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Kyndryl 2-Weeks Rapid Assessment for Cloud Optimization

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Agenda

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Why

Cloud Optimize

&

Well Architected Framework

(WAF)

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Consumers Have Reduced Visibility and Control
On-Demand Self Service Simplifies Unauthorized Use - The on-demand self-service provisioning features of the cloud enable an organization's personnel to provision additional services from the agency's CSP without IT consent.

APIs can be Compromised - APIs are accessible via the Internet exposing them more broadly to potential exploitation.

Separation Among Multiple Tenants Fails - Exploitation of system and software vulnerabilities within a CSP's infrastructure, platforms, or applications that support multi-tenancy can lead to a failure to maintain separation among tenants.

Data Loss/Deletion - Threats associated with data deletion exist because the consumer has reduced visibility into where their data is physically stored in the cloud and a reduced ability to verify the secure deletion of their data.

Compromised Credentials - If an attacker gains access to a user's cloud credentials, the attacker can have access to the CSP's services to provision additional resources (if credentials allowed access to provisioning), as well as target the organization's assets.

Insiders Abuse Authorized Access - Insiders, such as staff and administrators for both organizations and CSPs, who abuse their authorized access to the organization's or CSP's networks, systems, and data are uniquely positioned to cause damage or exfiltrate information.

Insufficient Due Diligence Increases Cybersecurity Risk - Organizations migrating to the cloud often perform insufficient due diligence.

Cost Optimization

Operational Excellence

Security
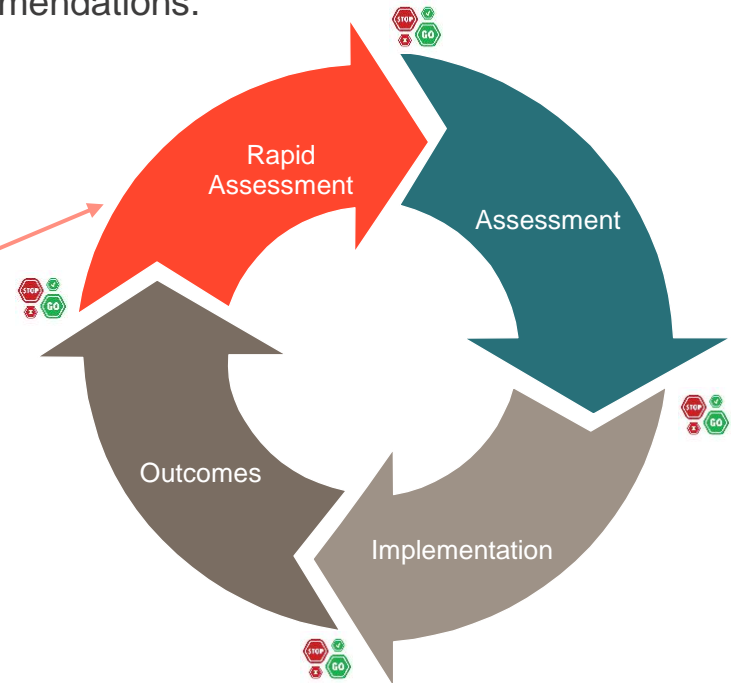
Performance Efficiency

Reliability
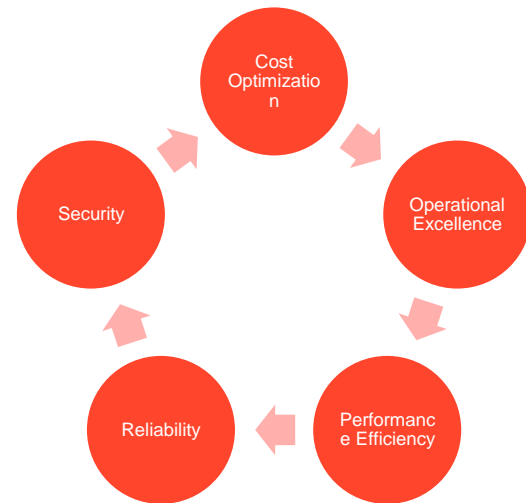
What is Cloud Optimization and Well Architected Framework Rapid Assessment ?

This Rapid Assessment is designed to focus on 1 Application that is currently running in public cloud and needs to be evaluated to ensure cloud best practices and well architected framework guidelines are being met. During this assessment, we collect data via tools and interviews, understand technical aspects of the application and make technical architectural recommendations.
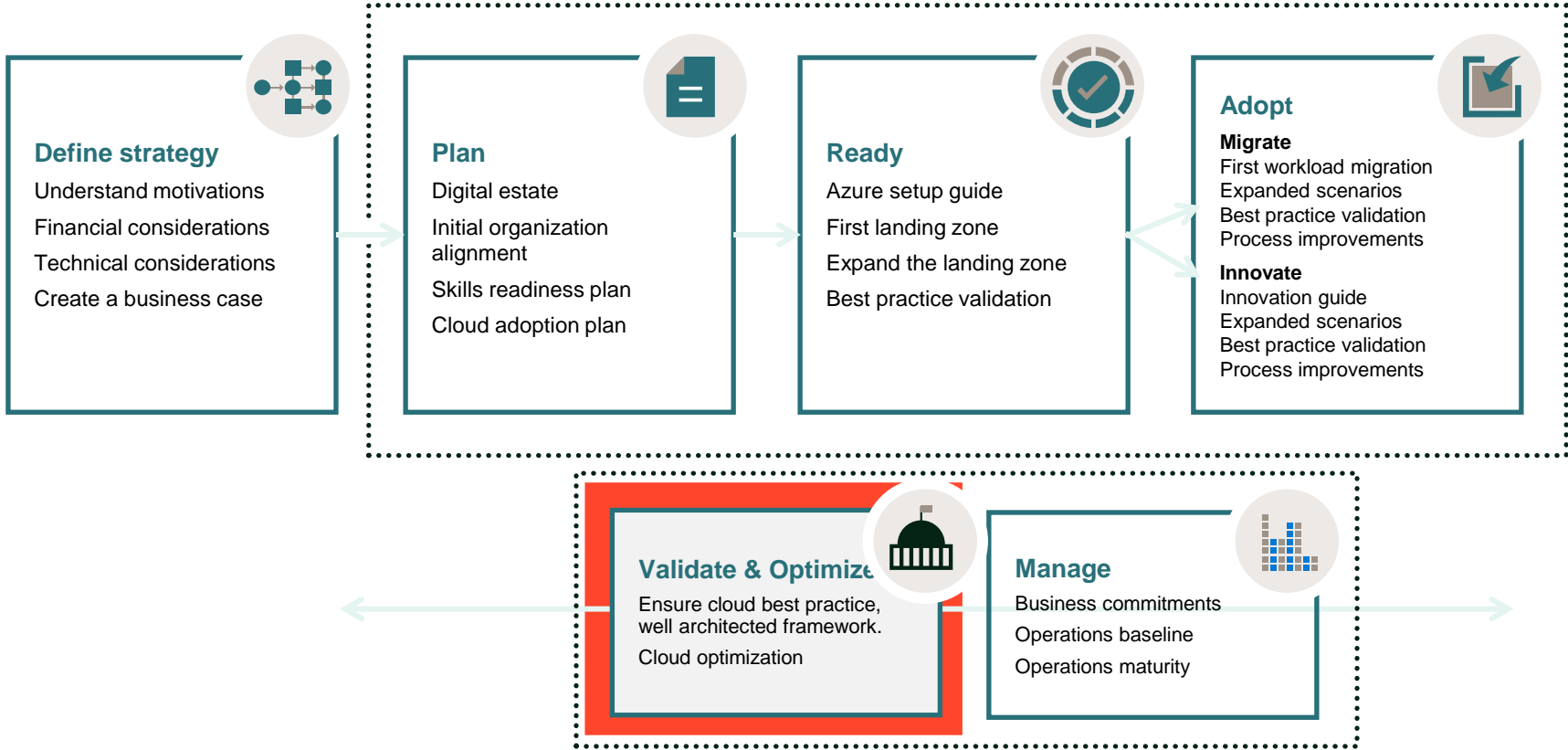
Rapid Assessment (~ 1 to 2 weeks)

Scope and Engagement Details

- 1 Application (up to 10 workloads, Limited to 1 hyperscaler)
- 1-2 Week Engagement
- Based customer interviews and tool based discovery (cloud native and/or 3rd party)
- Can be done with Onshore (preferred) as well as Offshore resources

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Alignment with Well Architected Framework

Define strategy
Understand motivations
Financial considerations
Technical considerations
Create a business case

Plan
Digital estate
Initial organization alignment
Skills readiness plan
Cloud adoption plan

Ready
Azure setup guide
First landing zone
Expand the landing zone
Best practice validation

Adopt

Migrate
First workload migration
Expanded scenarios
Best practice validation
Process improvements

Innovate
Innovation guide
Expanded scenarios
Best practice validation
Process improvements

Validate & Optimize
Ensure cloud best practice, well architected framework.
Cloud optimization

Manage
Business commitments
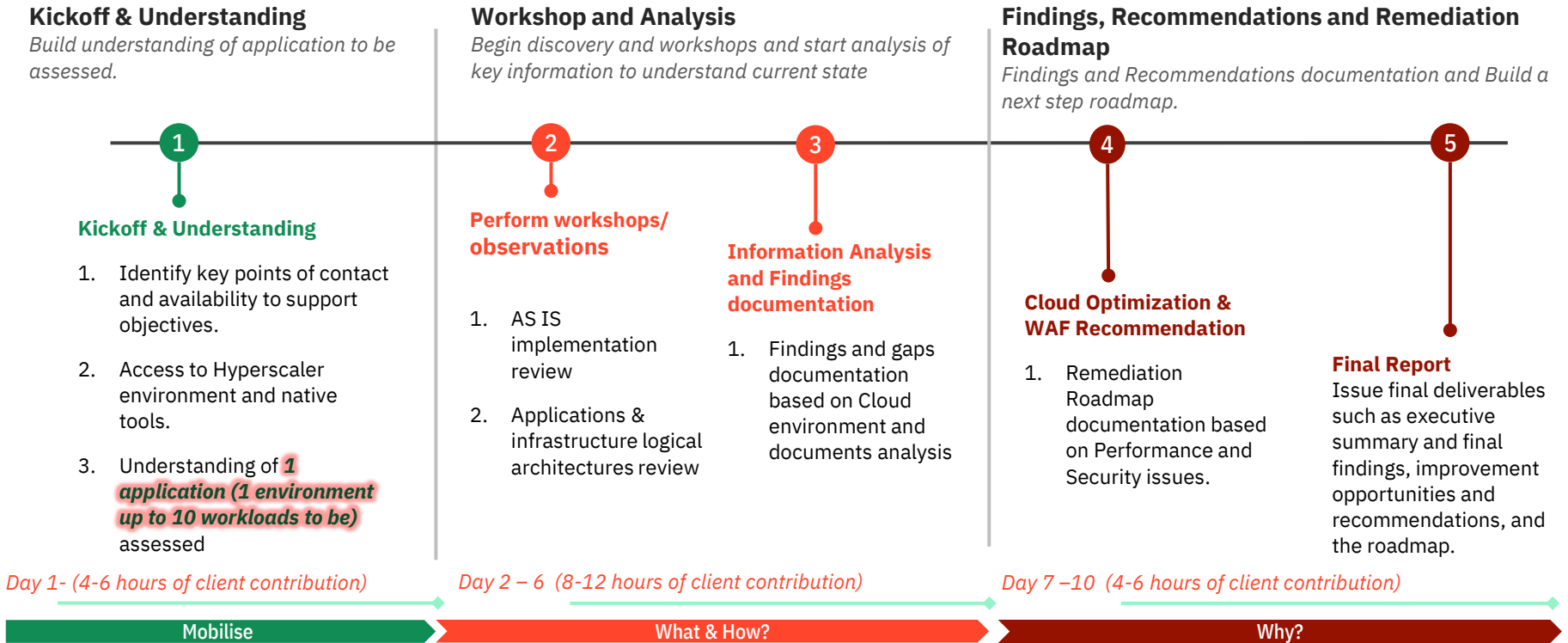Operations baseline
Operations maturity

Cloud Optimization - Technology domains to be assessed

Depending on the engagement scope, the following technology domains and checkpoints can be part of your cloud optimization assessment.
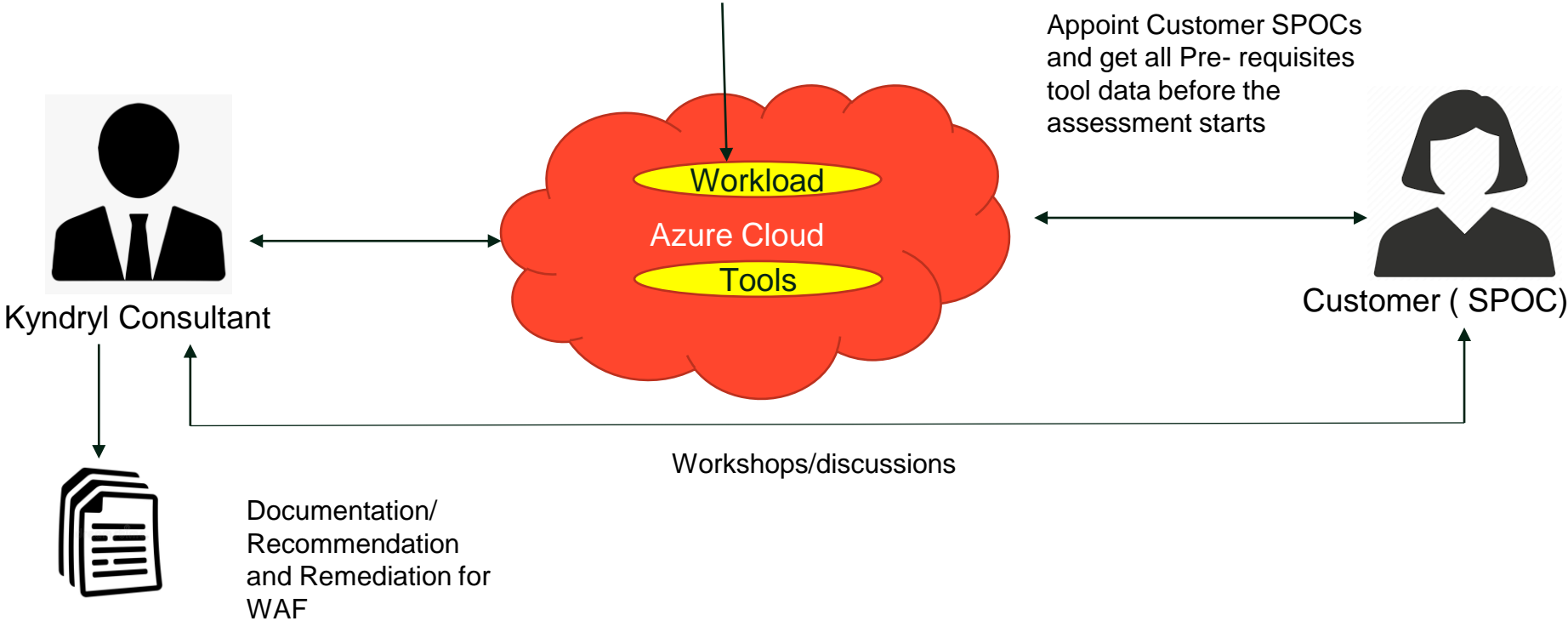
Resource Governance	Network	Security	Storage	Compute	Resiliency	Toolchain	Application
• Blueprints and policies	• WAN/SDN	• Identity and Access Management (IAM)	⭐ Data Encryption at Rest	⭐ IaaS, PaaS and SaaS performance	⭐ High availability and Single point of failure identification	• Fault and performance management tools	• DevSecOps process
• Governance model	⭐ Network / load balancers performance review	• Data classification	• Data Encryption in Transit	• Compute services right-sizing	• Backup and restoration	• Logging tools	• Software release management
⭐ Resource hierarchy	• Network traffic routing rules	• Application security	• Backup copies encryption	⭐ Inappropriate service security issues identification	• BIA, DRP and TRP documentation	• Regulatory and security compliance / blueprints/ policies tools	• Application performance assessment – response time etc.
⭐ Naming conventions & tagging quality review	• VPN /Interconnect	• Intrusion detection and prevention	⭐ Shared cloud native service recommendation	• Cost recommendation pay-as-you-go to reserved Instance	• Cyber resiliency	• Integration with ITSM tools (incident, change, problem)	• Software / code vulnerability scan
• Cost management	• Subnets / DNS	• SIEM (Security Information and Event Management)	• Storage right-sizing	⭐ IaaS or PaaS resources recommendation based provided business needs		• IaC (Infrastructure as Code) practices	
⭐ Cloud structure	⭐ Network resources capacity review	⭐ Vulnerability, antivirus, malware scan and protection		• Compute resources performance efficiency based on native features		• Multicloud management	
• Cloud policies	• Network and application security rules	• DDoS protection					
• Cloud operational model	⭐ Recommend Cloud native service based on needs	• Endpoints protection					
⭐ Documentation governance evidence validation		• Audit logs					
• Incident, change, problem management processes							

⭐ Common domains assessed as part of Accelerator(High level). With the assumption that customers already have Azure cloud-native tools /3rd party tools provisioned.

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How - Typical Cloud Optimization Pre-Assessment timeline & activities

Kickoff & Understanding
Build understanding of application to be assessed.

Workshop and Analysis
Begin discovery and workshops and start analysis of key information to understand current state

Findings, Recommendations and Remediation Roadmap
Findings and Recommendations documentation and Build a next step roadmap.

(1) — **(2)** — **(3)** — **(4)** — **(5)**

Kickoff & Understanding

1. Identify key points of contact and availability to support objectives.
2. Access to Hyperscaler environment and native tools.
3. Understanding of *1 application (1 environment up to 10 workloads to be)* assessed

Perform workshops/ observations

1. AS IS implementation review
2. Applications & infrastructure logical architectures review

Information Analysis and Findings documentation

1. Findings and gaps documentation based on Cloud environment and documents analysis

Cloud Optimization & WAF Recommendation

1. Remediation Roadmap documentation based on Performance and Security issues.

Final Report
Issue final deliverables such as executive summary and final findings, improvement opportunities and recommendations, and the roadmap.

Day 1- (4-6 hours of client contribution)

Day 2 – 6 (8-12 hours of client contribution)

Day 7 –10 (4-6 hours of client contribution)

Mobilise → **What & How?** → **Why?**

Client Participants – Executive Sponsor, Application SME and Cloud Operations SME

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Operational Model – Cloud Optimization and Well Architected Framework Rapid Assessment

Appoint Customer SPOCs and get all Pre- requisites tool data before the assessment starts

Workload

Azure Cloud

Tools

Kyndryl Consultant

Customer (SPOC)

Workshops/discussions

Documentation/
Recommendation
and Remediation for
WAF

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Tools and Technology

- **Kyndryl Cloud Native Services (KCNS):** Provides assessment of application workloads with respect to the well architected framework covering the five pillars of optimization, performance, security, reliability, and operational excellence.

- **Azure Cost Management and Billing:** With this tool, customers can track, allocate, and optimize their Azure costs. It offers detailed cost insights and recommendations for cost optimization.

- **Azure Monitor:** For analyzing cloud resource utilization.

- **Azure Advisor:** This tool generates personalized recommendations to assist customers in optimizing their Azure resources for high availability, security, performance, and cost.

- **Azure Reservations:** With Azure reservations, you can prepay for Azure resources like virtual machines and SQL databases for one or three years. You can get a significant discount if you commit to longer-term usage.

- **Azure Virtual Machine Scale Sets:** This tool allows customers to automatically scale up or down their virtual machines based on demand, allowing them to save money by only using the resources they require.

- **Azure Blob Storage Lifecycle Management:** This tool allows customers to automatically move data to different storage tiers based on its age, access patterns, and other criteria, allowing them to save money on storage.

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Azure

Possible Next Steps after Cost Optimization & WAF Rapid Assessment

Rapid Assessment Cost Optimization Engagement leads into

Complete Environment Assessment

- Rest of the application or cloud environment assessment

- 4 to 10 Weeks, depending on the scope of the engagement.

Identified Recommendations Implementation

- Identified recommendations for reliability design and non functional requirement and implementation

- Timelines are determined by the findings and recommendations.

Continuous Cloud Optimization

- Instead of one-time engagement, continuous Cloud Optimization practice

- Continuous cloud optimization have all 5 pillars of WAF framework covered continuously
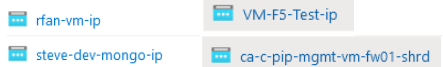
FinOps Adoption Program

- Define a strategy to implement and adopt the FinOps framework:
  - Planning a FinOps Organization
  - Prepare for implementation
  - Implement
  - Run

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Non-Production – Development Environment – Findings and Recommendations   1/3

Sr. No	Findings	Environment	Impact	Priority	Recommendation
14	For all Dev environments, App Services and Functions are configured in a single App Service Plan ("ca-c-exc-dev"). Total 97 App Services + Functions, with only 69 Running App Services/Functions max. utilization for last 30 days is almost 100%	Development	• App Service Plan can not handle the load if all Dev environments will be operational simultaneously.	High	Following are recommendations as per the current situation. 1. Delete unused App Services or Functions 2. Re-Architecture - better to separate App Service Plan per environment (i.e., Dev, Features, Integ) so you can pick a plan as per environment needs 3. Scale-up existing App Service Plan
15	Multiple App Service plans are configured just for single Apps	Development	• Better Operational management	Medium	For operations management and cost savings, it would be better to combine App Services in a single plan.
16	Some of the App Service Plan does not have any configured App Service (i.e., ASP-cacrgdev-b34e)	Development	• Unused resources are cost to Customer-X	High	Change Management process should assure unnecessary resources clean-up and documentation revision
17	Instead of Azure APIM, seems some custom API services are used on App Service	Development	• Can result into cost reduction and performance optimization by using cloud-native API Manager	Medium	APIM is MS Azure cloud-native API management system, Customer-X should explore APIM functionality, it can help to avoid API Management software self-management

Findings that can have a significant impact on environment performance or to run environments at full load.

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Sr. No	Findings	Environment	Impact	Priority	Recommendation
18	37 SQL Databases are hosted within a single SQL Elastic pool One of the Rover DB consumes 55% of the overall DTU. With just a few running Databases Maximum DTUs utilization is almost 100% for Dev Elastic pool	Development	• SQL Elastic pool can not handle the load if all Dev environments will be operational simultaneously.	High	Scale-up existing Elastic Pool DTU. Also, second option is to separate Elastic pools based on different environments or application functionality
19	**15 plus storage accounts,** not standardized naming convention hard to determine which one is in use or not	Development	• Any unused resources can have both cost and security concerns	High	Change Management process should assure unnecessary resources clean-up and documentation revision
20	Almost **57 Key Vault,** it's possible to manage whole environment secrets & passwords within a single Key Vault.	Development	• With Environment optimization you can achieve cost savings	High	Any unused resources can have both cost and security concerns Change Management process should assure unnecessary resources clean-up and documentation revision
21	4 unused Public IPs are in-place within "ca-c-rg-dev" seems VMs are deleted but not associated Network Interfaces and IPs rfan-vm-ip VM-F5-Test-ip steve-dev-mongo-ip ca-c-pip-mgmt-vm-fw01-shrd	Development	• Can have cost savings by deprovisioning unused resources	High	Any unused resources can have both cost and security concerns Change Management process should assure unnecessary resources clean-up and documentation revision

Findings that can have a significant impact on environment performance or to run environments at full load.

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Non-Production – Development Environment – Findings and Recommendations   3/3

Sr. No	Findings	Environment	Impact	Priority	Recommendation
22	Seems Dev environments have consistency issues, was not able to see "working" and "covid" database as part of Cosmos DB Also, service bus is not present for working and covid environment	Development	• COVID and Working is not fully functional as other Dev Environment	Medium	For environments consistency, it's recommended to have all application components in place. It's known to the application team, working & covid are not a complete replica of other environments. Architecture Decisions better to be documented as part of EA practice.
23	Few App Services Plan & App Services are configured for **Canada East** and **US West**	Development	• Seems unused resources should be deprovisioned	High	Any unused resources can have both cost and security concerns Change Management process should assure unnecessary resources clean-up and documentation revision
24	For some of the Dev. App Services, Network Access Restrictions are not defined on App Services – (e.g., was able to access "ca-c-exc-audit-api-dev" from outside)	Development	• Can result in Non-production Data breach or company reputation	High	Although, a nonproduction environment but it is recommended to immediately block any unnecessary public access. Discussed with **@Sam Kochukalikkal** and Customer-X AppSec is already working on non-production security controls implementation.
25	Non-Production SQL Elastic Pool (i.e., SQL Service) Public access has not be disabled.	Development	• Can result in Non-production Data breach or company reputation	High	Recommended to disable any unnecessary public access.

⭐ Findings that can have a significant impact on environment performance or to run environments at full load.

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Why customers choose

kyndryl / **Microsoft**

Together, our strategic partnership supercharges our customer-first focus, empowering enterprises with the best technical expertise, service excellence and ability to innovate in the market to help you solve your biggest challenges.
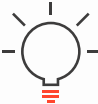
⭐ Expertise
Kyndryl has deep experience in integrating enterprise services with the Microsoft Cloud; with Azure Expert MSP certification and rank in Microsoft's Top 5 partners with the most certifications

Speed
Co-creation of joint solutions helps you get to market faster and deliver cloud experiences from the edge to application

💡 Innovation
Kyndryl/Microsoft Joint Innovation Lab enables agile experimentation and new products/ services development

✓ Trust
Our joint partner network empowers our ability to continually solve your biggest challenges. We bring the right partners, with the right use case, at the right time

Gold
Microsoft Partner
Azure Expert MSP
Microsoft

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By the numbers

Our people

~10,000

Skilled professionals

~50% Local resource / Global Capability Center split

Hyper scaler certifications

4,000+ Microsoft amazon Google

Signings

+27% YoY

Annual Revenue

$2B ~90% Labor, 10% OEM
13% of Kyndryl total revenue

Modernization Experience

Thousands of Projects & Programs

25K+ IT Modernization Project & Programs

5K+ Strategy & Consult Engagements

1K+ Complex IT Transformations

Transforming customer systems across industries

5/5
top airlines
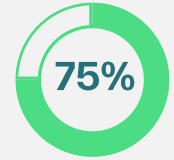by revenue
passenger
miles (RPM)

45%
of passenger
cars made
by our
customers

61%
of assets under
management by the
top 50 banks
managed by our
customers

4/5
largest
retailers

75%
of the Fortune 100
and more than half
of the Fortune 500

14K+ SAP instances modernized and migrated

225K+ Workloads & Server Implemented and Migrated

300K network devices migrations

10K+ Databases Implementations

80% faster migration

A fintech company experienced a seamless migration to cloud and actively optimizes cost and performance to get the most value out of cloud resources

Efficient operations and accelerated innovation

A healthcare network can now run mission-critical apps in a scalable, easily accessible, high-performance environment, increasing resilience and ability to provide continuous operations for patient care

3-5x cost improvement over existing solution

A chemical company modernized its remote business operations, improving operational efficiency, safety, and mean time to repair for maintenance issues in the field

90% reduction of legacy applications

A media and advertising firm integrated and consolidated its worldwide legacy applications to improve productivity and enable innovation

Why Kyndryl Cloud Services

1

We are the largest IT infrastructure services firm globally with a proven track record of successfully migrating / managing companies' cloud operations across industries and a demonstrated capability to succeed at complex integrations

2

Working closely with the leading cloud providers – in addition to our industry experience and distinguished services delivery at scale – readies Kyndryl to deliver **platform- and solutions-agnostic excellence** to our customers

3

Our solution is highly secure and resilient. We will help you move to the cloud with advanced **security and resilience** capabilities while ensuring availability and performance of your applications

4

Data and patterns to accelerate time to value delivering touchless support via extensive business process automation with predictive insights and recovery actions wherever and whenever possible

5

Trusted, customer centric one-stop shop focused on co-creating and it's why 85% of customers rate us highly on "*Partners with you to co-create new approaches*" –24% points above our nearest competitor

6

Flexible, comprehensive offerings to fit your needs. We manage the entire multi-cloud and on-prem estate across all providers, with flexible pricing and streamlined deployment

7

Global presence with experienced practitioners deployed around the world to support geographically distributed environments and local or regional regulatory requirements

8

Advanced delivery: Delivering intelligent operations through task automation and standardized processes supported by delivery SREs up-skilled with DevSecOps skills across hyperscaler native services and traditional IT

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Thank you