LEGACY MODERNIZATION
The Journey Towards Digital Transformation

The quest for digital transformation has made it imperative for companies to modernize legacy infrastructure. To achieve true digital transformation, companies must react quickly, reduce transaction and data latencies and demonstrate agility in adopting new processes. Infrastructure and operations teams (I&O) must also investigate the implications and interplay of new technologies such as social, mobility, big data, analytics, cloud and IoT.

These are essential to improving the customer experience, gaining improved analytic insights and achieving the productivity and efficiency needed to compete.

A key requirement of legacy modernization is ensuring agility. However, the delivery of agility has its own set of challenges, ranging from lack of skills and the capacity to absorb large scale changes, to cost and a lack of flexibility in large-scale legacy environments. The convergence of such challenges during the modernization process is most effectively handled by pursuing the latest in agile and DevOps best practices.

I&O teams should prioritize efforts and investments by balancing modernization with innovation. Teams should consider investing in areas such as containerization, microservices and cloud computing, along with addressing challenges related to skill development, change management and effective coordination of IT with business units and vendor/service provider partners. Coordination among application and enterprise architecture leaders is essential to achieving quick wins during modernization.

All modernized applications will likely have one or more components related to SMAC (social, mobility, analytics, cloud) or SMART (social, mobile, augmented reality, things) and decisions pertaining to infrastructure portfolio strategy during the modernization process should be taken while keeping these technologies in mind.

One of the more popular approaches to achieving digital transformation or legacy modernization is the “bimodal” approach, which is the practice of simultaneously pursuing two coherent styles of work, one focused on predictability and the other on exploration.

Predictable and well understood legacy applications will be addressed or optimized for digital or cloud using Mode 1, whereas Mode 2 takes an exploratory approach and experiments with uncertain areas and new problems by testing a hypothesis with a minimum viable product (MVP). Both modes are essential to achieving digital transformation and delivering value during the legacy modernization process.
Re-hosting Legacy Applications on Cloud & Commodity Platforms

The re-hosting of legacy applications on newer, more cost-effective and efficient platforms such as commodity servers and public and private clouds is not simply a question of migration, rather it is a decision related to optimization with respect to choosing the platform and migration plan that best addresses business and IT needs. Modernization decisions should be taken within the broader context provided by application and infrastructure portfolio management programs. It is extremely important to select the right applications for migration by thoroughly analyzing the role of each application and evaluating the business case for migration. Based on this assessment, the right approach can be selected. Re-hosting can provide quick wins and immediate cost efficiencies. However, organizations should take a methodical approach, starting with applications that provide superior value and then evaluate technology trade-offs and issues such as data security, governance and disaster recovery when finalizing additional re-hosting decisions.

Zero-Budget Modernization

For many organizations, modernization can be both daunting and overwhelming. Cost and complexity, and uncertain outcomes are often cited as reasons behind delaying initiatives. In reality, deciding not to modernize can be far more costly. Legacy infrastructure costs far more to maintain as compared to newer systems. In addition, the longer a company waits to undertake modernization, the more expensive it will be to bridge the gap between legacy and next-generation systems. As legacy systems lag behind customer expectations, a further cost is imposed as the organization finds it increasingly challenging to compete in the marketplace.

To provide the impetus and business justification for modernization, many businesses are turning to zero-budget modernization. It is not uncommon that maintaining legacy systems can divert up to 80% of IT budgets and staff resources, an expense that grows incrementally each year. If the cost of a modernization project is less than the projected cost for maintaining a legacy system in a given year, the case for acting sooner than later becomes far more compelling.

Working with trusted partners and consulting firms, businesses can also prioritize applications and processes that well-suited for modernization. This could be a combination of simplicity, size or low-hanging fruit that can provide some cost-effective quick-wins for modernizations. On the other hand, it may be of greater value to transform a business-critical or core business system due to competitive pressure or a projected positive impact on business revenue.

Ultimately, equilibrium will be achieved whereby the majority of the organization has undergone
the digital transformation journey while some applications and processes continue to work just fine on existing systems.

**Legacy Data, New Insights & Analytics Frameworks**

Legacy modernization should pursue a data-driven approach and a clearly articulated data strategy. Such a strategy should encompass decoupling data trapped in legacy systems, as well as automating manual processes. In addition, it should always maintain a focus on data security and privacy.

Corporations, in their pursuit of agility, are moving towards cloud applications in a rapid manner and need access to all forms of data, whether stored in their legacy data warehouse, SaaS application or even in unstructured data sources such as social media platforms. This has resulted in the requirement for unified data integration platforms and frameworks.

Data trapped in legacy applications must be surfaced in order for business to have a holistic view of market trends and business operations, and to glean insights that translate to competitive advantage and customer sentiment.

To address this need, microservices which develop larger services from a suite of smaller services using RESTful APIs are gaining popularity and have become go-to tools for developing modern enterprise applications. With the help of microservices, large scale integration and modernization projects can be done cost-effectively. The process of externalizing APIs and microservices results in superior functionality on cloud platforms, and the containerization of applications results in easy cloud-to-cloud portability as well as a smooth distributed architecture. Whereas the common approach of lifting and shifting data can be challenging and may not be straightforward in many circumstances, the use of containers and microservices makes the process of surfacing data cost-effective, agile and effective as developers are able to incrementally redesign applications in the best possible manner.


Business rules management is one of the most critical aspects of the legacy modernization process. Reasons include reducing cost, enhancing decision making and, most importantly, improving agility in today’s dynamic and rapidly changing business environment. New regulations, policies, changing market conditions or industry trends and competitive pressures can lead to the evolution of decision making and business rules on a regular basis. Hence, it is imperative for companies involved in legacy modernization to migrate the business rules embedded in legacy applications to an efficient, externalized business rules management system that considers alignment, risk management and agility in the decision making process.
Unlike legacy applications, today’s business decision platforms are based on microservice architectures where decision rules are organized as per an organization’s approach towards a business problem and are easy for team members to understand and change. Decisions are integrated in such modern architecture via effective use of RESTful APIs.

By surfacing data and externalizing rules trapped in legacy systems, and by applying the power of analytics embedded in modern platforms, organizations can understand the whens and whys of business transactions – leading to better decision making and greater agility in responding to changing business situations.

**The Way Forward**

Legacy modernization is a complex and challenging project for any organization. However, a thorough approach based on best practices can help an organization achieve its legacy modernization objectives in an efficient and timely manner. The journey towards digital transformation is imperative, and should be undertaken by pursuing a data-driven approach with a strong focus on achieving agility, scalability and efficiency in the day-to-day decision making of the organization.

Key pillars should include viewing legacy modernization through the lens of current SMAC and SMART trends, rehosting using cloud and commodity computing resources, surfacing and gleaning new insights from trapped legacy data and externalizing business rules to achieve greater agility in reacting to changing business environments.
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