

nebula[®]

Application modernisation: unlocking the power of digital technology

Renewing legacy software to boost efficiency,
productivity and innovation



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Time to seize the opportunities of app modernisation



Time to seize the opportunities of app modernisation

South African organisations are stepping up their digital transformation efforts in the wake of the COVID-19 pandemic, reorienting themselves towards a world where their business processes are more heavily automated and where customers, partners, employees and other stakeholders treat digital channels as their first stop for service.

However, as they do so, many are finding that their legacy footprints are constraining their ability to take full advantage of the power of today's emerging technologies and digital platforms. Rigid, monolithic legacy applications make it difficult for enterprises to take full advantage of cloud economics, or to embrace the potential of technologies such as artificial intelligence (AI), the Internet of Things and blockchain.

Against this backdrop, CIOs are intensifying their focus on application modernisation to prepare their IT environments for the future, reduce operating costs, enhance operational efficiencies and create a foundation for a data-driven enterprise. This flurry of activity will see the size of the global application modernisation services market more than double from \$11.4 billion in 2020 to \$24.8 billion by 2025.





“DIGITAL TRANSFORMATION REQUIRES TRADITIONAL ‘CROWN JEWEL’ APPLICATIONS TO BECOME AGILE, CONTAINERISED, INTUITIVE, AND INNOVATIVE AND TO INTEGRATE WITH MODERN CLOUD-NATIVE APPS TO DELIVER A FULL DIGITAL EXPERIENCE FOR THE ENTIRE ENTERPRISE. ORGANISATIONS ALSO NEED TO CONSIDER ADAPTING THEIR BUSINESS PROCESSES, SKILLS, AND SUCCESS METRICS TO SUIT MODERN DIGITAL ENTERPRISE NEEDS.” – IDC


Application modernisation is renewing the process of taking old applications and the platforms they run on by replacing or updating them with modern features and capabilities that align with today’s business needs. This goal can be achieved in several ways: updating older systems and software to include desired new features, ripping and replacing older systems, or re-platforming legacy applications.

The journey towards application modernisation is complex, and each enterprise will face thorny decisions about where to focus its budget and which approach to take to modernise each legacy system. Yet with digital-native competitors turning their lack of legacy into a competitive advantage and rising customer expectations in terms of digital channels, enterprises are under pressure to act.

Those that grasp the nettle will be best positioned to take advantage of the next generation of emerging technologies and to create innovative business models based on agile IT. Businesses that continue to labour with inflexible legacy systems, however, risk falling behind the curve as customers and competitors accelerate the adoption of cloud-based tools and digital technologies.

[1 Application Modernization Services Market Size, Growth, Trends and Forecast to 2025 | MarketsandMarkets](#)

[2 Why a data strategy is the glue for application modernization](#)



Drivers for application modernisation

Drivers for application modernisation

Even before the pandemic, leading enterprises knew that their capability to leverage legacy systems, hybrid cloud and multi-cloud environments would determine their ability to compete successfully in a changing world. As the world becomes more digital, it will be the enterprises that are best able to respond with agility to changing customer needs, emerging technologies and new regulations that will soar.

COVID-19 has given businesses a masterclass in what they can achieve when the pressure is on. Within weeks of national lockdowns beginning, many organisations

delivered new cloud applications to enable employees to work from home and customers to serve themselves via digital channels. At the same time, many discovered to what degree legacy technologies constrain their flexibility.

They found out that there is so much more they could have done, if only they were deeper into their cloud migrations and further advanced in their application modernisation strategies. Such businesses are stepping up their investments in a comprehensive approach to modernising legacy infrastructure and application portfolios.



[3 CIO Guide to App Modernization](#)

[4 Why software is eating the world](#)



THE COSTS OF LEGACY INFRASTRUCTURE ARE BECOMING PROHIBITIVE

Having sweated legacy technology assets for many years, many organisations are now ready to invest in the modernisation of their core applications. As maintenance and management costs rise for older systems, the business case for modernisation becomes stronger. One McKinsey study found that legacy systems account for 74% of enterprise IT spend while continuing to be a drag on innovation.

EVERY COMPANY IS BECOMING A SOFTWARE COMPANY

Marc Andreessen famously said that software is eating the world to describe how even real-world companies are increasingly driving their value from digital products and services. Whether it's retailers using software to drive value-chain optimisation and digital customer experiences, or the tech integrated into modern cars, even real-world companies are powered by applications.

According to IDC, 60% of enterprises in Europe will be prolific software producers by 2025, with code deployed daily, over 90% of new apps cloud native, 75% of code externally sourced, and 1.2 times more developers. A modernised application portfolio is essential to remaining competitive in a landscape where it's the software that gives the business its edge.

SPEED-TO-MARKET AND INNOVATION DETERMINE ENTERPRISE SUCCESS

The days of taking months or even years to launch a new feature or application are long gone. Enterprises need to be able to react quickly to changing business and market demands, as well as rapidly launching new value propositions to remain relevant in today's market. Legacy applications constrain their ability to innovate and respond.

Where enterprises do try to move fast in legacy environments, it often means unacceptable compromises in quality assurance. One global study found that some organisations release new software updates three times an hour, but 64% of CIOs are forced to compromise between faster innovation and perfectly working software.

TODAY'S BUSINESS IS DATA-DRIVEN

Businesses today benefit from an abundance of real-time and historical data from a range of internal and external sources. However, data is often scattered across numerous data siloes, and it can be difficult to extract, manage, share and exploit data in legacy environments.

A modern application stack will be designed to extract value from data, making it available to drive automated decision-making processes.






THE RISKS OF LEGACY SYSTEMS ARE GROWING

Creaky old legacy systems expose the enterprise to a range of risks, from security vulnerabilities to the withdrawal of vendor support and the high costs and inaccessibility of technical skills. These vulnerabilities can be plugged with more modern application frameworks with built-in security and resilient features.

THERE IS A NEED FOR EXTENSIBILITY AND SCALABILITY

It might be difficult to scale up a legacy application to cater for growth in users or transactions without major investments in underlying infrastructure. Adding new features, extending features or creating integrations might be complex and expensive. Modern applications offer more headroom for growth and change.



Application modernisation: Your options

Application modernisation: Your options

There is more than one way to modernise an application, and an enterprise will need to choose the right approaches for its business need, technology environment, skillset and appetite for risk. Most organisations will end up using a mixture of the following tactics, some of them sourced from Gartner research, to achieve their goals:

ULTIMATELY, MODERNISING LEGACY APPLICATIONS MEANS CHOOSING BETWEEN REARCHITECTING, REBUILDING OR REPLACING. REARCHITECTING HAS MEDIUM COSTS AND RISKS, WHEREAS REBUILDING OR REPLACING PROVIDES BEST RESULTS WITH HIGHER COSTS AND RISKS. THE KEY IS TO WEIGH ALL OPTIONS TO HELP IDENTIFY THE EXTENT TO WHICH EACH WILL HAVE THE DESIRED EFFECT — WITH THE MINIMUM EFFORT AND MAXIMUM POSITIVE IMPACT. -- GARTNER





Replace

In some instances, it might be more efficient to replace an ageing system with a modern, software-as-a-service solution, particularly if the capital investment has been fully amortised, the costs of maintenance are steep and the work involved in modernising the application seems complex and expensive. The risks and implementation times may be higher than in some of the other approaches—but so might the rewards.



Rewrite

Another approach is to restructure and optimise the existing code to remove technical debt and improve non-functional attributes. This approach enables the company to retain the business logic, scope and specifications of the existing application.



Rewrap

A company can leverage and extend features of an existing application by encapsulating its data and functions, making them available as services via application programming interfaces (APIs). the existing application.



Rearchitect

Rearchitecting an application means migrating to new application architecture and revamping the code to run on a more modern platform. This can be a low cost and low-risk way of taking advantage of newer technology, but it does mean that the enterprise will not take advantage of the opportunity to transform the way it operates.



Re-platform

This involves moving existing code from a legacy platform to a new platform, perhaps cloud-based, while keeping much of the existing code functionality and structure intact. This can allow the enterprise to modernise the database, optimise costs and take advantage of cloud economics without any major surgery to the application.



Rehost

This is the practice of redeploying the untouched application to a new physical, virtual or cloud infrastructure without any significant changes to the code or business logic. This approach can be quick, relatively risk-free and allow for a rapid return on investment. However, it means that the organisation will not be able to take full advantage of cloud-native features.

Containers versus microservices

In containerisation, the enterprise can wrap applications in container images, breaking them down into smaller units of code that are abstracted from the host operating system. These containerised apps can be rapidly packaged, tested and deployed into production because they are designed to be written once and run anywhere.

The benefits of containers include the fact that they are lightweight and do not require an operating system to be associated with an application. They require less computing capacity than a single virtual machine, can be rapidly spun up, and help to reduce server and licensing costs. Containerised apps also offer benefits in terms of security and ease of management.

Microservices, by contrast, break complex applications down into simple, discrete services and use tools like APIs and REST interfaces to allow these services to communicate with each other. This makes it simpler and faster to update, deploy and manage a specific service within an application without impacting it as a whole. Microservices can be deployed in a container or on their own virtual machine.

According to global IDC research , organisations have the following plans for business applications (such as CRM and ERP):

- 31% plan to retain or retire applications.
- 25% plan to replace applications with software-as-a-service solutions.
- 21% plan to refactor on a component-level basis or completely re-architect to platform-as-a-service platforms.
- 18% plan to lift-and-shift and rehost on infrastructure-as-a-service platforms.
- 4% plan to lift-and-shift and rehost on co-located or hosting services.

[5 Why a data strategy is the glue for application modernization](#)

[6 Three-quarters of CIOs say the need for rapid innovation puts customer experience at risk](#)

[7 Options to modernize legacy systems](#)



Five success factors in application modernisation



Five success factors in application modernisation

Application modernisation is complex and challenging, but the right practices, tools and processes can go a long way in addressing the risks. Here are five best practices:

Assess the as-is state

The first step in an enterprise application modernisation strategy should be to assess the application portfolio and where the pain points are, and to determine which applications are complex and expensive to maintain and which constrict the ability to pursue new business opportunities or take advantage of emerging technologies.

This set should also include assessing the potential challenges and risks of modernising key applications, especially core systems with high strategic value. Furthermore, it is important to assess the potential return on investment from modernising different applications. During this phase and beyond, an expert partner can provide invaluable advice.

Develop the roadmap

Once the organisation has analysed the application portfolio, it can start to develop the roadmap for the modernisation programme. In this step, it will determine the milestones for migrating applications onto new infrastructure, platforms and architectures as well as the modernisation approaches it will take for different apps. To limit risks and build experience, it might make sense to choose some quick-win projects for proofs of concept. Outcomes should be aligned with business priorities.

⁸ COVID-19 Impact on IT Spending Survey

⁹ Why a data strategy is the glue for application modernization



Get buy-in at every level

Application modernisation, like any far-reaching enterprise change programme, will be more successful with wide organisational buy-in. In the words of IDC: “Application modernisation planning and execution, as well as cloud migration, are no longer just pet projects of IT teams. Successful application modernisation is a result of multi-stakeholder collaboration” spanning the board, the C-suite, developers, the IT team, and the governance/risk team.

Put the correct tools, people and processes in place

Enterprises will need to consider how they will establish teams, processes and tools to roll out their application modernisation strategies. One factor to consider is putting in place a common model based on containers and microservices to help developers work faster. Another is the hybrid and multi-cloud infrastructure that will be leveraged. If the organisation has not yet adopted agile and DevOps practices, this is the time to consider doing so.

It’s also important to ensure that there are people with the right skills and experience to drive the application modernisation effort. These skills include expertise in APIs, microservices, cloud, network topology and open-source software. If there are internal gaps, it might be necessary to find external partners to help.

Prepare for continuous modernisation

Modernisation is not a one-and-done project, but a continuous programme of keeping pace with new technology and optimising what already exists. It is important to continually assess frameworks, practices and tools to ensure that the business remains ahead of a fast-moving market.



The ROI from application modernisation



The ROI from application modernisation

Application modernisation isn't strictly speaking an optional exercise—each enterprise will, at some point, need to grapple with technical debt, inflexibility, rising costs and the many other challenges attached to legacy applications. Tackling these challenges holistically and proactively offers companies an opportunity to gain an advantage and reap significant rewards.

Perhaps the most important reason to embark on application modernisation is that a cohesive strategy lays the groundwork for an agile, digital business that is equipped to benefit from the economics of the cloud. With a more modern application portfolio and delivery model, the organisation has the flexibility and scalability to keep pace with modern business and IT demands.

Such an application environment empowers IT to serve the business with speed, enabling it to develop new ways of engaging with customers, driving workplace performance or powering new business models. With the right application framework in place, the company is better positioned to take advantage of emerging trends such as artificial intelligence and the Internet of Things.

Research also shows that there are more tangible and immediate benefits in terms of technical wins and cost savings. According to Forrester, in a modern cloud app environment, developers can be 40% more efficient. They can also gain significant operational efficiencies and reduce costs across areas such as software licensing, support and hardware infrastructure.





**Nebula:
partnering with
you on your application
modernisation journey**

Nebula: partnering with you on your application modernisation journey

Nebula has worked with leading enterprises to help them build technology infrastructure and business solutions that accelerate digital transformation. Our experience and expertise span the solutions organisations need to facilitate the modernisation of legacy systems, a seamless transition to the cloud and efficient management of the technology environment.

We help clients to take advantage of digital opportunities by offering:

- A new approach to addressing complex business needs with best of breed, innovative cloud technologies;
- Always up-to-date, stable technology to support our client's needs; and
- Decreased complexity in the business environment and less reliance on large, high-risk upgrades.

Our people share an Agile Logic mindset of continuous growth. We collaborate with clients to build highly scalable and secure solutions that underpin their shift to a more customer-centric, automated and efficient operating environment. Nebula offers managed services across the spectrum of enterprise technology, including data centres, large-scale WAN implementation and cloud migration.

With a track record in helping blue-chip organisations in the retail, petrochemical, tobacco, professional services and banking industries to optimise and modernise their IT environments, Nebula is well-positioned to help your company navigate the rocky terrain it will encounter as it modernises applications and moves to the cloud.

Whether you're a local or national business, big brand or startup – we can help you get where you want to be. Let's talk about how we can help you accelerate cloud deployment, optimise telecom and cloud management and costs, and drive better performance from your technology environment.

[10 New Forrester study: What is the ROI of application modernization? - Cloud computing news \(ibm.com\)](#)

For More Information

To find out more about OneView®, please send an email to ContactUs@nebula.co.za with "OneView" in the subject line, and a 48 staff member will contact you. You can also visit any of these platforms for more information and latest company news.



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