

Federal Application Innovation Offer

Modernize and migrate your “lead-horse” application to Azure PaaS



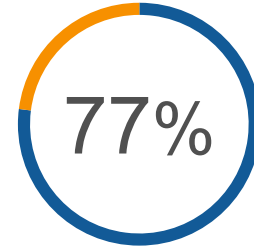
Migrate & Innovate with Container-Powered Azure PaaS

“By 2020, more than **50%** of enterprises will run **mission-critical, containerized cloud-native applications** in production.”

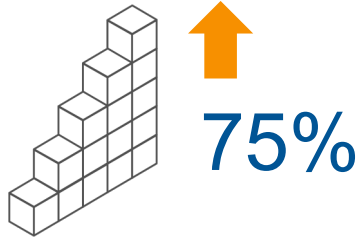
Gartner

Half of container environment is orchestrated.¹

77% of companies² who use container orchestrators choose Kubernetes.

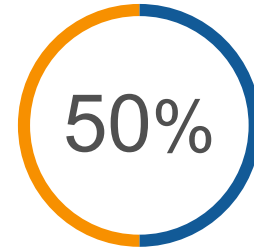


The average size of a container deployment has grown 75% in one year. ¹



Larger companies are leading the adoption.¹

Nearly 50% of organizations¹ running 1000 or more hosts have adopted containers.



1: Datadog [report](#): 8 Surprising Facts About Real Docker Adoption
2: CNCF [survey](#): cloud-native-technologies-scaling-production-applications

Overview

CHALLENGES

- Application innovation is complex
- VM-based application platforms are slow and costly
- Address the need for innovation without compromising governance, security, and compliance

SOLUTION

- Empower your organization to modernize your applications with low risk
- Leverage the ability to adapt and expand based on the changing conditions of your IT environment
- Create a fully flexible system that adapts to use only the resources you need

OUTCOMES

- Accelerated application development and increased time to value
- Easily provision fully managed clusters with automatically configured monitoring capabilities
- Cost savings
- Reduced risk with self-healing
- Continuous modernization capabilities

Engagement Approach



PHASE ONE Plan & Assess

Landing Zone

- Review MVP requirements
 - *Networking, governance, optimization, security, and operations*

Lead Horse

- Assess Application for POC migration
 - *Server assessment, app dependencies*
 - *Cross cutting concerns – Logging, security, availability, scalability, “containerizability” ***



PHASE TWO Build & Migrate

Landing Zone

- Provision MVP Landing Zone
 - *ARM templates, Terraform, Blueprints*
- Enable Infrastructure Telemetry
 - *Azure Monitor*

Lead Horse

- Containerize and deploy the application
 - *App Service, AKS, ACI, Functions*
- Enable Infrastructure Telemetry
 - *Azure App Insights*



PHASE THREE Validate & Test

Landing Zone

- Validate infrastructure telemetry – compute, network and storage
 - *Azure Monitor*

Lead Horse

- Validate the application and telemetry
 - *App Service, AKS, ACI, Functions*

** See Appendix A for more information

Deliverables

WEEK 1

- Review Cloud Strategy roadmap
- Motivations for moving the application to the cloud
- Gather MVP Landing Zone requirements
- Review characteristics of a lead horse application
- Review of Azure PaaS offerings

WEEK 2

- Setup a DevOps repository
- Implement the MVP Landing Zone
- Setup infrastructure telemetry
- Conduct lead horse application assessment
- Assess “containerizability”
- Provision target PaaS cluster (App Service, AKS)
- Assess Cloud Readiness

WEEK 3

- Generate Docker image (Windows and Linux)
- Deploy the Lead Horse to Azure PaaS
- Setup Azure Monitor Telemetry for infrastructure and application

WEEK 4

- Validate Landing Zone and migrated application
- Setup Azure Monitor Dashboards to validate the infrastructure and application telemetry
- Discuss next steps to monitor and scale application modernization

Get Started

Ready to start your app modernization?

- Contact AIS today at sales@appliedis.com
- We'll follow up with **documentation** to help you determine the next steps in **moving forward with an assessment**
- This will help define the project scope and next steps



Appendix A: Lead Horse App Assessment

Challenges	Challenges
Use of Unsupported Languages and Runtimes Red Hat OpenShift has no support for .NET Framework	Inability to be containerized system call traps, input/output (I/O) access, and memory
Direct Code-to-Runtime Relationship OS specific unmanaged code, such as C or C++	Hardcoded values hardcoded Internet Protocol (IP) addresses, port numbers, hostnames, file
Improper State Management State / server affinity	Siloed Logging writing logs to local disks
Single Point of Failure Singleton service	Third-Party Libraries and APIs vendor or commercial off-the-shelf (COTS) application
Bottlenecks Throttled API	Use of Multiphase Commits Microsoft Distributed Transaction Coordinator (DTC)12 or Java Transaction (XA protocol)
ALM Issues Manual configuration, testability	Incompatible Networking Requirements Commits Chatty, multi-cast IP

Appendix B: AIS Landing Zone Guidance

The screenshot shows a web browser window with the URL `docs.appliedis.com/Strategy/Strategy.html`. The browser's address bar and tabs are visible at the top. Below the browser, there is a dark blue navigation bar with the AIS logo and menu items: Introduction, Backlog, Strategy, Plan, Cloud Readiness, Workload Landing Zone, and Migrate. Below the navigation bar, a breadcrumb trail reads "Strategy / Strategy".

The main content area is titled "Strategy". It contains a paragraph: "The Strategy Phase activities focuses on the specific case where a client has not yet moved any workload to the cloud and is at the very beginning of their cloud journey." This is followed by another paragraph: "The key steps in creating a cloud adoption strategy are:" and a bulleted list of eight steps:

- Step 1 – Define Vision and Identify Key Motivations (define the desired end state after moving to the cloud)
- Step 2 – Define Business Drivers and Outcomes (Why and what benefits are expected)
- Step 3 – Create Business Justification (Compute ROI based on cost and revenue deltas)
- Step 4 – Identify Risks for Cloud Adoption (Identify, prioritize, define mitigation approaches)
- Step 5 – Identify Change Management Impacts (Affected stakeholder groups, business impacts, IT impacts)
- Step 6 – Define Cloud Adoption Governance Approach (Program charter, governing organization to oversee adoption)
- Step 7 – Make Key Decisions (Single cloud, multi-cloud or hybrid)
- Step 8 – Identify your first cloud migration workload

On the left side of the page, there is a navigation sidebar with a search box "Enter here to filter...". Below the search box, there are several expandable/collapsible sections:

- + Identify Risks for Cloud Adoption
- + Key Decisions
- Strategy ADS
- + Plan
- + Cloud Readiness
- **Workload Landing Zone** (highlighted with a red circle)
- + Core Automation and DevOps
- + Management Groups and Subscriptions
- + PlanCoreAzureNetwork
- + PlanCoreServices
- + PlanHybridConnectivity
- + ProvisionBaseResourceGroups
- + ProvisionCoreServices
- + ProvisionNetworkResources
- + Migrate

Appendix C: Migration Approaches

Approach	Code Changes	Operational Costs	Cloud Costs	Leverage Native Cloud Services	Scalability	DevOps Maturity	Code structure	Time to value (end state)	SRE Maturity
Rehost (lift-n-shift)	None	High (Unchanged from on-premises)	High	None	Vertical	Low	Unchanged	High	Low
Revise (lift-n-reshape)	Low	Medium	Medium	Low Orchestrator / Compute	Horizontal and vertical scaling	Medium-High	Unchanged	Medium	Medium-High
Refactor (Rearchitect)	Medium	Medium	Low	Medium PaaS Services	Horizontal and vertical	Medium-High	Materially changed	Moderate	Medium-High
Rebuild	High	Low	Minimal Dynamic – usage based	Maximum	Horizontal	High	Rewrite	Low	High
Replace	N/A	Low	Low	N/A	N/A	N/A	N/A	N/A	N/A

Appendix D: Microsoft video showcasing our

[Migrate and Modernize with Kubernetes on Azure Government](#) (video)

