***An Approach – DevOps in Mainframe.***

*As we know, Mainframes are not going away for next 50 years at least and in growth, 8% of Australian respondents expect general purpose MIPs growth of more than 10% over the next two years, with 46% suggesting growth between 1 and 10% – a more optimistic forecast than elsewhere. Additionally, 48% of customers continue to invest in mainframe due to their centralized data server capability, while 45% said mainframes best suit their transaction throughput requirements.*

*Given these trends, mainframe DevOps is a necessary investment in modern methods and tools that enable your enterprise to accelerate application development and delivery—so you can stay ahead of market disruptors.*

*Reusing assets across both Mainframe and Distributed toolchains has several advantages:*

1. *Effort and experience gained in deploying these tools in say the distributed environment can be leveraged when deploying these tools in the mainframe environment. This reduces the risk associated with deploying these tools and lowers the cost and effort in training staff on their usage.*
2. *One standardized development process employing a familiar set of tools for all environments reduces a friction point in being able to deploy staff to areas of greatest need removing the esoteric nature of making code changes in the Mainframe environment.*

*The slow, inflexible processes and methods of the past have become impediments to success in today’s innovation-centric digital markets. IT leaders must therefore bring the proven advantages of Agile, DevOps and related disciplines to bear on the mainframe applications. These factors include:*

* *Competitive drivers*
* *Time to market*
* *Product innovation*
* *Product quality*
* *Customer drivers*
* *Millennial adoption of mainframe environment*
* *Graduate intake*
* *Future proof the business*
* *The mainframe as the core system of record*

*Compuware solutions have supported mainframe strategy for more than 25 years and ensured that key service levels and applications are developed, maintained, and perform according to expectations. We have been working closely together around our Application Life Cycle solutions including File-AID, Xpeditor, Abend-AID, Strobe and our Test Data Privacy solution.*

*Reusing assets in as many technical environments as possible maximizes the investment sites have already made in these tools reducing the overall cost of deploying your DevOps/Agile toolchain. Below is Dev-Ops tool chain showing integration points between both third-party products as well as Compuware Products, followed by the DevOps tool chain provided by one of major Bank in Australia.*

***Topaz Eclipse Workbench***

*An Eclipse-based IDE that provides the essentials of mainframe application development, testing and maintenance and a single, modern interface to Compuware’s developer productivity tools, Abend-AID, Xpeditor and Strobe, as well as non-Compuware products and distributed solutions in the same environment. Topaz Workbench can be extended with additional Topaz offerings.*

* *Leverage existing Eclipse frameworks and integrations with popular open-system tools*
* *Manage source code and promote artifacts through the development lifecycle via integration*
* *Leverage a multi-language, multi-platform source code editor*
* *Use JES functions like job submission, review, print and purge*

***Leverage existing SCM tools:***

*For organizations that have not been able to migrate from legacy source code management technologies (i.e. CA Endevor), there is still a need to develop using a modern Eclipse IDE.*

*This solution allows developers to use the Eclipse Integrated Development Environment (IDE), to directly access z/OS based CA Endevor libraries. Developers will have the full range of functions to browse listings, browse and retrieve, elements, and also be work in “project mode” by retrieving groups of elements for editing as an Endevor package.*

***Program Analysis***

*Provides an instant static visual summary of what a developer needs to know about a program or a dynamic visualization via Runtime Visualizer for a clear and accurate understanding of a program’s runtime behaviour in either production or test environments.*

***Enterprise Data***

*A single interface to visualize both mainframe and non-mainframe data in a common, intuitive manner, helping developers and data architects to understand data and data relationships quickly and easily.*

***Total Test – Unit Test***

*Automates the process of creating unit tests and test assertions and enables developers to automatically run “Java-like” unit tests to find low-level bugs in the smallest parts of applications with greater agility, speed and confidence*

*Unit testing is central to Agile. Frequently testing small increments of code enables developers to assess how closely quickly and continuously their current work aligns with immediate team objectives—so they can promptly make the necessary adjustments or move on to the next task.*

*Topaz for Total Test works closely together with Xpeditor, and Xpeditor automatically collects test data for Topaz for Total Test to use for unit testing. The data is kept with the unit test and it can be copied and edited as well as stored in data stubs.*

***Total Test – Functional Test***

*With Topaz For Total Test Functional Test you can test programs both on-line and batch written in COBOL, PL/I, EGL, RPG and Assembler, and it provides advanced features such as virtualization of sub programs, automated execution of tests through scheduling or integration with external build system and generation of web-based user interfaces for easy manual testing. You can even use user interface-based test automation systems to drive the execution of your backend unit tests.*

***Benefits***

*As one of major bank undertakes the modernization of Mainframe Software Delivery, we believe that Compuware can help you achieve your goals to bring Agile and DevOps to the Mainframe, just as we, ourselves have done. It is our belief that Compuware’s Topaz suite has many advantages, including:*

* *Ease of Use*
* *Supports and compliments Agile strategy.*
* *Modernize development environment on the Mainframe*
* *Minimize Total Cost of Ownership of Applications*
* *Increased quality of the applications that enter the production environment.*
* *New and existing applications delivered faster and more efficiently*
* *Replicate processes already implemented within distributed team*
* *With Topaz customers have found they were able to gain efficiencies in the range of 22% up to 27%*
* *This equates to between 69 and 85 minutes per day per senior Developer.*

*Recent survey with UK bank, it has been found that after deploying this model, developer productivity got improved by 400%, almost eliminating defect leakage, saving on rework and test timescales.*

*Also reduced time writing and checking code during each sprint from on average 40 hours to seven hours.*

*Measured savings of testing costs from 1 project: $500K to $50K where several Customer have found that the average ROI is between 3 – 9 months.*