A Cloud Native Development Experience for IBM Z

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November 2019
Session PL




AGENDA

- Why Cloud Native Development Experience for Z ?
- Introduction to Project Nazare
- IBM Z Open Editor – A VS Code extension for editing COBOL and PL/I
  - IBM DBB
  - Zowe
- Demo IBM Z Open Editor in Eclipse Che and VS Code

"By 2022, the acceleration of legacy app modernization and net-new development will lead to 35% of production apps being cloud native — utilizing microservices, containers, and dynamic orchestration."[1]

1, 2, 3 Sources: IDC, BMC, Microfocus

The journey to cloud

Agility, Automation, & Self-Service

To succeed, enterprises must

- Modernize without undermining current functionality
- Build applications that are digital native/cloud native

42% Z customers say application modernization is a priority in the next year[2]

71% Z customers say the inflexibility of their mainframe limits the ability of the IT dept to innovate[3]

1, 2, 3 Sources: IDC, BMC, Microfocus

Selecting the right technology is the key to success

Top Technology Investments

- Continuous integration, deployment, and delivery
- Automation and containers
- DevOps

Top 5 Most Important Tools

- Version control system
- Text editors/IDE
- Chat/Collaboration tools
- Bug/Issue tracker
- Continuous integration and delivery

92%

agree that open source tools are critical to software innovation

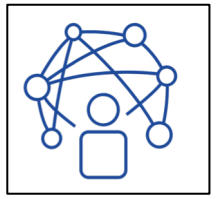
Open source tool provides a cost effective, sustainable development environment.

58%

think the biggest challenges organization faces when it comes to adopting new practices or tools is replacing ingrained practices

GitLab 2018 Global Developer Report. (n.d.). Retrieved from https://about.gitlab.com/developer-survey/2018/

Market Insights

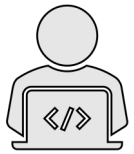


Developer communities are growing more than ever before.

23M Developers world wide in 2018 and growing to **27.7M** by 2023[6],

GitHub claims **31M** developers build on GitHub - including *more users in 2018 than in their first six years combined*[7] .

SaaS market is growing by **32%** per year with Microsoft in the lead with 17% market share[1].



VS Code is the most popular development environment with **34.9%** developers using it. Eclipse is still widely popular among **18.9%** of developers[2].

64% Mainframe powered organization in *2019* compare to **57%** in *2018* with YoY growth rate of *7%*[3].

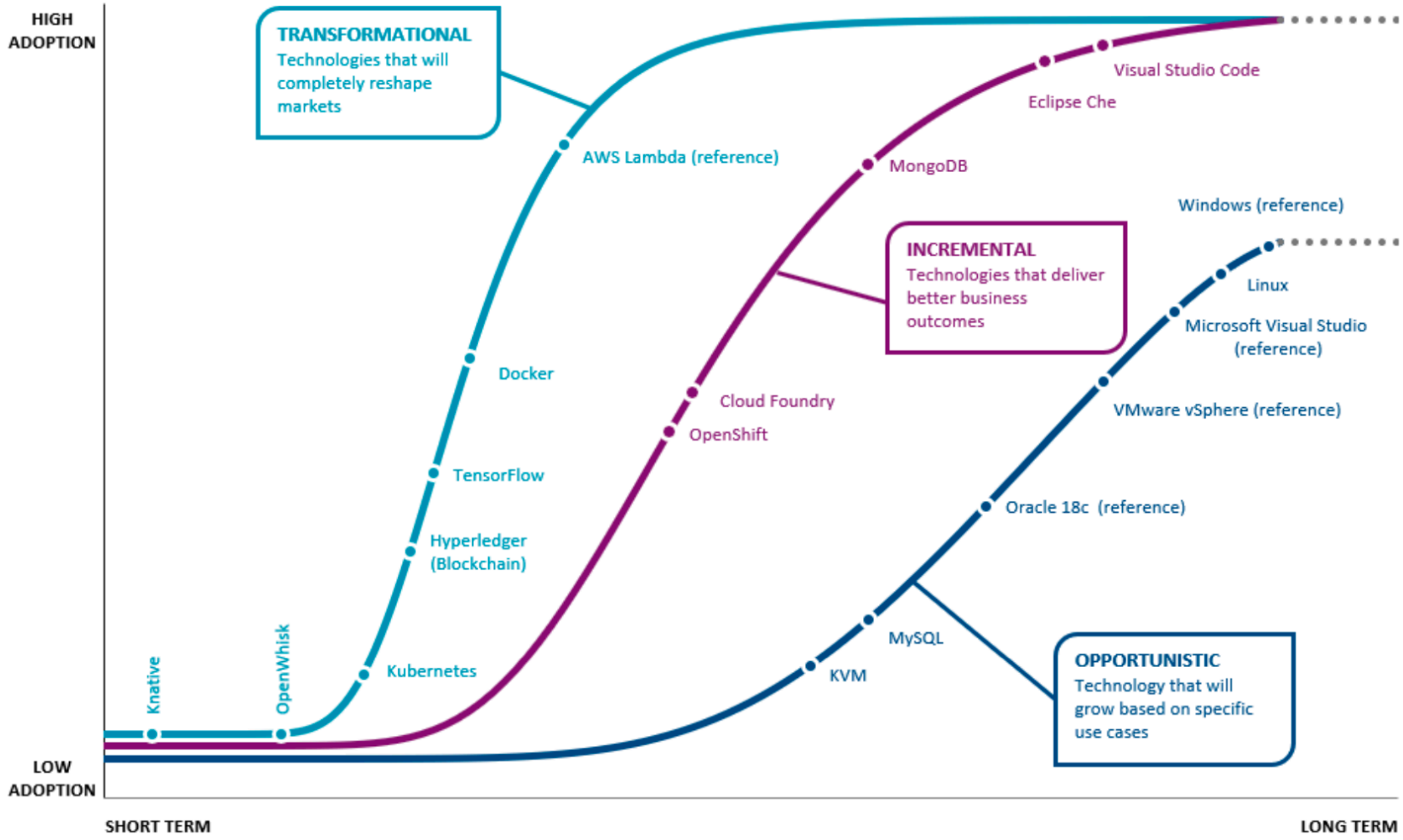
71% of Fortune 500 companies are Mainframe powered[4].

2M Mainframe Developers worldwide but declining[5] .

31.1% developers want to use Mainframe technology[2] .

Additional Market Insights …

IDC TechScape: Worldwide Open Source Software Technologies, 2018



Note: The IDC TechScape represents a snapshot of various technology adoption life cycles given IDC's current market analysis. Expect over time for these technologies to follow the adoption curve on which they are currently mapped.

Source: IDC, 2018

1

Hybrid

Enable enterprises across public, private, and traditional environments

2

Multicloud

Manage other vendors' clouds, acknowledging the reality that client environments are heterogeneous

3

Open

Build capabilities that are open by design, enabling client flexibility, and reducing vendor "lock in"

4

Secure

Provide reliability and continuous security for the client's environment

5

Management

Consistent service level, support, logging, management, and delivery across complete cloud environment

IBM's core principles towards hybrid cloud

Nazare is a cloud native developer experience for Z

z/OS integrated into a hybrid multi-cloud architecture.

Consumable DevOps capabilities exposed as services

Self-service provision of z/OS runtimes

Ansible, Kubernetes etc

A cloud native buyer journey allows you to buy the services you need on demand

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

Open and familiar developer tools i.e. Eclipse, VS Code

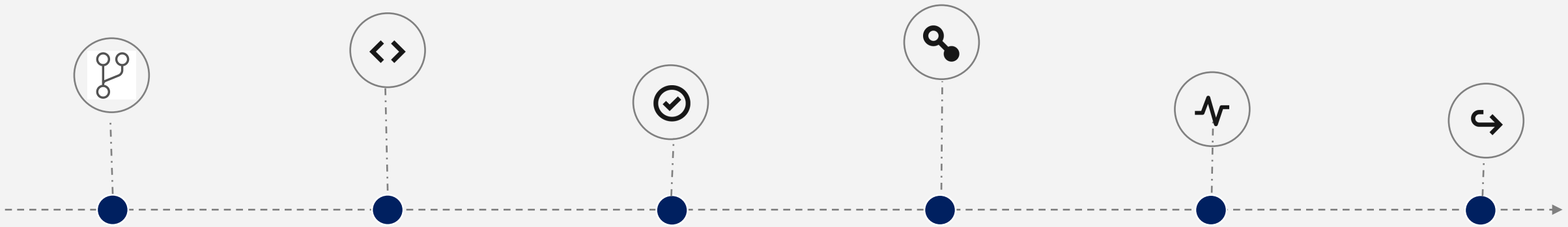
Empower developers to own personalized development environments

Integration with enterprise CI/CD pipeline using popular tools i.e. Git, Jira, Jenkins etc.

Integration with existing developer communities

Customized, on-demand learning and low-cost trial environments

IBM Z Open Developer Experience



SCM Integration	IDE(Edit, Build, Debug)	Test	Provisioning	Insights	Deploy
• Import or create project • Modern SCM integration	• Debug • Impact Analysis insights • Dependency Based Build	• Automated test with zUnit	• Self service provisioned environments	• Application performance insights • Environment monitoring • Graphical dashboard for run time statistics	• Commit to SCM • Deploy to traditional and containerized environments
Git	VS Code, Eclipse, Eclipse Che	Junit, Maven, Galasa	Ansible, Kubernetes	Prometheus, Grafana, Elastic search	UCD

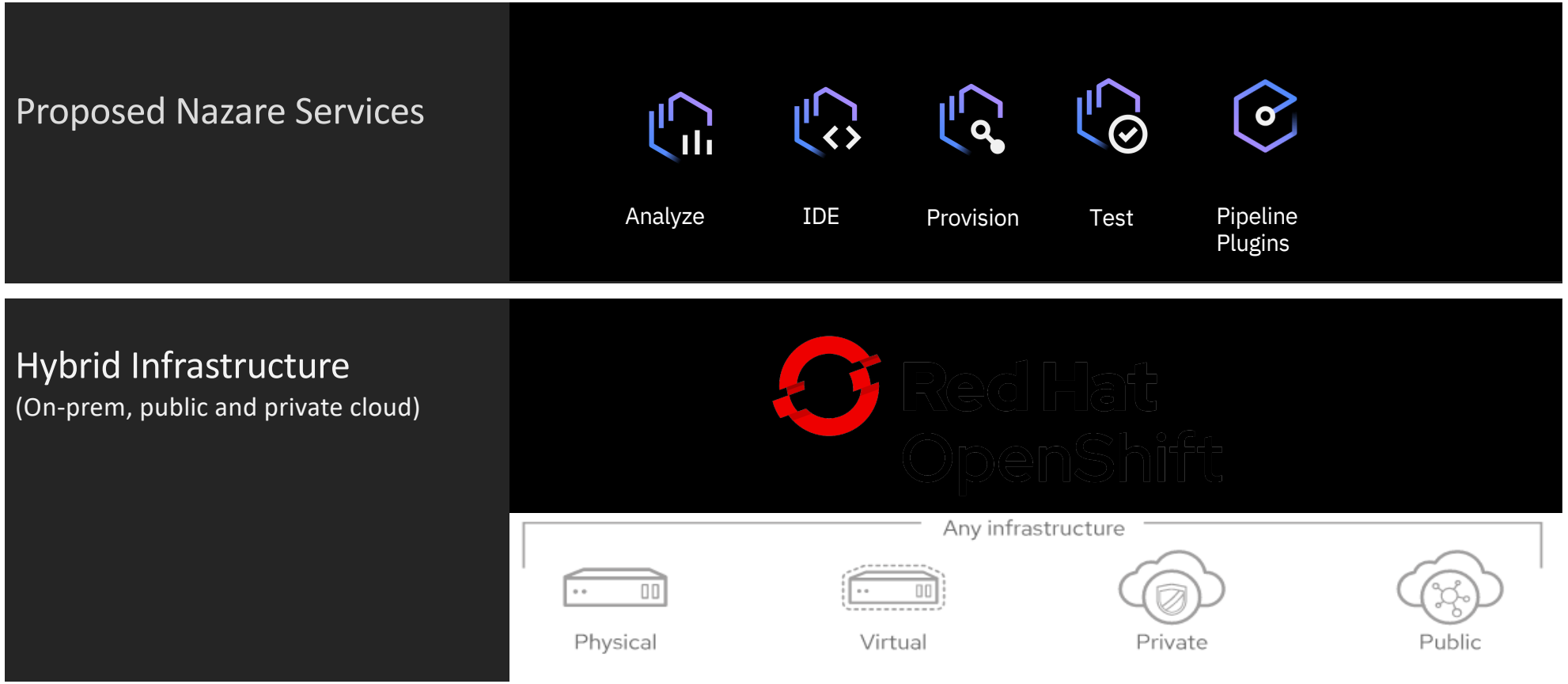
Automated Pipeline across multi-cloud platforms — Jenkins, Artifactory, Nexus

Integration with open and familiar tools

Proposed Nazare ecosystem

The proposed Nazare services will complement and work with existing offerings

Developers can use all the Nazare DevOps services or choose just what they need to complement their existing workflows

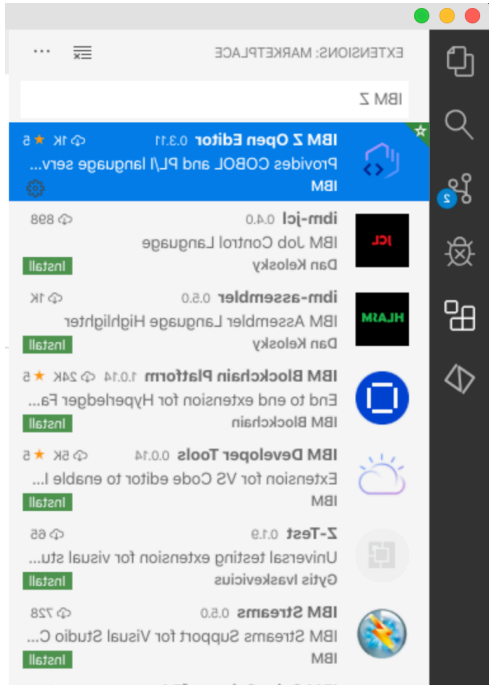


IBM Z Open Developer Experience

Select your preferred Integrated Development Environment (IDE)

- VS Code
- Eclipse Che
- Eclipse
- CodeReady

IBM Z Open Editor



IBM Z® Open Editor

A free modern editing experience for IBM Z Enterprise languages

GUIDE SHARE EUROPE UK REGION

INTEGRATES with THEIA

Eclipse Che

MVS | USS | JES

REMOTE EXPLORERS

VS CODE EXTENSION

Available in Marketplace

POWERED BY Zowe

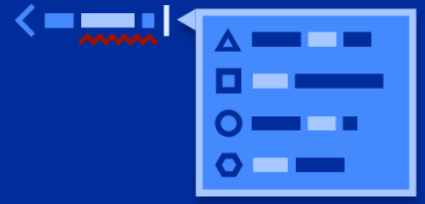
PREVIEW REMOTE COPYBOOKS

CUSTOM SHORTCUTS

GIT SCM INTEGRATION

ADVANCED LANGUAGE SERVERS COBOL PL/I

JCL SYNTAX HIGHLIGHTING



REALTIME SYNTAX CHECK

Sortable / Searchable OUTLINE VIEW

DECLARATION REFERENCES

LIST | GOTO DEFINITION

Using CODELENS

REFACTORING

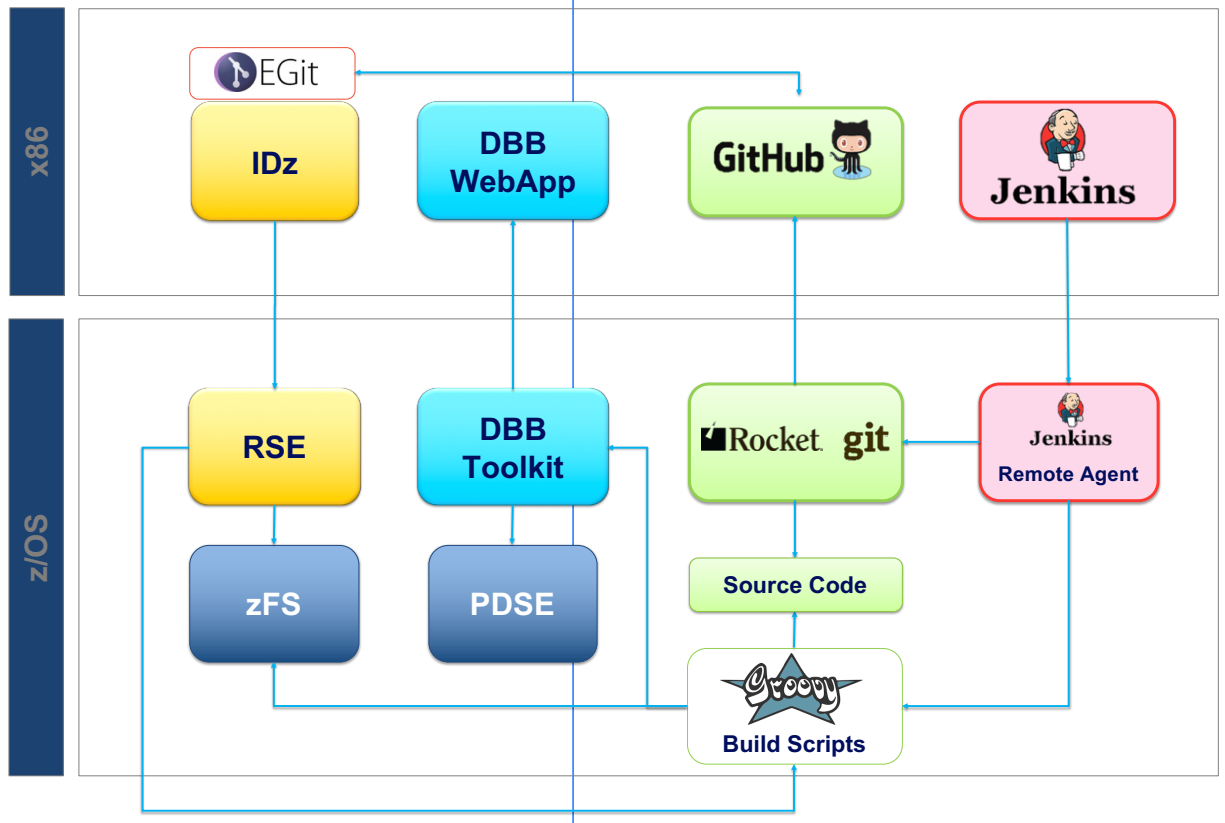
CODE SNIPPETS

TERMINAL INTEGRATION

What is IBM Dependency Based Build?

- Tool to build traditional z/OS applications such as COBOL and PL/I as part of a continuous integration (CI) pipeline.
- Provides a modern scripting language based automation capability that can be used on z/OS.
- DBB API is written in Java and can be called by Java applications as well as Java based scripting languages such as Groovy, JRuby, Jython, Ant, Maven, etc.
- Not tied to a specific source code manager or pipeline automation tool.

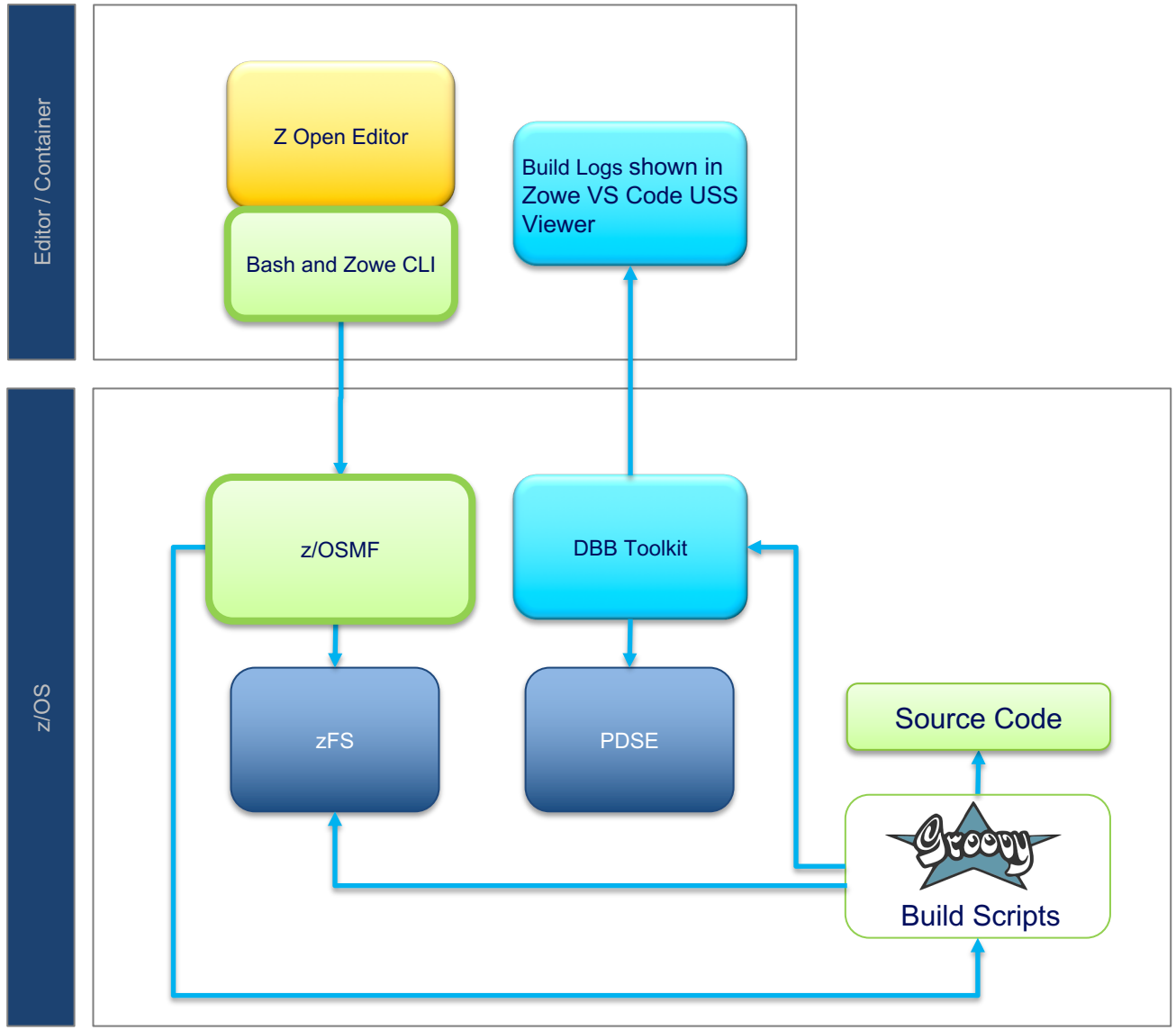
Dependency Based Build typical setup



Dependency Based Build in IBM Z Open Editor powered by Zowe CLI

User Builds of a single program

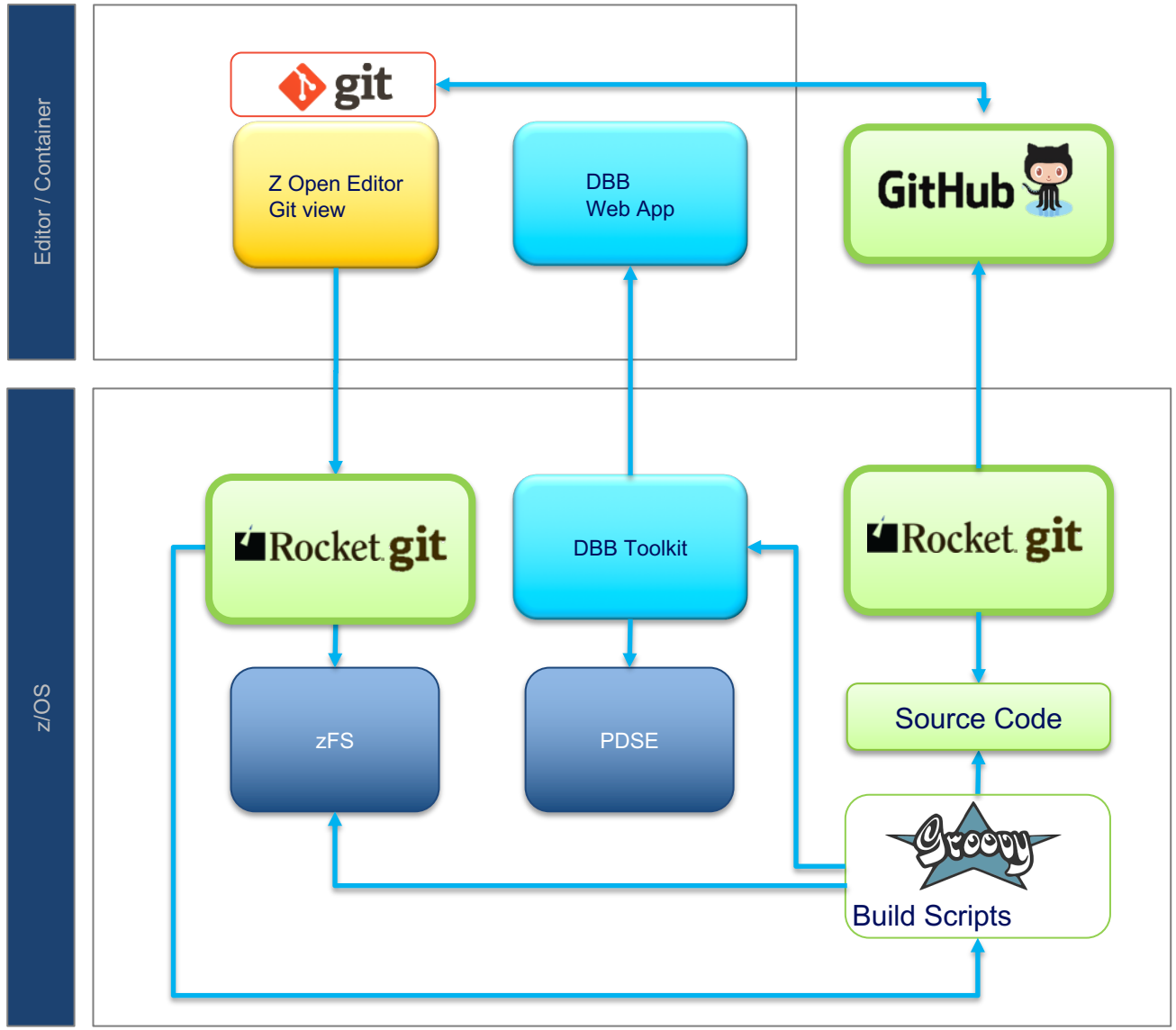
1. Use Git or just FTP to have a local and USS copy of your source and build scripts.
2. In local workspace use interactive wizard to configure your build task and connection to USS.
3. Make changes locally on a specific program.
4. Start a build task locally from IDE.
5. Build task uses Zowe CLI to uploaded changed file and its dependencies to USS and start DBB build.
6. Use Zowe USS explorer to open build result status and log files.



Dependency Based Build in IBM Z Open Editor powered by Git

Git Branch Builds

1. Work in local VS Code workspace with your personal Git branches.
2. Push a branch to z/OS host via Git.
3. Use VS Code launches to start Build on the host.
4. Use Zowe USS explorer to open build result status and log files.



IBM Z Open Editor utilizes the Open Mainframe Project Zowe

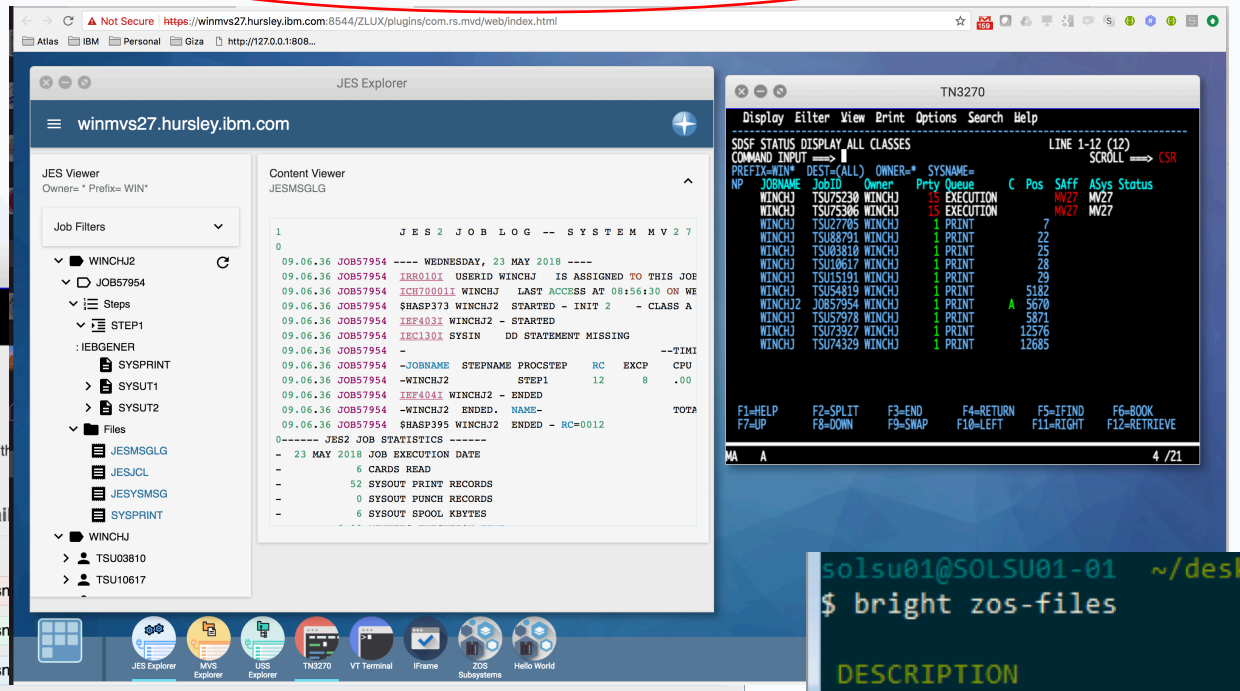
- An extensible framework for connecting applications and tools to mainframe data and applications.
- Aims to make the mainframe an integrated and agile platform within the changing IT architectural landscape.
- First open source project on z/OS. All code is licensed under the Eclipse Public License version 2.0

Zowe Vision Statement

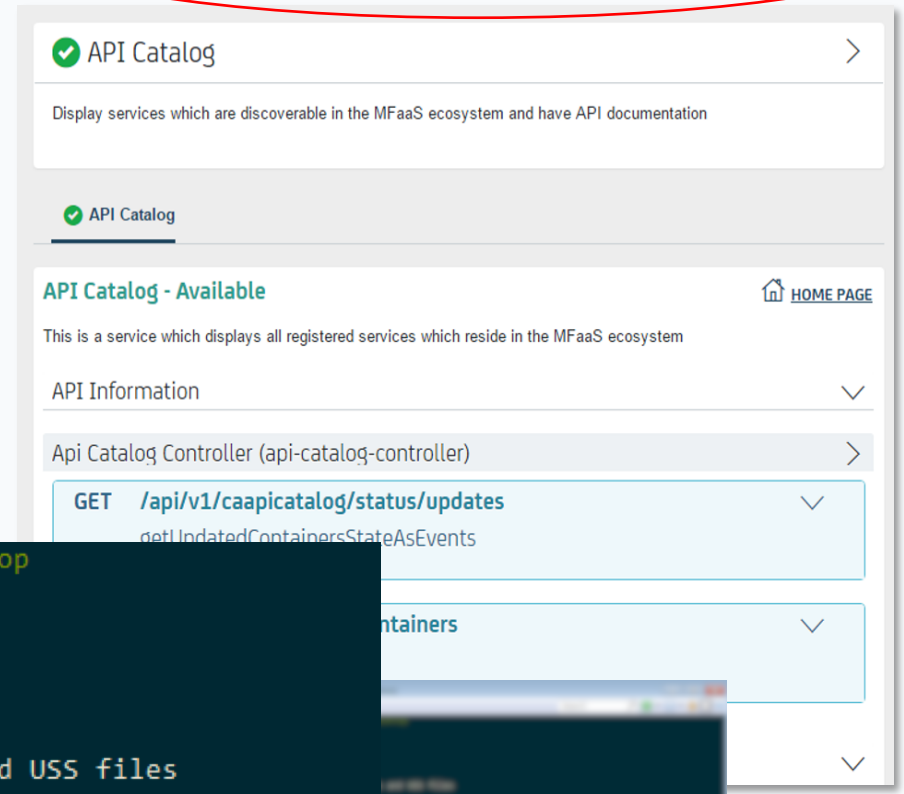
- Attract new people
  - ✓ Demystify the Z platform
  - ✓ Enhance integration and consumability
  - ✓ Promote Open community of practice
- Reduce learning curve
  - ✓ Improve productivity
  - ✓ Modern, platform-neutral interfaces
  - ✓ Cloud-like experience
- Simplify architecture
  - ✓ Reduce operational overhead
  - ✓ Improve co-existence
  - ✓ Enable rich ecosystem of free and commercial solutions

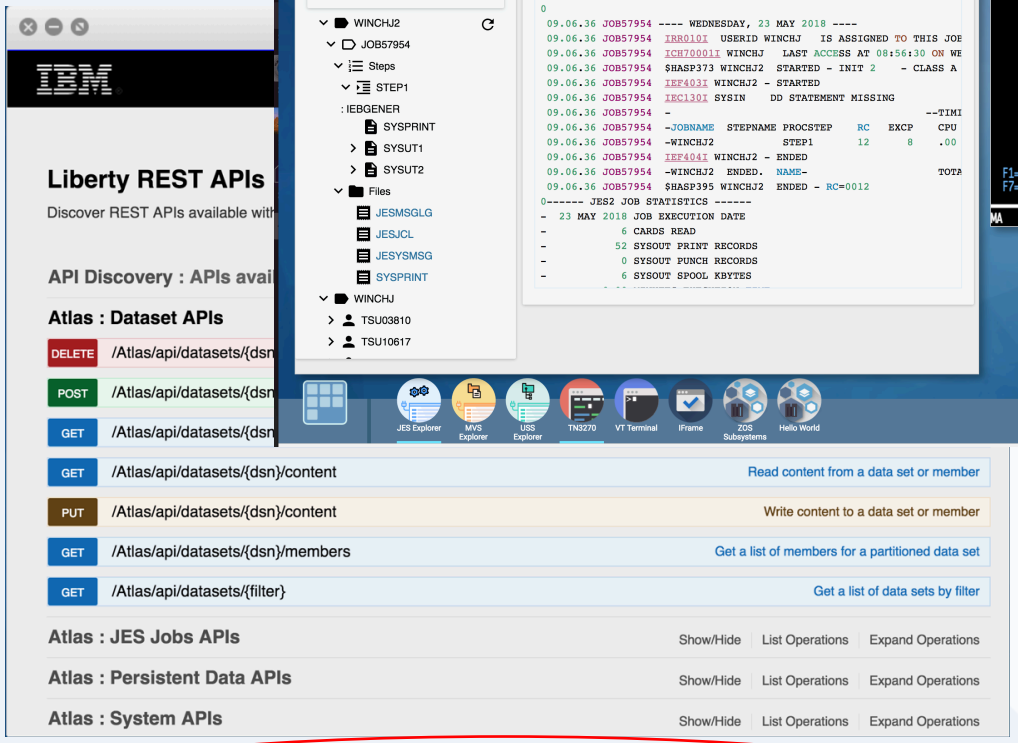
What's in Zowe?

Browser-based Web Desktop

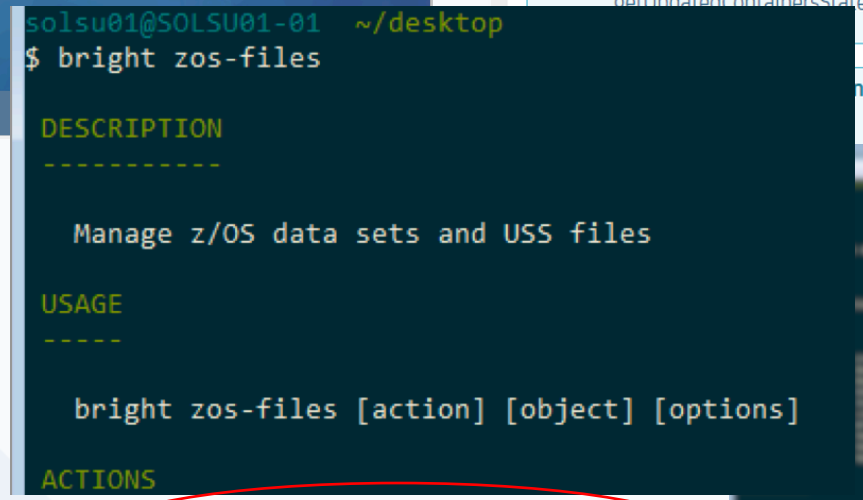


API Mediation Layer
(API Catalog, Discovery Service, ESM microservice)





Swagger-defined z/OS REST APIs



Node.js- based CLI

IBM Z Open Editor in Eclipse Che

- Create Openshift cluster on IBM Cloud
- Customize, build and deploy che-plugin-registry –
  - IBM Z Open Editor extension
  - Zowe extension
- Customize, build and deploy che-devfile-registry –
  - IBM Z Open Editor extension
  - Zowe extension
- Deploy Eclipse Che application on openshift cluster

Resources & Call to Action…

- Download IBM Z Open Editor -- https://marketplace.visualstudio.com/items?itemName=IBM.zopeneditor

- Find out more about IBM Z Open Editor at our About page: (https://ibm.github.io/zopeneditor-about/), see a full list of features on our Documentation website (https://ibm.github.io/zopeneditor-about/Docs/introduction.html)

- Take our Survey -- http://ibm.biz/zopeneditor-survey

- For any questions, issues, or enhancement ideas, please do not hesitate to open an issue at our GitHub: https://github.com/IBM/zopeneditor-about/issues

DEMO

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- Do it online at http://conferences.gse.org.uk/2019/feedback/PL
- This session is PL

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This is the three digit number on the bottom of your delegate badge

2. Was the length of this presention correct?

1 to 4 = "Too Short" 5 = "OK" 6-9 = "Too Long"

1 2 3 4 5 6 7 8 9

3. Did this presention meet your requirements?

1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

4. Was the session content what you expected?

1 to 4 = "No" 5 = "OK" 6-9 = "Yes"

1 2 3 4 5 6 7 8 9

Thank you

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