



NEW LIFE FOR LEGACY IT SYSTEMS

Deloitte Application Modernization

For most agencies, core systems have delivered reliable and consistent results for decades. In many cases, however, they have become difficult and costly to maintain. Federal budgets have not kept pace with increasing maintenance costs, limiting investments in new capabilities. What's more, security vulnerabilities continue to increase risk of exposure. Additionally, as mainframe developers decrease in number, the critical knowledge required to maintain these systems disappears.

Modernization can seem overwhelming, bringing with it significant costs, level of effort, and risk of failure. For some organizations, just the switch from a "green screen" to a modern web user interface (UI) can seem daunting and make cloud, analytics, digital, and other modern capabilities seem unachievable. Federal IT leaders may think they have only two options: 1) maintain the status quo or 2) conduct an expensive and risky "rip and replace". Fortunately, there is another way.

OUR SOLUTION

Deloitte's fully automated Application Modernization approach combines industry-leading code refactoring and modernization tools with our holistic knowledge of modernization techniques, program management, and organizational change.

This combination of leading edge tools and demonstrated delivery enables informed decision-making, rapid progression to modern platforms, and incremental modernization to achieve desired outcomes (e.g., Cloud, Analytics, Digital, Mobile, and more).

IN-DEPTH CODE ANALYSIS

Deloitte starts with a complete diagnostic of your existing code base. We conduct a short, automated analysis on your systems assets allowing our engineers to analyze the code structure, complexity, and integration with third-party tools.

The diagnostic informs accurate estimates on modernization scope and potential

risks. It provides an in-depth analysis into the inner-workings of your systems. It allows the identification of logical break-points, providing the basis for a phased, incremental modernization approach. We then use this data to inform your agency's existing modernization roadmap, or help you develop one.

YOU, ONLY BETTER – MUCH BETTER

Equipped with data from the diagnostic, Deloitte leverages our automated tooling to refactor the legacy applications into modern equivalents. We work with your existing code, data and UI assets and automatically convert them to modern equivalents (i.e. Java/.NET, Relational databases, Web 2.0 UI). We employ automated testing to directly compare the results of the modernized system to that of the legacy system, to build confidence in the readiness to deploy. This approach enables modernization to begin immediately, there is no need to wait for requirements.

The existing development team is engaged throughout the process and our tooling and training enables them to learn Java/

NET along the way and support the modern system going forward. New developers can also be infused during the modernization and are able to learn from the existing development team and naturally by troubleshooting errors.

Finally, Deloitte employs incremental development techniques to avoid a "big-bang" implementation. We separate deployment of data, user interface, and back-end components to reduce risk and roll-out changes at your pace.

HELPING YOU GET TO WHAT'S NEXT

Once the initial refactoring is complete, your system is now primed for further modernization. The legacy system has been retired, and the modern solution is in a maintainable state in a new programming language and your target platform.

The next step is to incrementally modernize to deliver new business functionality, address technical debt, and attain the benefits of cloud, analytics, digital, modern security tools, and other capabilities.

These outcomes can now be tackled in phases at the pace that agency budgets and resources allow. Deloitte stands ready to support with our Cloud, Analytics, Digital, Cyber Security, and

System Integration capabilities. Our incremental approach to modernization from diagnostic, to automated refactoring, to incremental modernization offers a

low-risk, cost-effective way to address the growing risks associated with legacy systems and achieve desired modernization outcomes.

POTENTIAL BOTTOM-LINE BENEFITS

Deloitte's Application Modernization process enables rapid progression to modern technologies, and realization of cost savings and modernization benefits.



REDUCED RISK

No functional requirements to define, no missed functionality, minimal end user training, and the ability to modernize at your own pace



REPEATABLE APPROACH

Implementing an Agile-based application development lifecycle provides a controllable process to coordinate application releases



INCREASED INTEROPERABILITY

Modernized systems enable organizations to develop mobile and responsive web applications and to take advantage of cloud services



ENHANCED QUALITY

1-to-1 functional test scenarios result in high-quality releases, with no interruption of current business processes



REDUCED TOTAL COST

Full automation prior to modernization significantly reduces the number of developers; and rapid progression to the target platform can reduce operational costs more quickly



STAFF TRANSITION

Our refactoring products support legacy developers' transition into modern Java developers by building on their legacy skillsets

AUTOMATED REFACTORING FIT ASSESSMENT QUESTIONS

Here are a few select questions that can help to determine whether a system is a good fit for the Automated Refactoring approach.



What legacy products are being used in your current environment? Please include any platforms, operation systems, databases, code languages, or third-party products used in your environment.

Have COBOL or NATURAL?



What are your preferences for target environment (e.g., Java or .NET) and platform (e.g., Linux, AIX, Windows)?

Moving to Java or .NET?



What types of functional enhancements (e.g., business process management, business intelligence, service-oriented architecture, user experience) would you like to achieve once your system is modernized?

Desire enhanced business functions?

HOW TO START YOUR MODERNIZATION

The first step to modernizing your legacy system is an in-depth assessment to perform a data-driven, fact-based diagnostic. The diagnostic involves an automated scan of the source code, combined with an analysis by our experienced engineers. This work provides valuable insights into the structure and composition of the legacy system. It informs accurate estimations for migration scope and complexity and reduces overall project risk. The assessment provides an inventory of existing code assets, a prioritized list of transactions that impact business events, and additional analysis that can be used to develop a modernization roadmap specifically designed for your legacy system and target reference architecture.

CONCLUSION

Modernization is a process people encounter in many other parts of work and life. Today's cars generate more performance and have smaller carbon footprints, than the ones of a generation ago. So do the factories that build them. As external factors change (e.g., clear air and water laws, resource pipelines, stakeholder demands) long-familiar processes change to match. Application Modernization applies the same principle to enterprise IT systems. It preserves what works, helps improve performance, and installs a platform that is ready to meet future needs.

Kyle Cruley

Principal

Federal Application Modernization Leader

Deloitte Consulting LLP

Tel: +1 703 869 7846

Email: kcruley@deloitte.com

Chris Ostrander

Principal

Federal Application Modernization

Deloitte Consulting LLP

Tel: +1 703 915 7363

Email: costrander@deloitte.com

This publication contains general information only and is based on the experiences and research of Deloitte practitioners. Deloitte is not, by means of this publication, rendering business, financial, investment, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor. Deloitte, its affiliates, and related entities shall not be responsible for any loss sustained by any person who relies on this publication.

As used in this document, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries. Certain services may not be available to attest clients under the rules and regulations of public accounting.

Copyright © 2017 Deloitte Development LLC. All rights reserved.