

# Application Modernization

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Blueprints, Tools and Practices for Modernizing Legacy Applications

zure



# Application Modernization: Catalyst for Accelerating Cloud-Powered Digital Transformation

Application modernization is a strategic initiative that involves updating or transforming existing legacy applications to leverage modern technologies, improve performance, enhance user experience, and drive business growth.

In addition to these technical advantages, modernizing applications can also deliver significant business benefits and cost savings.

Let's explore how organizations can achieve these benefits through application modernization:

**Enhanced Efficiency and Productivity:** By modernizing applications, organizations can streamline processes, automate tasks, and improve collaboration among teams. This enhanced efficiency leads to increased productivity, reduced manual errors, and faster time-to-market for new products and services.

## **Improved Customer Experience:**

Modernized applications provide a seamless and intuitive user experience, leading to higher customer satisfaction and loyalty. By incorporating modern design principles and functionalities, organizations can better engage with customers and meet their evolving needs.

**Scalability and Flexibility:** Modern applications are designed to be scalable and flexible, allowing organizations to adapt to changing business requirements and scale their operations as needed. This scalability ensures that applications can grow with the business without significant disruptions or costly upgrades.

## **Enhanced Security and Compliance:**

Legacy applications are often vulnerable to security threats and compliance issues due to outdated technologies and inadequate security measures. By modernizing applications, organizations can strengthen security protocols, protect sensitive data, and ensure compliance with industry regulations.

# Application Modernization: Catalyst for Accelerating Cloud-Powered Digital Transformation

**Cost Savings and ROI:** While the initial investment in application modernization may seem significant, the long-term cost savings and return on investment (ROI) are substantial. Modernized applications require less maintenance, support, and infrastructure costs, resulting in overall cost efficiencies for the organization.

**Competitive Advantage:** Organizations that embrace application modernization gain a competitive edge in the market by delivering innovative solutions, improving operational efficiency, and responding quickly to market demands. This competitive advantage can drive business growth and market differentiation.

Application modernization is a key enabler of digital transformation, allowing organizations to innovate, experiment with new technologies, and drive business innovation. By modernizing applications, organizations can stay ahead of the curve and remain relevant in a rapidly evolving digital landscape.

Overall, application modernization offers a wide range of business benefits and cost savings that can transform organizations, drive efficiency, and foster innovation. By investing in modernizing their applications, businesses can future-proof their IT infrastructure, enhance customer experiences, and achieve sustainable growth in today's competitive business environment.

# Application Modernization Best Practices and Implementation on Microsoft Azure

## Application Modernization

is the process of updating and transforming legacy applications to leverage modern technologies, improve performance, enhance user experience, and reduce maintenance costs.

Implementing best practices in application modernization is crucial for successful migration to cloud platforms like Microsoft Azure.

Modernization is the process of transitioning an organization's applications, processes, and data management to a cloud-first approach. The goal is to improve organizational and technological performance, enhance the quality of customer and employee experiences, and accelerate time to market for new offerings and updates.

If an organization uses on-premises apps, modernization may involve migrating those apps to a public, private, or hybrid cloud. Commonly modernized apps and data include:

- .NET apps
- Linux web apps
- Java apps
- SAP apps
- SQL databases

## App modernization strategies

These strategies are distinguished by an organization's modernization goals and the need for code changes to the apps themselves. An app modernization strategy is defined during the planning step and put into effect during the implementation step.

# Application Modernization Best Practices and Implementation on Microsoft Azure

- **Rehost.** Sometimes called “lift-and-shift,” this modernization strategy emphasizes speed because it requires practically no code changes. Organizations take apps from their previous environment and transition them as-is to their current environment.
- **Replatform.** This approach lies in between rehosting and refactoring. With replatforming, organizations make code changes so that apps can be used with cloud technologies.
- **Refactor (or repackaging).** Refactoring prioritizes productivity as well as speed. With this strategy, apps need only minimal code changes so that they can connect easily to and make the most of a cloud-first environment.
- **Rearchitect.** If an organization needs cloud scalability, rearchitecting might be the right approach. With rearchitecting, apps functionality and code get modified and extended to scale better in the cloud.
- **Rebuild (or rewrite).** For recreating an app using cloud solutions, rebuilding is sometimes the right option. It’s a heavier lift, but it may be essential if existing apps have limited functionality or lifespan.
- **Replace.** If an app won’t meet current or future business needs even after rebuilding, replacing it with a ready-made solution may be necessary. This approach can be faster than rebuilding and free up valuable development resources.

The steps and strategies for successful app modernization should work towards supporting a framework of organizational goals.

# Application Modernization Best Practices and Implementation on Microsoft Azure

- **Assessment and Planning:** Conduct a thorough assessment of existing applications to identify legacy components, dependencies, and potential migration challenges. Define clear objectives and goals for modernization, considering factors like scalability, security, and performance.
- **Containerization and Microservices:** Break down monolithic applications into smaller, independent services using containerization and microservices architecture. Utilize Azure Kubernetes Service (AKS) for managing containerized applications and orchestrating microservices.
- **Cloud-Native Development:** Adopt cloud-native development practices to build applications that are scalable, resilient, and easily deployable on Azure. Leverage Azure Functions for serverless computing and Azure App Service for hosting web applications.
- **DevOps Integration:** Implement DevOps practices to automate build, test, and deployment processes, ensuring continuous integration and delivery (CI/CD). Use Azure DevOps for version control, project management, and automated pipelines.

By following these best practices and steps for application modernization on Microsoft Azure, organizations can achieve greater agility, scalability, and efficiency in their digital transformation journey.

# Application Modernization Strategies for Azure Virtual Desktop

In the [AVD Migration and Modernization strategy](#) they also highlight: *“A final migration scenario might include migrating your applications into MSIX app attach format.”*

This refers to a key facet of adopting Azure Virtual Desktop: Modernizing the legacy applications they are used to access.

Legacy Windows applications refer to software programs that were developed using older technologies and frameworks, often running on outdated operating systems, typically built using technologies such as Visual Basic, C++, or .NET Framework. These applications may have served their purpose well in the past, but as technology advances, they can become a liability for businesses.

Common characteristics of legacy Windows applications include a lack of compatibility with modern operating systems, dependency on outdated frameworks and libraries, outdated user interfaces, performance issues, security vulnerabilities and difficulty in integrating with other systems.

## MSIX App Attach

Microsoft's App-V solution is the most commonly used application virtualization and delivery solution for enterprise organizations worldwide. However, after having no new features added for years now, App-V officially will become end of life in 2026. Its successor is 'MSIX' – The two are compared [here](#).

# Application Modernization Strategies for Azure Virtual Desktop

As Microsoft describes [here](#) the Azure Virtual Desktop related innovation to application management is a new feature called [MSIX app attach](#), a packaging format that offers many features aimed to improve packaging experience for all Windows apps. MSIX app attach is a way to deliver MSIX applications to both physical and virtual machines, simplifying the deployment process by providing a single package that can be installed on any Windows 10 device.

MSIX app attach is different from regular MSIX because it's made specifically for Azure Virtual Desktop. This creates separation between user data, the operating system, and applications by using MSIX containers. You can remove the need for repackaging when you deliver applications dynamically. You can reduce the time it takes for a user to sign in to Azure Virtual Desktop, and at the same time reduce infrastructure requirements and cost.

App Attach is a feature in Windows Virtual Desktop that allows applications to be dynamically attached to virtual machines. It eliminates the need for traditional image management and enables administrators to deliver applications on-demand.

## Best Practices

In [this webinar](#) the hosts provide an overview of MSIX and app attach, two technologies that simplify application deployment and management in Windows environments.

The video provides an informative overview of MSIX and app attach. These technologies offer significant advantages in simplifying application deployment and management in Windows environments. By adopting MSIX and leveraging App Attach, organizations can enhance their application delivery processes, improve security, and reduce storage costs. The video highlights several benefits of using MSIX and App Attach:



# Application Modernization Strategies for Azure Virtual Desktop

- Streamlined application packaging and deployment.
- Improved security and reliability.
- Reduced storage costs.
- Flexibility in delivering applications to virtual machines.
- Compatibility with existing deployment tools.

In this Desktops in the Cloud webinar Microsoft MVP and renowned expert in this field [Tim Mangan](#) talks about about [App-V: The Story So Far](#), and how MSIX will be the evolution of this. He also talks about the exact differences between the two solutions and shares guidance on how you can package an own Windows application into MSIX and MSIX app attach.

In other webinar talks Tim explores the detail of MSIX strategies, including [this one](#) on MSIX packaging fundamentals and App V migration scenarios, and in [this session](#) Tim and Bogdan Mitache take you on an insightful journey through migrating from App-V to MSIX.

## Vendor Solutions

### Liquidware FlexApp

[Liquidware](#) is the premier provider of third-party Windows digital workspace management solutions used by enterprise organizations around the world, a pioneer in the development of desktop virtualization solutions that complement leading platforms including Azure.

In [their webinar](#) they explore '*App-V End of Life: How to Move Forward?*'

They highlight a core challenge, that based on several expert reports, MSIX does not yet meet the needs and requirements of organizations, with the success rate of packaging (without additional external tooling) being only 30-40%.

# Application Modernization Strategies for Azure Virtual Desktop

MSIX is not yet fully supported on all Windows versions (most features are limited to Windows 11) and as a result, organizations using App-V are forced to look at alternatives for their application management. Therefore, in this webinar, they present their fully mature and future-proof alternative: [FlexApp™](#).

FlexApp leverages application layering by pulling applications away from the OS and placing them in their own “application layer”. This way, individual applications can be easily and flexibly delivered to any platform. Andreas van Wingerden explains how FlexApp fits within the Modern Application Management practice and briefly shows the layering concept.

## Application Modernization with Parallels RAS and MSIX App Attach

Parallels RAS is a comprehensive virtual application and desktop delivery solution that simplifies application deployment and management. It allows businesses to deliver applications to any device, anywhere, while ensuring a seamless user experience.

As they explain in [this video](#) Parallels RAS brings MSIX app attach technology to RDSH, VDI, and Azure Virtual Desktop. As a result, application packages can be (re)used in any on-premises, hybrid, or cloud scenario. This enables administrators to dynamically add and remove apps without installing such applications on the desktop image or the Parallels RAS template.

Beyond basic MSIX app attach management, capabilities previously introduced in Parallels RAS, such as package version management and package certificate management, also apply to the MSIX app attach integration for Azure Virtual Desktop.

In [this video](#) they explain that MSIX app attach allows delivering MSIX applications to create full separation between the OS and applications by using containers, and the integration with MSIX app attach includes importing packages, version management, certificate management, wizard driven publishing.

# Application Modernization Strategies for Azure Virtual Desktop

## appCURE

[appCURE](#) offers a powerful solution for modernizing legacy Windows applications, enabling businesses to leverage the latest technologies and stay competitive in today's fast-paced digital landscape.

For Azure Virtual Desktop [appCURE](#) provides best-in-class MSIX & MSIX app attach assessment, packaging and testing capabilities, enabling you to accelerate your application migration project, check candidacy for MSIX app attach, migrate legacy SCCM packages to AVD and deliver applications to AVD as MSIX app attach.

[appCURE](#) provides comprehensive certificate management capabilities enabling creation, management and fast replacement of certificates for 100's of MSIX packages in minutes, with access to 3000+ Apps: Quickly download and package Commercial Off-the-Shelf (COTS) software into MSIX, then Push to Azure Virtual Desktop.

This [video](#) demonstrates Parallels RAS integration in [appCURE Studio](#).

## Rimo3

[Rimo3](#) determines application suitability for modern package formats like MSIX, App Volumes, and FlexApp One. It then automatically converts applications to modern formats. The platform captures and converts suitable applications using best practices and vendor-supported tooling.

[Rimo3](#) automatically imports enterprise metadata from storage repositories like SCCM, eliminating the need for custom scripting and manual package transfers. After import, applications are discovered and analyzed for their suitability for migration and capturing package customizations. To complete the migration process, [Rimo3](#) facilitates automatic export of the entire application estate to modern management planes.

[Rimo3](#) pioneered Intelligent Smoke Testing, a patented process that allows Windows applications to be tested with no scripting or configuration.