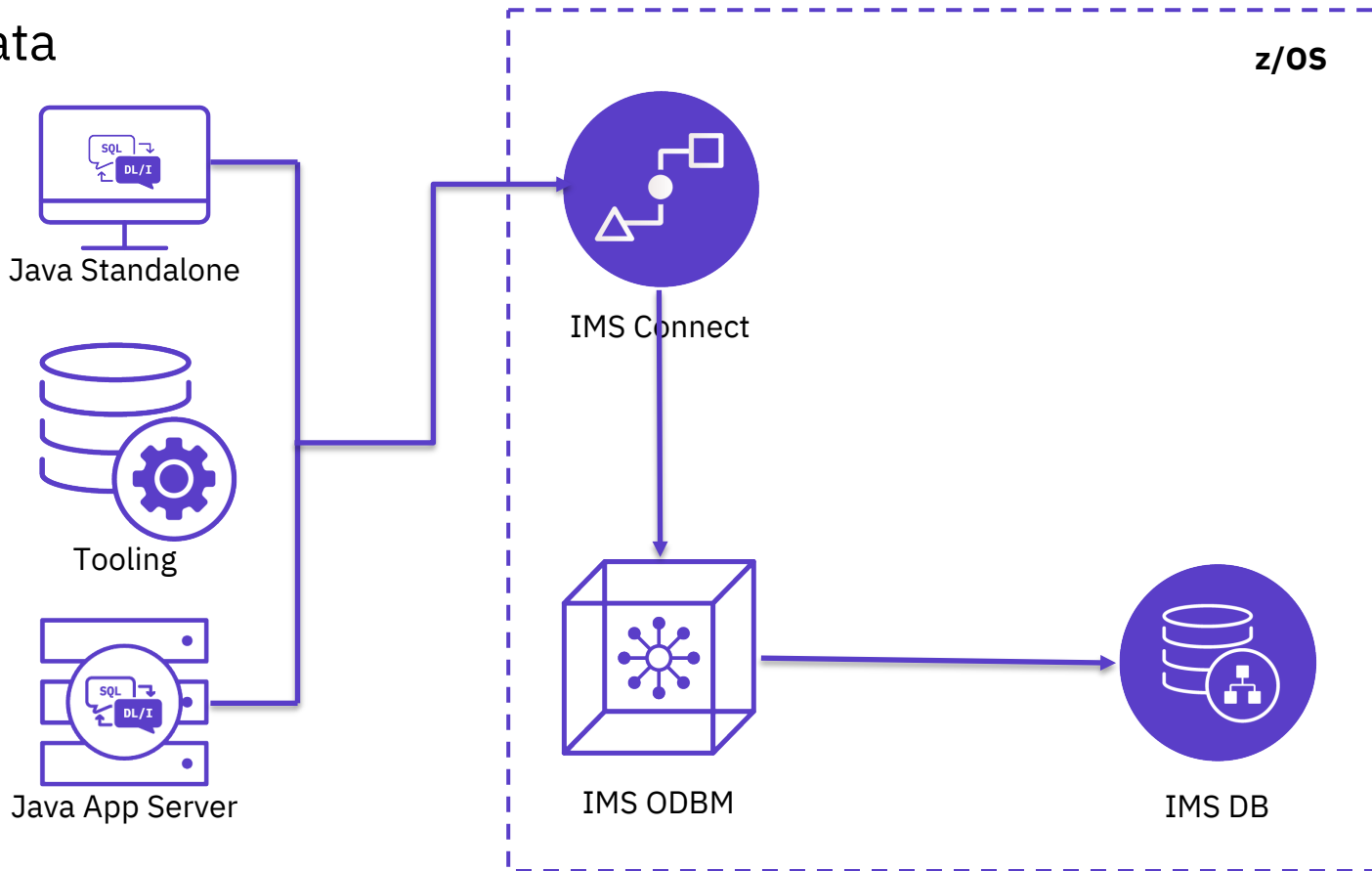
IMS data as a key data source for **Analytics** platforms

# *Top 3 reasons for modernizing IMS with **Open Database***



# Distributed Java access to IMS data

Direct database  
access from Java  
clients running in  
IMS or distributed  
platforms using  
**SQL** (JDBC) or  
**DL/I** calls



# IMS and SQL

IMS support **SQL** for both data access and data manipulation

- SELECT – Retrieve data
- INSERT – inserts data
- UPDATE – updates data
- DELETE – deletes data

As of IMS 14, IMS also supports **DDL** for data definition and data administration

- CREATE DATABASE, TABLE
- ALTER DATABASE
- etc...

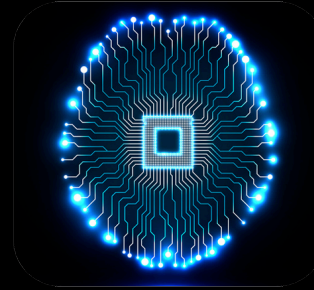
[https://www.ibm.com/support/knowledgecenter/en/SSEPH2\\_14.1.0/com.ibm.ims14.doc.dag/ims\\_imspldbdes\\_ddl.htm](https://www.ibm.com/support/knowledgecenter/en/SSEPH2_14.1.0/com.ibm.ims14.doc.dag/ims_imspldbdes_ddl.htm)

# IMS Data Fuels Your Cognitive Journey



**IMS JDBC drivers + common JDBC tooling =  
IMS as a key data source for Analytics platforms**

## IBM Machine Learning for z/OS



## z/OS Platform for Apache Spark



## IBM Db2

## Analytics Accelerator



# IMS and Open database success stories



*“If your company has a need to access your legacy IMS data, then Open Database will literally open the door for easy, fast access to your data. The biggest benefit to IMS Open Database is the ease of access into IMS data using today’s standard SQL.”*

*- Rob De Sesa, Mainframe Infrastructure Support*

## **Major International Bank based in North America**

With the IMS Open Database solution, the call center services is modernized by providing direct access to client data in IMS using standard SQL. This significantly simplified their data access pattern, increased agility, reduced cost, and currently is driving million transactions per month and growing.

# Common IMS Modernization Patterns



API

IMS assets as  
API

DevOps  
and Cloud

Rapid IMS provisioning  
and Integrated DevOps

Java

Application  
Agility with Java in IMS

Open  
database

Open IMS data access  
with JDBC and SQL



# Cloud Native Experience

A cloud native developer experience for z/OS

Hybrid multi-cloud

Integrate z/OS into a hybrid multi-cloud architecture powered by market leading development and management solutions

Self provisioning

Empower development squads to self provision z/OS runtimes and databases that support their apps and data

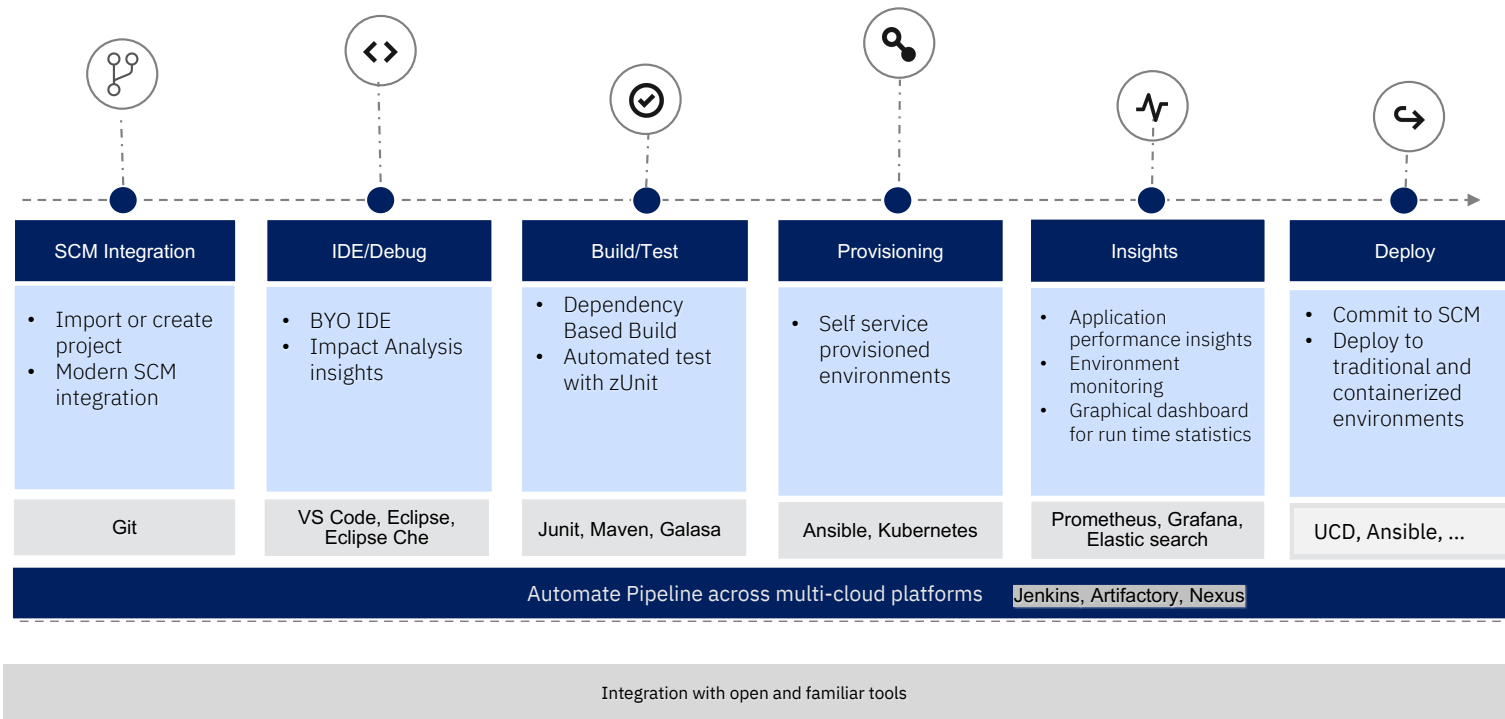
Enterprise DevOps

Deliver solutions with confidence through a fully integrated enterprise CI/CD pipeline embracing open source tools

Shift-left operations

Act on intelligent, operational feedback available from development to production based on variations in system behavior

# IBM Z Open Developer Experience



# IBM Wazi for Red Hat CodeReady Workspaces

Develop. Innovate. Transform



Develop hybrid applications spanning IBM Z and multi cloud platforms using a standard DevOps toolchain



Reduce the need for specialized skills and improve productivity with cloud native tools



Reduce cost with an enterprise wide standard toolchain



Increase speed and agility with a containerized development & test environment

Flexibly rebalance entitlement over time: from what you need today, to what you need tomorrow

End to end cloud native developer experience



Discover



Code



Sandbox



Test



Analyze

Portable across **any** cloud or platform and optimized to run on **Red Hat® OpenShift**

## Bring your own Integrated Development Environment (IDE)

Microsoft®  
Visual Studio™ Code

Eclipse®

Eclipse Che®  
Red Hat® CodeReady Workspaces

Project: all projects

# OperatorHub


Discover Operators from the Kubernetes community and Red Hat partners, curated by Red Hat. Operators can be installed on your clusters to provide optional add-ons and shared services to your developers. Once installed, the capabilities provided by the Operator appear in the [Developer Catalog](#), providing a self-service experience.

## All Items

- AI/Machine Learning
- Application Runtime
- Big Data
- Cloud Provider
- Database
- Developer Tools
- Integration & Delivery
- Logging & Tracing
- Monitoring
- Networking
- OpenShift Optional

## All Items

wazi

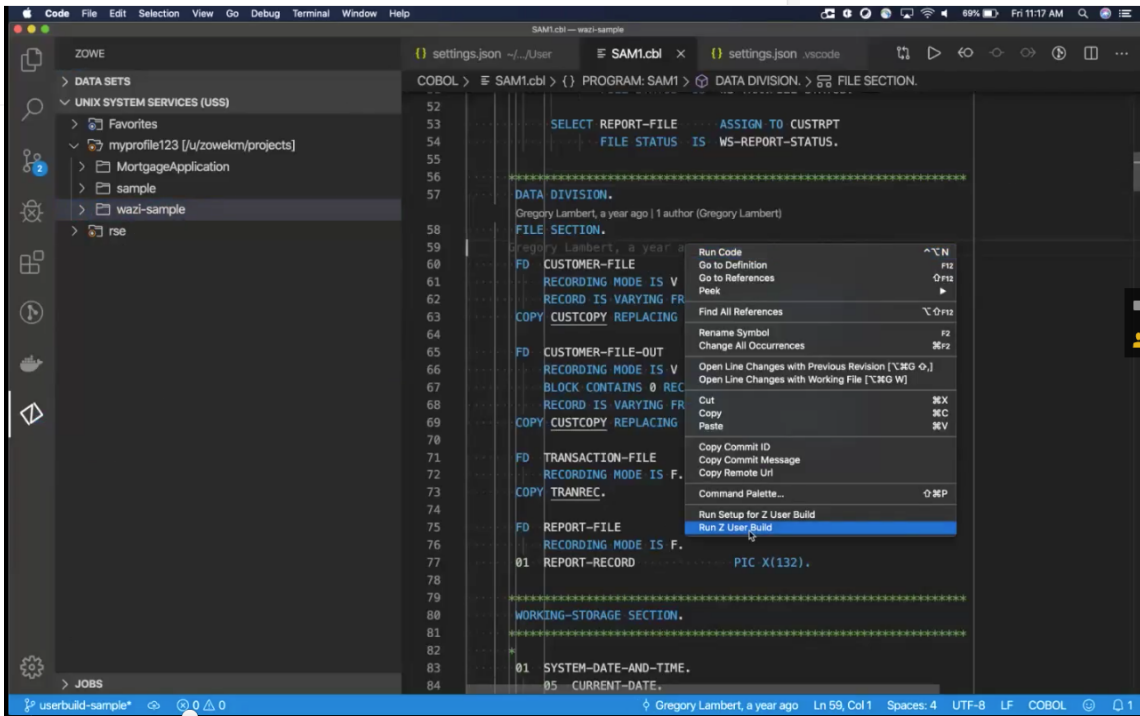


**IBM Wazi for Red Hat**  
CodeReady Workspaces  
Sandbox  
provided by IBM

Deploy virtual z/OS® sand

# IBM Wazi for Red Hat CodeReady Workspaces

## IDE and Sandbox



# Red Hat Ansible Certified Content for IBM Z



## Red Hat Ansible Automation Platform

Red Hat Ansible Automation Platform is the enterprise framework for Ansible that enables a common approach to hybrid applications and infrastructure management

### Flexibility



- Bring disparate IT into a coherent whole using a market leading open solution backed with enterprise support
- Interact directly with z/OS resources or integrate with existing platform tools

### Consistency



- Integrate z/OS into an enterprise automation strategy in a consistent way
- Centralize management of your IT infrastructure

### Simplicity



- The certified collections codify much of the z/OS specific knowledge and complexity
- Developer or system programmer can focus on their tasks and be more productive

## Red Hat Ansible Certified Content for IBM Z

- Set of collections that accelerate the use of Ansible with IBM Z
- Initial collection focuses on the basic building blocks of interacting with the z/OS system
- Collections will be added regularly covering additional use cases (ex. configuration, provisioning, application deployment) for z/OS and the broader IBM Z community

**\*Available on Ansible Automation Hub and Galaxy!**

# Ansible managing to z/OS use cases



## Provisioning

- Some interested in provision middleware instances – these are typically activities that happen infrequently or have existing automation in place
- Provisioning new software (zCEE, DVM, etc) to make set up easier, faster, and repeatable



## Configuration Management

- Parameter/configuration member management - make source control the single point of change & truth for z/OS configuration
- Leverage Ansible to consistently make changes to the system and create discipline



## Security Automation

- Probe the mainframe to collect information (audit details, configuration details, health checks, etc)



## Application Deployment

- Deploying all components of a version of an application on one to n sites in a controlled and reliable way
- Ability to deploy on n-distinct OPEN and Z sites in a secure way from development to production



## Continuous Delivery

- Improve CI/CD pipelines



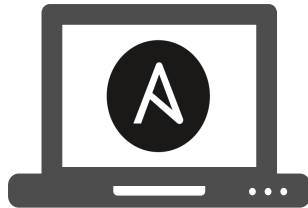
## Orchestration

- System recovery and failover: replacing home grown orchestration – Ansible is a likely target – cross-LPAR dependencies and non-z/OS environment coordination

# Ansible with z/OS

## Ansible Control Nodes

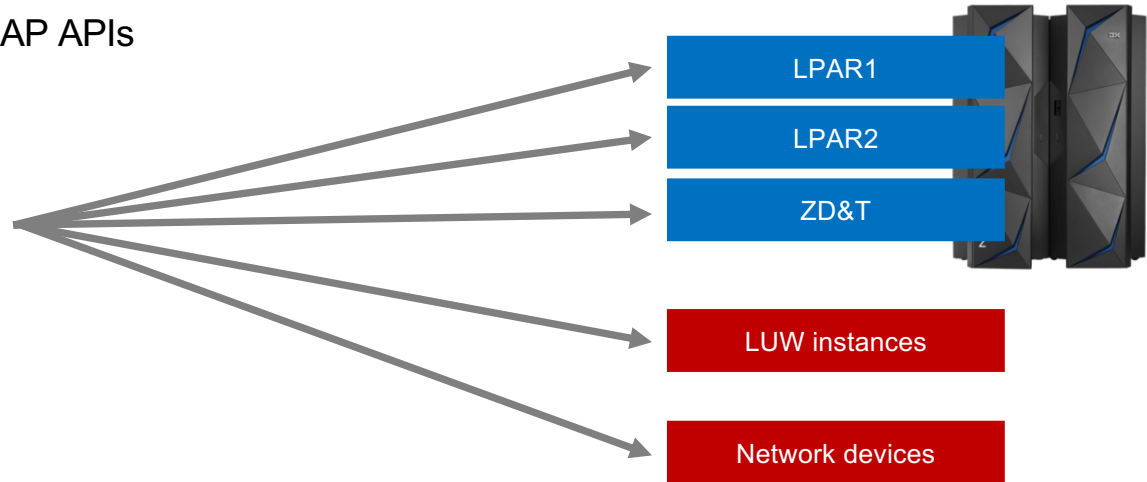
- The orchestrator
- Connects and executes to 1:n managed nodes
- Playbook execution happens here via Ansible Engine (CLI) / Ansible Tower
- Connects via SSH or REST/SOAP APIs
- Supported on x86 Linux



Ansible control machine  
X86 Linux

## Ansible Managed Nodes

- Targets for automation of any kind
- Can be any target, such as Linux, Unix, Windows, z/OS, Power, network devices, etc



# IBM z/OS core collection

## Ibm.ibm\_zos\_core collection ([https://galaxy.ansible.com/ibm/ibm\\_zos\\_core](https://galaxy.ansible.com/ibm/ibm_zos_core))

Ansible Module	Description	Availability
<b>zos_data_set</b>	Allocate and delete data sets	Galaxy and Hub v1.0.0
<b>zos_job_submit</b>	Submit a z/OS job with various options to: <ul style="list-style-type: none"><li>• wait for completion</li><li>• return output</li></ul>	Galaxy and Hub v1.0.0
<b>zos_job_query</b>	Query the status of a z/OS job that was previously submitted	Galaxy and Hub v1.0.0
<b>zos_job_output</b>	Get output for a z/OS job	Galaxy and Hub v1.0.0
<b>zos_fetch</b>	Fetch z/OS data sets: <ul style="list-style-type: none"><li>• from managed node to the control node</li></ul>	Galaxy v1.1.0-beta1
<b>zos_tso_command</b>	Executes a TSO command and returns command output	Galaxy v1.1.0-beta1
<b>zos_encode</b>	Convert text encoding from ASCII to EBCDIC and EBCDIC to ASCII	Galaxy v1.1.0-beta1
<b>zos_operator</b>	Issue z/OS operator (console) commands	Galaxy v1.1.0-beta1
<b>zos_operator_action_query</b>	Return outstanding operator reply-to messages	Galaxy v1.1.0-beta1



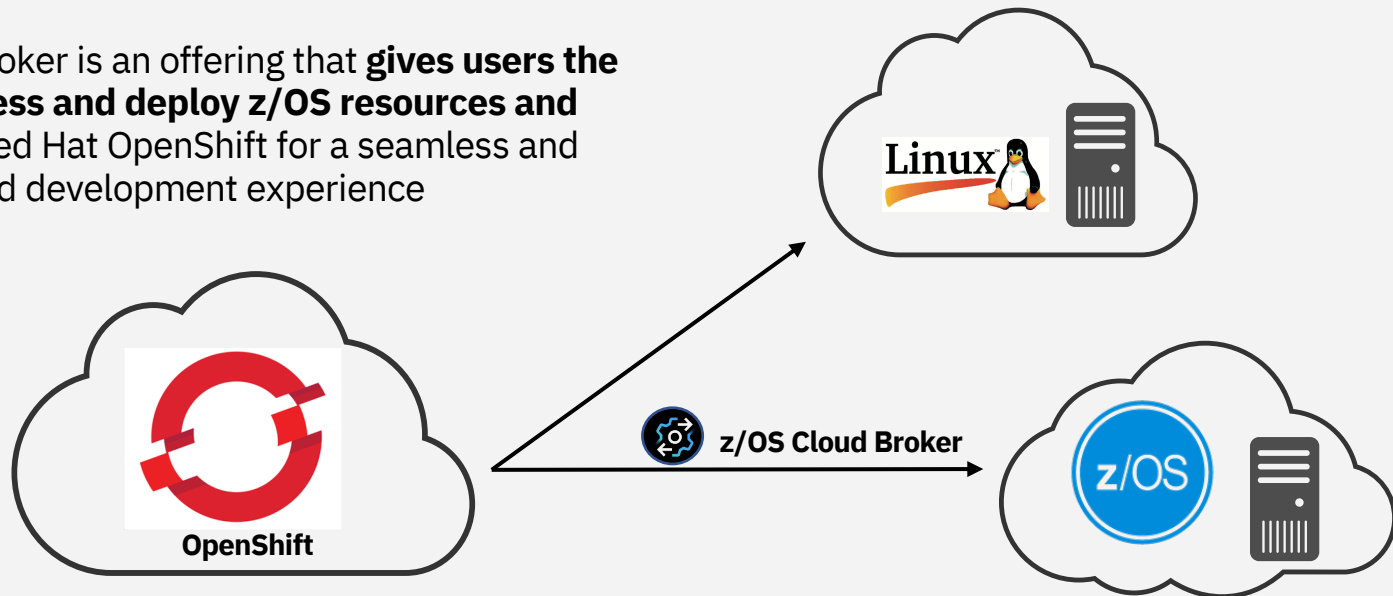
# IBM z/OS IMS collection

## Ibm.ibm\_zos\_ims collection ([https://galaxy.ansible.com/ibm/ibm\\_zos\\_ims](https://galaxy.ansible.com/ibm/ibm_zos_ims))

Ansible Module	Description	Availability
<b>ims_dbd_gen</b>	Generates IMS Database Descriptor (DBD) resource(s) to define a database	Galaxy v1.1.0-beta1
<b>ims_psb_gen</b>	Generates IMS Program Specification Block (PSB) resource(s) for the IMS application programs and resources to be used.	Galaxy v1.1.0-beta1
<b>ims_acb_gen</b>	Merges and expands IMS DBD(s) and PSB(s) into an IMS internal format called IMS Application Control Blocks (ACBs) to be used during IMS runtime for program execution	Galaxy v1.1.0-beta2
<b>ims_command</b>	Issue Type 1 and Type 2 IMS Commands and retrieves the result and output	Galaxy v1.1.0-beta1

# z/OS Cloud Broker brings z/OS runtimes to the OpenShift catalog

z/OS Cloud Broker is an offering that **gives users the ability to access and deploy z/OS resources and services** on Red Hat OpenShift for a seamless and universal cloud development experience



*“ The broker will allow us to level the cloud playing field by simplifying deployments, bringing value to the business by saving time and resources.*

- Large international bank

# z/OS Cloud Broker – Available Services

Enable holistic cloud consumption of z/OS middleware

- Make z/OS middleware available in the OpenShift catalog
- Self-service/agility for developers

<b>z/OS Connect EE</b>	<b>Db2</b>	<b>CICS</b>	<b>IMS</b>	<b>MQ</b>	<b>WLP</b>
Services to provision / deprovision z/OS Connect Servers  Start/Stop z/OS Connect Servers	Services to provision / deprovision Db2 subsystems, schemas, and databases + <i>snapshot / restore</i>	Services to provision / deprovision CICS regions	Services to provision / deprovision IMS TM/DB systems	Services to provision / deprovision MQ Queue Manager subsystem	WLP server provisioning (with option to connect to Db2 data source with type 2 or type 4 connectivity) Liberty

# Zowe and IMS

Provide Scriptable CLI and RESTful APIs to manage IMS system and resources

Sample Use cases:

- Create, update and deploy IMS applications using with modern scripting and tooling
- Use API or CLI commands to start/stop/query region, transaction and program resources
- Build integrated DevOps pipelines for IMS application delivery with open source or any widely adopted DevOps tools

<https://github.com/zowe/ims-operations-api>

<https://github.com/zowe/zowe-cli-ims-plugin>

## REST API for IMS Commands

GET	/apis/v1/{plex}/program	Query information about IMS program resources using 'QUERY PGM' IMS command
PUT	/apis/v1/{plex}/program	Update, start or stop IMS program resources using 'UPDATE PGM' IMS command



## Zowe CLI for IMS

```
$ zowe ims start region MYREGION

DESCRIPTION
-----
  Command to specify the region that is to be started.

USAGE
-----
  zowe ims start region <name> [options]
```



How to get Started?

# Co-create with IMS

IMS Makerspace

# IMS Makerspace

Education + Co-create

- Meet the experts and learn how simple it is to modernize IMS assets
- Define your digital transformation strategy with IMS
- Partner with IMS and jump-start with customizable hands-on workshop and POC
- Potential guided deployment for production



## Transform IMS for the Digital World

### *API*

Open IMS transaction and database access as API

### *Java*

Extend existing or develop new IMS applications with Java

### *DevOps*

Integrate IMS assets into enterprise DevOps pipeline

### *Open Database*

Open access to IMS DB with JDBC and SQL

Administrate IMS database with catalog and DDL

# Sample IMS Makerspace Schedule



## Day 1

### Education

*For example:*

- *Java in IMS – Overview, Use cases, Development, Setup and Deployment*

### Design Thinking

- *Persona Feedback*
- *Collect Pain Points*
- *Prioritize Needs*
- *As-is/To-be*



## Day 2 – 3 (Optional)

### Prototype

*For example:*

- *Develop a sample Java application. Deploy and run as a JMP in IMS*
- *Rewrite your existing (simple) IMS transaction to use Java and SQL and run in IMS*



## Day 4 – 20 (Optional)

### Deployment

Complex Use Cases

DevOps

Security

Production

# New IMS Community (One Stop Shop) site

<https://developer.ibm.com/zsystems/ims>

Carousel of value statements

**21,000 transactions per second**  
That's the throughput IMS can provide when used as an API provider with z/OS Connect EE.

[Learn more](#)

## Transform

The IMS team can help you plan, prototype, and design ways to modernize your IMS system.



### Java

With over 15 years of support, Java has become the lifeblood of modern IMS applications. Get started with our latest Java essentials.



### APIs

Not sure how the mainframe and APIs mix? Learn how to enable your IMS applications to provide or consume data using APIs.



### Open DB

Want to get more out of your database? See how you can enrich the utilization of your databases using Java open access solutions.



### DevOps

See our DevOps solutions, tooling, Open Source repositories, and third party offerings that make for a stellar developer experience.

## Resources for Transformation

IBM IMS

IBM® Information Management System (IMS™) is one of the world's premier software products. IMS has been, and will continue to be, a crucial component of the world's enterprise software infrastructure.

[IMS GOLD: feedback program](#)

[IMS Makerspace](#)

[zTrial: Try IMS](#)

INTRO TO IMS  
**WHAT IS IMS?**  
WITH JOE PEACOCK

Integrated videos and social media links!

**Learn**

Get the documentation for your version of IMS. Learn how to install, configure, troubleshoot, and write applications for IMS.

**Looking for documentation?**

- Knowledge Center**  
The home for IBM's technical product documentation.
- Tools product documentation**  
See a list of IMS tools manuals, whitepapers, and other documentation for versions 13, 14, & 15.
- DocBuddy**  
Download the app that keeps you updated on documentation and updates for IBM Z products.

**I am a...**

- [Database Administrator](#)
- [Application Developer](#)
- [System Programmer](#)

New Learn section filtered by role

**Events**

<b>IMS RUG</b> Phoenix, Arizona November 15, 2019 <a href="#">→ Register</a> <a href="#">PDF Agenda</a>	<b>IMS technical seminar</b> Stockholm, Sweden November 19, 2019 <a href="#">→ Register</a> <a href="#">PDF Agenda</a>	<b>IMS remote internship: Diagnostic approaches</b> Online webinar November 19 – 22, 2019 <a href="#">→ Register</a> <a href="#">PDF Agenda</a>
<b>IMS remote internship: Physical organization of databases</b> Online webinar December 3 – 11, 2019 <a href="#">→ Register</a> <a href="#">PDF Agenda</a>	<b>zED Talks Webcast: Demo Using z/OS IBM DevOps tooling integrated with Git and Jenkins</b> Webinar replay <a href="#">Replay of this session</a>	<b>The 4 Paths to Digital Transformation with IBM IMS</b> Webinar replay <a href="#">Register</a>

Integrated Events section



# IMS GitHub

Sample Java application code, API tutorials and DevOps deployment samples for IMS

## IBM IMS on GitHub

Welcome to IMS on GitHub. Here you will find sample code and tutorials for your IMS application development and deployment needs.



### Application samples

[ims-java-jmp](#)

A sample Java app that runs in an IMS dependent region

[ims-java-cobol](#)

A sample Java app that inter-operates with COBOL in an IMS dependent region  
*(Coming soon)*

[ims-java-jee-tm](#)

A Java EE app that accesses an IMS transaction

imsdev / **ims-java-jmp** Watch 1 Star 0 Fork 0

[Code](#) [Issues 0](#) [Pull requests 0](#) [Projects 0](#) [Wiki](#) [Insights](#) [Settings](#)

A sample Java app that runs in an IMS dependent region Edit

[Add topics](#)

21 commits 1 branch 0 releases 3 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

yrlai Update readme Latest commit cd466a7 5 days ago

- insurance Remove deploy\_java\_to\_ims.xml workflows from both sample applications 6 days ago
- insurancenodb Remove deploy\_java\_to\_ims.xml workflows from both sample applications 6 days ago
- media Update readme 5 days ago
- README.md Update readme 5 days ago

### Sample IMS Java message processing (JMP) application

The sample Java™ applications run in the IMST™ Java Message Processing (JMP) region and demonstrates how to write a Java application that runs as an IMS transaction.



<https://imsdev.github.io/>

# IBM Z Trial Program

Experience the value of the latest IBM Z capabilities today at no charge, and with no install required.



## Why Z Trial?



Free, on-demand environment



No setup, no install



Hands-on tutorials

### z/OS Connect Enterprise Edition

Create efficient and scalable RESTful APIs for mobile and cloud applications securely from your business critical applications residing on the mainframe.

[Register now](#)

### Information Management System (IMS)

The most secure, highest performing and lowest cost hierarchical database management software for online transaction processing (OLTP).

[Register now](#)

### What's in the trial?

Your trial environment includes hands-on tutorials that explain how to:

- Expose a CICS COBOL program as a RESTful API.
- Expose an IMS application as a RESTful API.
- Call a REST API from a COBOL Application.

### What's in the trial?

Your trial environment includes hands-on tutorials that explain how to:

- Use IMS Enterprise Suite Explorer for Development to import and visualize IMS database and program definitions in IMS catalog.
- You will also create and execute SQL queries to access and manipulate IMS database.

# Session Summary

**Modernize** your IMS assets to leverage abundant **Java and API skills** in the marketplace

Make your IMS assets more **Open and accessible** with **little or no mainframe skill**

It is **possible** to have **well performing, cost-efficient** and **modern** IMS application and data

**Start small** and let us help and **co-create** with you

- Modernize access to existing transactions and data with API
- Converting simple batch jobs
- Use Java and language interoperability to start converting IMS applications

# Notices and disclaimers

- © 2019 International Business Machines Corporation. No part of this document may be reproduced or transmitted in any form without written permission from IBM.
- **U.S. Government Users Restricted Rights — use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM.**
- Information in these presentations (including information relating to products that have not yet been announced by IBM) has been reviewed for accuracy as of the date of initial publication and could include unintentional technical or typographical errors. IBM shall have no responsibility to update this information. **This document is distributed “as is” without any warranty, either express or implied. In no event, shall IBM be liable for any damage arising from the use of this information, including but not limited to, loss of data, business interruption, loss of profit or loss of opportunity.** IBM products and services are warranted per the terms and conditions of the agreements under which they are provided.
- IBM products are manufactured from new parts or new and used parts.  
In some cases, a product may not be new and may have been previously installed. Regardless, our warranty terms apply.”
- **Any statements regarding IBM's future direction, intent or product plans are subject to change or withdrawal without notice.**
- Performance data contained herein was generally obtained in a controlled, isolated environments. Customer examples are presented as illustrations of how those
- customers have used IBM products and the results they may have achieved. Actual performance, cost, savings or other results in other operating environments may vary.
- References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business.
- Workshops, sessions and associated materials may have been prepared by independent session speakers, and do not necessarily reflect the views of IBM. All materials and discussions are provided for informational purposes only, and are neither intended to, nor shall constitute legal or other guidance or advice to any individual participant or their specific situation.
- It is the customer’s responsibility to insure its own compliance with legal requirements and to obtain advice of competent legal counsel as to the identification and interpretation of any relevant laws and regulatory requirements that may affect the customer’s business and any actions the customer may need to take to comply with such laws. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the customer follows any law.

## Notices and disclaimers continued

- Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products about this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products. IBM does not warrant the quality of any third-party products, or the ability of any such third-party products to interoperate with IBM's products. **IBM expressly disclaims all warranties, expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a purpose.**
- The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents, copyrights, trademarks or other intellectual property right.
- IBM, the IBM logo, ibm.com and [names of other referenced IBM products and services used in the presentation] are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at: [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml)

