

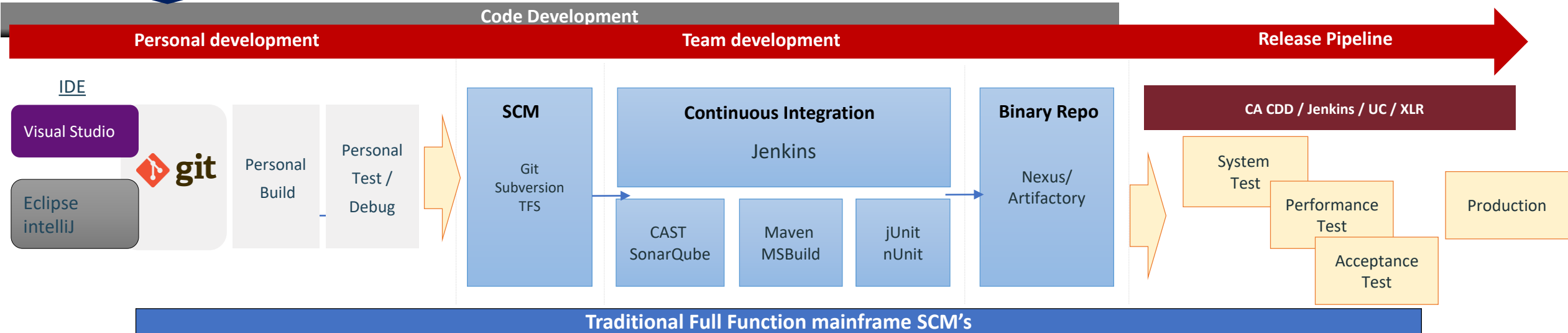
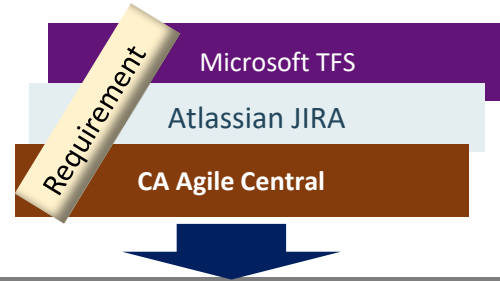
# Day in a Life of a Modern Mainframe Cobol Developer

Dejan Milinkovic, Lukas Zima  
Broadcom

November 2020  
Session **4BB**



# Modern DevOps Practices



Open Source

Personal builds –vs- team integration

Browser based development environments

Performance analysis at commit

# Open Source Tooling Dominates AppDev



**99%** of **Fortune 500** use open source

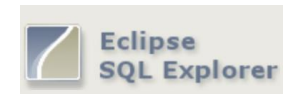
**68%** of **IT Leaders** increased their use of open source last year<sub>4</sub>

**89%** of developers view open source as equal or **higher** quality than proprietary

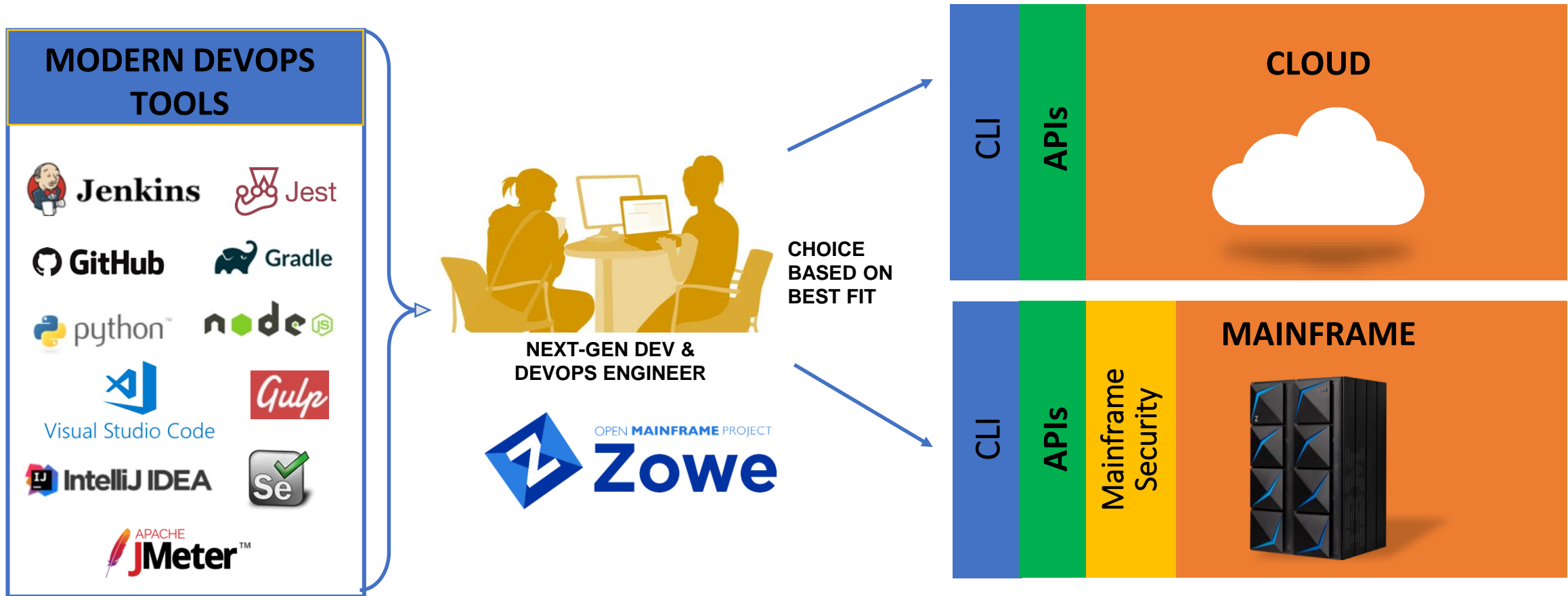


“  
We’re **all-in** on open source  
”

**Satya Nadella**  
Chief Executive Officer of Microsoft



# Open Mainframe – Like Other Platforms



# Opening the mainframe to Open Source

## “Open-first” benefits



**Accelerates** software delivery via automation



**Expands** “next-gen” talent pool



**Aligns** with distributed software delivery

# Current state of application development

```

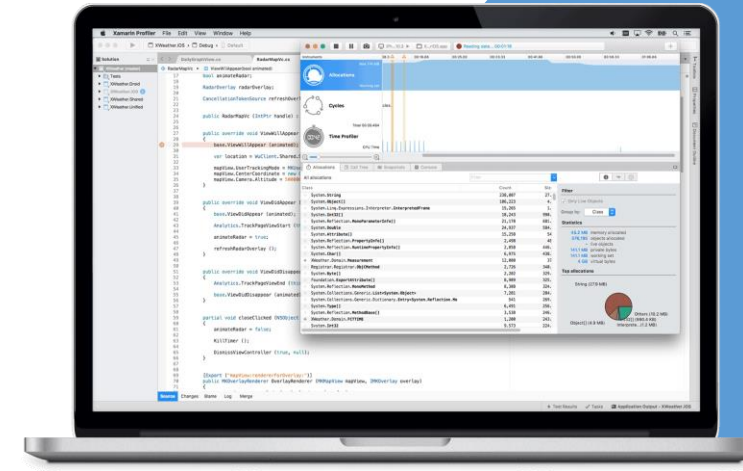
Menu Utilities Compilers Options Status Help
ISPF Primary Option Menu
Option ==>
0 Settings      Terminal and user parameters 000200
1 View         Display source data or listing 000300
2 Edit         Create or change source data  000400
3 Utilities    Perform utility functions     000420
4 Foreground   Interactive language processing 000500
5 Batch        Submit job for language process 000600
6 Command      Enter ISH or Workstation command 000700
7 Dialog Test  Perform dialog testing        000700
9 IBM Products IBM program development products 000800
10 SCLM        SCLM Configuration Library Management 000900
11 Workplace
12 z/OS System
13 z/OS User

*****
***** THIS UTILITY USED TO ALLOCATE OR DEALLOCATE A DATASET
***** CREATES BOTH PS AND PDS FILES ALSO DELETES SAME
*****
***** MYPROC PROC -----MYPROC IS PROCEDURE NAME THEN PROC THIS IS SYNTAX
***** //DELETE EXEC PGM=IEFBR14
***** //SYSOUT DD SYSOUT=*
***** //SYSPRINT DD SYSOUT=*
***** //SYSUT1 DD DSN=AK999K.AVINASH.P54,
***** DISP=(NEW,CATLG,DELETE),
***** DCB=(LRECL=80, BLKSIZE=8000, RECFM=FB),
***** SPACE=(TRK,(1,3),RLSE)
***** PEND -----END OF PROC.
*****
*****
***** STEP2 EXEC MYPROC -----HERE I AM CALLING MY INSTREAM PROC IN SAME JCL
***** //SYSIN DD DUMMY
*****

Mterpreter : z/OS REXX
return text

GET_IPINFO /> returns the IP of /
test = NEWLINE||"Mainframe user"
return text

GET_IP_INFO:
/* Uses TSO command 'netstat home' to get IP config */
/* Requires TSO segment */
x = PUTTRM('var:1')
ADDRESS TSO "NETSTAT HOME"
PARSE VAR var:1 a1 a2 a3 a4 a5 a6 a7 a8 type .
test = NEWLINE||"TCP/IP Name:" type||NEWLINE
IPADDR = SOCKET('GETHOSTID')
PARSE VAR IPADDR ip_rc ip_addr
test = test||"Connected using IP Address: "||ip_addr||NEWLINE||NEWLINE
} = 1
  
```



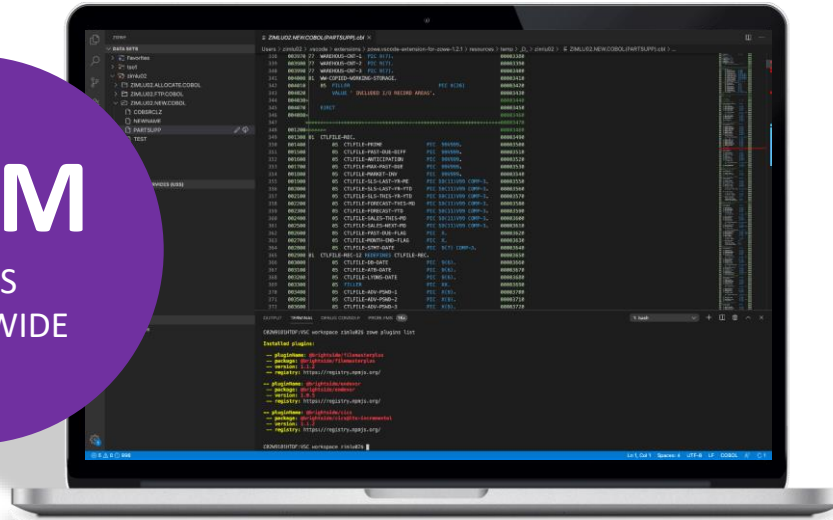
Primitive by today's standards

- ISPF/TSO interfaces
- JCL/Rexx for build and system testing
- Platform-dependent tools

- Workstation-based Eclipse IDE
- Vendor plug-ins
- Proprietary tools

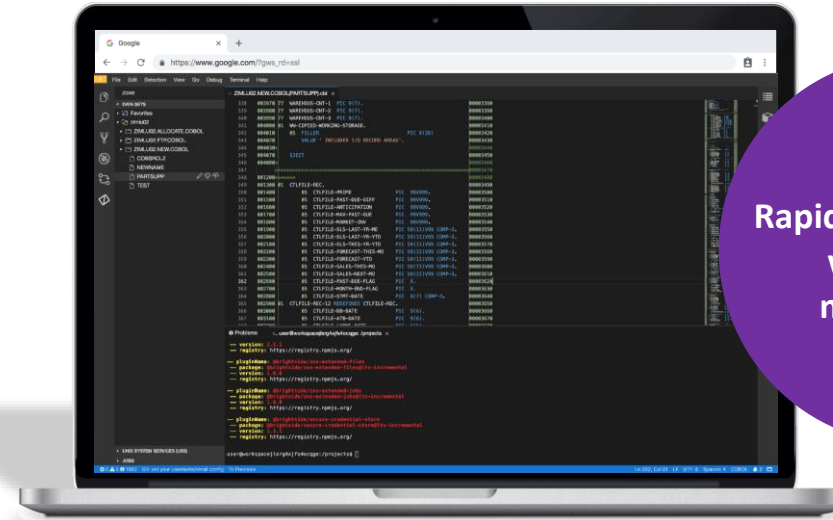
# Future of mainframe application development

8.5M  
USERS  
WORLDWIDE



- Lightweight IDE
- Microsoft backed, extensive plugin library
- Git- & Zowe-enabled
- Open source, including extensions

Rapid onboarding; no  
workstation  
maintenance



- Browser IDE & workspace server
- Container-native
- Git- & Zowe-enabled
- Open source, including extensions

# Shift Left performance analysis

## Shift Left – performance detection



DevOps & CI/CD architect

Ravi includes automatic performance testing of batch workload into the CI/CD pipeline, which allows him to meet business requirements on quality of the code, that is deployed to production.

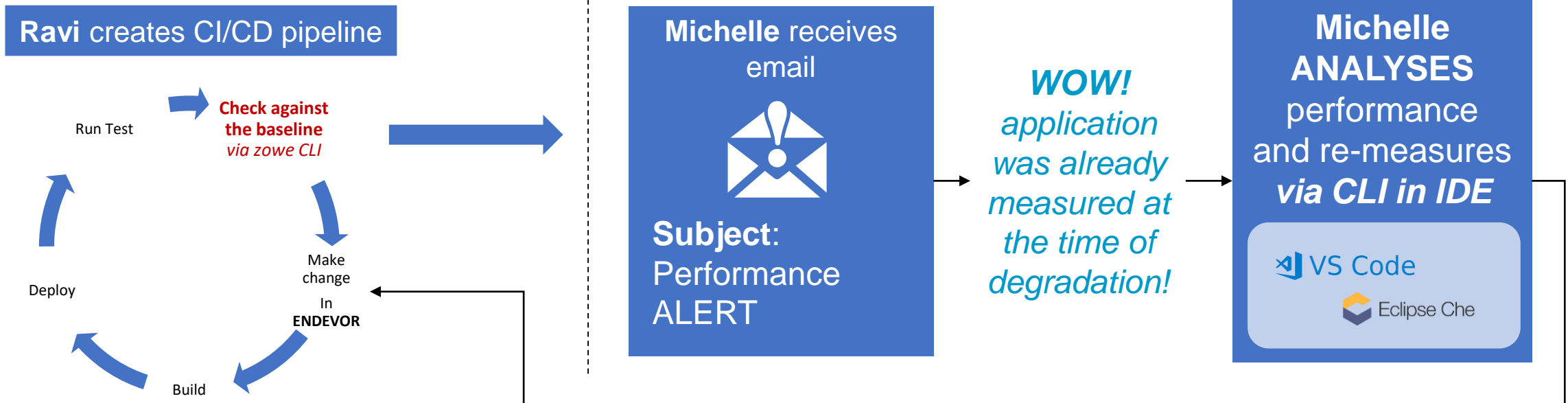
## Shift Left – performance correction



Modern developer/QA

Michelle receives notification, if her code change introduced a performance issue, which gives her an opportunity to fix it immediately instead of going through hours of complicated analysis on a case should it be discovered later in production

Michelle uses CLI from her IDE of choice to measure her application and discover where the problem lies in seconds.



# Demo

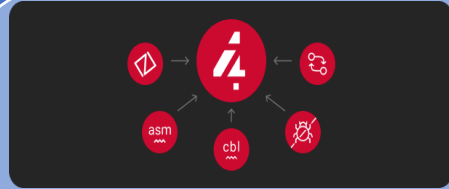
## Analyze and Code



- VSCode IDE with Code4z extensions
  - Mainframe access
  - Smart editors
  - Zowe CLI and plugins for scripting, including Build and Test automation
  - Debugger integration
- Integrated Git client

Analyse and Code

## Analyze and Code



- VSCode IDE with Code4z extensions
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Bridge for Git Zowe CLI and  
CA InterTest Debug adapter

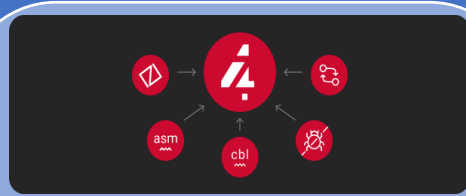
## Build and Debug



CA Endeavor  
CA InterTest

Build and  
Debug

## Analyze and Code



- VSCode IDE with Code4z extensions
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Check-in

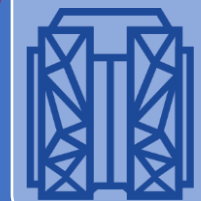
Check-in

## Team development





Bridge for  
Git

CA Endeavor



# In conclusion ...

<p><b>Summary</b></p> 	<ul style="list-style-type: none"> <li>• Open source IDEs for the mainframe</li> <li>• Flexibility of IDE choice for Developers</li> <li>• Mainframe development like other platforms</li> <li>• Performance analysis at commit</li> </ul>
<p><b>Why it matters</b></p> 	<ul style="list-style-type: none"> <li>• Represents the new age application developer mindset</li> <li>• Facilitates development of Mainframe applications with the same agility as cloud</li> <li>• Centralized management – easy access from anywhere</li> <li>• Performance analysis when its faster/cheaper to fix</li> </ul>

# Thank You

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1  2  3  4  5  6  7  8  9

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1  2  3  4  5  6  7  8  9

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1  2  3  4  5  6  7  8  9

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