

# Modernizing the Mainframe with DevOps Solutions

**Ken Gross**

Partner Development Executive

Organizations are facing many challenges in today's DevOps landscape. In our discussions with customer executives, we have heard several commonalities indicating the struggle to better unlock their enterprise DevOps capabilities. These include, but are not limited to:

- Deployment of business applications are now spanning a hybrid architecture to include On Premises as well as Cloud
- Application lifecycles have taken on a new level of complexity
- Employee skill sets now span even broader requirements than ever before

Organizations are challenged with modernizing their core business applications without having to rip and replace or migrate from their enterprise-class platform investment choices. Cloud-First strategies have now grown to include the discussions of what is being termed Open-First DevOps, Open-First being a Broadcom approach to mainframe DevOps. Traditional mainframe development methodologies are being merged with Open-First to ultimately provide agility, security, and platform stability. Providing modernization-in-place is a viable initiative.

## Hybrid Architectures to include both On Premises and Cloud

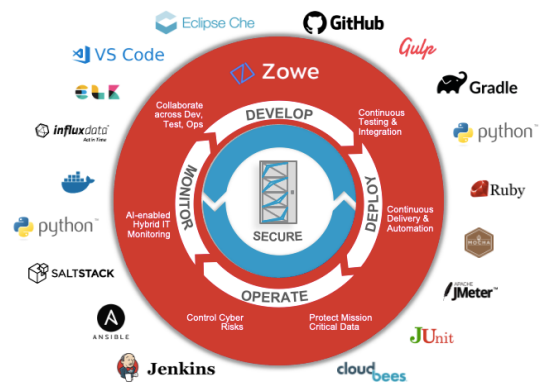
The objectives of modern DevOps are to

- improve the speed of application development,
- progress Agile development processes,
- shorten release cycles,
- improve reliability, and
- increase automation

Which will ideally result in achieving the business' goal of staying ahead of the competition.

To do this, the developer must increase or improve team collaboration using development toolsets that are not platform proprietary. The hybrid toolchain needs to allow for seamless integration between the Open or modern frameworks (i.e., cloud) and traditional mainframe tools (i.e., on premises). But how do organizations successfully overcome multi-year lift-and-shift strategies? How do they leverage all the benefits of open-source tools while minimizing disruption during this period of modernizing-in-place?

Creating a seamless integration of high-velocity toolchains that can transparently connect to mainframe development tools is key to solving for this business challenge. The next-gen developer needs to be provided with their choice of toolset that best fits their talent, leading to the delivery expansion of modernized business applications that enable the organization to stay competitive.



## Open-Mainframe Project

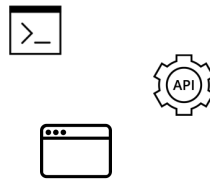
Before we dive into Open-First, let's take a look at the Open Mainframe Project. The [Open Mainframe Project](#) is an active part of the Linux Foundation. The Open Mainframe Project bridges the mainframe to popular off-platform tooling and automation where the modern developer has built their talent.



[Zowe](#) is an open-source initiative as part of the Open Mainframe Project and is an integrated and extensible open-source framework for z/OS. Zowe has the following main components:



- Command-line interface (CLI)
- API Mediation Layer (APIML)
- IDE Extension (VS Code)
- Software Development Kit
- Web UI (UI)



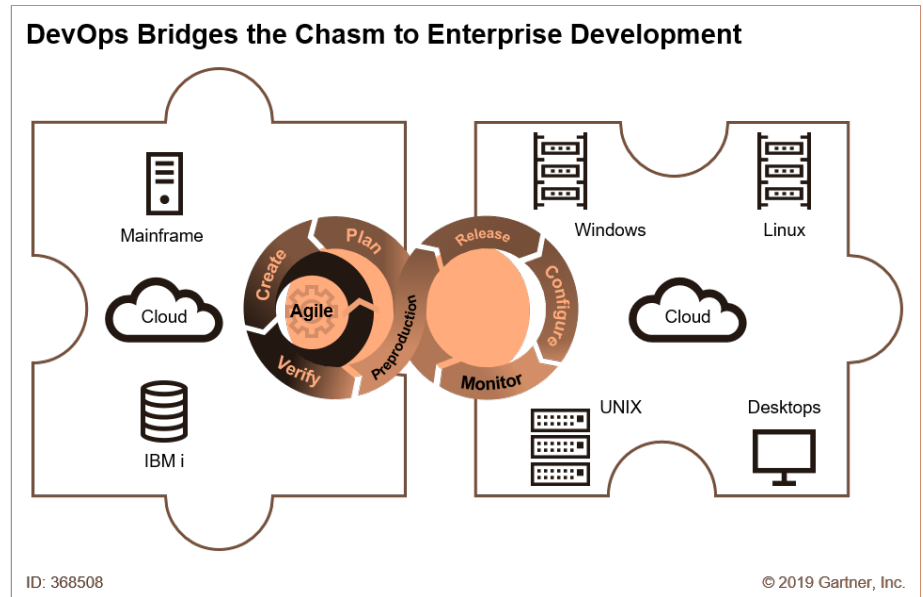
Zowe offers modern interfaces to interact with z/OS and allows the developer to work with z/OS in a similar fashion to cloud platforms today. These interfaces can be used as delivered or through plug-ins and extensions that are created by clients or third-party vendors. Such extensions include:

- Secure Credential Store plugin
- z/OS-Extended-Files plugin
- z/OS-Extended-Jobs plugin

Open-First allows for development tools of choice to be used. Traditionally mainframe developers had to use proprietary tools and newer developers found this too cumbersome to learn or deploy. Now through the integration of Zowe many popular tools such as Git, Jenkins, SonarQube, and VisualStudio can seamlessly integrate into core business applications. This includes scripting tools such as Python and nodeJS, as well as infrastructure automation tools such as SaltStack and Ansible.

**Elevate siloed processes into value streams** by implementing a DevOps toolchain using OSS tools.

- Common toolset to span all platforms
- Majority of DevOps apps are from OSS community
- Mainframe vendors are integrating existing dev tools into OSS to provide abstraction layer
- Enables synchronized CI/CD cadence across platform/application



Open-source development empowers developers with modern, shift-left capabilities that eliminate repetitive, manual tasks and fuel productivity. Developers can have confidence to edit with advanced utilities & debug with native mainframe tools. They can access scripts to build, deploy, and test using enterprise CI/CD pipelines. Developers can also visually explore monolithic applications interactively and proactively validate performance of code changes. Essentially, open-source development enables the modern developer, who may be new to the mainframe, to be productive on Day 1.

## Closing thoughts

With the on-going innovations that are being seen in both the mainframe hardware and mainframe software level, organizations that have invested in this enterprise platform can continue to have the confidence of their choice. The mainframe's importance in this hybrid business architecture of both Cloud and mainframe will continue to demonstrate as indispensable - especially for future business growth and survival.

As the speed of agility makes its mark on enterprise DevOps, we find the importance of toolchains being seamlessly integrated to be ever so important. Skills are maximized and the best of both worlds become a possibility.

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With our experience in OS software, DevOps, security, and compliance, we can help you create a roadmap for your Digital Transformation using OSS implementations. From analysis, into design, and through implementation, we can support enterprises at any phase of their Open-Source journey.

Discuss Open-Source Options for enabling your Digital Transformation by reaching out to [Ken.Gross@mainline.com](mailto:Ken.Gross@mainline.com).