

Introducing the Database API Generator

Sheila Miller – Database Offering Manager

sheila.miller2@broadcom.com

David Ross – Principal Software Architect

david.ross@broadcom.com

Vamsi Perumallu Yalamanchili – Software Engineer

vamsi-perumallu.yalamanchili@broadcom.com

Guest Speaker:

Marc De Potter, Systems Engineer DBA, Colruyt Group

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| Agenda

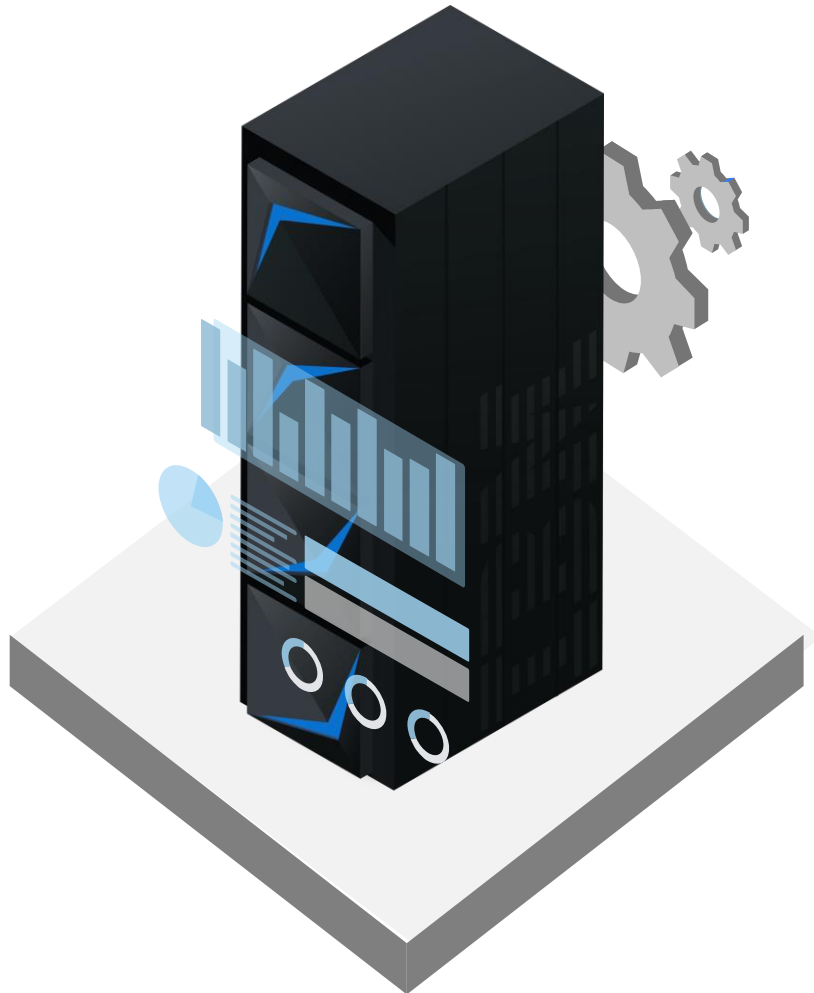
- Database Modernization Strategy
 - Beyond Code Offering: Embrace Open Workshop
- Overview: Database API Generation
- Demo: Realizing Outcomes with the Database API Generator
- Call to Action
 - What's next and How do you Get Started?
- Q&A



Database Modernization Strategy

Broadcom Data Management Approach

Designed for an open and accessible mainframe



Embrace
Open

- Direct access via CLI and APIs
- IDE integration



Simplify and
Automate

- Automate to reduce manual tasks



Optimize

- Improve return on investment
- Exploit new platform capabilities



Enable

- Maintain product currency

Value that Goes Beyond Code

Build a new generation of mainframers:



Vitality Residency Program



No-Cost Online Education



Mainframe Insights for Executives

Change and innovate with confidence:



Expert Change Planning



Design Thinking Workshops



Embrace Open Workshops

Optimize your mainframe software:



Custom MRI Assessments



Win-No-Fee Services Program

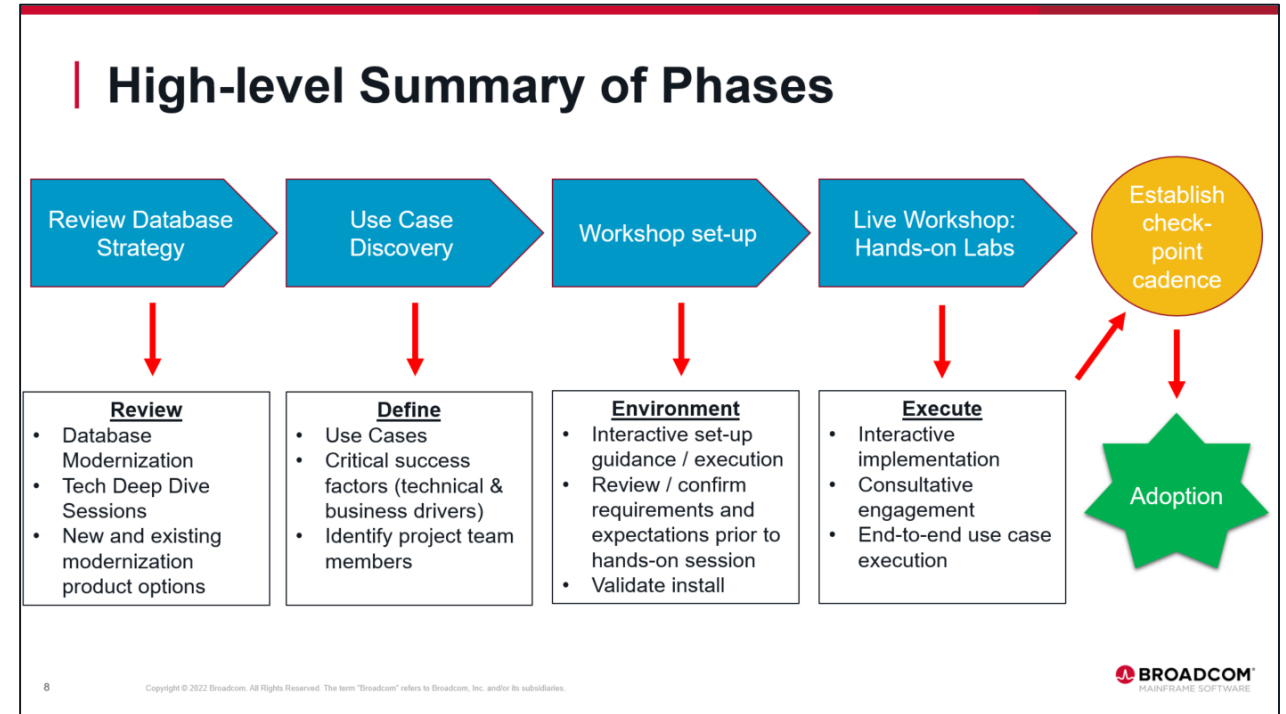


Mainframe Consumption Licensing

Value that Goes Beyond Code

Embrace Open Workshop(s)

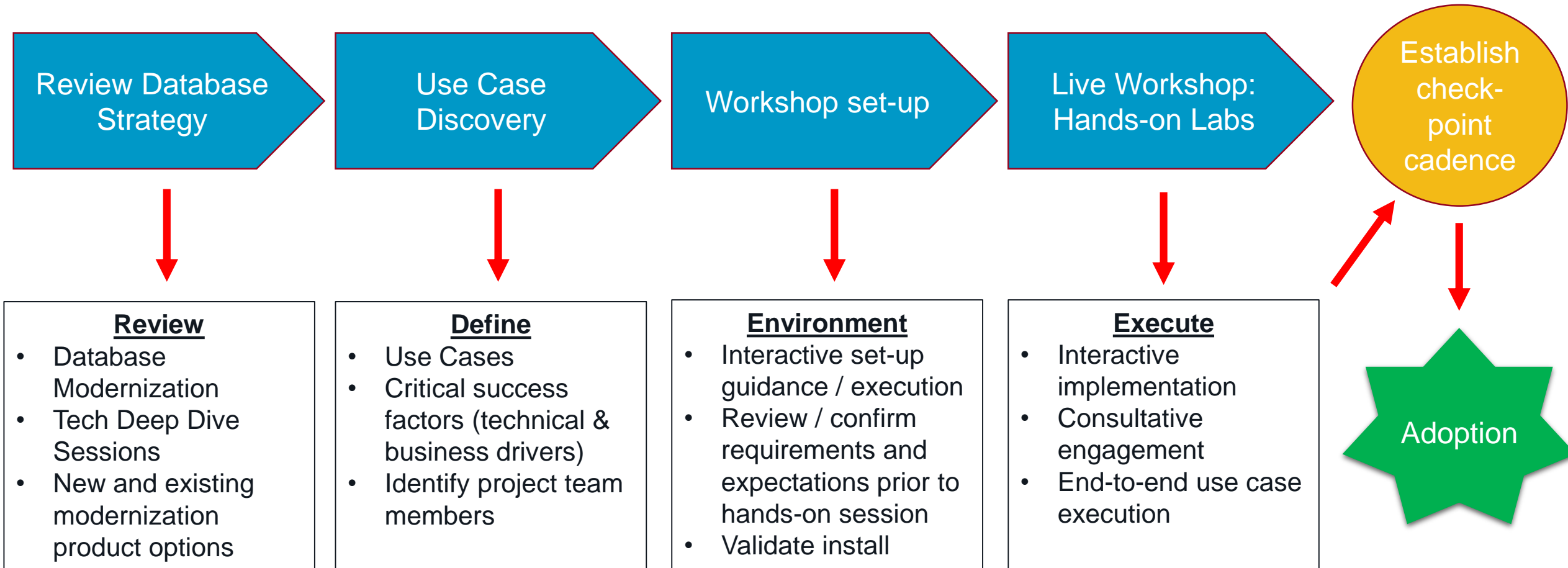
- Hands-on workshops to assist with onboarding of modernization technologies
- Help with adoption and learning
- Facilitated by Broadcom (Technical Services & Product Teams)
- Install / deploy in customers environment



Workshop Goals & Outcomes

- Primary Goals
 - Partnership and interactive **collaboration** enabling users to become proficient utilizing modernization innovations through mentoring and knowledge transfer
 - Identify:
 - Appropriate team member support and participation
 - Customer use case(s) / business drivers
 - Critical success factors – functionality / usability
 - Work together on an end-to-end use case, gaining firsthand knowledge and best practices from download > implementation and usage of new functionality
- Outcomes
 - Establish a check-point cadence to gauge ongoing progress and overall status
 - Gain insights on usage (successes / challenges) and opportunity for product improvements
 - Uncover opportunities to share customer success stories with the broader IDMS community

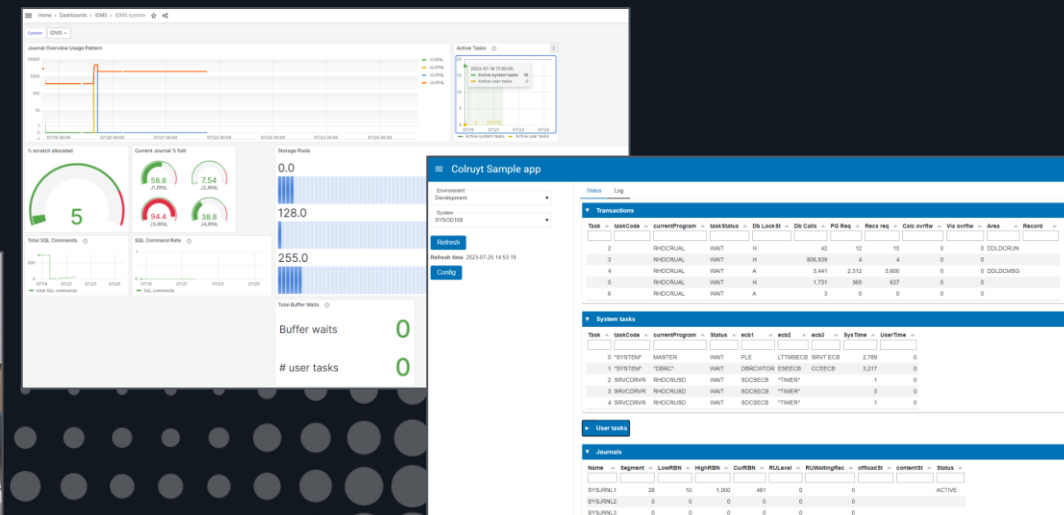
| High-level Summary of Phases





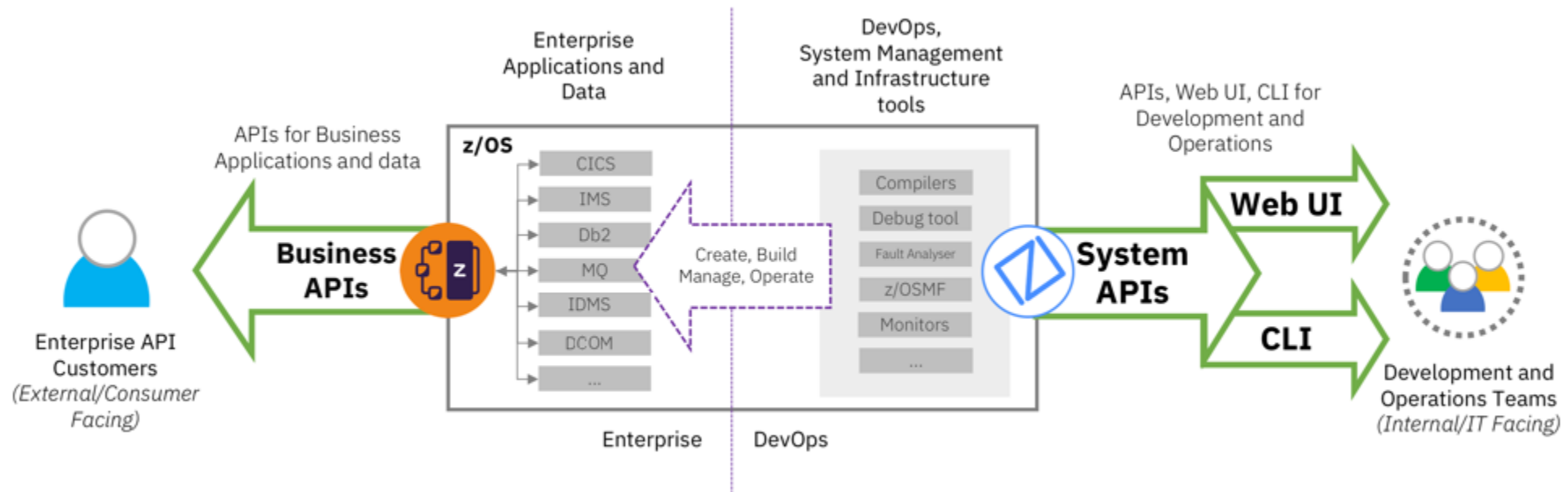
- Marc De Potter, Systems Engineer DBA, Colruyt Group

Adoption



Why APIs?

Modern, scalable access to z/OS services, tools and data
Foundation for modern DevOps workflows and user experiences



Database Business API Generator

Delivered

Modernizing the Developer Experience



Use Case:

As an application developer I want the ability to build new and easily create REST APIs that access native data to build modern web-based user experiences.

Value add:

- Auto generation of APIs
- Requiring little or no knowledge of the underlying database
- Foster easier and broader uses for the databases and associated skills required to leverage existing investments

Results:

- Faster time-to-market realizing business goals and initiatives quicker
- Self-service increases operational efficiency
- Increased productivity and capacity to do more with less

The screenshot displays the Visual Studio Code interface. The Explorer pane on the left shows the project structure with folders like 'docs', 'gradle', 'lib', 'src', 'integrationTest', 'main', 'java', 'org', 'zowe', 'dbapi', 'apidoc', 'common', 'config', 'healthcheckdata', and 'ZoweApiServiceApplication.java'. The main editor shows the 'HealthCheckDataService.java' file with a REST API endpoint definition. Below the editor, a 'Compare' tool is open, showing a 'Data Comparison' report. The report has two columns: 'Report 1' and 'Report 2'. Each column contains a table with columns: 'Rule ID', 'Rule Result', 'Color', 'Rule Description', 'Reason for Rule', and 'Rule Type'. The tables compare database rules for 'dbName', 'maintDt', 'lastOpn', and 'Is DB-TAB > DB-ARE'.

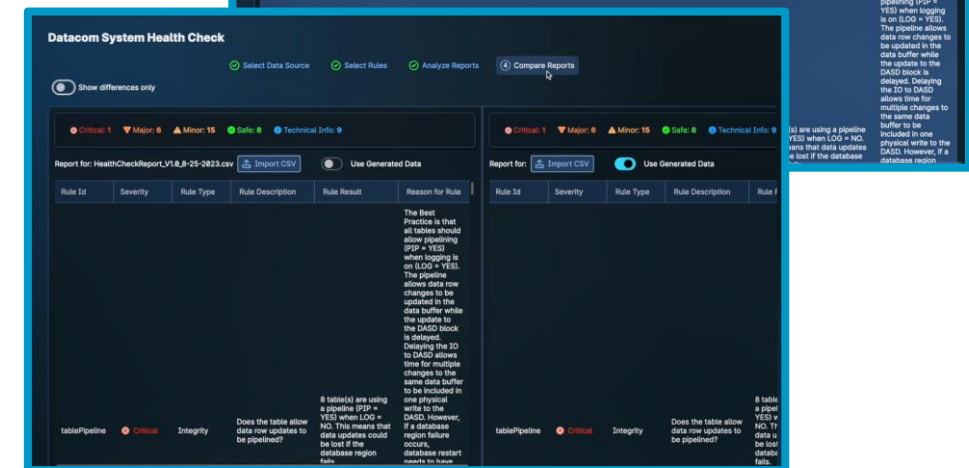
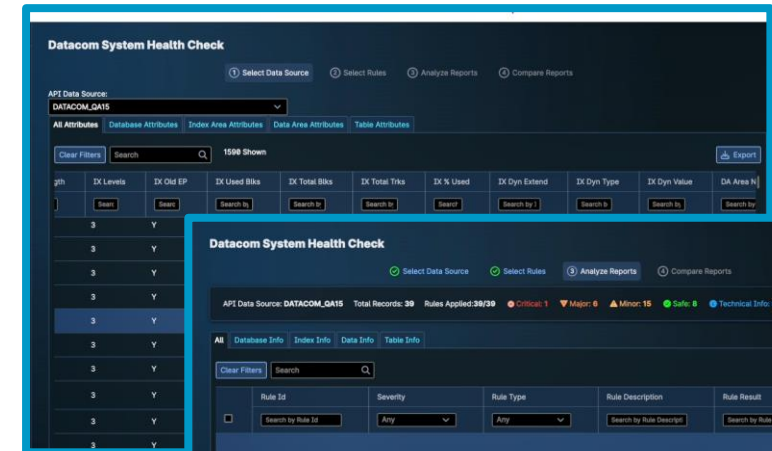
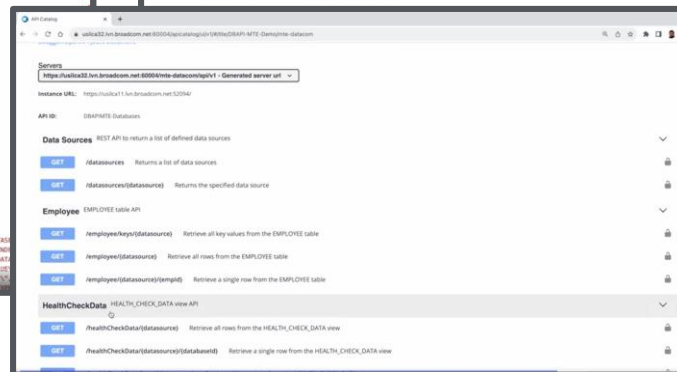
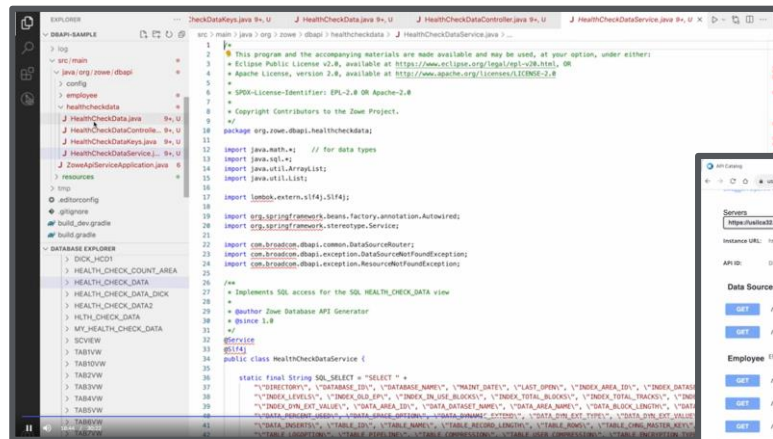
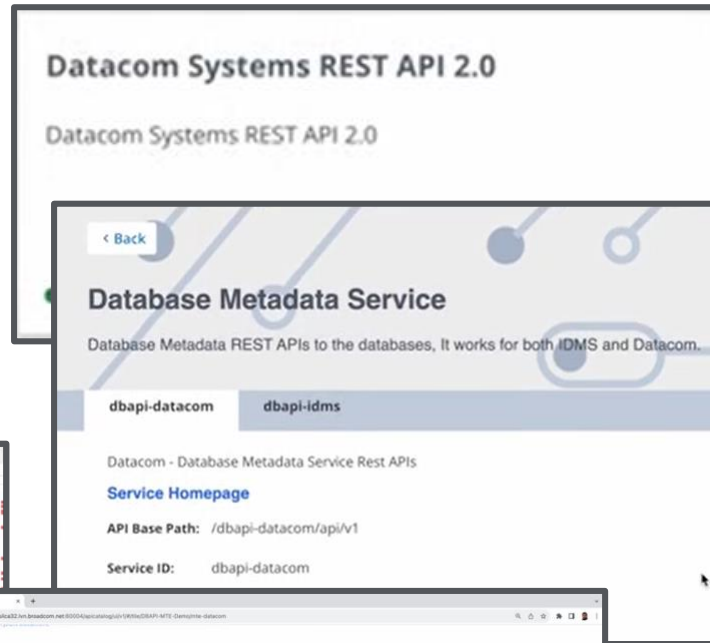
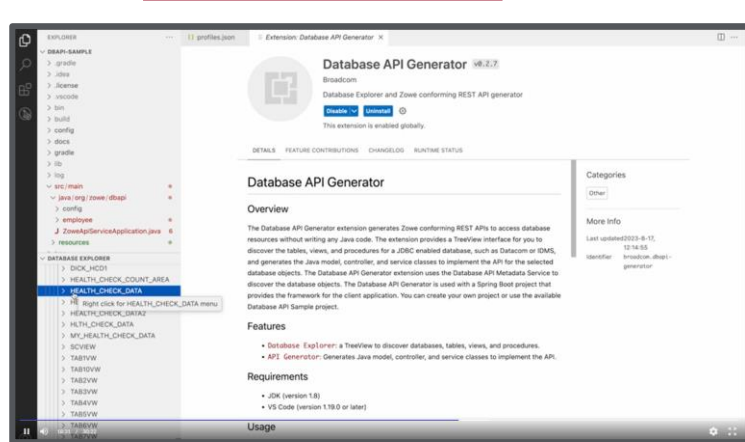
Report 1						Report 2					
Rule ID	Rule Result	Color	Rule Description	Reason for Rule	Rule Type	Rule ID	Rule Result	Color	Rule Description	Reason for Rule	Rule Type
dbName	No Out of Bounds Values	G	Database names should be more than 5 alpha-numeric characters		BP	dbName	No Out of Bounds Values	G	Database names should be more than 5 alpha-numeric characters		BP
maintDt	The Last Maintenance Date was 05/17/1998	B	Last database maintenance date		Info	maintDt	The Last Maintenance Date was 05/17/1998	B	Last database maintenance date		Info
lastOpn	There are 21 dates that are more than 2 years back	Y	Database has been opened for processing in last 2 years		BP	lastOpn	There are 21 dates that are more than 2 years back	Y	Database has been opened for processing in last 2 years		BP
Is DB-TAB > DB-ARE	The number of Database Areas are less than Database Tables	G	Search for Multi-Table areas		BP	Is DB-TAB > DB-ARE	The number of Database Areas are less than Database Tables	G	Search for Multi-Table areas		BP

Steps to Realizing Outcomes

Database API Generator

Auto Generated APIs

Web-based Applications



Overview: Database API Generation

Database API Modernization Strategy

User Personas

- Experienced DBA
- Next generation DBA
- Application DBA
- Systems DBA
- Experienced developer
- Next generation developer
- **API developer**
- **Web app developer**

Use Cases

- Automate and simplify database administration
- Optimize operations with capacity planning and performance tuning
- Maintain existing applications with scripting and modern DevOps tools
- **Leverage existing applications in new service-based applications**

Solutions

- Provide APIs for DBAs
 - Scripting and UI Integration
- Provide API data for analytics
 - Performance monitoring metrics
 - Enable user developed interfaces and dashboards
- Provide APIs for developers
 - DevOps scripting
 - IDE Integration
- **Provide tools to create business APIs**

Exposing a Database Record as a REST API

Payroll Record
JSON Document

```
{
  "pyNumber": 90901,
  "pyActivity": "A",
  "pyActivityStatus": "S",
  "fgCurrentRate": 4221.45,
  "fgYtdWage": 33771.60,
  "fgYtdCommission": 58334.70,
  "fgYtdTax": 15355.88,
  "rcNumber": 10,
  "rcActivityCode": "C",
  "rcActivityStatus": "A",
  "rcCurrentRate": 4221.45,
  "rcYtdWage": 33771.60,
  "rcYtdCommission": 58334.70,
  "rcYtdTax": 15355.88
}
```

HTTP GET /payroll/90901

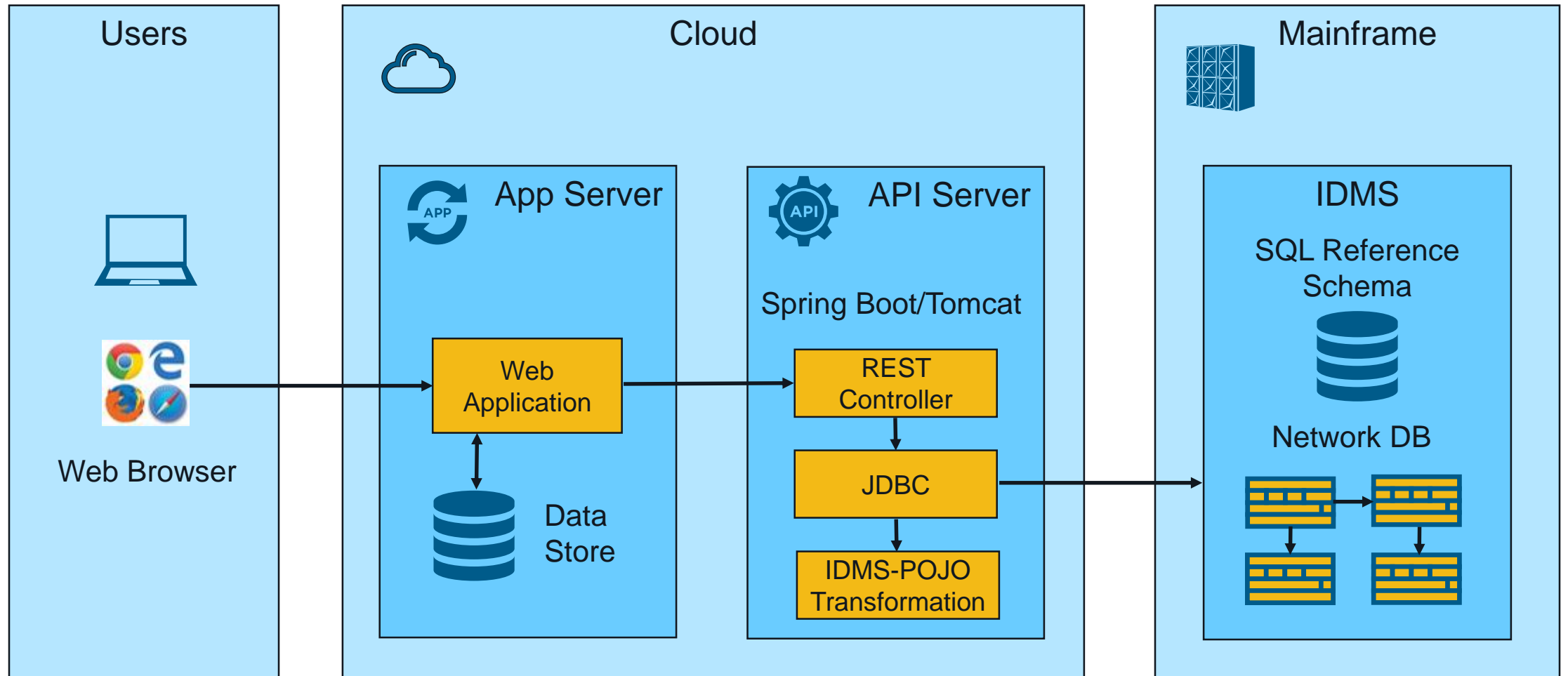
HTTP POST payrollUpdate

Payroll Record
COBOL Copy Book

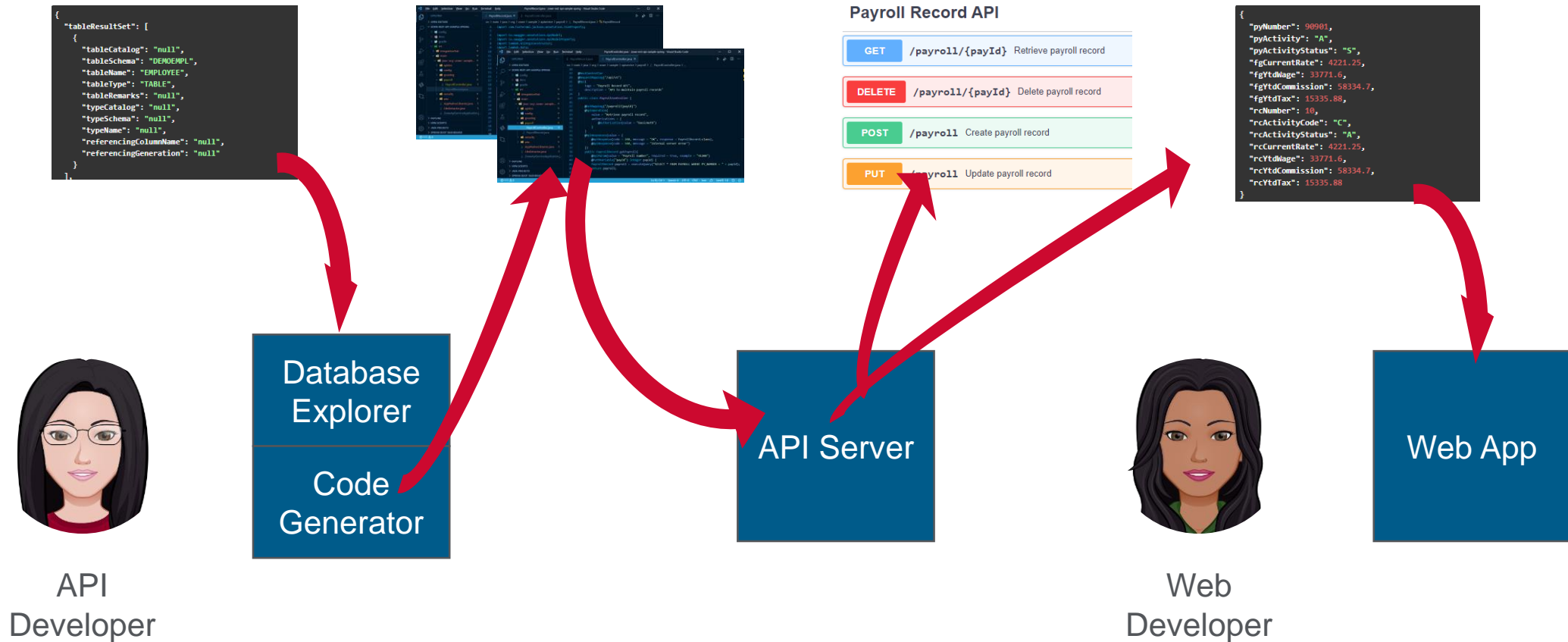
```
02 PAY-IDENTIFICATION.
03 PY-NUMBER          PIC 9(5).
03 PY-ACTIVITY-CODE   PIC X(1).
03 PY-ACTIVITY-STATUS PIC X(1).
02 PAY-FIGURES.
03 FG-CURRENT-RATE    PIC 9(6)V9(2).
03 FG-YTD-WAGE        PIC 9(6)V9(2).
03 FG-YTD-COMMISSION  PIC 9(6)V9(2).
03 FG-YTD-TAX         PIC 9(6)V9(2).
02 PAY-RECORD.
03 RC-NUMBER          PIC 9(5).
03 RC-ACTIVITY-CODE   PIC X(1).
03 RC-ACTIVITY-STATUS PIC X(1).
03 RC-CURRENT-RATE    PIC 9(6)V9(2).
03 RC-YTD-WAGE        PIC 9(6)V9(2).
03 RC-YTD-COMMISSION  PIC 9(6)V9(2).
03 RC-YTD-TAX         PIC 9(6)V9(2).
```

Case Study:

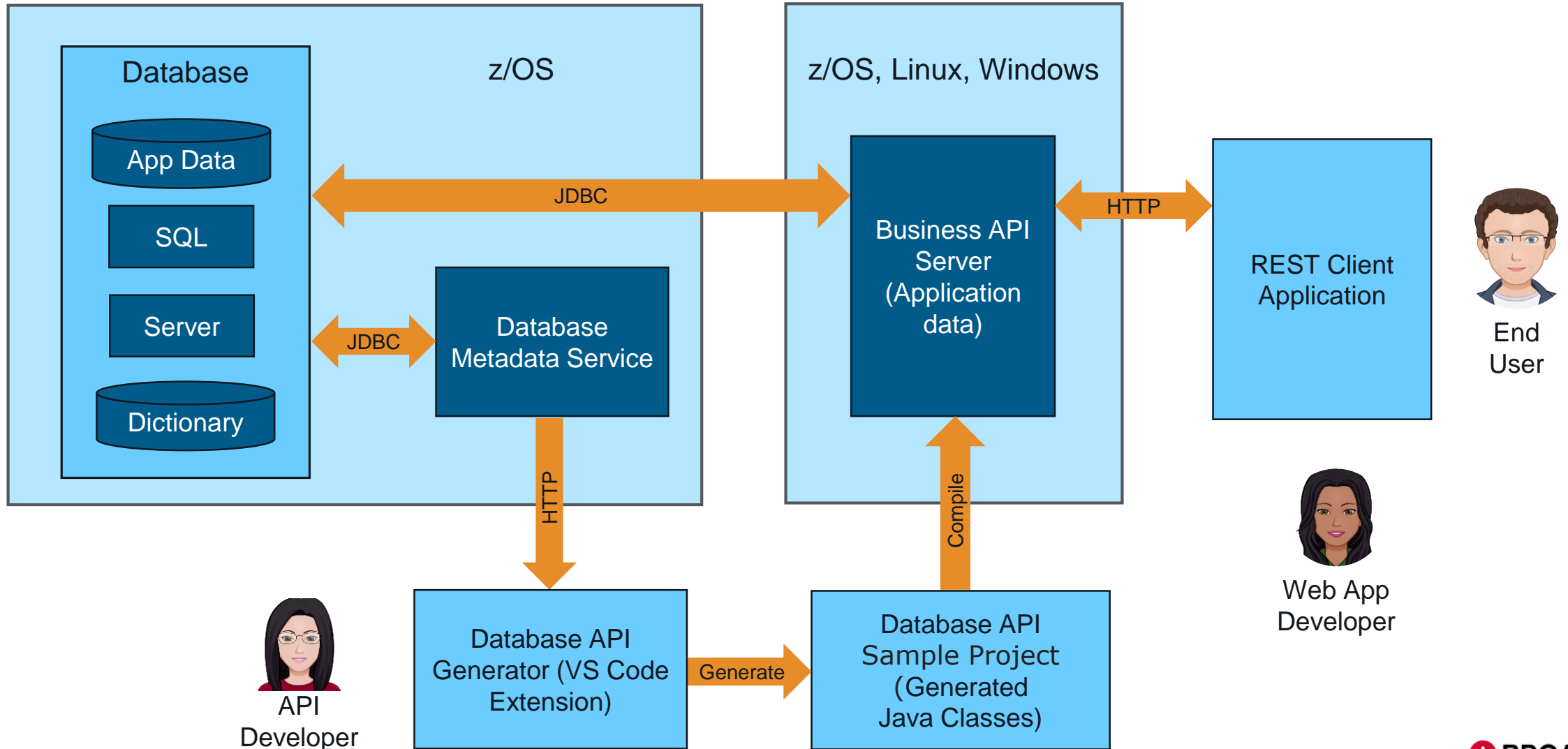
Leveraging a Database for New Applications



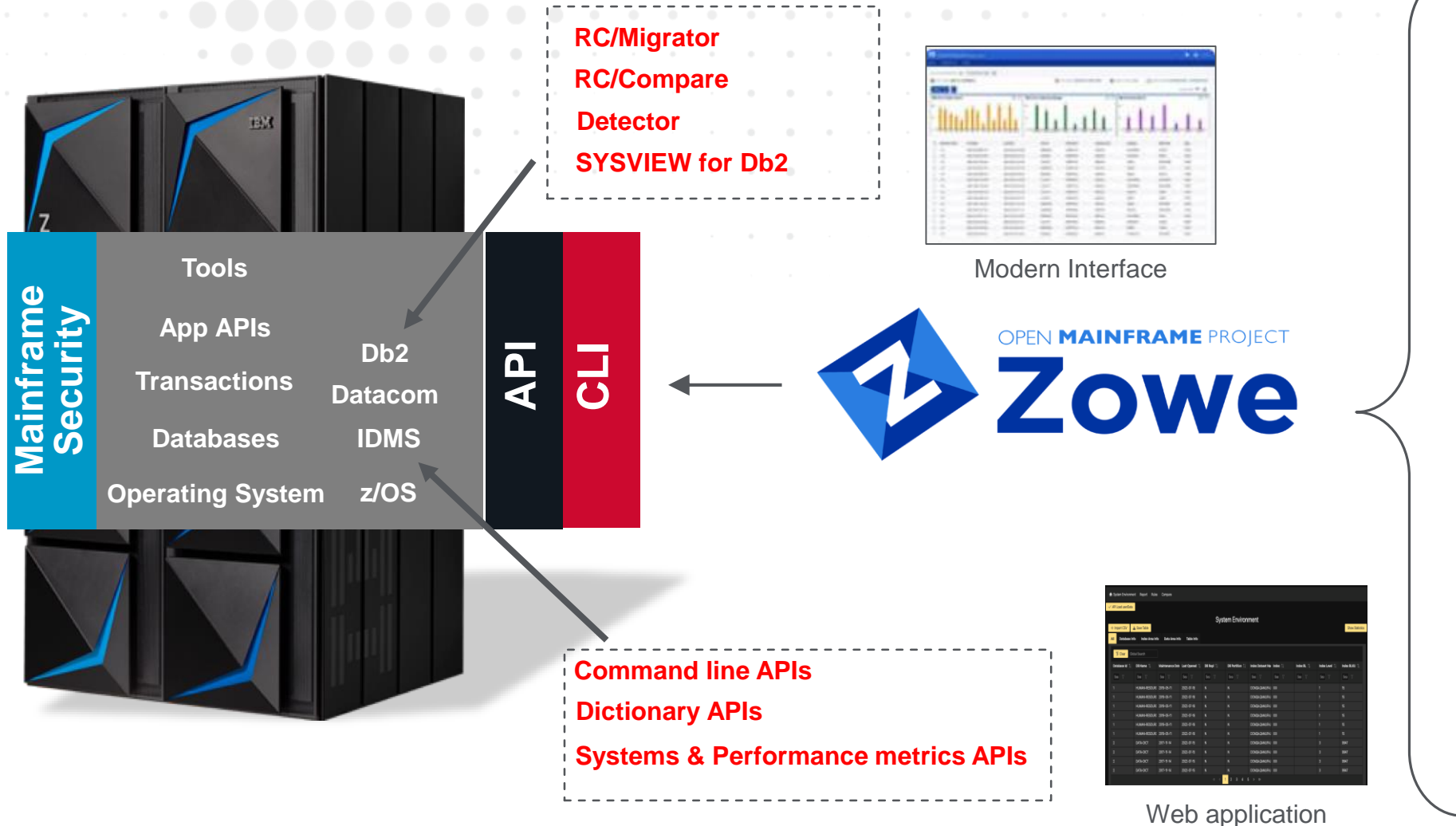
Using APIs for Web Application Development



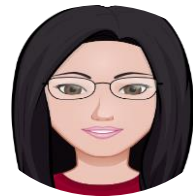
Database API Tools Architecture



Embrace Open - Data Management



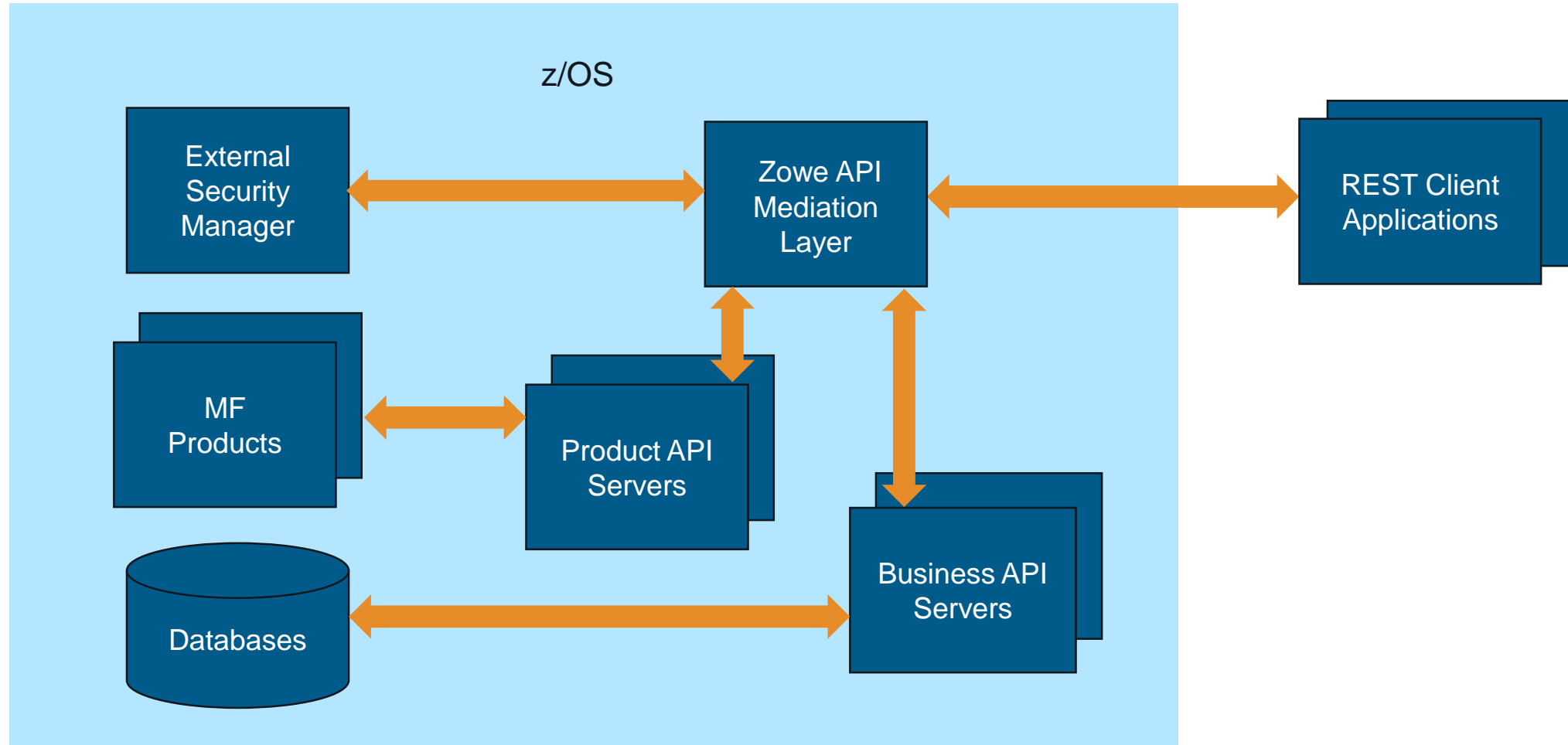
NEXT GEN DEVELOPER



MODERN DEVOPS TOOLS



Business API Integration with Zowe



| Key Benefits

- Leverages investment in IDMS and Datacom
- Enables use of modern languages and frameworks
- Little or no coding needed to implement APIs
- Developers need little or no mainframe database knowledge
- Zowe integration for security and scalability



Demo:

Realizing Outcomes with the Database API Generator

| Poll

Do you have a current or future project need to create more modernized access to your IDMS or Datacom applications and data?

- Yes, please contact met directly
- Future interest (60+ days out)
- Not at this time



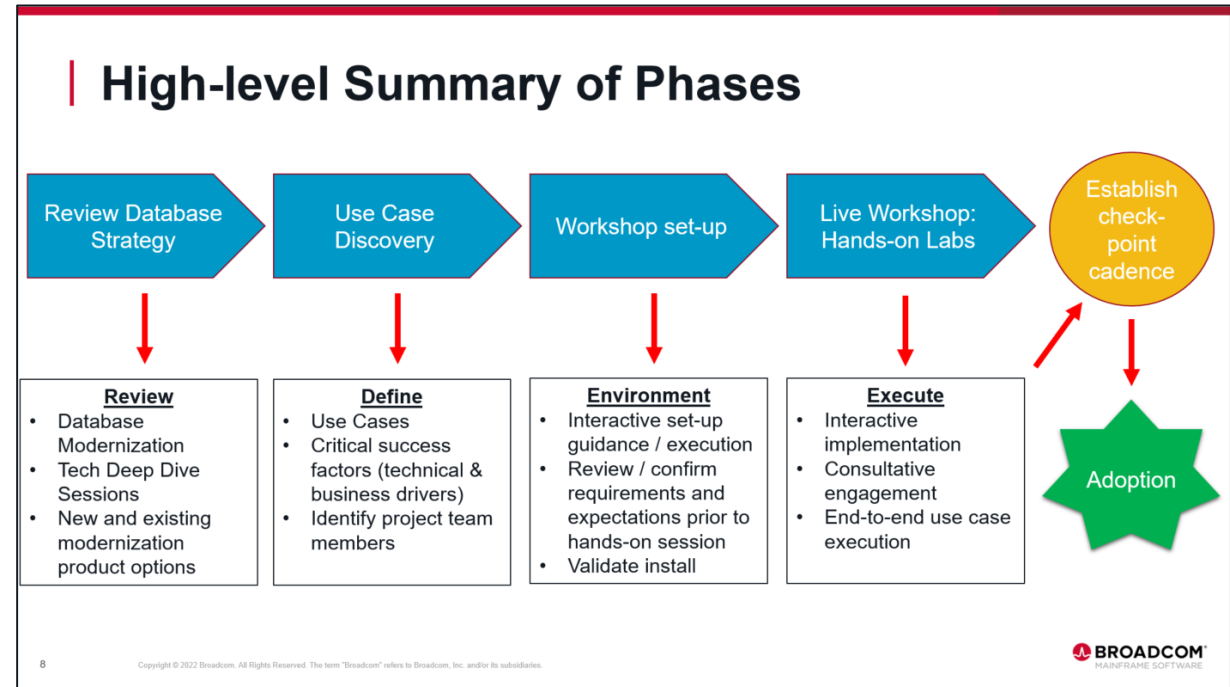
Call to Action:

What's next and How do you Get Started?

Poll: Embrace Open Engagement

Are you interested in further discussing the opportunity to pursue an Embrace Open Workshop?

- Yes, please contact met directly
- Future interest (60+ days out)
- Not at this time



| Reference Links

- [TechDocs: IDMS “Use the Database API Generator”](#)
- [TechDocs: Datacom “Use the Database API Generator”](#)
- [TechDocs: Zowe API ML](#)
- [Zowe Docs: API Mediation Layer](#)
- [IBM Z and LinuxONE Community: Zowe API ML](#)

| Request Assistance

- If you have any questions or require assistance, contact your local technical support group at <https://www.broadcom.com/support/software/contact> or visit the [Support Portal](#)
- Please visit the [IDMS IUA EIUA Community](#) and [Datacom CADRE Community](#) sites and participate in conversations
 - What is your recommendation on what we should focus on next?
- For more information or a deep-dive discussion contact:
 - Sheila Miller (IDMS) (Sheila.Miller2@broadcom.com)
 - Nakesha Newbury (Datacom) (Nakesha.Newbury@broadcom.com)

Questions





Thank You