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Perspectives on modernizing IBM i in a hybrid cloud environment

Drive increased value with integration between on-premises infrastructure and cloud

Contents

Executive summary

As the platform of choice for many mission-critical applications and workloads, IBM i can continue to play a central role in any successful cloud transformation journey. The platform supports older programming languages like RPG and COBOL while also enabling modern languages like Python and Node.js. Coupled with a rich application development environment, IT admins and developers can modernize and integrate an IBM i environment into a hybrid cloud with lower costs, less complexity, and a smaller carbon footprint.

Kyndryl™ Core Enterprise Services for IBM i include advisory and implementation, application operations, and management services to help your enterprise define a hybrid cloud strategy. Based on your unique business and technical requirements, Kyndryl can help you see that strategy through every step of the way.

Our approach includes augmenting in-house expertise for individual projects, selective outsourcing of specific tasks, and full outsourcing, as well as our tried-and-tested offerings and hosting models designed to meet your needs wherever you are on your transformation journey.

Meet digital business demands with a resilient hybrid cloud

When the COVID-19 pandemic hit in 2020, our lives changed forever—on a personal level at home and for businesses across the globe. With more people working from home, the number of online consumers grew exponentially. Businesses needed to adapt quickly to ensure their consumers had a seamless and engaging customer experience, which caused rapid digitization across business functions in all industries.

For example, when a financial services firm settles USD 6 trillion a day in transactions, downtime is not an option. To grow new solutions, the financial services firm needed to further modernize its core infrastructure and get ahead of daily processing and storage demand that fluctuate with industry trading volume. The financial services firm worked with Kyndryl to shift its critical daily processes to a flexible and scalable platform based on a dedicated private instance of IBM i cloud technology, resulting in:

- **20 – 30%** faster processing
- **80%** faster migration
- A solid, security-rich platform that can scale on demand

Fast forward to today, and the world is in a better place—but now consumers have become accustomed to the online experience. In fact, IDC predicts that by 2024, consumers worldwide will spend $10.5 trillion online.[1]

Organizations can stay ahead of this demand for digital transformation while still maintaining business continuity. An agile, hybrid, and resilient infrastructure is required, and will continue to be for the foreseeable future to meet growing business demands. IDC recently reported that 60% of organizations believe digital infrastructure resiliency must be a priority or a top priority to enable digital business. To meet these needs, we recommend using hybrid cloud–enabled computing to modernize in place, driving faster time to market, improved innovation, improved customer experience, greater agility, cost reduction, IT simplification, and simplified operational benefits.

Platform choice is not an all-or-nothing decision

Many IT managed services providers (MSPs) and hosting companies try to reduce your choice of platform— and really, anything technology-related—to a simple question: Do you want to modernize and move forward, or do you want to stand still? And often, the only modernization option offered for on-premises infrastructure is to get off it, transitioning away from the platform altogether.

But these choices are not necessarily simple and don't always represent a fork in the road that requires an all-or-nothing, choose-a-single-path decision. Much like life in general, it's complicated.

Some choices are false choices. For example, it's very hard to find a single application today that isn't somehow already part of the hybrid cloud. So, when an MSP says, "*move to the cloud,*" what they really mean is, "*let us host you*."

Similarly, the term "*modernize*" has too often been used as code for "*let us move everything you do to a new platform, rewrite your working applications, and charge you a lot for doing that—as well as fixing them when they break.*"

So, why choose to modernize at all?

Because with the right MSP, modernization is an opportunity to collaborate and identify the right platform for the right workload, integrating your existing IT infrastructure, applications, and data with your plans for digital transformation. Through a consultative-led approach, you can select the right hyperscalers, hybrid strategies, network architecture, security architecture, guidance on application and data placement, aligned ROI models, and an overall proof of concept with well-articulated business benefits. The resulting open and flexible architecture allows for the proper placement of applications and data in the environment best suited to your needs, whether that be in the cloud or on premises.

A strong foundation to modernize your business applications

The IBM i operating system is a platform designed to adapt to the needs of the business, with the expectation that both business and IT will continually evolve. Over time and with each release, the platform has adapted to industry-level changes, providing a strong foundation for continued innovation and integration with new technologies.

Integration is, in fact, its defining characteristic, represented by the "i" in IBM i. A fully integrated platform itself, IBM i also integrates with activities on other platforms to help you derive value with fewer resources and higher reliability—proving that IBM i does not need to be an island in your enterprise's IT ocean.

*The **false choice** is the idea that the enterprise must get off the platform or end up with no one to support it ...*

Even so, many cloud providers still recommend moving away from IBM i to another operating system during cloud adoption. One of the biggest drivers of on-premises solution abandonment is the declining workforce needed to support the technology. The false choice here is the idea that the enterprise must get off the platform or end up with no one to support it—but with the continuously evolving tools and languages supported on IBM i, that isn't the case at all.

At nearly every level of the technology stack, from applications through infrastructure, the perceived complexity of "legacy" solutions like IBM i is masked by these open solutions and new platform features. While there may be short-term or even longer-term gaps in skills, working with an experienced MSP can help fill those gaps and fuel change through comprehensive hiring and skills programs.

Another major driver that leads enterprises to move away from IBM i is a misconception about the total cost of ownership (TCO)—the idea that the platform must be very capital-intensive and expensive. On the contrary, consumption-based models for software and for hardware capacity are available, some of which require no capital outlay at all.

TCO is an interesting concept. To truly account for the total cost of ownership, factors like the cost of migration, outages, and business impact all must be examined. Planning estimates need to be realistic, with an appropriate timeline and based on predictable costs.

Unfortunately, cloud spend can be wildly unpredictable. So much so that an entire professional discipline has emerged just to help contain unpredictable cloud computing costs. Known as FinOps, this new discipline focuses on the monitoring, measurement, and mitigation of cloud-related costs, and the demand for these practitioners is only going to grow. And in a hybrid cloud world, it's not limited to the hyperscaler environment—with the right MSP, FinOps can be integrated with your existing IBM i environment.

A modern IT infrastructure is often at the center of a successful cloud strategy, capable of virtually anything other platforms can do at comparable or lower cost.

Despite misconceptions, a modern IT infrastructure is often at the center of a successful cloud strategy, capable of virtually anything other platforms can do at comparable or lower cost. There are three main ways your IT infrastructure can help drive value as part of your overall cloud strategy:

Improvement

Value is provided by improving what is already in the enterprise. Many of the features that enable your overall journey may be available using current hardware and software. In some cases, technology refreshes are required. The updates leading to currency provide the ability to deploy new business solutions using popular programming languages, automation solutions, and agile tools. Together, these resources enable a cultural shift to enterprise DevSecOps and all the efficiency, effectiveness, and productivity gains that come with it. Further improvements are made available through currency, including those focused on security and resiliency, and can be integrated and implemented across the enterprise.

Leverage

With improvements in place, additional value can be obtained by making use of refreshed and more robust technology in your environment. This leverage also comes with predictable—and typically reduced—costs. Additionally, achieving currency in your hardware and software stack can unlock access to cloud environments, enabling you to choose the optimal combination of application and data workloads for your unique environment. For example, you may choose to take advantage of new automation capabilities to integrate business resiliency needs across both IBM i and a hyperscaler as part of your hybrid journey.

Enablement

The third major area of value comes from enablement. The development of cloud-native applications, using containers connected to traditional applications through open APIs, can unleash your developers, making it possible for them to satisfy business requirements using newly implemented agile processes to accelerate speed to market. These enablement benefits also extend to management of your more traditional applications and environment. Implementation across the entire hybrid cloud—representing both on-premises infrastructure and public clouds—can magnify these benefits even further.

Kyndryl is also aligned with the IBM Modernization Engine for Lifecycle Integration (MERLIN) offering, working within the MERLIN framework to help move IBM i solutions forward and develop next-generation applications on IBM i that can be integrated with a hyperscaler environment.

When transforming tools, processes, skills, applications, data, software, and hardware, it is vital to move in incremental steps. Create success and then build on it to seamlessly enable dynamic innovation across the enterprise and support your chosen platform. Kyndryl can help, with advisory, implementation, application, and management services to help maximize business value at every step of your enterprise's unique journey.

Critical pathways to value during your cloud transition

There are five main pathways to value during your cloud transition:

- Rejuvenation of the workforce
- Core platform transformation
- Opening up on-premises infrastructure
- DevOps enablement
- Development or migration of new workloads

Rejuvenation of the workforce

As previously mentioned, a major concern for many enterprises is the availability of skilled IT resources to support the current application and data estate core to your business. The risks associated with these resources can be mitigated with state-of-the-art tools and processes and employees trained with the solution.

Skills are an investment, and it is critical to define and develop specific and targeted programs to hire, train, and retain the right talent to successfully execute your enterprise's strategy. There are many educational resources available for IBM i. Through Kyndryl's partnership with leading education providers, we have an extensive, ongoing training program available to our customers—the same one we use for our own teams. With an array of certifications available, the training covers all aspects of IBM i, from systems administration through application development, automation, and advanced production management tools and techniques.

Core platform transformation

No matter how robust your strategy is, you also must make sure your technology can support it. Optimization of the IT estate is key.

Since the release of IBM i 7.2, hybrid cloud capabilities have improved significantly. New tools and services have been added to simplify tasks for securing and integrating the IBM i environment into a hybrid cloud.

Kyndryl provides a variety of services that include upgrades to gain currency and exploit platform capabilities required to enable a hybrid cloud transformation journey. These upgrades include options for infrastructure as a service (IaaS), onsite, dedicated offsite, or offsite multitenant hosting and management. Each of these options can be realized through a full outsourcing model or through selectively outsourcing specific individual functions.

Through Kyndryl's partnership with leading education providers, we have an extensive, ongoing training program available to our customers—the same one we use for our own teams.

Opening up on-premises infrastructure

You've probably heard of the term 'mission-critical applications, but what does that actually mean? 'Mission-critical' means core to your business, referring to applications that enable processes and business logic without which the business cannot survive.

Most of the time, moving these mission-critical applications to a new platform isn't a good option. In a lot of cases, extracting and understanding the business logic to rewrite or reengineer the applications would be both expensive and time-consuming. Some of the key code may not have been touched for decades and the embedded logic and business process may not have been examined or changed for nearly as long, if not longer. It is a much more cost-effective approach to only rewrite pieces of these applications, leaving the rest to run as it always has, while opening the application to integration.

Along with these critical applications comes big data with corresponding data gravity. Just as with physical gravity: the bigger the data, the more data gravity it has. Much of this data is critical to fueling the analytics that drive automation and help build AI knowledge—another place where making IBM i applications and data available to other environments is preferable to moving to a new platform.

Opening your infrastructure, applications, and data doesn't have to be difficult or complex—there are multiple tools available that greatly simplify the process of externalizing applications and data on the platform.

Kyndryl can be a key partner on your journey to a hybrid cloud, with multiple services focused on helping you deploy and exploit all the tools necessary to make your IBM i environment a cost-effective, core component.

DevOps enablement

It takes solid, standard, and dependable tooling to open the platform, but the gains in efficiency, effectiveness, resource utilization, and costs can be very impressive. Opening IBM i allows for major process changes and the implementation of DevOps—perhaps the most important transformation of all.

At its core, DevOps does many of the same things that have traditionally been done to ensure IT environment integrity across technology and application layers. The difference is that DevOps does these things in a way that integrates development and operations—faster, continuously, and in parallel.

Kyndryl provides consultative and implementation services to integrate the hybrid cloud practices into existing DevOps infrastructure, with a focus on modernizing the developer experience and enabling a CI/CD pipeline to manage applications and data assets, development, and deployment. These services include enabling the integration of more traditional languages, such as CL, RPG, and COBOL, with more modern languages like Ansible, Node.js, and Python, along with integrated development environments that support these languages in a DevOps environment.

* Devops Transformation Strategy

Development or migration of new workloads

Why would you want to move existing applications and IBM i data, or build new applications on the platform?

Let's return to the concept of data gravity. The bigger the data, the more it attracts applications, technology, processes, and more. It becomes hard to move the data, so instead the other applications may move to the same platform as the data or to a platform nearby with very low latency connectivity. Data gravity, like real gravity, is very strong and hard to break away from.

Instead of fighting the data gravity, it is much more effective to recognize it and develop new applications accordingly, hosting new or modernized applications that are implemented with newer integration technologies and developed using newer, more agile processes.

Workloads not pulled in by the data gravity can still be hosted on other platforms when appropriate, but there are many critical business processes best enabled through the integration of applications and data across a hybrid cloud.

Kyndryl can work collaboratively with your internal development shop to create a proof-of-concept. Once it meets business, technical, and financial requirements, we can enable the DevOps tools, train application developers, and work with you to develop, test, and deploy these new applications across your hybrid cloud environment.

Kyndryl Core Enterprise Services for IBM i

Kyndryl offers an array of services for IBM i, designed to assist with navigating, integrating, and optimizing your hybrid cloud transformation. No matter the size of your company or where you are in your transformation journey, our experts have the experience and technical expertise to advise, consult, collaborate, and help you implement a strategy that meets your technical and business requirements.

Through key services and partnerships with Google Cloud, Microsoft Azure, AWS, and more, we can help you identify the best hybrid cloud solution for your business and tailor it to the needs of your existing IT infrastructure.

- Advisory and implementation services
- Managed extended cloud IaaS for IBM i
- * Application operations
- Kyndryl strategic alliances and partnerships
- Cloud migration services

* Read the ebook.

Why Kyndryl?

Kyndryl has deep expertise in designing, running, and managing the most modern, efficient, and reliable technology infrastructure that the world depends on every day. We are deeply committed to advancing the critical infrastructure that powers human progress. We're building on our foundation of excellence by creating systems in new ways: bringing in the right partners, investing in our business, and working side by side with our customers to unlock potential.

For more information

To learn more about Kyndryl advisory, implementation, application, and management services for IBM i, please contact your Kyndryl representative or visit us at kyndryl.com

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1 *Accelerating digital infrastructure transformation with help from technology partners*, IDC, May 2022