

Modernize for more cloud value

How application transformation
unlocks next-level cloud outcomes



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Move to improve: The renewed emphasis for cloud

Commitment to cloud has surged over the past two years. It's not hard to see why. As companies experienced a period of intense compressed transformation, they have had to face down a whole range of interlocking challenges — the global pandemic, increased market volatility, supply chain disruptions, and significant changes to the way people work.

As they came under extreme pressure to reinvent their businesses and reinforce their competitiveness for a new era of constant change, companies increased their investment in cloud and migrated ever greater numbers of workloads to cloud platforms.

The ambition was right. But, as Accenture's research "The Race to Cloud" has shown, this accelerated dash to cloud has left several key issues unresolved. In particular, **a cloud value gap has emerged**. Companies haven't achieved everything they hoped cloud would deliver. And they aren't feeling all the benefit they expected.



The cloud value gap

In fact, Accenture's recent research has shown that only 42 percent of companies are fully achieving their expected cloud outcomes. That leaves nearly six in ten experiencing a cloud value gap, where the promise of faster innovation, greater agility, increased resilience, and lower costs remains tantalizingly out of reach.

Why is this? The crux of it is that many companies migrated but didn't modernize. They had the right vision of cloud elasticity and cost reduction. But, often for good reasons, they didn't make enough changes to their technology or business to enable that vision. Whether it was an urgent need to exit their data centers, or the complexities of integrating application ecosystems made the hurdle too high, decisions about modernization were often kicked down the line.

That was understandable at the time. But it had consequences. Too many migrations simply brought all the baggage from legacy environments into the cloud. And too few companies have properly rethought how they need to operate now that their workloads are there.

The big picture? Now's the time to revisit these decisions. Because the race to cloud is far from over. For those that have already migrated, the imperative is to look to the next critical step: modernization. Whereas, for those that are yet to embark on a cloud journey, it's to adopt a holistic "migrate to modernize" strategy. This is the path that unlocks total enterprise reinvention and leads to greater cloud value.



Cloud adoption maturity stages

Companies are at different adoption maturity stages manifesting from the fact that modernization journeys are complex and often nuanced.

They take diverse paths to cloud adoption to navigate constraints and challenges and it's more complex to move up the maturity chain.



Cloud Ready

These companies have leveraged the foundational elements of cloud primarily focused on infrastructure led hosting services.



Cloud Optimized

These companies have taken a technology-led approach to cloud adoption and modernize their application estate with the primary focus on scalability, agility and resilience – getting to optimized.



Cloud Continuum

These companies take an enterprise-led approach to cloud adoption and use it as a means to drive total enterprise reinvention bringing in business agility and composability.

Application transformation: The doorway to new opportunities



The modernization imperative applies to all parts of the IT estate. Companies urgently need to gain greater business agility, tackle organizational silos, accelerate innovation, reduce time to market, optimize costs, and transform IT talent. But they can't do so without first making a series of strategic decisions about where and how to modernize in the cloud.

Nowhere is this more relevant than in application development and management. Not only do companies need to ensure they're maximizing the full range of tools and services in their new cloud environments, they also need to rethink how they go about developing, deploying, operating and maintaining their applications.

And then there's the legacy estate. Established companies rarely have the benefit of starting with a blank slate. They must instead continue to manage their existing applications — some of which may be decades old and critical to the smooth running of the business — and decide which cloud disposition is most suitable for each one.



1001



Nearly **40%** of companies say the need to modernize legacy applications is one of their top barriers to fully achieving cloud outcomes.

Accenture's research: **The Race to Cloud 2023**

The technical debt these legacy applications have accrued can be a major hurdle to realizing cloud value. It's no surprise that Accenture's research "The Race to Cloud" finds a significant number of companies —nearly 40% — saying the need to modernize legacy applications is one of their top barriers to fully achieving cloud outcomes.

It's why a robust application transformation program is critical to achieving cloud value. One that includes the following key objectives:

1

Make the shift to cloud native services and development to unlock the true innovation potential of the cloud.

2

Take a strategic view of application modernization — either by adopting a "migrate to modernize" approach or as part of the post-migration cloud strategy — to ensure legacy apps aren't dragging the whole organization down.

3

Focus relentlessly on good application hygiene — by reimagining the engineering experience and driving new ways of working through modern tools, processes, platforms and architecture.

4

Drive continuous business reinvention and differentiation through software-driven business innovation and deploy Generative AI to unlock productivity gains.

01.

Cloud native services and development

Unlock the speed and agility of cloud



Cloud-native development lets companies operate and innovate with greater speed and agility. It allows them to build and maintain applications that are more scalable, that can more easily incorporate cutting-edge new capabilities like AI, and that can operate seamlessly across modern dynamic cloud environments.

By introducing capabilities like event-driven architectures, immutable infrastructure, containers, service meshes, microservices, APIs and high levels of automation, cloud native development lets companies build loosely coupled systems that are more resilient, more manageable and better able to adapt to evolving business needs. Productivity can also be transformed.

Developers gain access to a range of automated functions and services that are already optimized for the new cloud environment. This not only significantly

reduces their manual development effort, but also improves code quality and application performance and can significantly accelerate time to market.

So where's the catch? On the face of it, adopting cloud native development should be a no-brainer. Especially for greenfield developments. In practice, of course, IT teams face competing pressures which work against one another.

Faced with a constant stream of demands, project teams are often challenged simply to understand and deliver the functionality the business wants. A tension often arises between adhering to cloud native best practices for long term value and meeting the business's needs for functionality *right now*. Left unchecked, this leads to messy applications that are functionally rich but increasingly difficult to manage and maintain.

70% of new apps will be cloud-native by 2024

IDC FutureScape Digital Innovation 2021 Predictions





Getting to cloud native: Change how you operate in the cloud

To get out of this loop, companies should take a fresh look at the operating model and the available skills they have across the IT function. For example, for cloud native development, a DevSecOps/SRE (Software Reliability Engineering) model is now a must, allowing IT teams to bridge siloes between development and operations, while also maximizing automation and building self-healing systems that are more scalable, reliable, secure, and maintainable.

Similarly, the mix of skills required of SRE teams has also evolved as the definition of full stack development has expanded in the cloud. It's no longer enough to master a single language or platform in isolation.

Development now needs to be viewed holistically, with developers considering the interaction with quality engineering, failure isolation, system architecture, evolving business needs, and emerging cloud technologies at every stage.

Developers should also plan how to capture and use the wide variety of “data exhaust” that now surrounds applications. Whether it is logs, status tables, operational data, or performance data, leveraging all the telemetry an application spits out in addition to its core business data is critical for running an efficient and manageable cloud estate, including enabling self-healing applications.

02.

Application modernization

Don't let your legacy drag you down



Greenfield cloud-native development is one thing. But what about the legacy estate? The good news is that companies have a broad spectrum of modernization options for increasing the speed and agility of their existing applications – from simple rehosting in the cloud, through more advanced re-platforming and refactoring, to completely decomposing and rewriting applications within cloud native architectures.

It's true modernization isn't a simple choice. For companies with hundreds, maybe even thousands of applications in their legacy estate, the sheer number of modernization options can appear overwhelming. And the expense, effort and need for specialist skills can seem prohibitive.

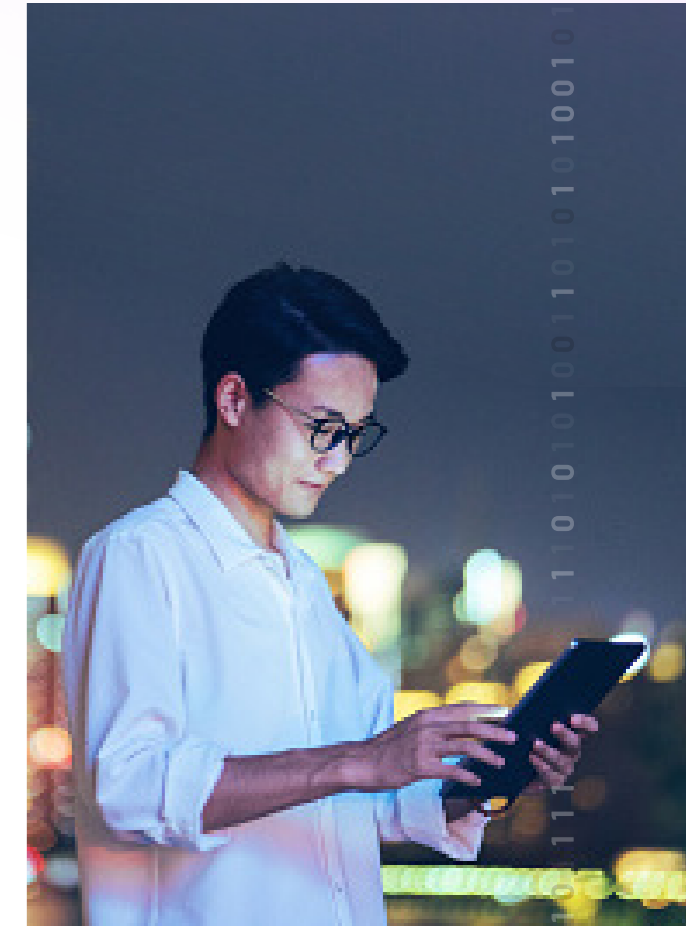
However, for organizations intent on driving towards business agility through their cloud journey, the path of

'Migrate to Modernize' can create a virtuous cycle of creating a more robust, secure, and resilient application estate while opening them up for accelerated delivery of new business value. Some organizations mandate a set of "minimum standards" to even migrate an application to the cloud. Such standards typically include OS versions, database versions, minimum security vulnerability remediation, and even DevSecOps pipelines for continuous application management. Requiring the minimum standards creates its own pressures on the application owners – being "left out" of benefits to the cloud – and eventually creates cost pressures on the applications left behind, creating an additional push.

The more modernization an application gets, the greater the ultimate value for the business — but also the greater the cost, time, and transformation

complexity involved. It's why a process of **value-led** prioritization is essential. Modernization won't be right for every application. And advanced modernization may only be suitable for a select few. In each case, the business case must be well-defined to justify the cost and effort, recognizing that the return on the investment may not be realized immediately.

Ultimately, the choice to fully decompose an application for a cloud native environment should be focused where it will have maximum impact — on the most business-critical applications. Often, these will be applications that have been developed and maintained on legacy mainframe infrastructure over many years, where there's an urgent need to upgrade the architecture to process more data, increase speed, enable massive parallel transactions, and so on.



Multi-modal modernization

You get to live in both buildings, while you gradually connect up each room and transfer your furniture across.

Digital decoupling is a technique for adding modern functions to large legacy applications that offers a middle ground – building new while harvesting the strength of the old.

Older applications can be challenging to rebuild in the cloud, especially when it comes to replicating their embedded business logic and data. Even carving out subsystems for incremental refactoring can be very difficult unless the original application was architected in the right way.

The result is that these modernization projects can rack up more costs and incur more risk than the business is prepared to tolerate. But digital decoupling can help solve this using the very latest techniques in data synchronization. Instead of trying to refactor the existing system, with all the constraints that come with it, you build a new system alongside as a greenfield cloud-native development.

By synchronizing data in your new and old systems in close to real time, both can run in parallel. This means you can modernize the application one piece at a time, using cloud-native architectures, modern techniques like DevSecOps, and high levels of automation.

Think of it as building a brand-new house right next to your existing home. You get to live in both buildings, while you gradually connect up each room and transfer your furniture across. Eventually you're ready to live only in the new, without ever having had to renovate the old. The downside? Two houses always cost more than one.

03.

Application hygiene

Modern practices breed greater flexibility and lower costs





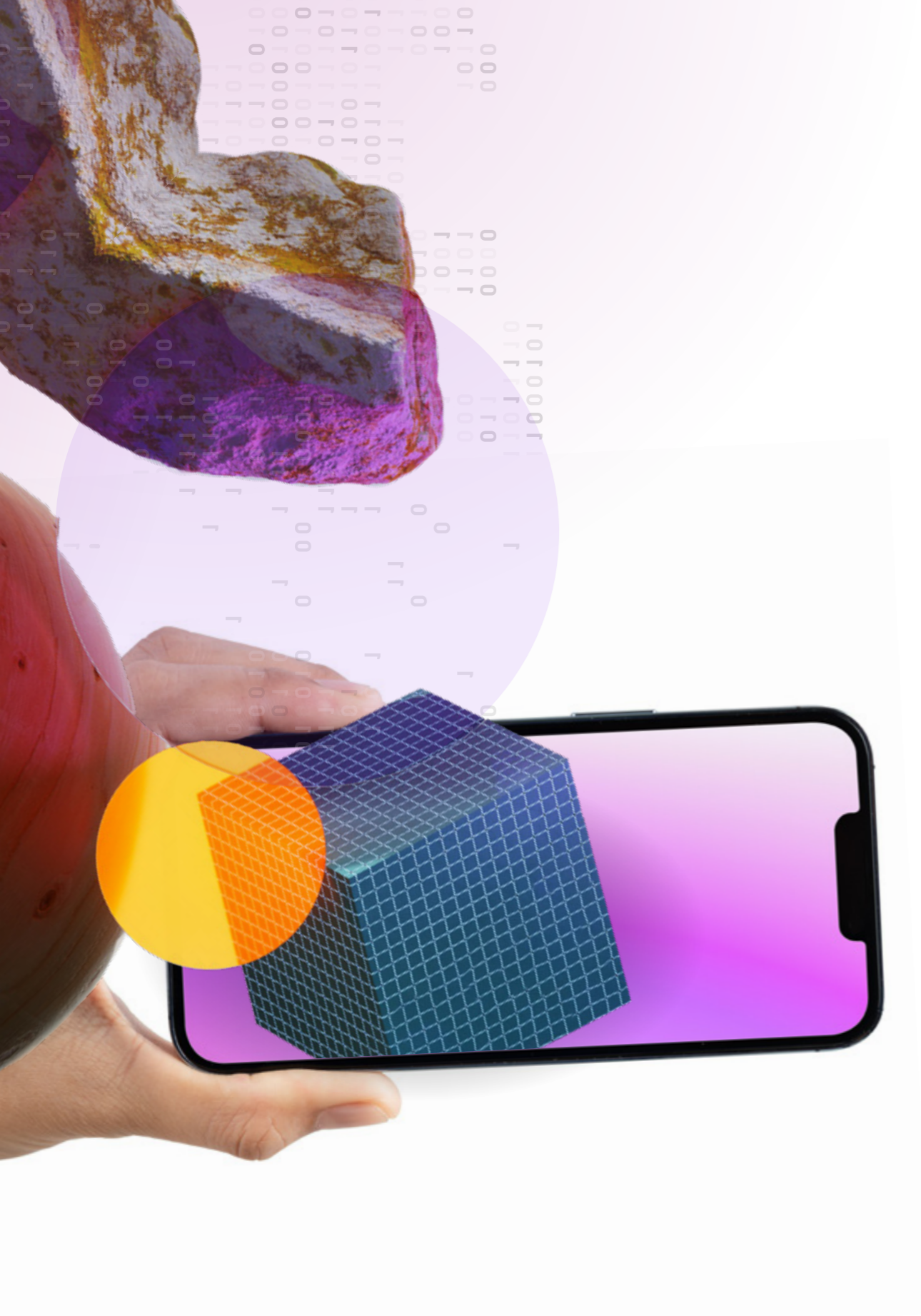
Application hygiene isn't usually top of the list of priorities within a transformation initiative. It's not glamorous work, but it can make a real difference to the flexibility, security and productivity of the overall system. And a failure to keep on top of application hygiene is often one of the key sources of wasted costs in the cloud and missed opportunities to drive new ways of working.

For example, consider all the foundational libraries that are embedded within an application. The fact that these libraries often depend on other libraries and frameworks (and often only particular versions of those libraries and frameworks) means enterprises need to be highly diligent in keeping all the various versions "matched" for each application.

Left unattended, this can create significant problems down the line, especially when a zero-day vulnerability is uncovered in a library on which many others are dependent. Paying close attention to software housekeeping is therefore crucial. That means getting each application's underlying software stack up to scratch — updating libraries, recompiling them, identifying and remediating deprecated functions, and so on.

The key point to remember is that the overall system is only as modern, agile and secure as its weakest link.

The healthy habits of good application hygiene play a key role in ensuring legacy applications aren't acting as a dragging anchor on the rest of the estate. And that the system not only remains as secure and up to date as possible, but also flexible and easy to upgrade.



Then there's the question of operating costs. Given the consumption model of the cloud, cost transparency, observability, telemetry, and FinOps (both by design and as a strong ongoing capability) are all also now critical parts. It's this that allows companies to minimize waste by allocating resources more effectively. Enhanced collaboration between finance, operations, and engineering teams also leads to greater accountability, improved financial discipline and better decision making overall.

It's true that the skills needed to do this in the cloud aren't the same as in the old world of on-premises infrastructure. As with cloud-native development, teams need to understand how all the components of the system interact in the cloud — including the data layer, the network layer, the application layer, and so on.

The good news is that companies don't have to do it alone. A whole range of ecosystem partners exist to support companies with their modern engineering capabilities across quality engineering, hyper automation, observability, and security-by-design. Finding the right partner can greatly accelerate your app transformation journey by bringing up-to-date skills, techniques and tools to augment a company's own capabilities or take on app management altogether, freeing resources to focus on higher priority work.

04.

Software -driven business innovation

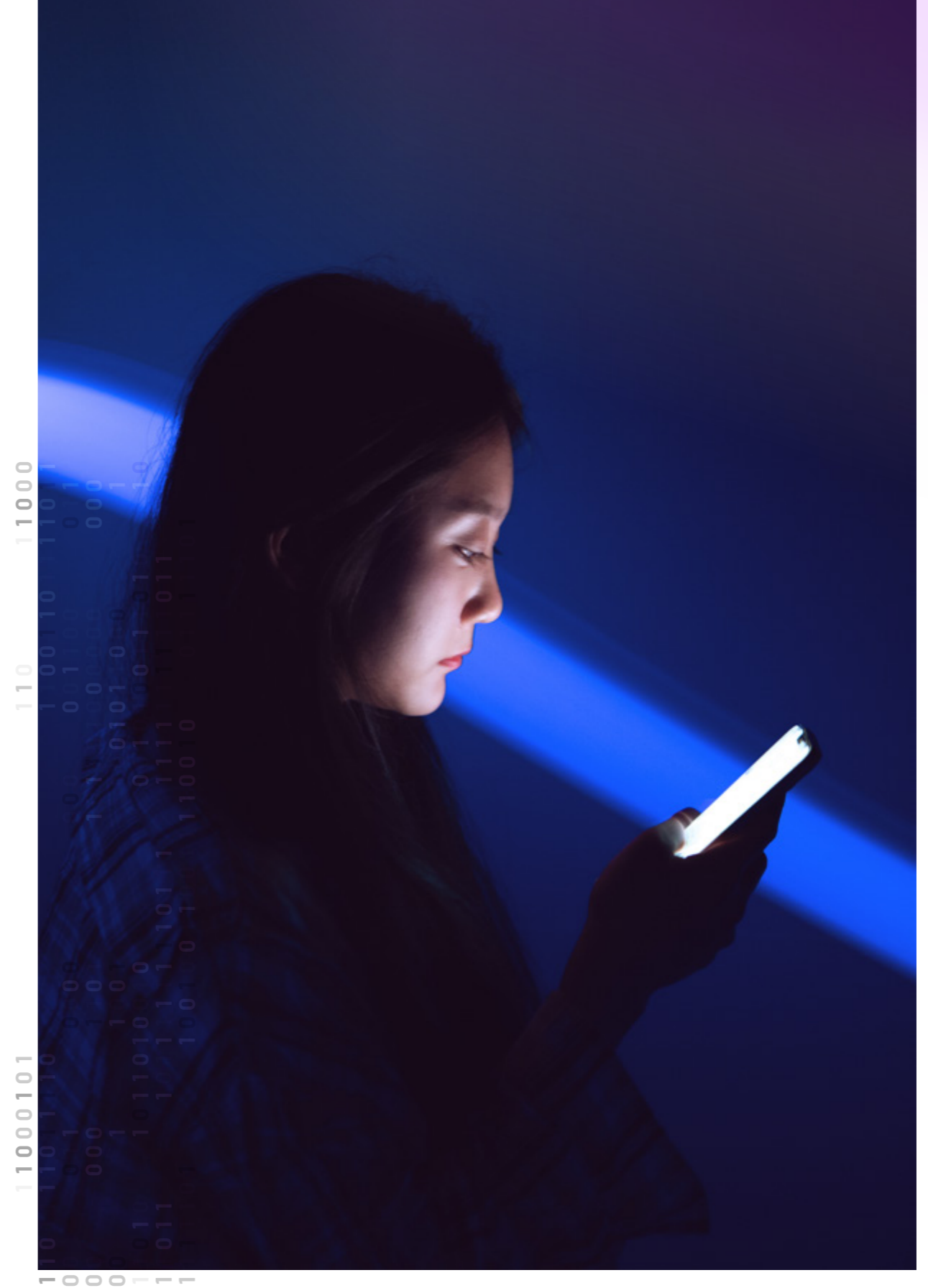
Drive continuous business
reinvention and differentiation



Enterprise technology has accelerated at a staggering pace over the past decade and as disruption increases, business as usual becomes even riskier than innovation. Software applications continue to drive business operations, shape customer experiences and generate fresh revenue streams. Forward-thinking companies are focused on how innovation can help them realize business value faster, supported by delivery productivity gains across the software development lifecycle (SDLC).

Access to multiple tools – often available via usage models rather than multi-year contracts – enable engineers and architects immediate access to a wealth of techniques to extract value from data, to create more engaging customer experiences, and to create more comprehensive integration across business functions.

Capabilities such as AI and Data Analytics that once required significant software and infrastructure investments just to get started can now be experimented with and “dropped in” in short order. Queuing, eventing, and workflows that once required specialized skills (and specialized tools with steep license costs) are now at every developer’s fingertip. With this, the business ideas that were once fantastic musings are now democratized for any organization to innovate and implement. But only if your applications are not just “in the cloud,” but “leveraging the cloud.”



Taking app development to new heights with Generative AI

Generative AI is rapidly reinventing how work is done across a huge range of disciplines, including software engineering. Increasingly, developers will use generative AI to work faster and boost productivity further.

Examples include deriving system documentation from source code and predicting and pre-empting problems with applications.

Accenture, for instance, is piloting the use of OpenAI LLMs to enhance developer productivity by automatically generating documentation such as SAP configuration rationale and functional or technical specs. The solution enables users to submit requests through a Microsoft Teams chat as they work. Correctly packaged documents are then returned at speed.

It's a great example of how specific tasks, rather than entire jobs, will be augmented and automated by generative AI.

Increasingly, developers will use generative AI to work faster and boost productivity further.

Application transformation is the path to cloud value

As companies continue to migrate more of their workloads to cloud, the focus is shifting from just “getting there” to “getting full value” from their new environments.

Application transformation is a central part of that value realization agenda. It’s critical to building a strong digital core that allows the reinvention of the enterprise. And it provides essential agility and responsiveness to help companies meet the wide array of complex challenges they now face.

On the one hand, it means rethinking the IT operating model and mix of skills required to make the shift to true cloud-native development. On the other

hand, it means making critical — and often difficult — decisions about how and where to modernize the legacy estate.

At the same time, it’s vital that companies don’t take their eyes off the sometimes unglamorous but vital work of maintaining strong application hygiene in the cloud through a strong application management and FinOps capability. With access to the full spectrum of cloud functions that can be attached seamlessly to modernized application architectures, the business is free to dream, innovate, and achieve enhanced customer interactions through software.

Combined, these strategies will help companies realize more of the long-hoped-for benefits of greater agility, speed, resilience and cost-effectiveness in the cloud.

It’s why this
is the time to
modernize your
applications, and
**get more value
from cloud**

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