



Intellyx White Paper

Extend DevOps to Legacy Teams to Drive Enterprise Innovation

Jason Bloomberg

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While enterprise software organizations are getting up to speed on DevOps, they are realizing that DevOps is more than simply a better way to build and deploy software.

DevOps is fundamentally an organizational and cultural shift that breaks down silos, bringing different teams into greater alignment with shifting customer and business priorities.

It's essential, therefore, for any software effort at an enterprise that runs mainframes to include such systems – both the technology itself as well as the personnel – in order to provide the agility and velocity that such enterprises require to remain innovative in today's turbulent digital business environment.

DevOps: Building Organizations at Velocity

DevOps has proven hard to define in practice. It involves a rethink of the phases of the software lifecycle– but that's just the beginning. The real focus of DevOps is actually the organization as a whole.

DevOps calls for teams made up of a mix of different roles and skill sets – not just dev and ops people, but individuals across the entire IT department, and beyond.

As the DevOps effort matures, it will involve people responsible for the customer experience, often including product specialists, marketing people, and others, depending on the goals at hand.

With this approach, software-driven organizations can become *organizations at velocity* – agile enough to innovate and fast enough to deal with any change that comes their way.



Is it Possible for 'Legacy' to be Agile?

Legacy code, technology, processes, and approaches are among the key challenges that many enterprise software development organizations face in their quest for greater agility and velocity.

While legacy COBOL code bases – and applications and transactions written on mainframe platforms in general – are almost always mission-critical, they can also be hard to support, staff and maintain. However, the mainframe platform's unmatched reliability, availability, securability, and scalability prevents many organizations from successfully making a business case to migrate some workloads off the platform.

In addition, many modern, digital initiatives depend upon the mainframe. Big data analytics often leverages data in systems of record, and even emerging technologies such as blockchain are promising to take advantage of the scalability of today's IBM z Systems mainframes.

Just one problem: if your legacy team is not part of your DevOps effort, how can you actually drive agility end-to-end across your enterprise?

Four Common DevOps Myths

Cloud computing, containers, microservices, and most importantly, DevOps are all the rage in IT organizations today. And with the blistering pace of technology advancement, you may wonder how the 50+ year old mainframe still has staying power.

Clearly, the platform has a remarkable ability to adapt to the needs of each successive generation technology and talent since the 1960s.

And yet, today's enterprise software professionals often struggle with four common myths about legacy technologies like the mainframe. Myth #1: The most pervasive – yet wildly incorrect – is that the mainframe platform is obsolete.

In fact, IBM's most recent mainframes are the most powerful, reliable, securable, and cost-effective systems in any category available commercially anywhere in the world.

The capabilities of today's mainframes keep up with modern software trends as well. They can run Linux, Docker, and Java. They scale elastically, much as a cloud does. They even support cloud-based business models, for example, by leveraging CA Technologies' partnership with IBM's Cloud Managed Services for z Systems.


And when compared to the 'plan to fail' commodity hardware we're increasingly comfortable with in today's data centers, mainframes are profoundly reliable.

Myth #2: The increasing emphasis on digital technologies represents a shift of workloads away from the mainframe. After all, for anyone who has struggled with heterogeneity in today's IT environments, legacy migration has historically been a holy grail – fervently desired yet always out of reach.

You would think, then, that with the rise of Digital Transformation, companies would be moving away from the mainframe to cloudier, distributed computing skies.

On the contrary: digital initiatives for those enterprises that have mainframes typically result in an increase in transaction volume to those mainframes – both because customers demand core transaction capabilities on their various devices (think mobile banking apps), but also because digital represents an explosion in the number and diversity of apps that customers demand from the companies they do business with.

Companies continue to place many of their crown jewels, such as billing transactions and customer relationship data, on the mainframe. Additionally, new requirements, such as big data analytics and



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blockchain initiatives, are creating demands upon mainframe systems to support strategic innovation initiatives.

And for enterprises that rely upon mainframes, more apps mean more mainframe workloads, which brings us to Myth #3: that the complexity of the code and paucity of support on the mainframe are showstoppers for any modern development initiative.

It's true that some mainframe-based apps consist of 'spaghetti' code – poorly written or maintained software, where often documentation or even the source code itself has been lost.

It's far more common, however, for the mainframe team to have been keeping up with modern coding practices. Modern COBOL, for example, is now object-oriented – and given the fact that Linux, Java, and a wide range of open source tooling run on the mainframe, it would be erroneous to jump to the conclusion that code complexity prevents the mainframe from being a full-fledged part of the modern software effort.

The Dangers of Siloed Teams

Myth #4 centers on the organizational aspects of supporting mainframe technology. It's a common myth that for those organizations with mainframes, maintaining siloed mainframe teams is a practical management strategy moving forward.

The reason for believing this myth is straightforward: mainframes have always required specialized skills, and as the rest of IT moves onto newfangled modern technologies, there is a common belief that the mainframe folks should remain stuck in their own 'legacy' world.



However, there are several reasons why maintaining siloed mainframe teams is becoming increasingly impractical – and in fact, may even be dangerous.

First, the old guard of mainframe experts is retiring, requiring companies who depend on the systems to bring a younger workforce up to speed. Yet, telling millennials they won't get to work with other teams or buzzword-compliant technologies if they join the mainframe group won't be good for morale – or recruiting. It would be far better for this talent pool to be part of the software organization as a whole.

But the most important reason to dispel this myth is more strategic. Breaking down silos and moving to DevOps is central to what it means to undergo Digital Transformation.

Digital by its very nature cuts across existing departments and business units, as customers require end-to-end capabilities from the companies they do business with.

Customers as well as development organizations are driving this transformation from either end. Customer pressures are driving marketing and customer experience teams to work with IT. Correspondingly, DevOps breaks down the silos of development, quality assurance, and operations in order to deliver business velocity and agility – critical for any digital initiative.

Not every mainframe organization is ready for DevOps, to be sure – but the writing is on the wall. Siloed mainframe teams introduce substantial risks for any digital initiative, and more broadly, for any strategic business effort that seeks the business agility necessary to drive innovation, while depending upon the transactionality and data processing capabilities of today's modern mainframe.

Digital Transformation: All Hands on Deck


Always remember: Digital Transformation isn't about the technology. It's about the *customer*. Today's customers – both consumers and business-to-business – demand multiple technology touchpoints with the companies they buy from and work for. And yet, this digital technology story is not all about the user interface.

Enterprises must connect the user experience to existing systems of record in a complex, distributed, cloud-based world. Every element of this elaborate end-to-end dance must perform at top speed, every time. Customers demand nothing less.

For enterprises with mainframes, trying to achieve the benefits of Digital Transformation without dealing with existing mainframe assets is a fool's errand. Many organizations think of their legacy IT as a single Gordian knot of complexity, where the only way to fix it is to somehow fix or replace the whole thing – an impossible task that would never come close to justifying its expense.

But remember, legacy is not monolithic. It's heterogeneous and multifaceted. Core business agility drivers from transformation initiatives must connect to specific goals while moving systems of record toward agility, not away from it.

Mainframes are also a more viable alternative to traditional cloud computing for many mission-critical workloads. In addition to their profound reliability, modern mainframes are massively scalable.




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Many mainframe customers only use a portion of the processing capability such systems offer – but often far more capacity is readily available on a pay-for-what-you-use basis similar to the cloud.

Never forget that the cloud's massive scalability centers on expecting and planning for failure: automated recovery from failure is central to every cloud architecture. In contrast, the mainframe has a high availability architecture. If a capability as mission-critical as, say, your bank account were involved, which would you prefer?

Furthermore, today's mainframes – or clusters of mainframes, as banks and other mainframe-centric enterprises typically depend upon – essentially offer hyperscale architectures. Such architectures offer the best of both worlds: the massive scale of the cloud, combined with the reliability, cost-effectiveness, and security of hardened mainframe technology.

Remember, mainframes run the business, as they have for years. They contain invaluable data, institutional knowledge, and support for mission-critical business processes that drive the bottom line. Only those organizations that properly leverage such assets will prevail with their digital strategies long term.



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Bringing the Mainframe into the DevOps Fold

Once the modern development organization brings the mainframe into the DevOps fold, the focus shifts to boosting innovation on the mainframe – especially when such innovation centers on mission-critical capabilities.

Industries as diverse as finance, transportation, insurance, and global logistics are adopting Agile and DevOps practices throughout IT to increase business agility. And yet, mainframe teams have largely been left out of this transformation.

Using modern mainframe tooling, however, it's possible – and essential – to improve agility via Agile development that includes the mainframe. In addition, achieving end-to-end management visibility into the SDLC is now a reality, as are modern software development tools, including modern development, continuous testing, integration, and delivery.

Including the mainframe in modern software development approaches can improve quality overall, reduce test cycles and deployment timeframes, and ensure mainframe-based applications support the end-to-end performance requirements that today's customers demand.

In other words, today's enterprise developer can come to work, identify requirements from their Agile sprint, write code using a modern Eclipse interface instead of the legacy green screen, leverage visual debugging to examine code, and kick off automated test procedures and deployment procedures – all on the mainframe.


Conclusion: Rethinking ‘Legacy’ Modernization in the DevOps Context

Numerous enterprises have been struggling with modernization for years, often with little but consulting bills to show for their efforts. However, even modernization itself is transforming in today’s end-to-end Digital Transformation initiatives.

Where a decade ago, modernization centered on migrating old applications off of ancient hardware – a difficult task at best – today, we have better approaches to exposing legacy assets via modern APIs.

Furthermore, in many cases we can even modernize legacy applications in place – especially if they’re running on the mainframe.

Therefore, don’t get caught up in the hype that surrounds technology today, either positive or negative. Do your homework, and you might find that the right tool for many jobs is still the mainframe.



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To learn more about the sorts of toolsets and success factors you’ll need to make the enterprise innovation leap with your mainframe, please visit ca.com/appdev.

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