OPEN MAINFRAME PROJECT

Zowe

Project Overview

Agenda

- Introducing Zowe
- Quick Facts about Zowe
- Why Zowe?
- Zowe Vision Statement
- What’s in Zowe?
  - *Zowe REST Services*
  - *Zowe Web Desktop*
  - *Zowe CLI*
  - *Zowe API Mediation Layer*
- Getting Started with Zowe
- Demo

Introducing Zowe

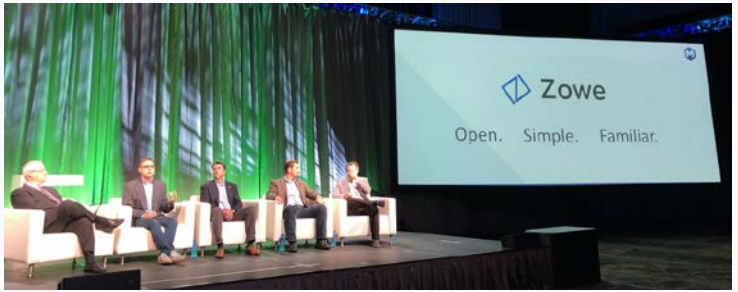
- An extensible framework for connecting applications and tools to mainframe data and applications.
- Aims to make the mainframe an integrated and agile platform within the changing IT architectural landscape.
- First open source project on z/OS. All code is licensed under the Eclipse Public License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

Zowe

Quick Facts about Zowe

- **Zowe 1.0.0 Announce at THINK SF 2019**
  - 100% Open Source (EPL 2.0)
  - Defined extensions points
  - Framework ready for commercial exploitation
- Pronounced as “Zoe” – [zoh-ee] in English
  - Not an acronym – just a simple, fun, and easy name
  - Using the spelling “Zowe” allowed us to trademark
- An open source project under the Open Mainframe Project (OMP), a collaborative project within the Linux Foundation
- IBM, Rocket Software, and CA Technologies are founding members
- **Generally Available on Feb 8th, 2019**

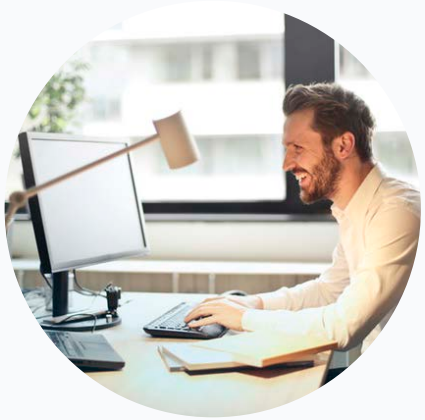
Zowe



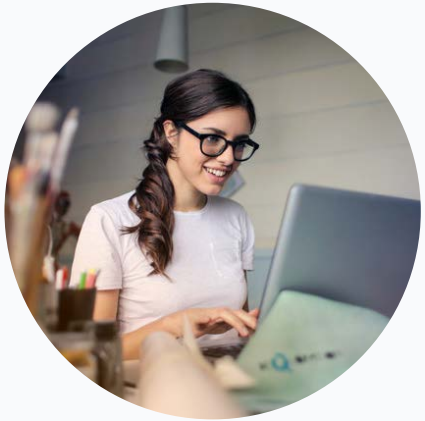
Why Zowe ?

Information Technology is undergoing a revolution of changing architectures

Co-Existence With Other Cloud Models



Protecting Current and Future Investments



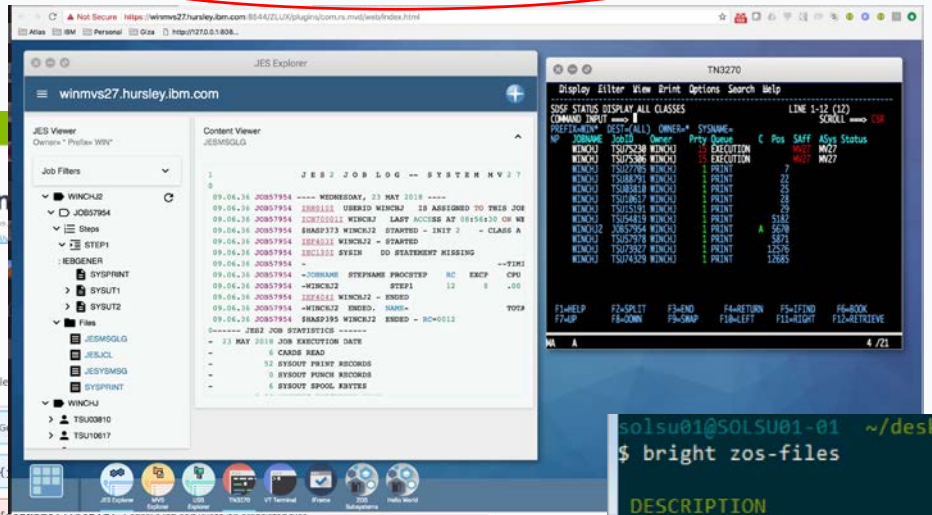
Simple and Familiar

Zowe Vision Statement

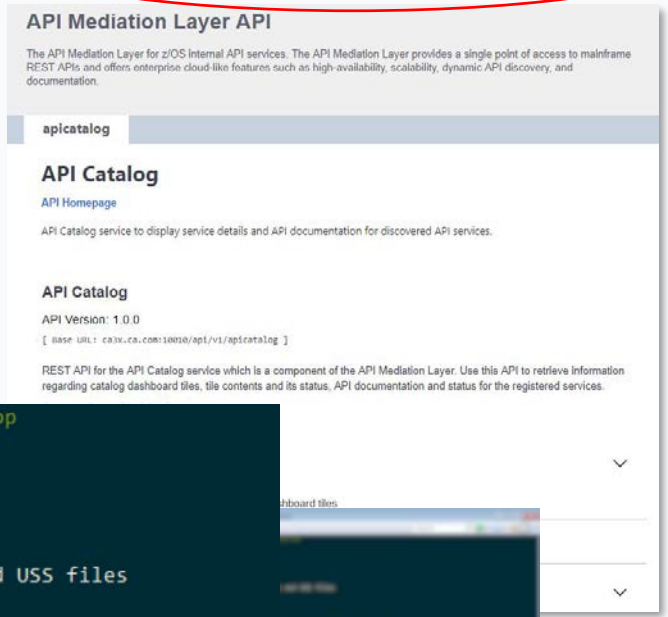
- Attract new people
  - ✓ Demystify the Z platform
  - ✓ Enhance integration and consumability
  - ✓ Promote open community of practice
- Reduce learning curve
  - ✓ Improve productivity
  - ✓ Modern, platform-neutral interfaces
  - ✓ Cloud-like experience
- Simplify architecture
  - ✓ Reduce operational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

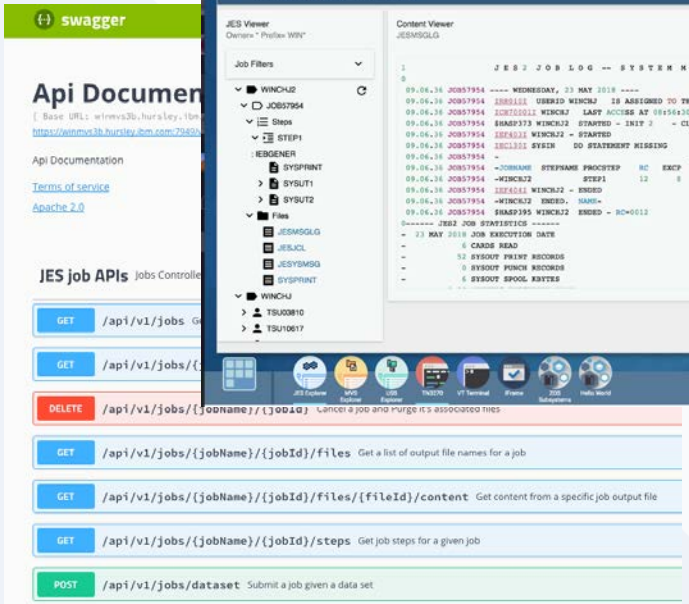
What's in Zowe?

Browser-based Web Desktop

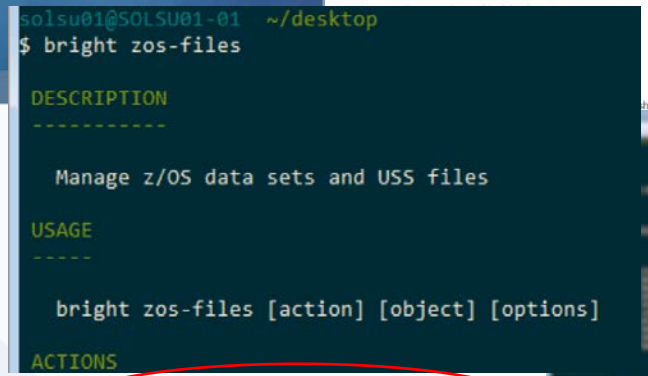


API Mediation Layer
(Gateway, Discovery Service, Catalog)





Swagger-defined z/OS REST APIs

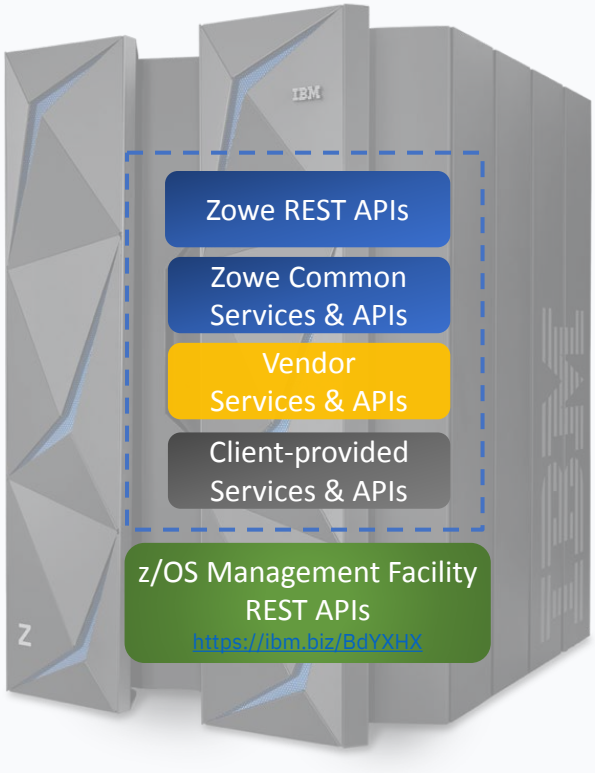


Node.js- based CLI

Zowe REST Services – API economy for deep integration

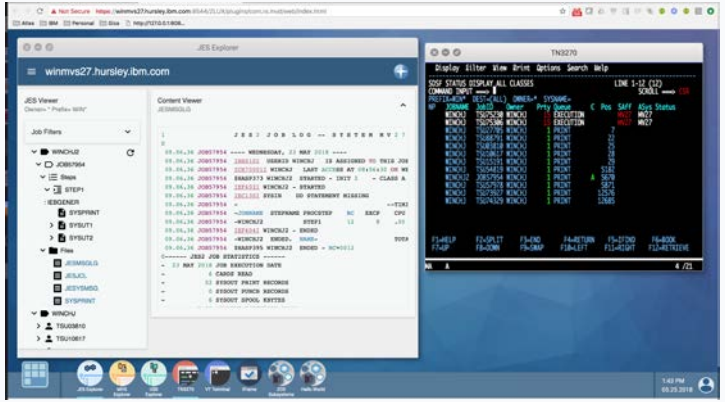
- Industry standard REST interfaces to z/OS resources that are language and platform neutral, stateless and scalable
- Foundational building blocks for system services

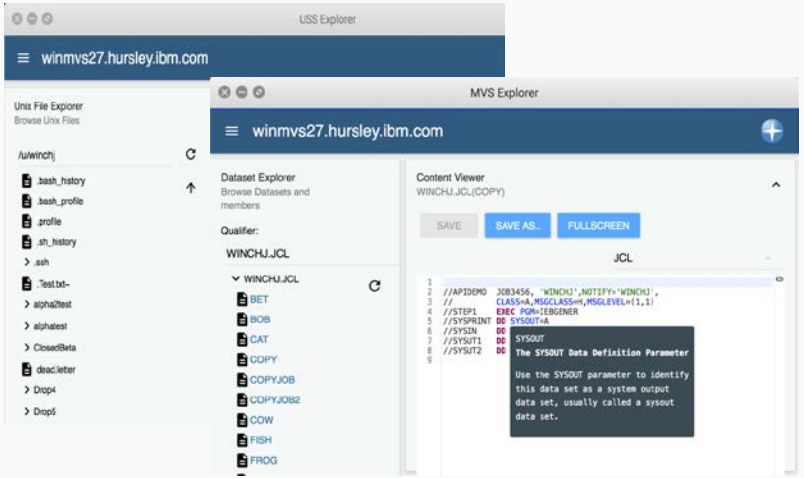
  - ***Dataset APIs***
    - Create, read, update, delete, and list data sets
  - ***JES APIs***
    - View the information and files of jobs, and submit and cancel job
  - ***USS APIs***
    - Create, read, update, and delete USS files
  - ***System APIs***
    - View information about PARMLIB, SYSPLEX, and USER



Zowe Web Desktop – An app container in a browser

- Known as **zLUX**, the Zowe Web UI is a virtual desktop system that offers a rich and open platform for a web-based mainframe user experience.
  - ***Mainframe Virtual Desktop***
    - A web-based window manager that provides full screen interactive experience
  - ***Zowe Node Server***
    - Runs zLUX; uses Express.js as web service framework for communication between applications and z/OS services and components, pre-reqs Node.js for z/OS
  - ***ZSS Server***
    - Provides secured REST API services
  - ***Application plug-in***
    - Dataservices, Configuration dataservice, URI broker, app-to-app communication, Error reporting UI, Logging utility
  - ***Explorers***
    - JES, MVS, USS explorers
    - Basic editing support for REXX and JCL

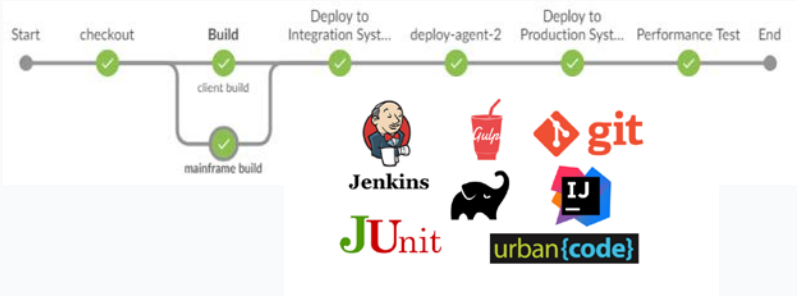




Zowe CLI – Enables cloud-like access to mainframe

- Enables app developers and DevOps engineers to interact with the mainframe easily through a CLI from any terminal on Windows, MacOS, Linux
- Easily integrates with IDEs, shell commands, bash scripts, and build tools; installs using NPM

Build | Test | Deploy



- ***Interact with mainframe files***
  Create, edit, download, and upload mainframe files (data sets) directly
- ***Submit jobs***
  Submit JCL from data sets or local storage, monitor status, view and download output automatically
- ***Issue TSO and z/OS console commands***
  Issue TSO and console commands to the mainframe directly
- ***Integrate z/OS actions into scripts***
  Build local scripts that accomplish both mainframe and local tasks
- ***Produce responses as JSON documents***
  Return data in JSON format on request for consumption in other programming languages
- ***CLI Plug-Ins***
  Access to CICS and Db2

```
GROUPS
------

  plugins               Install and manage plug-ins
  profiles              Create and manage configuration profiles
  provisioning | pv     Perform z/OSMF provisioning tasks on Published Templates
                        in the Service Catalog and Provisioned Instances in the
                        Service Registry.
  zos-console | console Issue z/OS console commands and collect responses
  zos-files | files     Manage z/OS data sets
  zos-jobs | jobs       Manage z/OS jobs
  zos-tso | tso         Issue TSO commands and interact with TSO address spaces
  zosmf                 Interact with z/OSMF

OPTIONS
-------

  --version  | -V (boolean)

     Display the current version of CA Brightside

GLOBAL OPTIONS
--------------

  --response-format-json  | --rfj (boolean)

     Produce the command response as a JSON document

  --help  | -h (boolean)
```

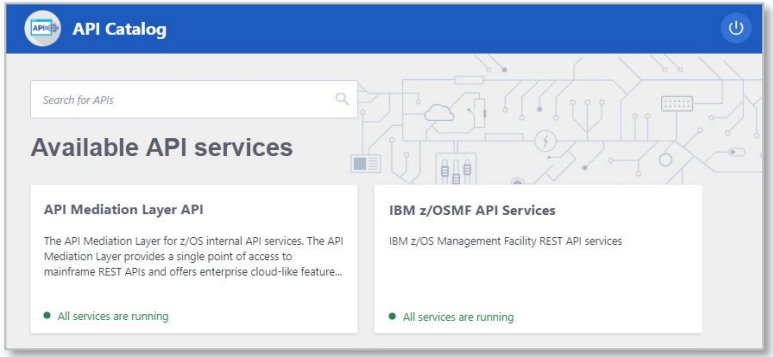
Zowe API Mediation Layer – Gateway to mainframe APIs

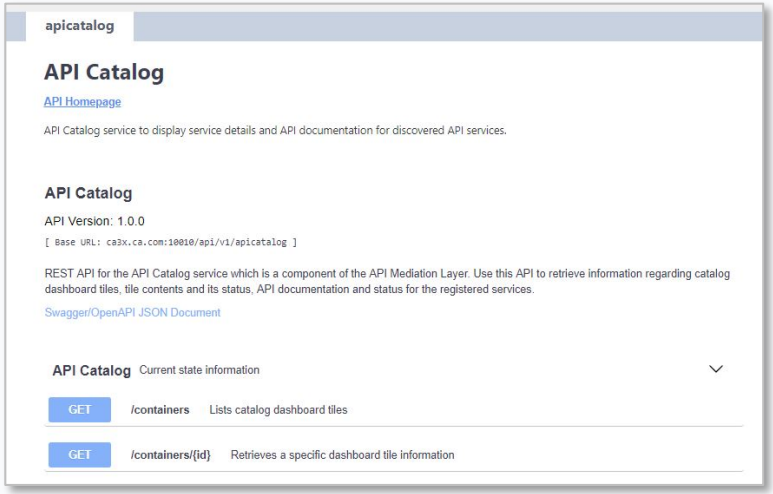
- Enables a single point of access to mainframe APIs with high-availability, scalability, dynamic API discovery, consistent security, “one-time” sign-on experience and unified standard API documentation (OpenAPI / Swagger)

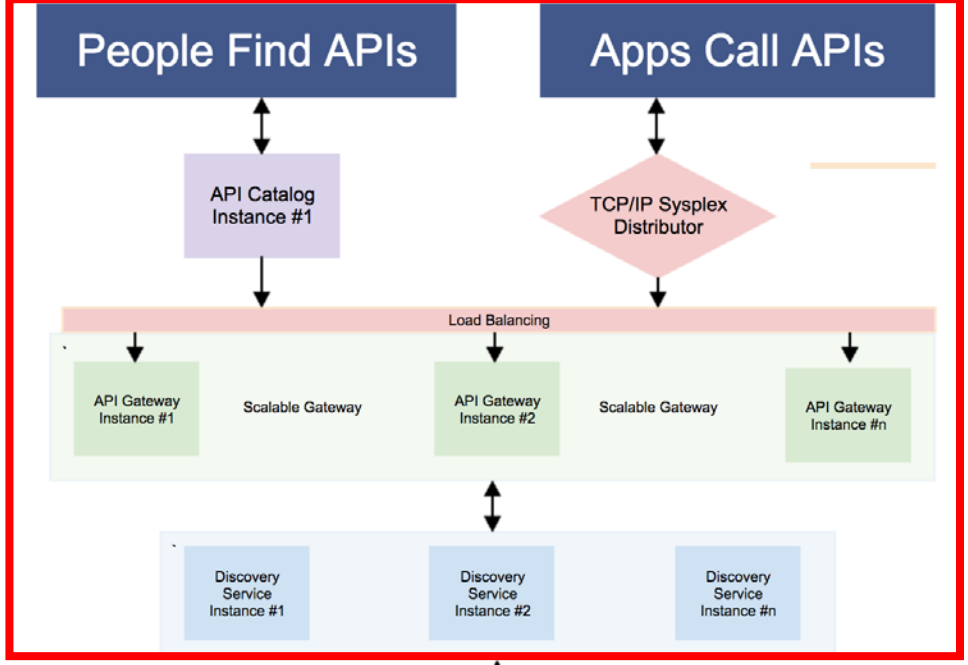
  - ***API Catalog***
    UI Catalog of available APIs with their Swagger doc and service status

  - ***Gateway***
    Single secure point of entry to an ecosystem of API services. Hides complexity. Highly available. Based on Netflix Zuul.

  - ***Discovery Service***
    Discover APIs across many applications. Repository of active API services. Based on Netflix Eureka.







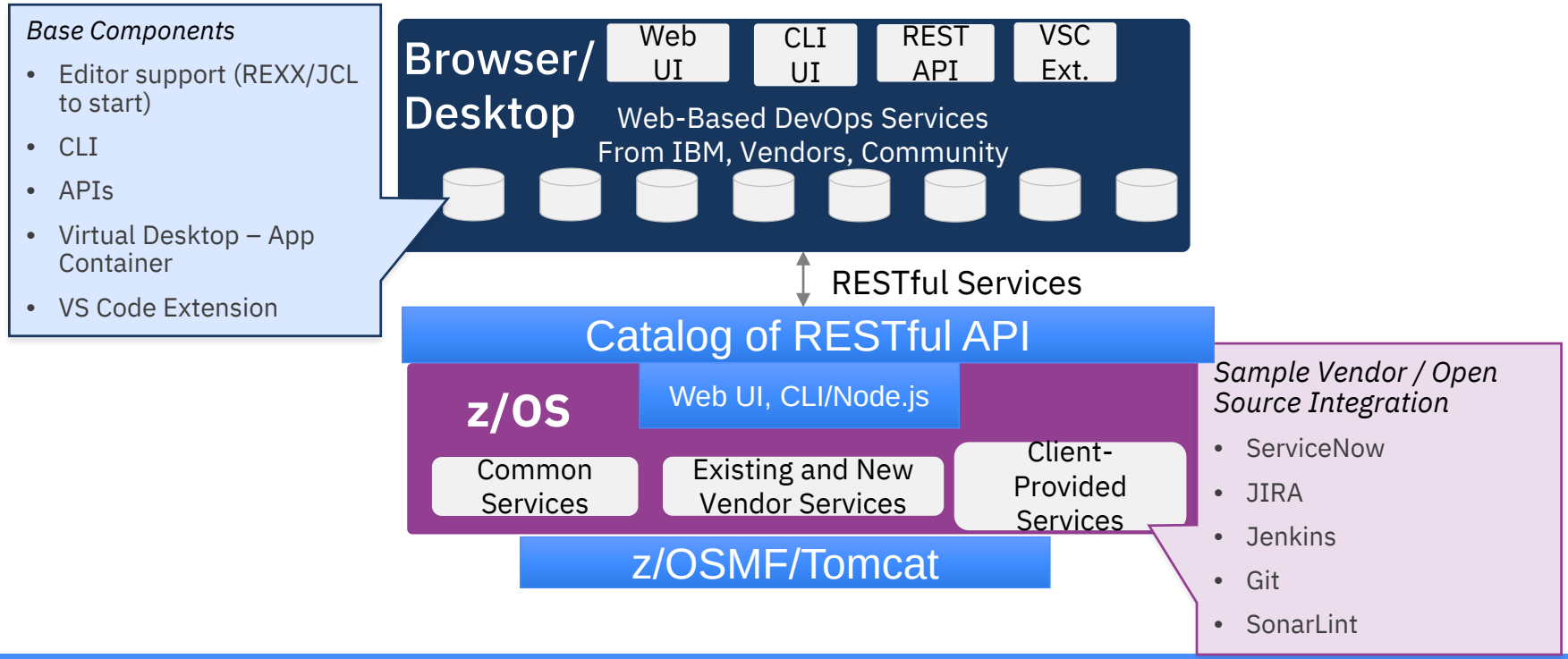
z/OS Conne z/OSMF Jax-RS App

API Layer Components*

- **API Catalog**
  UI Catalog of available APIs with their Swagger doc and service status
- **API Gateway**
  Single point of entry to an ecosystem of microservices. Hides complexity. Highly available. Based on Netflix Zuul.
- **Discovery Service**
  Discover APIs across many applications. Repository of active services. Based on Netflix Eureka.
- **z/OSMF API**
  Authenticate Zowe users with mainframe credentials

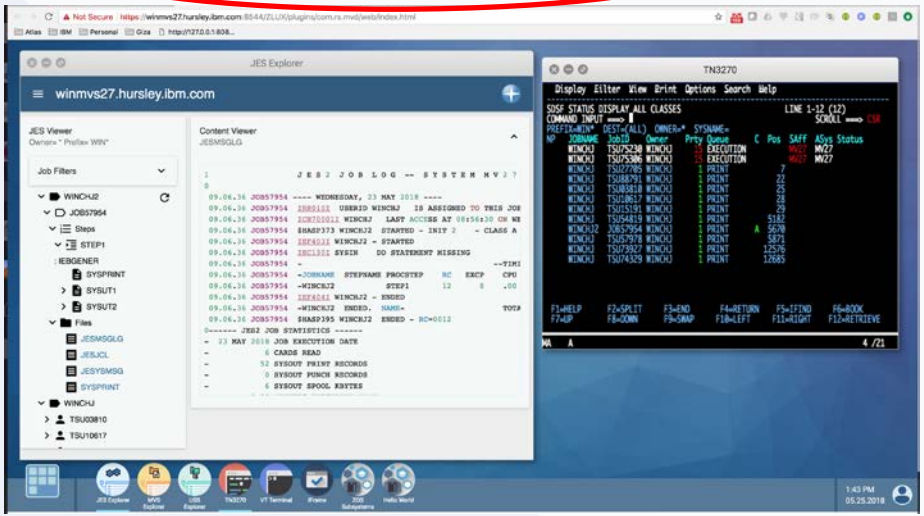
** Separate microservices, might be running as separate address spaces*

Zowe High Level Architecture

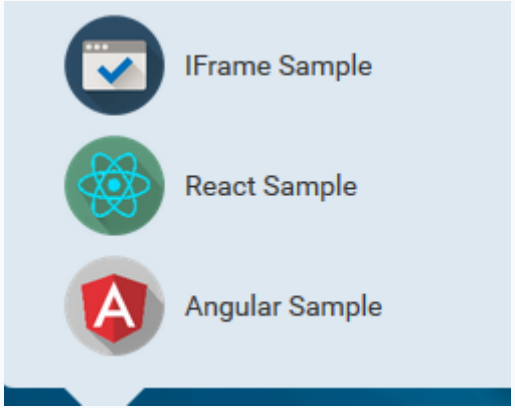


Where is Zowe Extensible?

Browser-based Web Desktop

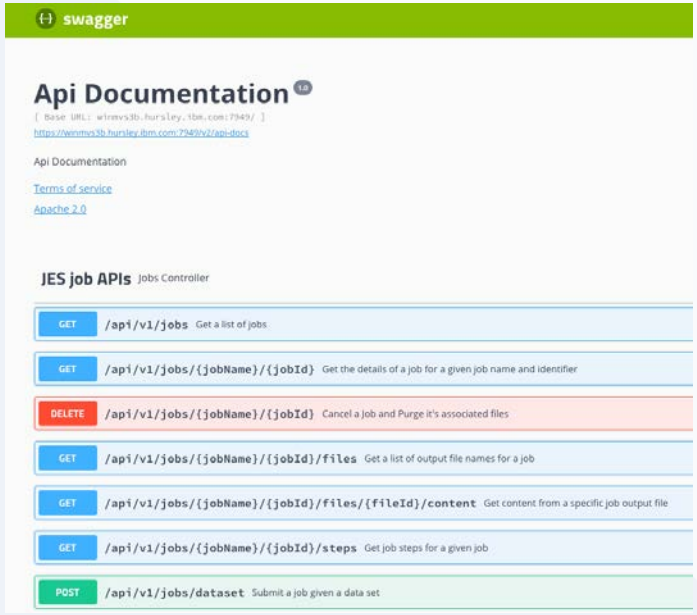


- z/OS Native Web UI for applications
- Launch in context (i.e., right-click 3270 to web app)
- App to app communication
- Exploit graphic widgets planned for inclusion



Where is Zowe Extensible?

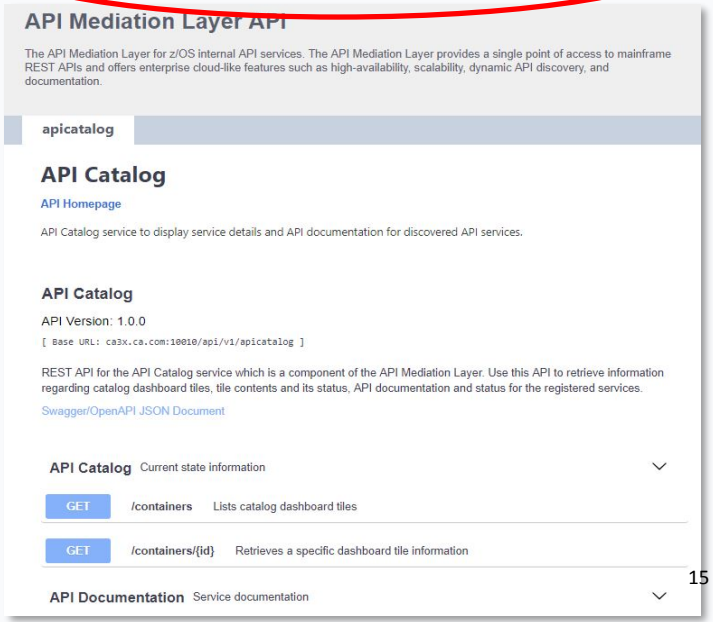
- REST API enable your products
  - REST API for product controls/admin
  - Sharing of information



Swagger-defined z/OS REST APIs

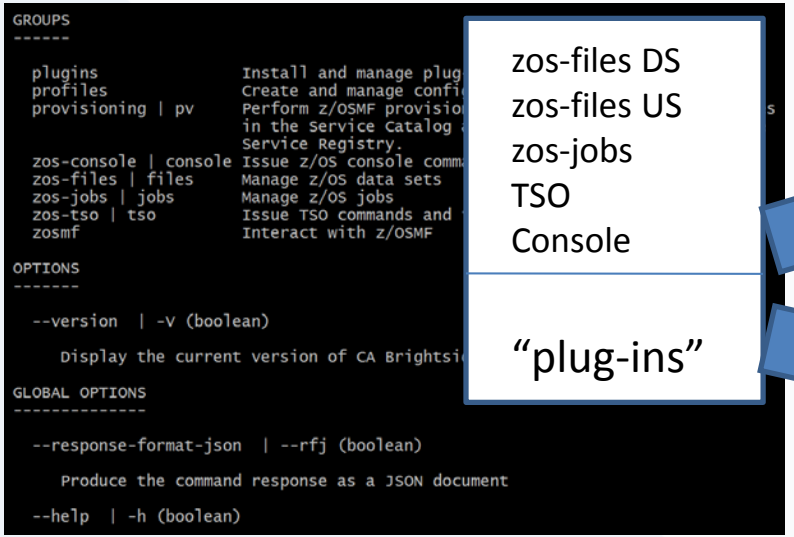
- Opt in to API Mediation
- Participate in Single Sign On, High Availability and Status tracking capabilities

API Mediation Layer
(API Catalog, Discovery Service, Gateway)



Where is Zowe Extensible?

Node.js- based CLI



zos-files DS
zos-files US
zos-jobs
TSO
Console

“plug-ins”

Out of box commands

Custom Extensions

z/OSMF

REST APIs
TSO, Console
JES, MVS. USS

Your application, product, tool, …

Commitment to Core Infrastructure Initiative (CII) & Badge Program

- “CII is a collaborative, pre-emptive program and approach for strengthening cyber security that is widely supported by industry leaders”
- “CII Badge Program is a self-certify, declaration of industry best practices and conformances in driving secure software development and governance”

Notable CII “backers”

Source: https://www.coreinfrastructure.org

Notable Badge “earners”

Source: https://bestpractices.coreinfrastructure.org

The Zowe open community

Check out https://zowe.org/about-us/

A foundational principle of this new project is *meritocracy*. The more that somebody contributes, the more responsibility they will earn. A pattern of quality contribution to a project may lead to an invitation to join the project as a committer.

Leadership roles in the Project are also merit-based and earned by peer acclaim. Merit must be demonstrated in publicly-accessible forums. Committers and project leads are added to a project via an election.

Getting Started with ...

Zowe Open. Simple. Familiar.

- Project Community site
  - https://zowe.org
- Access to Download
  - https://zowe.org/download
- Review Zowe squads, missions, and activities
  - https://zowe.org/contribute/
- Code Guidelines
  - https://zowe.org/code-guidelines/
- Project Governance
  - https://zowe.org/about-us/
- GitHub
  - https://github.com/zowe
- Project Documentation (includes user and install guides)
  - https://zowe.github.io/docs-site/
- Developer Tutorials
  - https://developer.ibm.com/tutorials/zowe-step-by-step-tutorial/

Community Slack Channels

Community Mailing Lists

Community Calendar

Community Meeting Minutes

Get involved in the Zowe community

Join Open Source Community @ https://www.openmainframeproject.org/projects/zowe

Participate in and contribute to the Zowe developer community at zowe.org

Learn how your organization can become a steward and supporter of this project with Open Mainframe Project membership at openmainframeproject.org/about/join

Zowe “Demo”

Intro Demo:
https://www.youtube.com/watch?v=NX20ZMRoTtk&feature=share

Visual Studio Code (using command line):
https://www.youtube.com/watch?v=la1_Ss27fn8