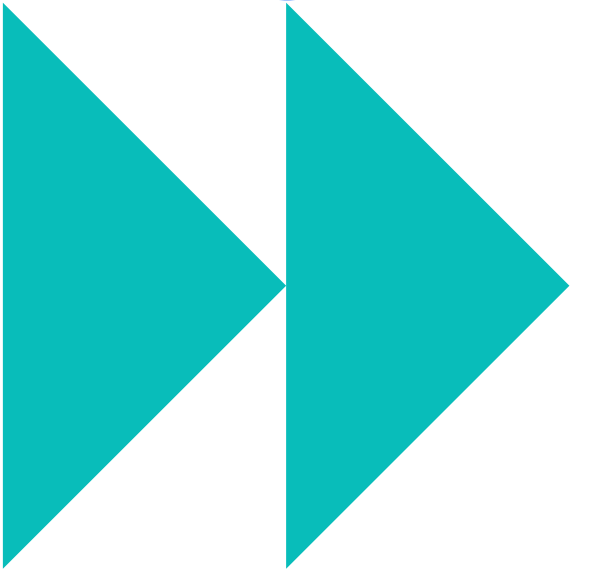
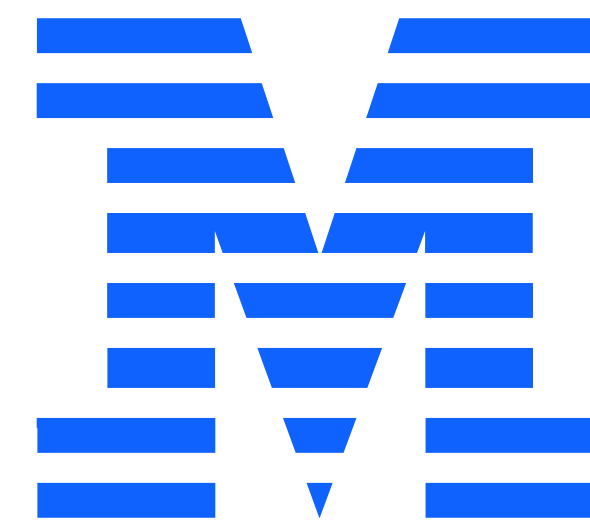
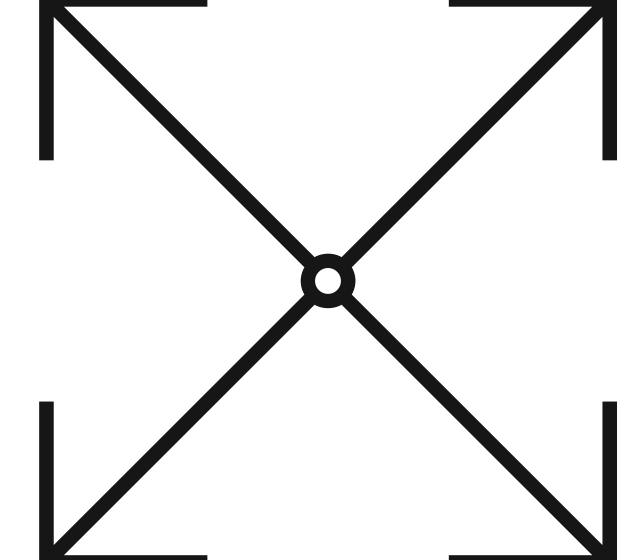
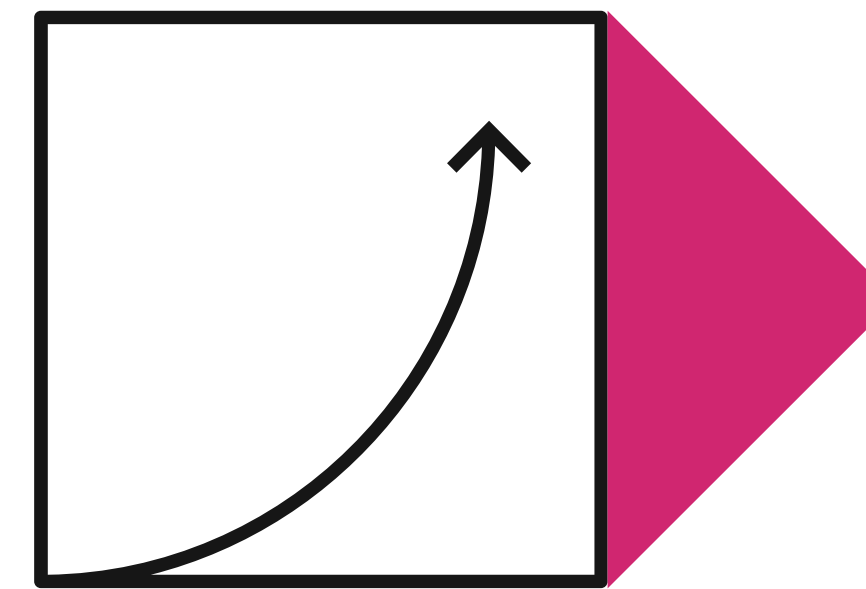
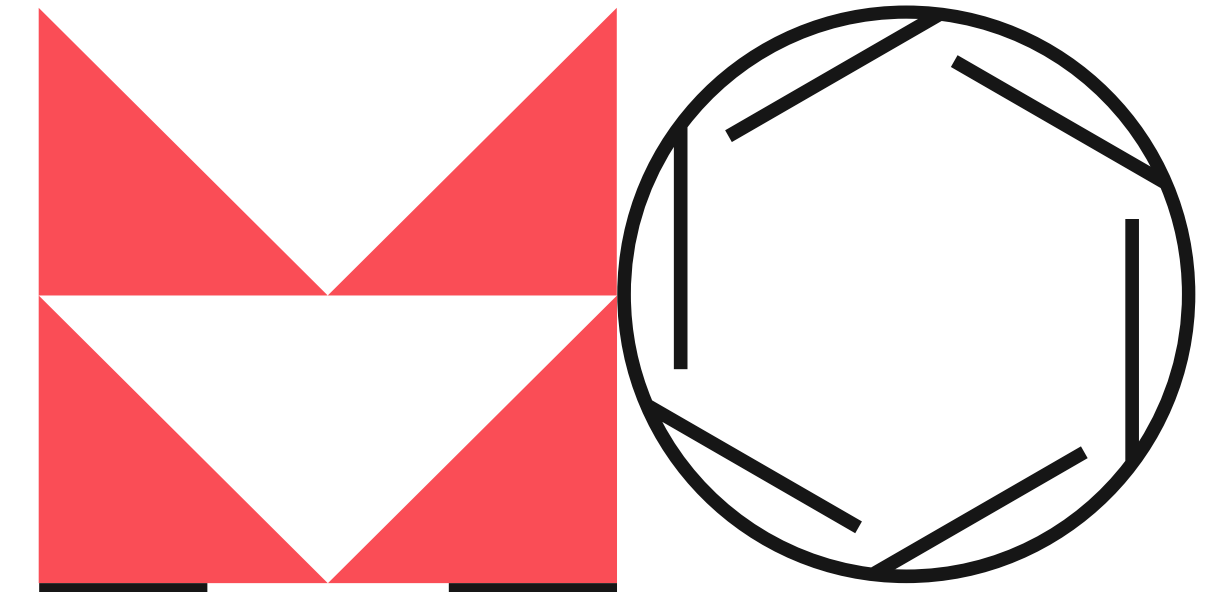


Central Canada Db2 User Group 2023

# Db2 for z/OS Administrative and Developer tools strategy: Customer feedback, roadmap, and future direction

Sowmya Kameswaran

IBM, Technical Lead UX transformation – Db2 for  
z/OS and ecosystem



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# Agenda

01 What is the need for change?

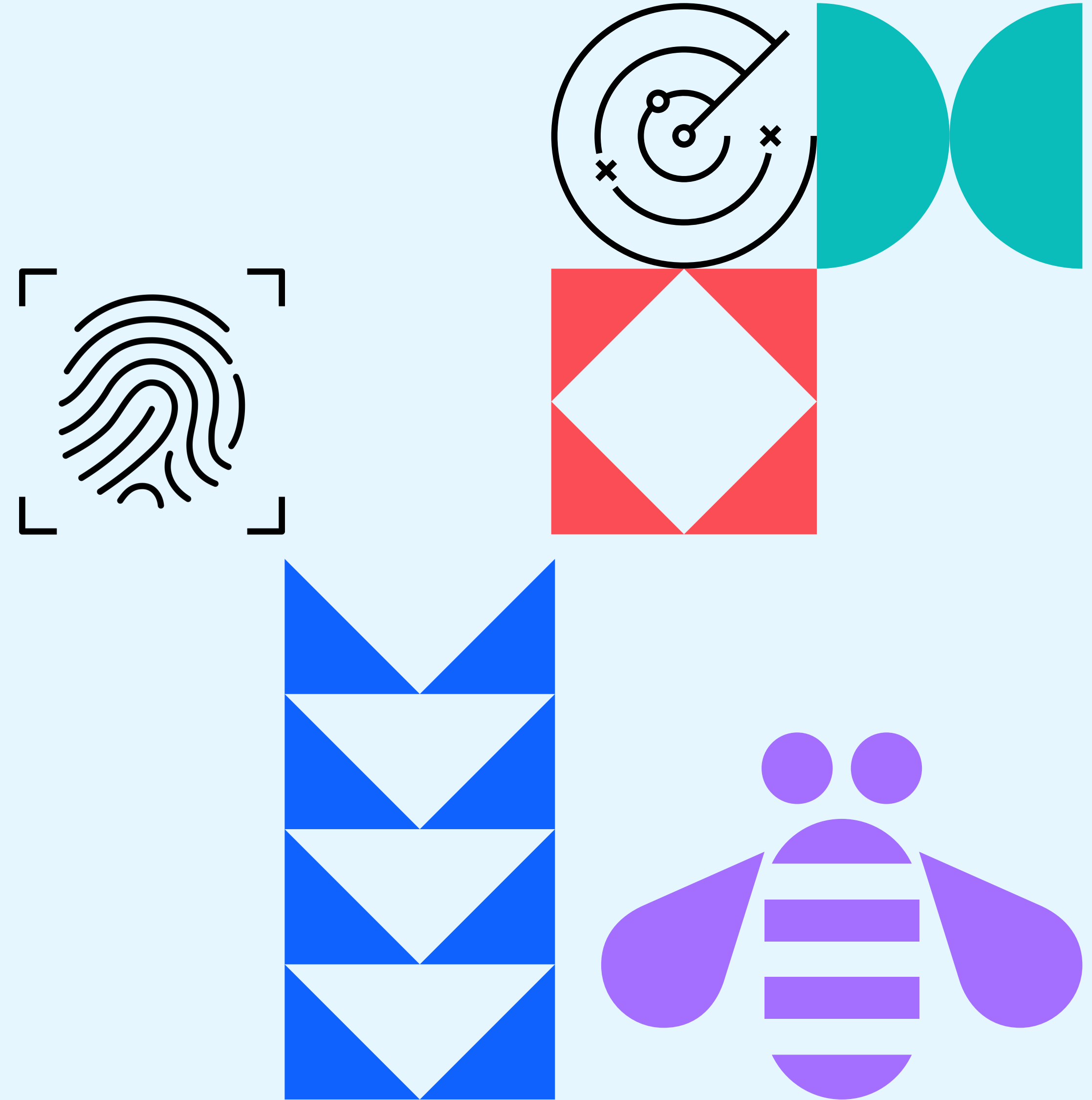
02 What is changing?

03 Current status

04 Roadmap for future

05 Call for action

06 Try me!



# 117 Billion

SQL / day

## Db2 for z/OS

---

# 1579 Million

Commits / day

67 of the Fortune 100  
companies

8 of the top 10 insurers

45 of the world's top 50  
banks

7 of the top 10 global  
retailers

---

# 183 Billion

Rows in a single table

# Need for change and key objectives

**Problem:** Dwindling z/OS domain specific skills in the market

**Change objective:** Increase the Application developer and Administrator talent pool by reducing z/OS domain specific skills needed to work with Db2 for z/OS

**Problem:** High cost (personnel, technology and time) to manage and maintain z/OS applications

**Change objective:** Reduce cost to Develop, Tune and administer Db2 for z/OS applications. Simplify application development and automate deployment across environments.

**Problem:** Too many interfaces

**Change objective:** Move towards true **Single pane of glass** model. Build **solution based user experience**. Tooling used in background to drive end – end work flows to be transparent to end user.

**Problem:** Alignment with overall z/OS strategy

**Change objective:** **API enablement** to support plug and play model of integrations. First citizen involvement with z/OS DevOps and overall modernization strategy. **Ansible playbooks** for Db2 and some Db2 tooling workflows to automate simple but highly repeated tasks.



# Goal and product strategy



Bring Db2 to  
you!

# Key personas



Deb  
z/OS Developer

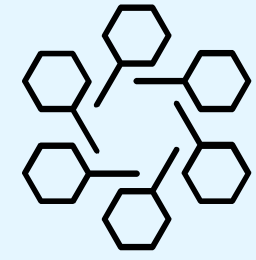
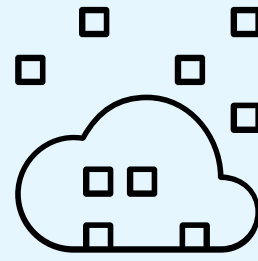
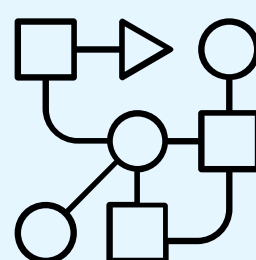
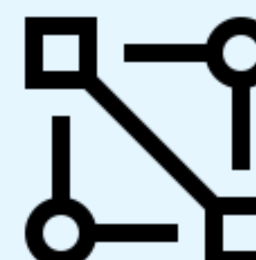
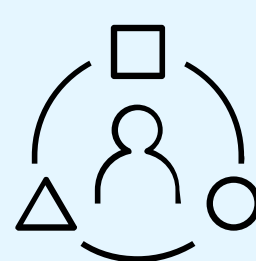
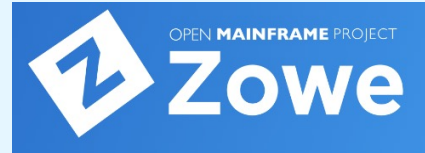

Betsy  
Experienced z/OS DBA



Richard  
Release Engineer



# Get introduced to all products involved

						
IBM Unified Management Server for z/OS	IBM Db2 Administration Foundation for z/OS	IBM Db2 DevOps Experience for z/OS	IBM Query Workload Tuner for z/OS & IBM SQL Tuning Services	IBM Db2 Analytics Accelerator Administration services for z/OS	Zowe	IBM Db2 for z/OS Developer Extension
FMID – Shopz H1ZP120	FMID – Shopz HAFX120	FMID – Shopz HAFX120 <sup>\$</sup>	FMID – Shopz H2AQ601 <sup>\$</sup> & H2AT210	IBM Fix Central download <a href="#">Documentation</a>	Download from Zowe.org or Shopz	Visual Studio Marketplace download

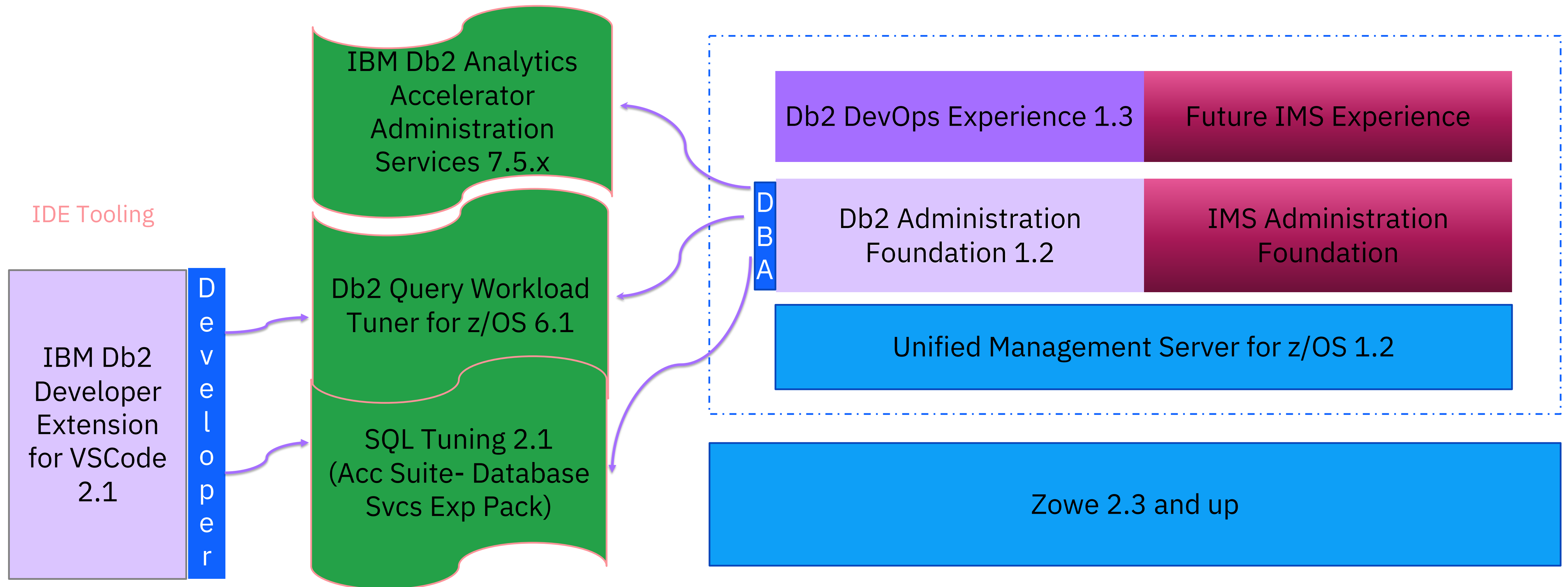


# Architecture Overview

## Integrated Offerings

## Administration Stack

## IDE Tooling



# Key personas

Betsy  
Db2 for z/OS DBA

Manages database objects related to applications. Design and tune databases and applications accessing the database.

- Manage database objects
  - Explain, analyze, tune performance of deployed applications
- Browse statement cache
- Run SQL, Db2 commands



Richard  
Release Engineer

Provides DevOps pipeline for build and promoting code from dev to production.

- Integrate build/deploy processes for application artifacts, including Db2 SQL and DDL
  - Integrate SQL and database schema change quality checks



Deb  
z/OS Developer

# Db2 Administration - Feature highlights and timeline

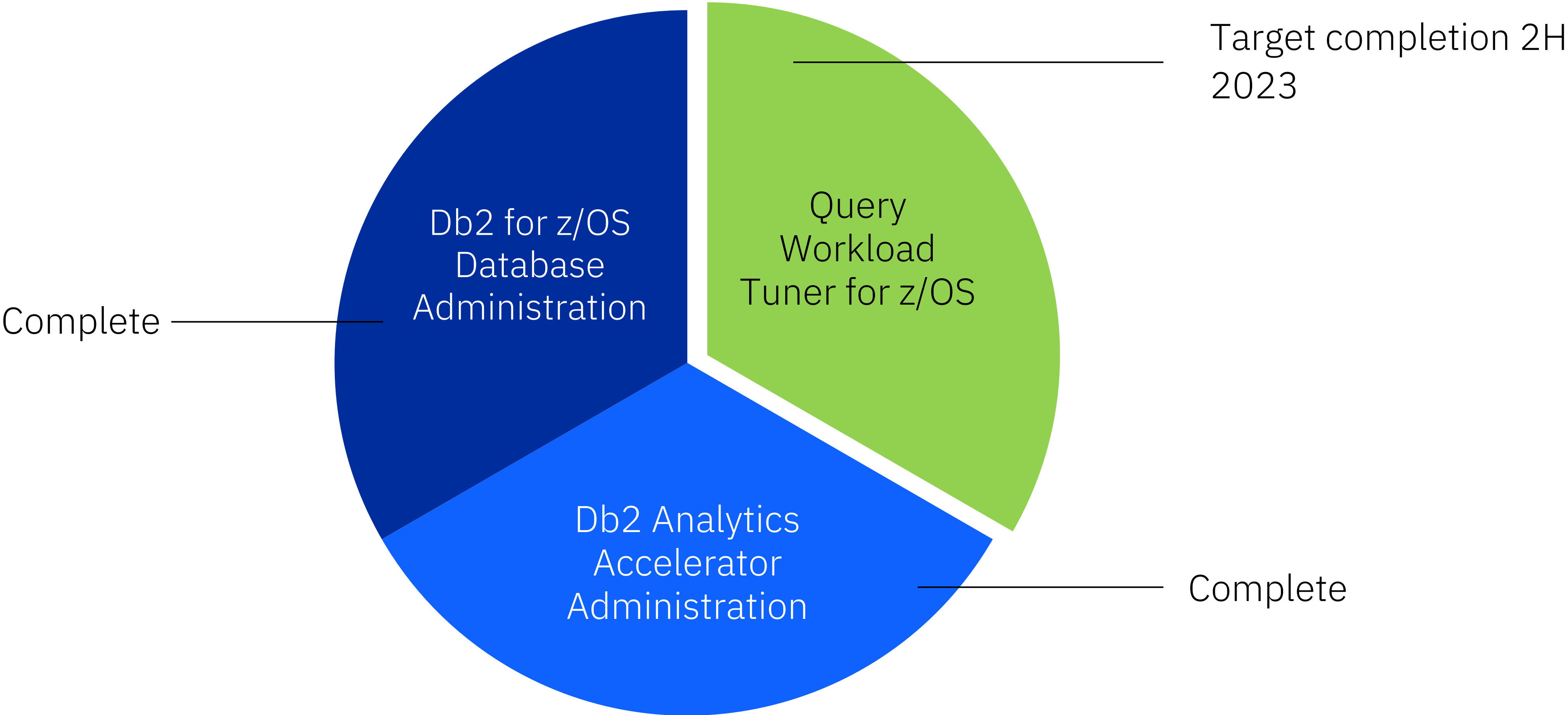
V 1.1 June 2021	10+ PTFs in continuous delivery mode	Current - V 1.2 August 2023	Future →
<ul style="list-style-type: none"><li>• Sysplex level subsystem discovery</li><li>• Object search</li><li>• SQL Editor</li><li>• Object dependency</li><li>• Object operations</li><li>• Data browsing/filtering</li><li>• Db2 commands</li><li>• DSN commands</li></ul>	<ul style="list-style-type: none"><li>• Install/config improvements</li><li>• Integration with <a href="#">SQL Tuning services</a><ul style="list-style-type: none"><li>• Single query tuning (No charge)</li><li>• Statistics Advice</li><li>• Visual Explain</li><li>• Capture SQL from Statement cache + Dynamic Plan Stability features</li><li>• Advanced single query tuning (Licensed)</li></ul></li><li>• <a href="#">Db2 Analytics Accelerator Administration</a></li><li>• Db2 for z/OS <a href="#">v13 support</a></li></ul>	<ul style="list-style-type: none"><li>• Execution of SQL with parameters</li><li>• Integration with SQL Tuning services<ul style="list-style-type: none"><li>• Workload query tuning (Licensed)</li></ul></li><li>• Invocation of stored procedures from SQL Editor</li><li>• SAF integration (user authentication and authorization)</li><li>• Auto detection of Db2 tools and integrations:<ul style="list-style-type: none"><li>• <a href="#">Db2 Administration tool for z/OS</a> – Statistics/ Storage dashboard for tablespaces and indexes</li><li>• <a href="#">Db2 Analytics Accelerator Loader</a> – Load to multiple Db2 Analytics Accelerators</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Export query results to csv</li><li>• Upcoming Db2 tools and integrations:<ul style="list-style-type: none"><li>• <a href="#">Db2 Query Monitor for z/OS</a>– Top N Queries</li><li>• <a href="#">Db2 Analytics Accelerator Loader</a> – Load data from non relational Z sources into Db2 Analytics Accelerator</li><li>• <a href="#">Db2 Automation Tool for z/OS</a> – Policies and profiles for Db2 self management</li></ul></li><li>• Db2/DSN commands on Db2 objects</li><li>• Java 11 support</li><li>• <a href="#">Multi-sysplex support</a></li><li>• Object creation templates</li></ul>

\* Features list include key capabilities from IBM Db2 Administration Foundation, IBM Db2 DevOps Experience for z/OS , Unified Management Server and Zowe



# Data Server Manager End of Support Effective March 2024

## Migration readiness of key use cases



\* Data Studio messaging on support for Db2 for z/OS v13 is in works and is expected we will indicate that starting Db2 for z/OS v13, Db2 Admin Foundation and Db2 Developer extension for VS Code will be the strategic platforms for Administration and Application development . Data Studio does not officially support Db2 for z/OS v13.



# Customer feedback and actions

## Install/Configuration for Zowe and UMS

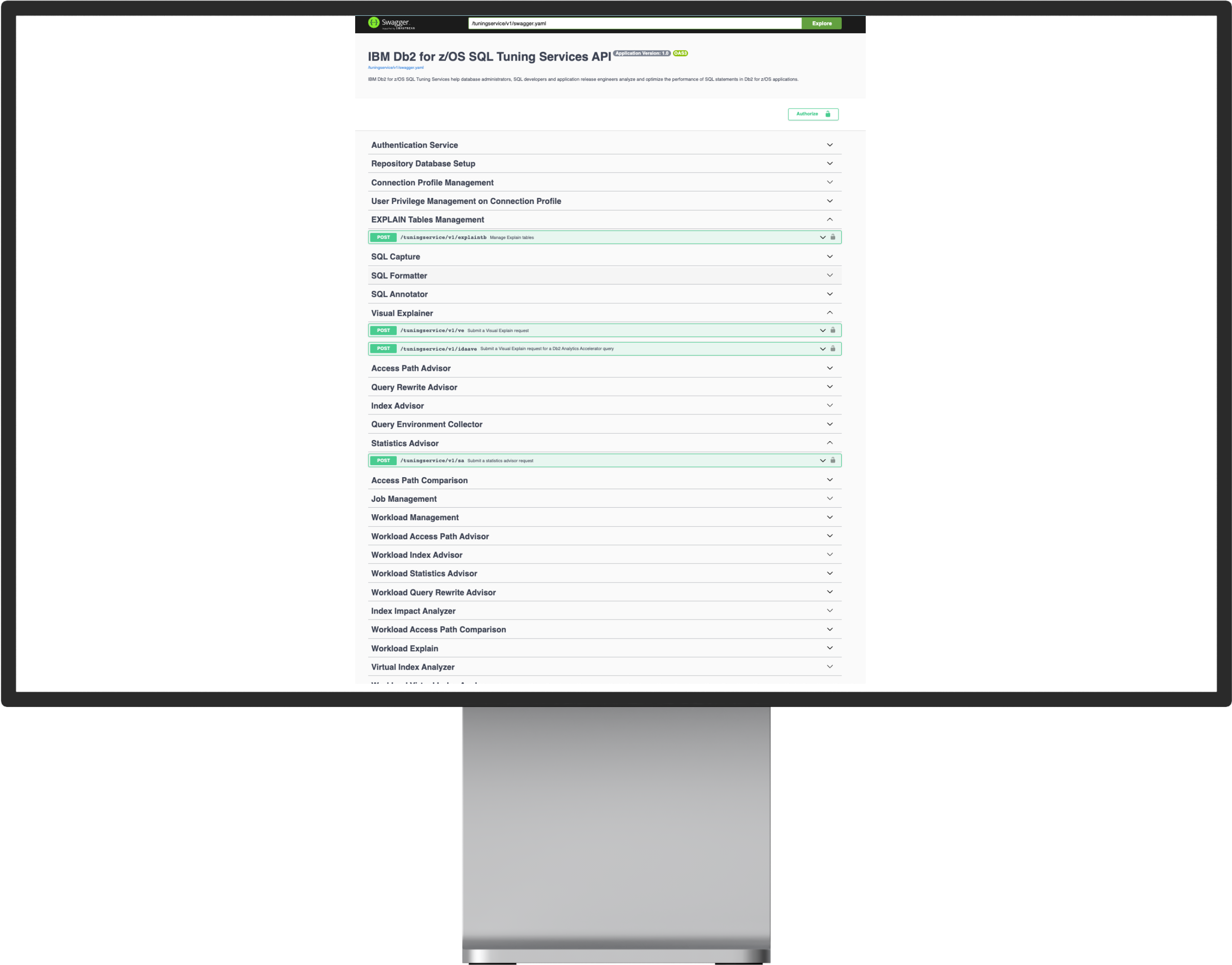
- Dependency – UMS 1.2 installs as a zowe 2.3+ plugin , better documentation.
- Security – Verbose documentation, security-by-default flow adoption.

## Install/configuration of SQL Tuning services

- WAS/Liberty - Certified use of Liberty version shipped with z/OS
- Security configuration – AT/TLS, Temp. user ID for install, modified repo db setup, support for MFA, Client cert authentication (underway)

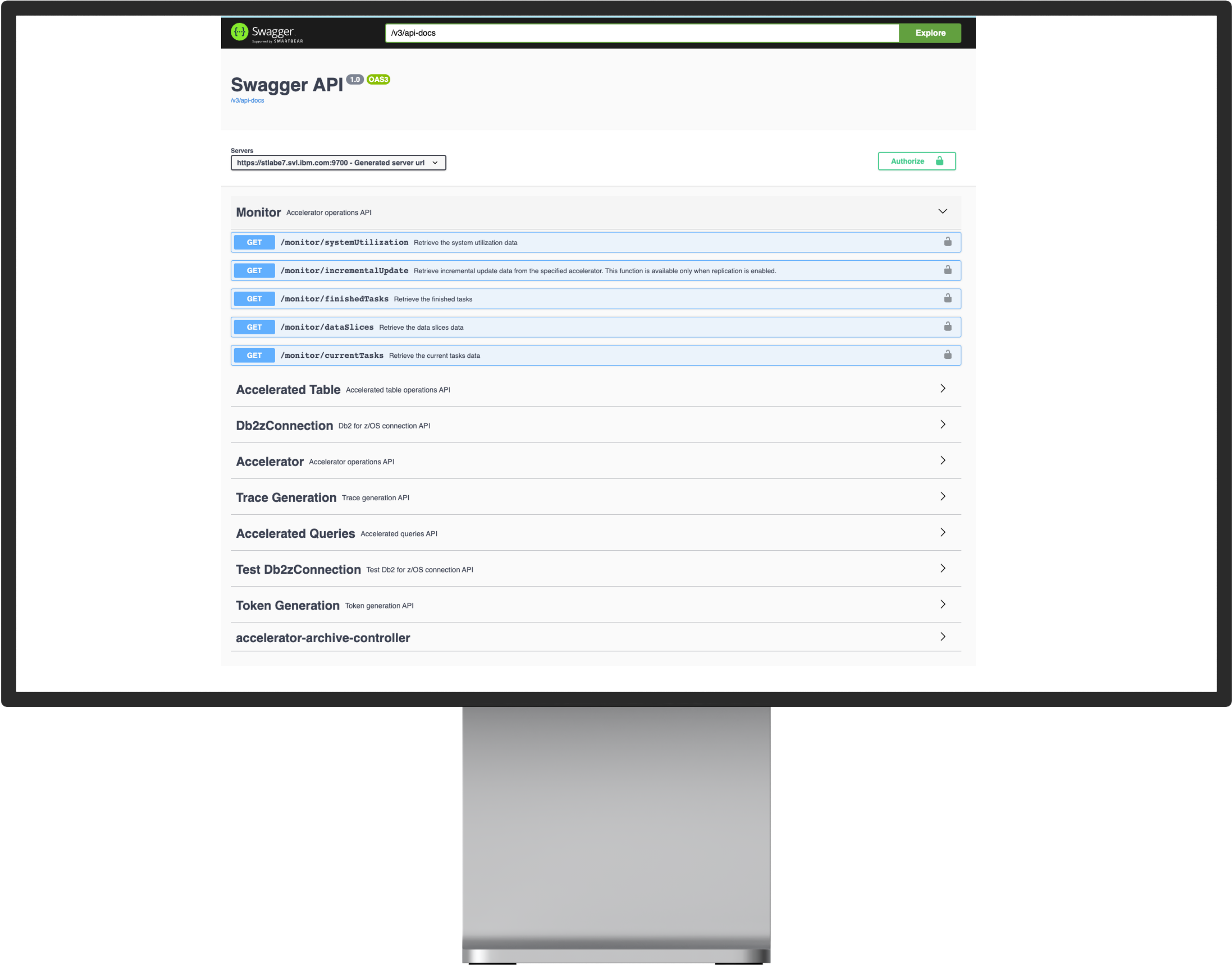
# IBM SQL Tuning Services

## API Contracts and Documentation



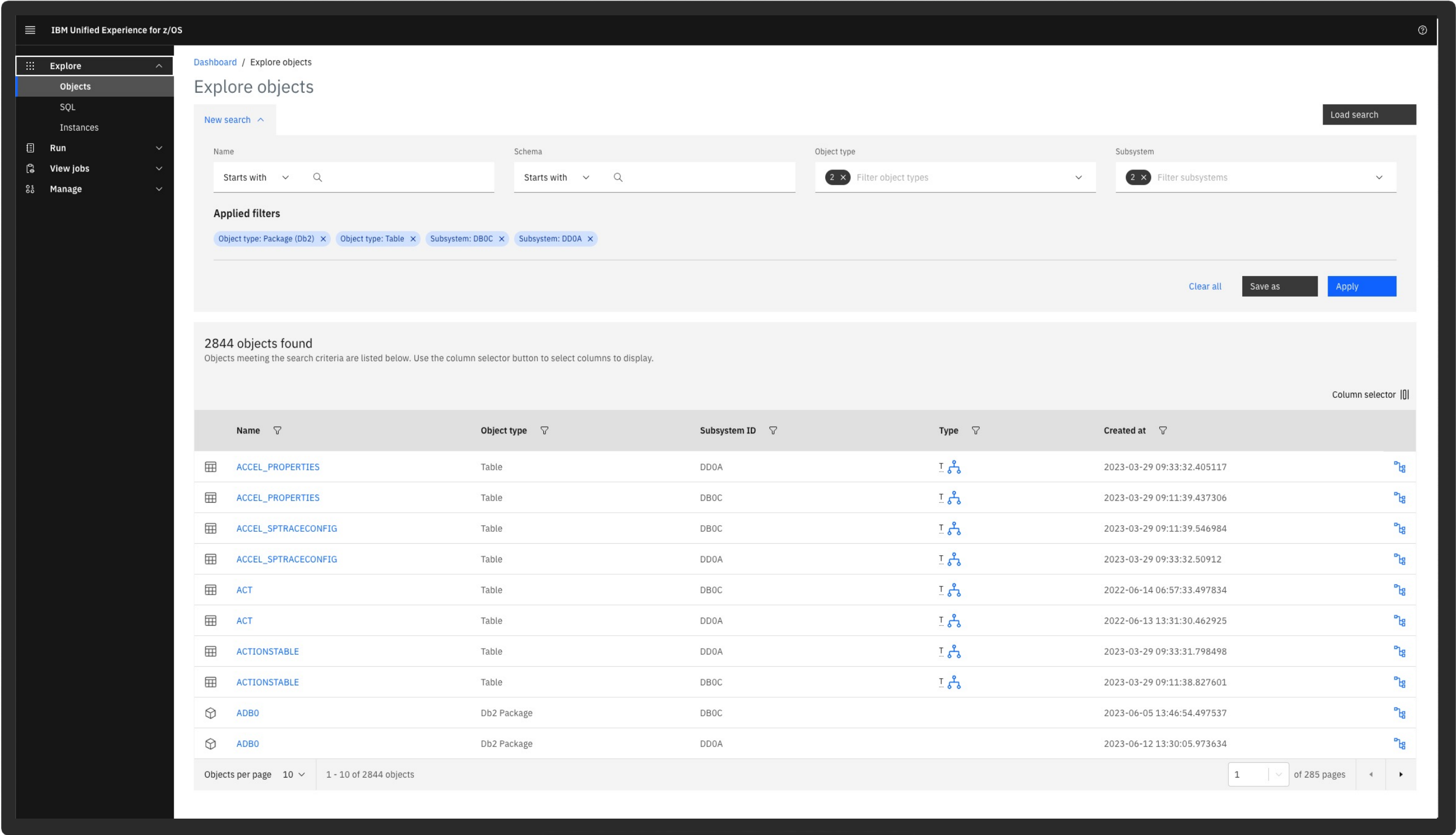
# IBM Db2 Analytics Accelerator Administration services

API Contracts and  
Documentation



# IBM Db2 Administration Foundation for z/OS

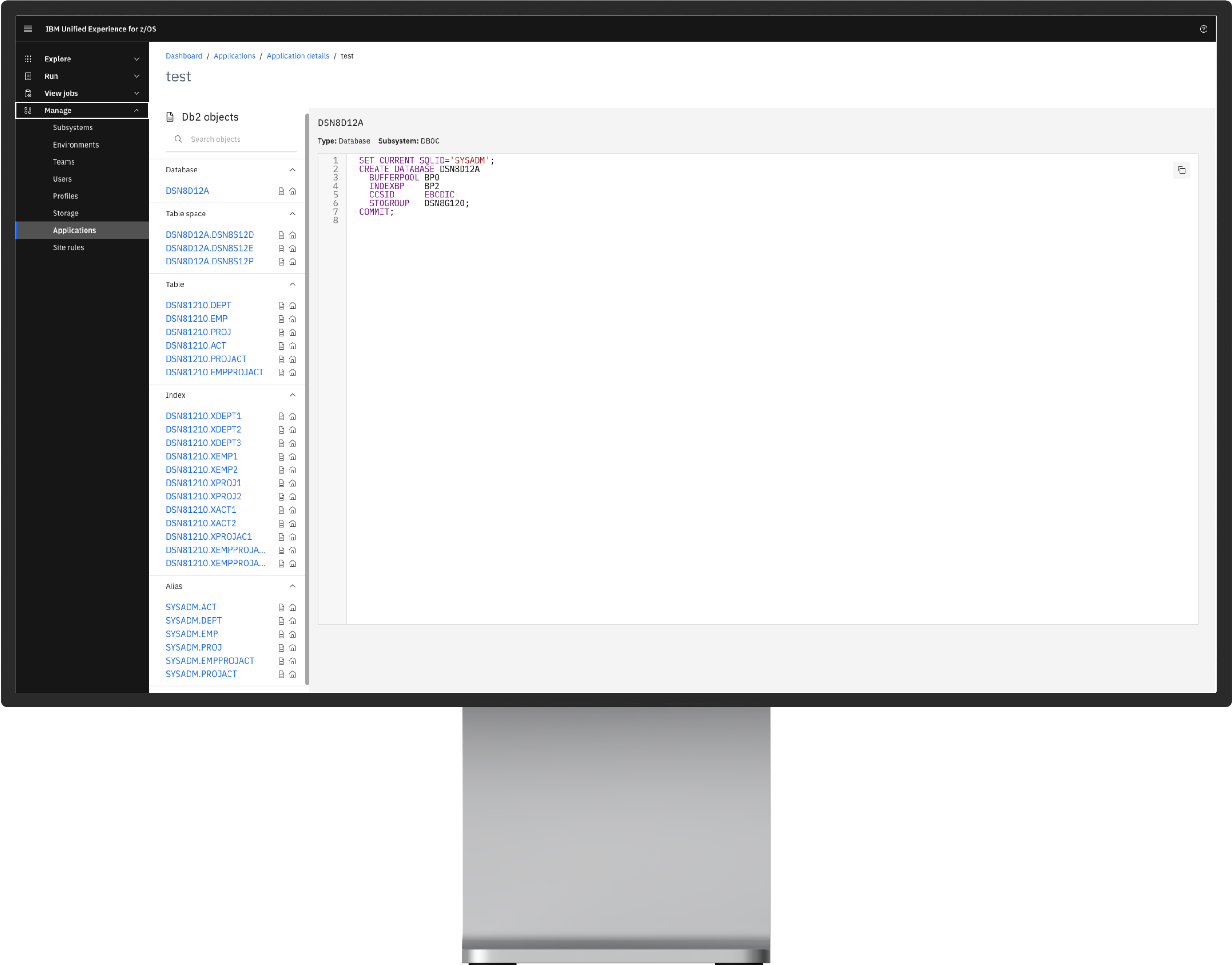
User interface – Db2  
Administration





# IBM Db2 DevOps Experience for z/OS

User interface – Db2  
DevOps (Continuous  
Integration)



# Key personas



Deb  
z/OS Developer

- Use [Web IDE](#) with Db2 services to
- Code, debug, and tune Java, COBOL, PL1, Node applications that access Db2 for z/OS via SQL
  - Code, analyze, run, tune SQL statements
    - Code, debug, and tune Db2 for z/OS stored procedures
    - Develop Db2 for z/OS Native Rest services

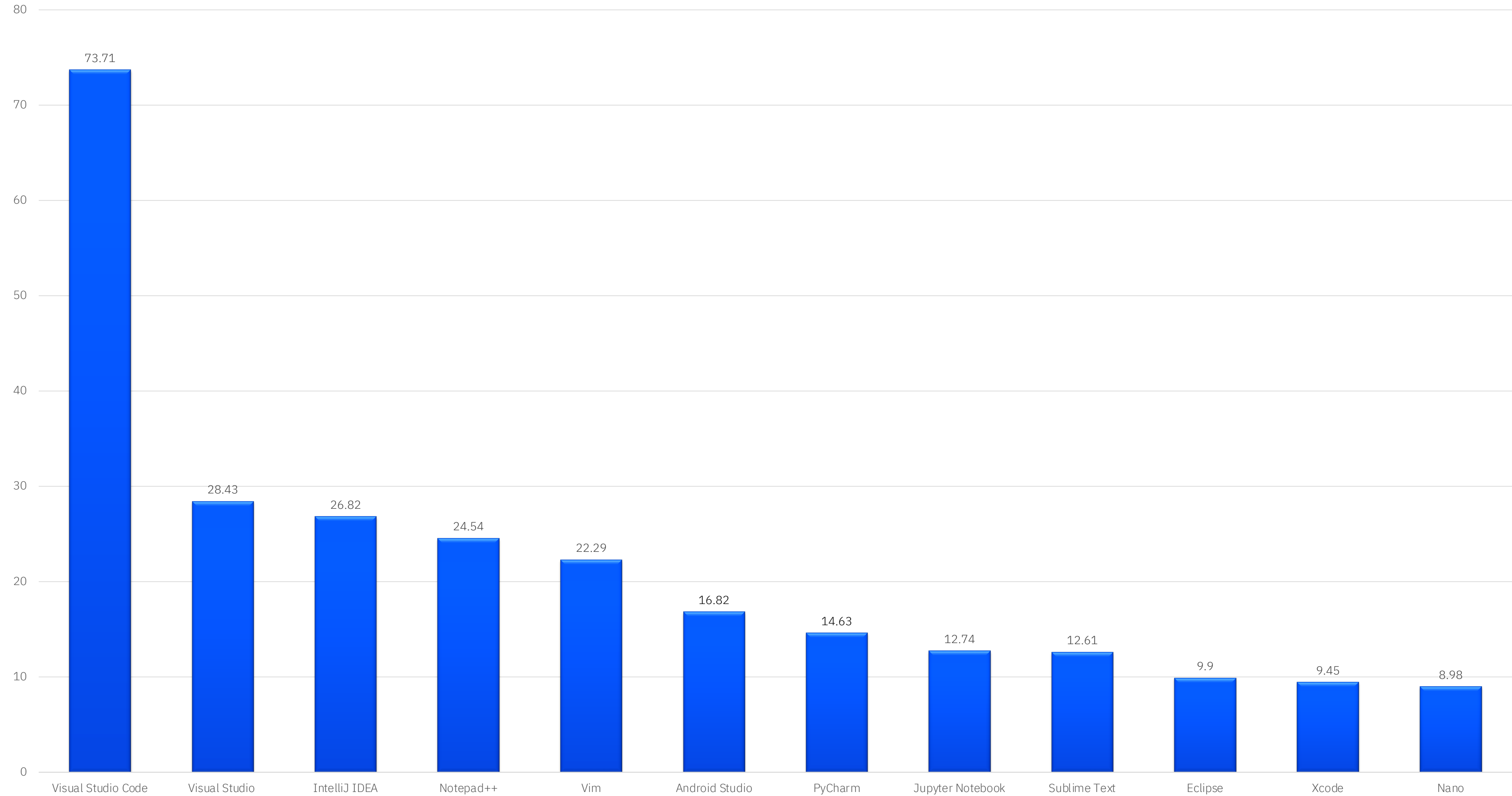
Betsy  
Experienced z/OS DBA



Richard  
Release Engineer

# Why Visual Studio Code?

86,544 responses - 2023 stack overflow Developer [Survey](#)



# Db2 Application development - Feature highlights and timeline

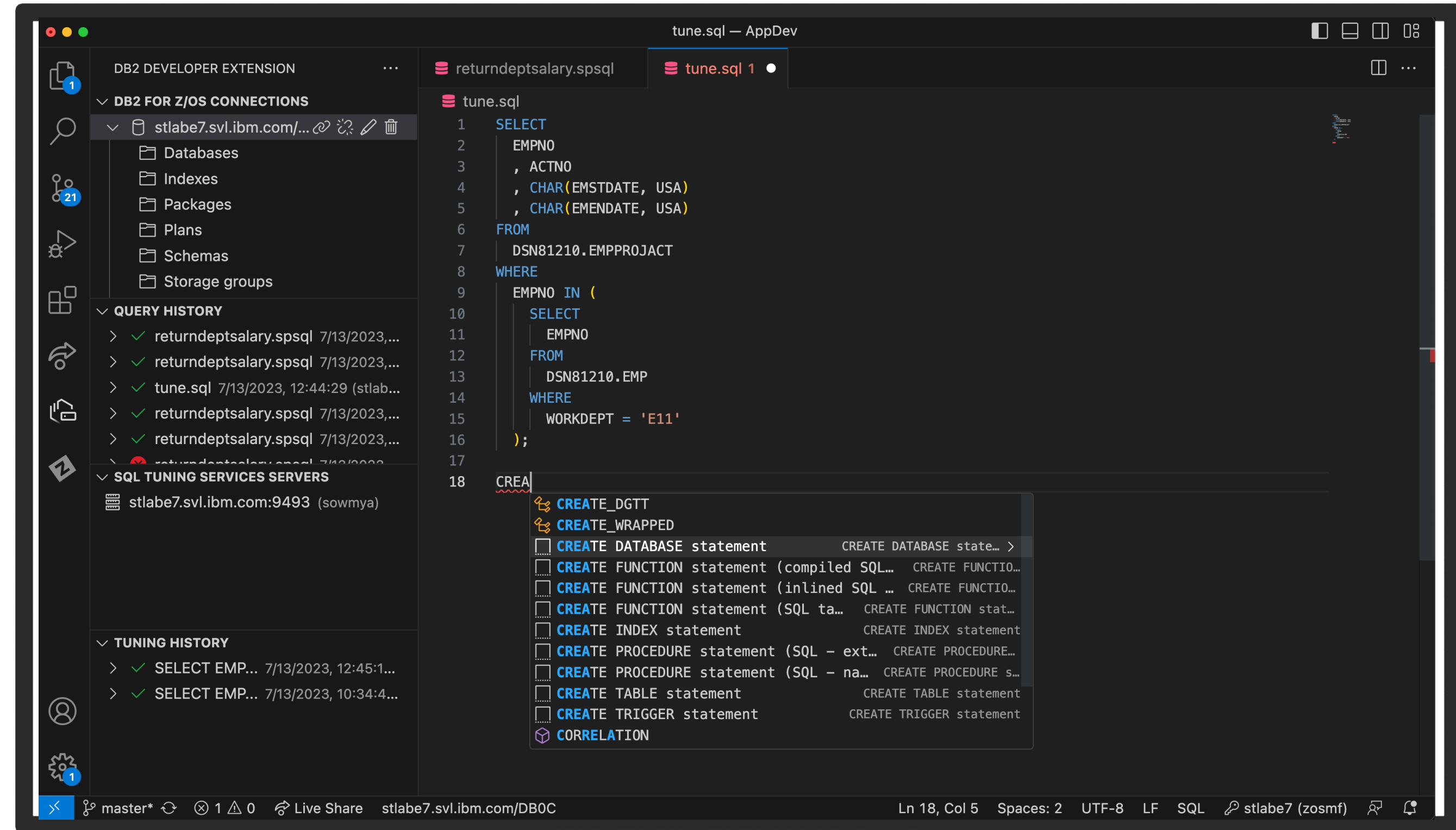
2020/21 V1.1	2022/23 Current v2.1	Future
<ul style="list-style-type: none"><li>• Usability features<ul style="list-style-type: none"><li>• Syntax highlighting and checking</li><li>• Code snippets</li><li>• Code completion</li><li>• Run SQL (BYOL)</li><li>• JDBC tracing</li></ul></li><li>• Native stored procedure debug</li><li>• SQL Formatting and embedded SQL execution</li><li>• Integration with SQL Tuning services<ul style="list-style-type: none"><li>• Single query tuning (No charge)<ul style="list-style-type: none"><li>• Statistics Advice</li><li>• Visual Explain</li><li>• Query Environment Capture</li></ul></li></ul></li></ul>	<ul style="list-style-type: none"><li>• Db2 for z/OS v13 support</li><li>• IBM Developer for z/OS V 16.0 release with native support for Db2 for z/OS</li><li>• Integration with SQL Tuning services<ul style="list-style-type: none"><li>• Advanced single query tuning (Licensed)</li></ul></li><li>• Catalog Navigation Support (Phases 1 &amp; 2)<ul style="list-style-type: none"><li>• Storage groups</li><li>• Databases</li><li>• Tables</li><li>• Schemas</li><li>• Indexes</li><li>• Views</li><li>• Plans</li><li>• Packages</li><li>• Stored procedures</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Catalog navigation support (Phase 3)<ul style="list-style-type: none"><li>• Aliases</li><li>• Sequences</li><li>• Tablespaces</li><li>• Triggers</li><li>• UDF's</li><li>• UDT's</li><li>• Variables</li><li>• REST Services</li></ul></li><li>• Integrations:<ul style="list-style-type: none"><li>• IBM Db2 DevOps Experience for z/OS— Enable application instance provisioning, DDL development, business rules checking, etc.</li></ul></li><li>• IBM Wazi code ready workspace integration</li><li>• Java stored procedure debugging</li><li>• More Db2 for z/OS capabilities in IBM Developer for z/OS</li></ul>

\* Features list include key capabilities from [Db2 Developer Extension for z/OS for Visual Studio Code](#)

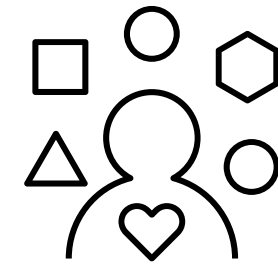


# IBM Db2 for z/OS Developer Extension

User interface – Db2  
Application  
development support  
on Visual Studio IDE



# Call for action



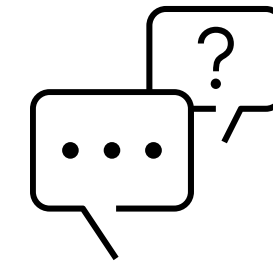
**Goal** – Bring Db2 to you!

**Key personas** -

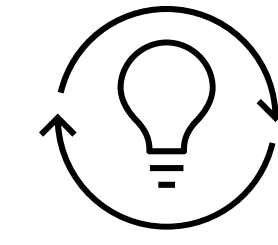
Application developers,  
Database administrators  
and Release engineers

**Strategic products** –

Db2 Admin Foundation  
(DBA), Db2 DevOps  
Experience (Release  
Engineers and  
Application DBA) & Db2  
for z/OS Developer  
Extension for VSCode  
(Application  
Developers)



Contact **Jane**  
([janechan@us.ibm.com](mailto:janechan@us.ibm.com))  
and **Sowmya (myself)**  
for any questions or  
discussions later.



**Try it out!** We have  
hosted IBM Db2  
Administration  
Foundation on [zTrial](#) for  
you.

We have hosted the  
entire solution on zVA (z  
Virtual Access) for in-  
house Proof-of-  
Technology(or Concept),  
if needed. **No setup  
needed!** (Contact me if  
interested)

# Q&A



Sowmya Kameswaran  
IBM, Technical Lead UX  
transformation – Db2 for  
z/OS and ecosystem

—

[skamesw@us.ibm.com](mailto:skamesw@us.ibm.com)