



Infrastructure Solution Assessment

Solution Assessment Technical Consultant

Strategic Objectives and Drivers for Change

Accelerate Time-to-Market: By leveraging cloud services, companies can gain a competitive advantage by delivering products and services faster. The cloud’s scalability and flexibility allow for quicker development and deployment cycles.

Enhance User and Customer Satisfaction: Minimizing downtime, outages, and performance lags is crucial for improving user and customer satisfaction. Cloud environments offer better reliability and availability compared to on-premises solutions.

Reduce Costs: Migrating away from legacy software and hardware can lead to cost savings. Cloud services often provide a pay-as-you-go model, eliminating the need for large upfront investments in infrastructure.

Innovate and Maintain Efficiently: Cloud platforms enable innovation by providing access to cutting-edge technologies and services. Additionally, maintaining legacy software can be resource-intensive, and the cloud offers a more efficient alternative

Scope of Assessment

Size	Total Servers	Storage	
All	322	332TB	
Utilization	VCPU	RAM	
	31%	26%	

Support Status

Windows Server 2003, 2008, 2012 “EOS”	Windows Server 2016
138	98
48%	34% of Windows servers in your environment will be unsupported by October 2027


Opportunities & Considerations

- Create virtual machines in just minutes
- **Prebuilt APIs** for popular cloud services like Office 365, Salesforce greatly accelerate development.
- **Azure Active Directory domain services** lets you remotely manage group policy and authentication
- Azure has the **most comprehensive compliance** certifications of any cloud
- **Azure app service** lets you host and deploy web applications using a wide range of programming languages and frameworks.
- **Azure monitor** lets you monitor and gain insights into the performance and health of your applications, infrastructure, and network resources.


Financial Benefits Exclusive to Azure

\$65.5k	As-Is Pay As You Go
34.4% Saving	Right-Sizing Pay As You Go
49.2% Saving	1 Year Reserved Instance
57% Saving	3 Year Reserved Instance


Next Steps – Support from Microsoft




Workshop
Fastrack



Pilot / POC



Landing
Zone



Support

Agreed next steps:

- Checking internally with other stakeholders



Content

- ➔ Assessment Summary
- ➔ Overall Analysis
- ➔ Azure Savings
- ➔ Considerations/Opportunities
- ➔ Appendix

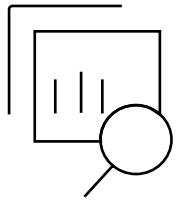
Azure Journey

Accelerate your journey to the cloud

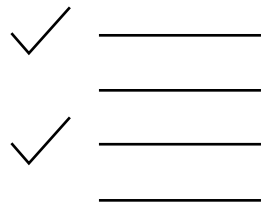


Next Steps

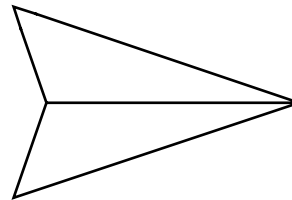
Plan & DECIDE



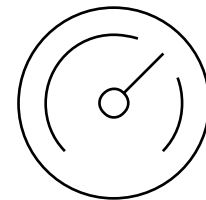
ASSESS &
DISCOVER



PLAN &
DECIDE



MIGRATE

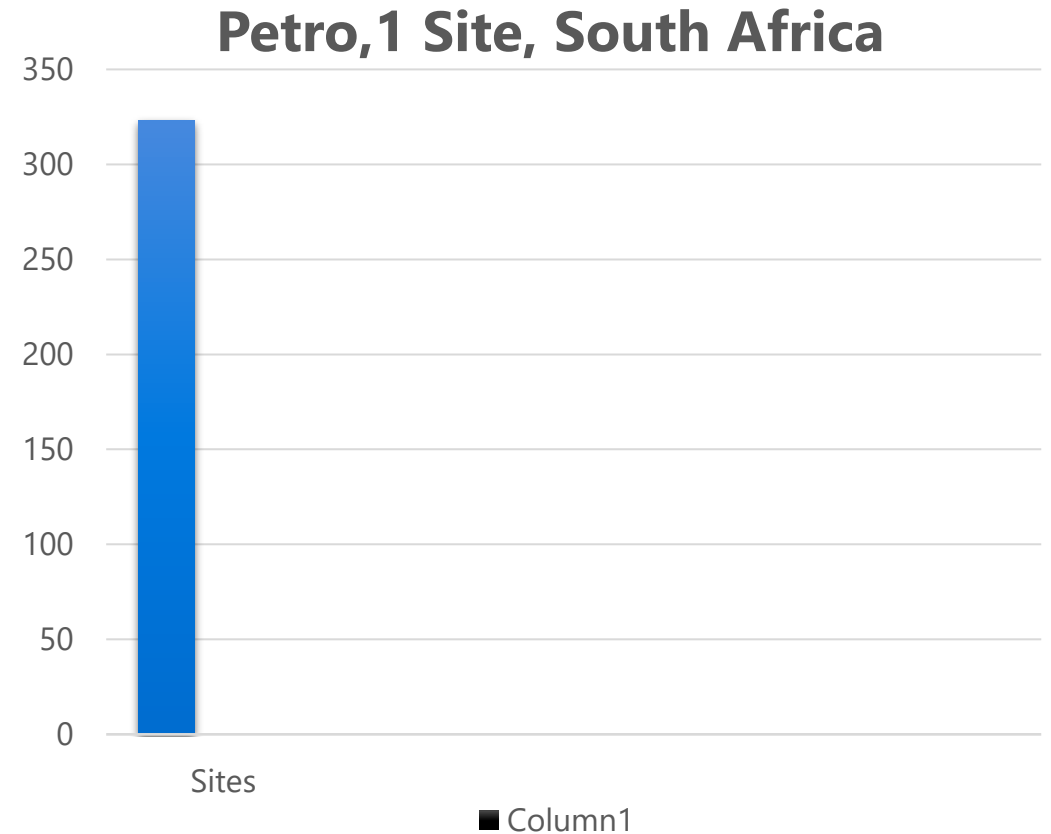


OPTIMIZE

Assessment Summary

Azure Migrate tool used to discover Petro environment

Customer Name	PETRO
No. of Sites	1
Site Location	South Africa
No. of Machines	322
Windows Machines	286
Linux Machines	36



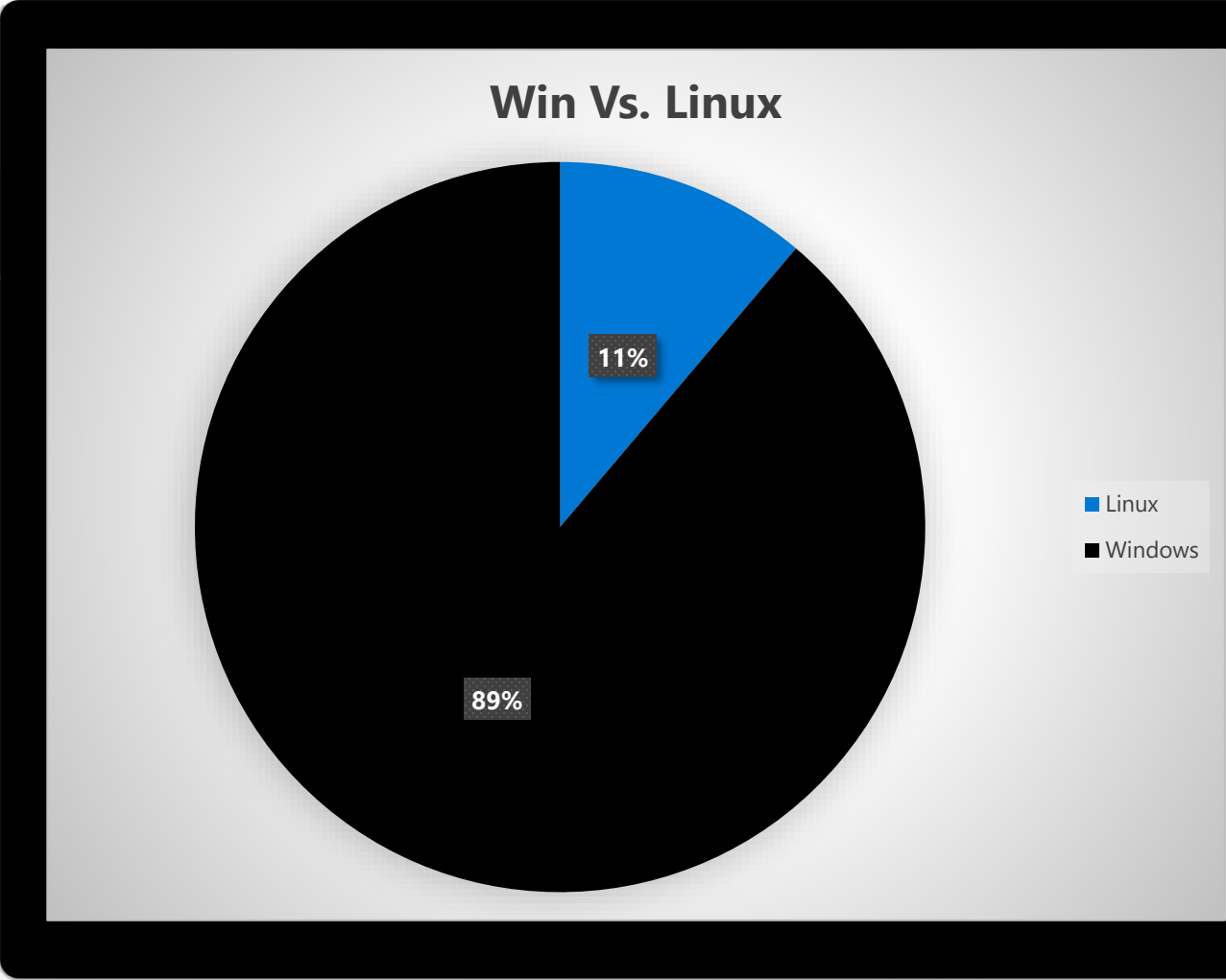
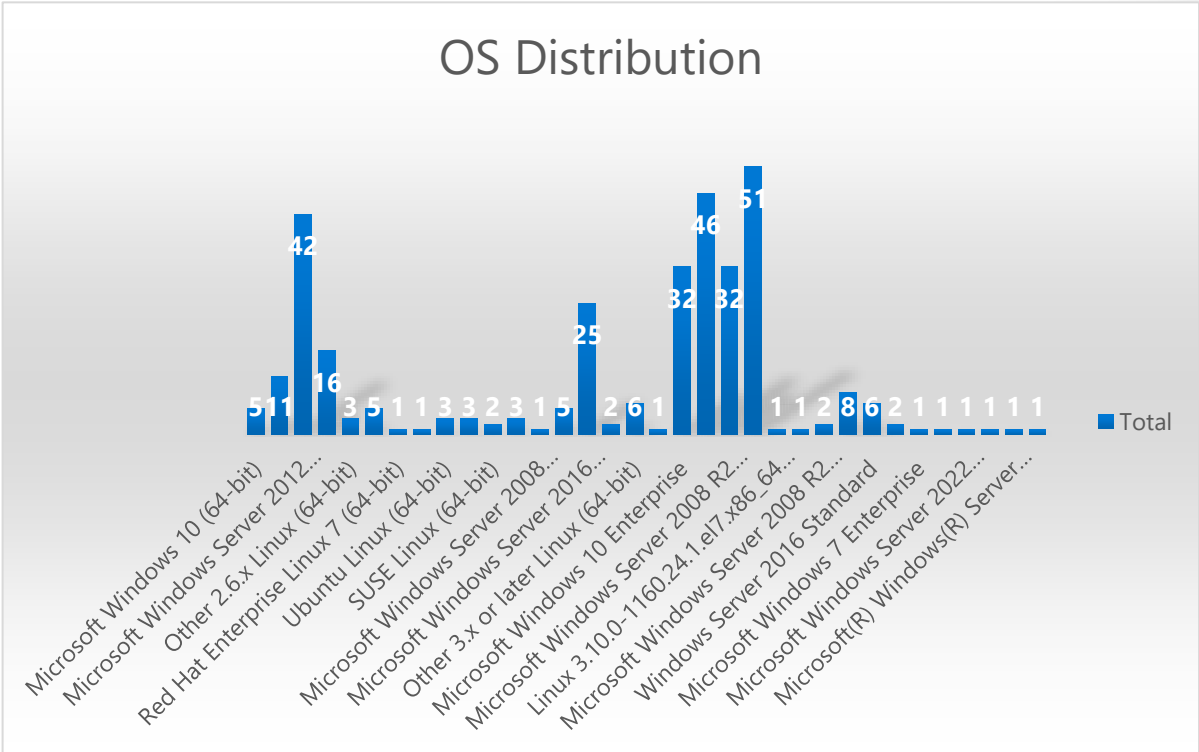


Overall Analysis

- ➔ Operating System Analysis
- ➔ Windows Support Analysis
- ➔ Readiness Information
- ➔ Performance Analysis

Operating System Analysis

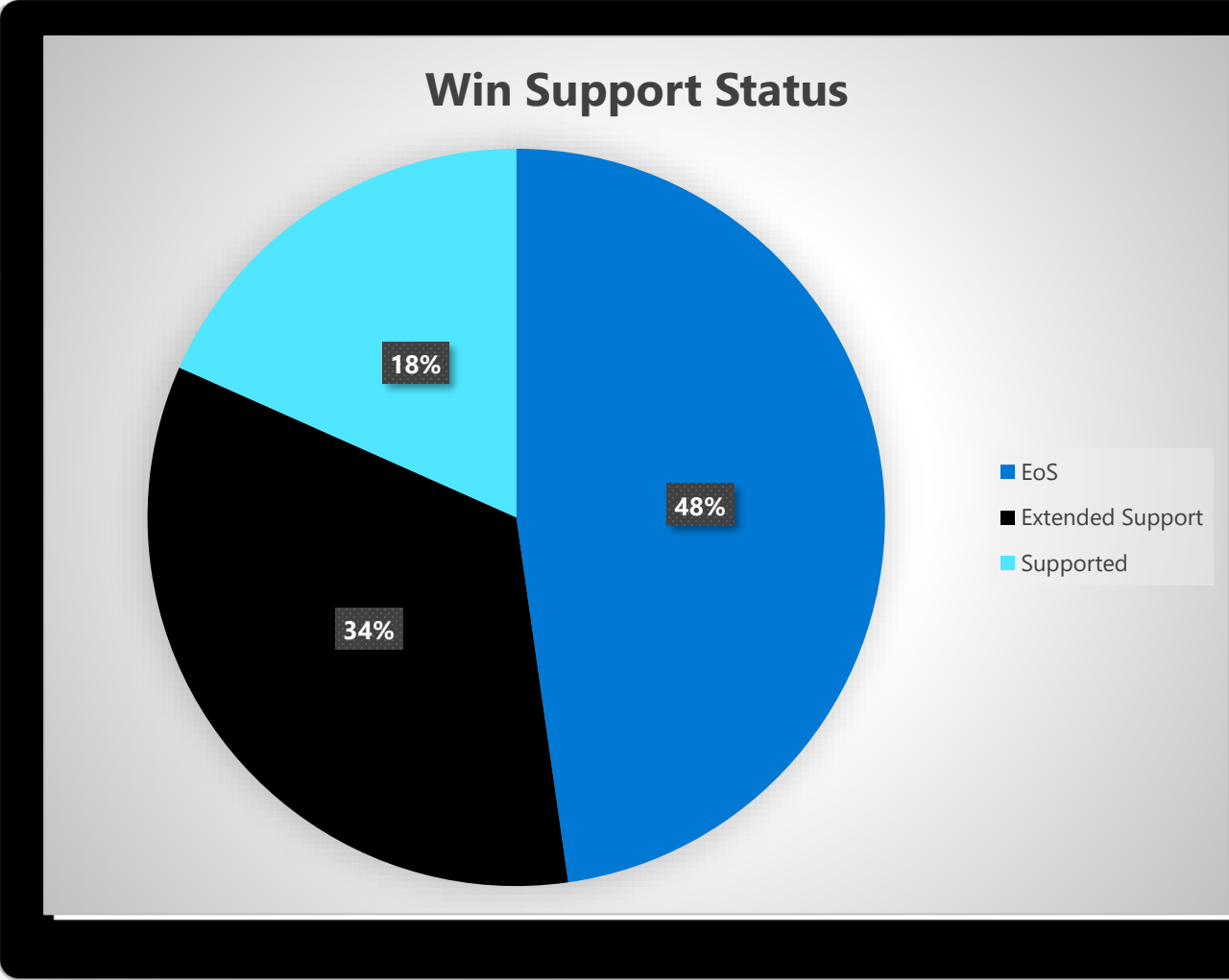
89% of the machines running with different version from Windows OS & rest running with Linux OS



Windows Support Analysis

48% of the machines running with End of service life operating Systems

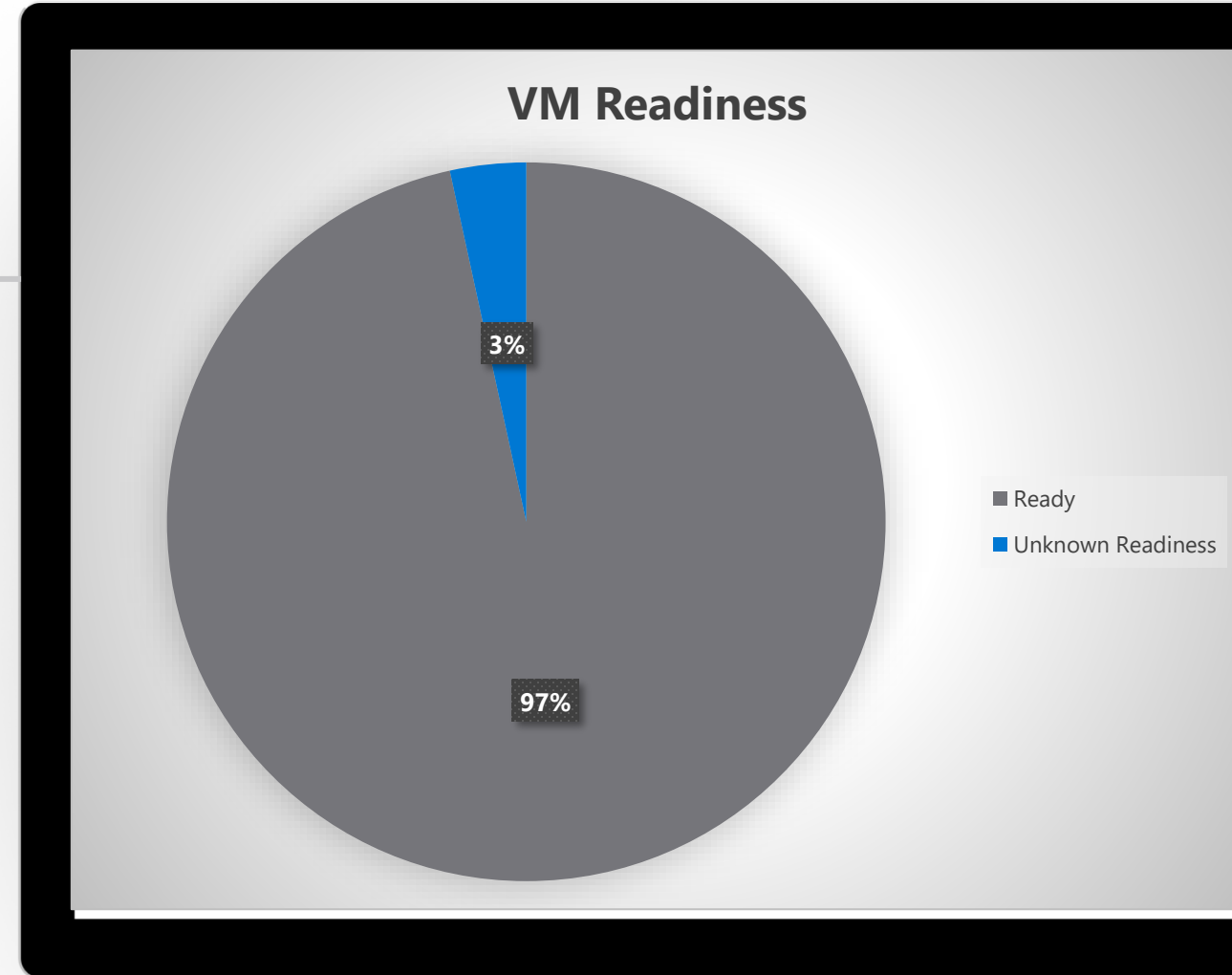
Count of servers	OS Name	End of Life	Extended Support
3	Windows Server 2003 R2 Standard/Datacenter	-	-
47	Windows Server 2008 R2 Standard/Datacenter	-	-
88	Windows Server 2012 R2 Standard/Datacenter	-	-
98	Microsoft Windows Server 2016 Standard	-	October 2027



Overall Readiness

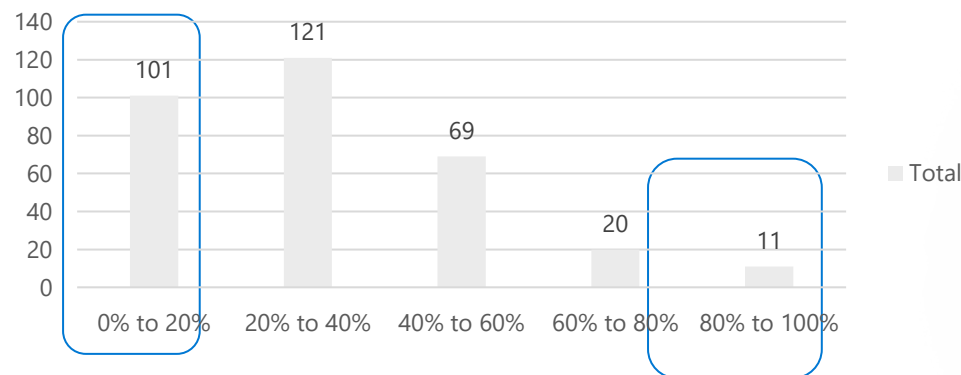
Migrate Windows and Linux Servers, Databases, and Web Applications

Readiness issues	Count of Azure readiness issues
Unknown readiness	11

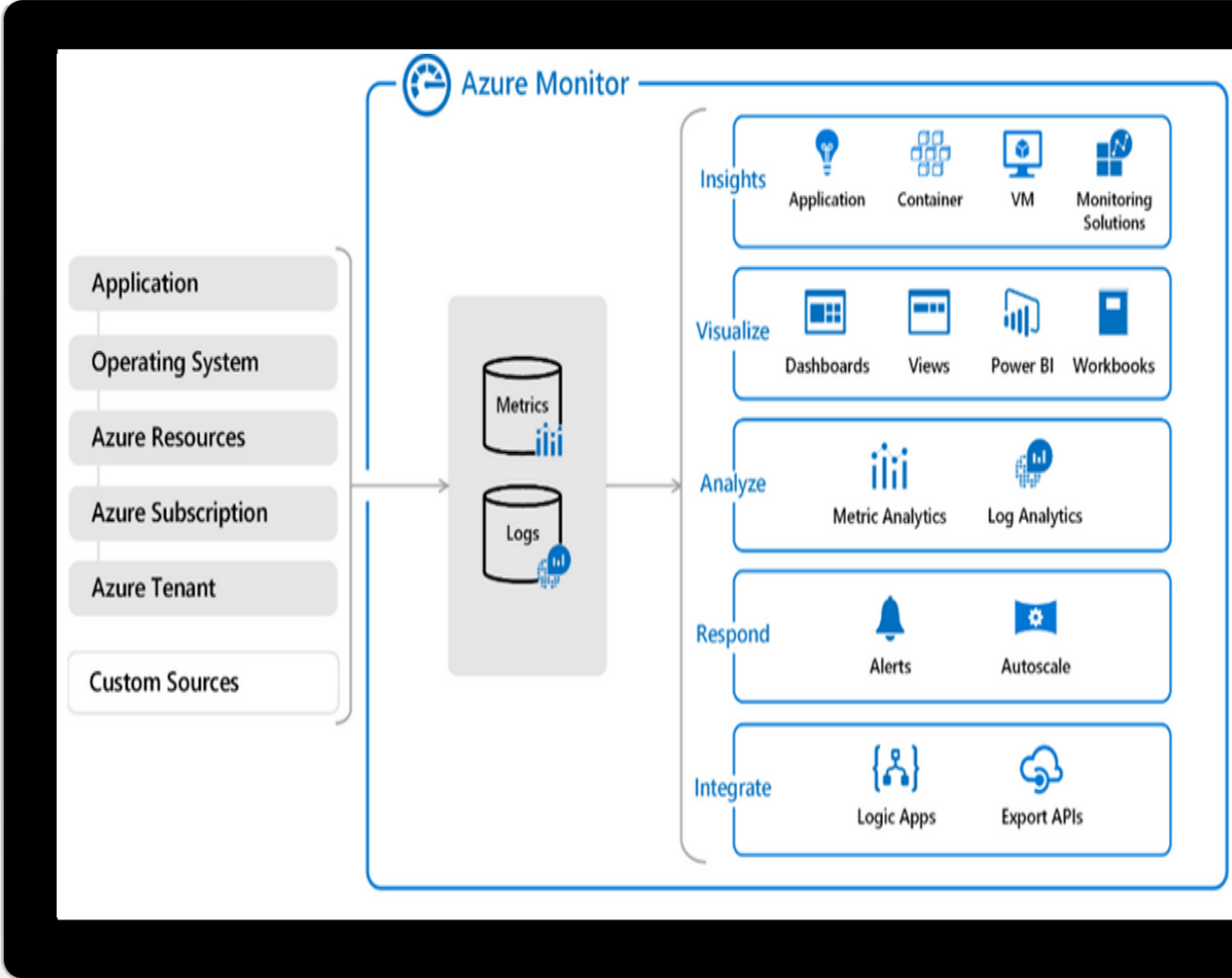
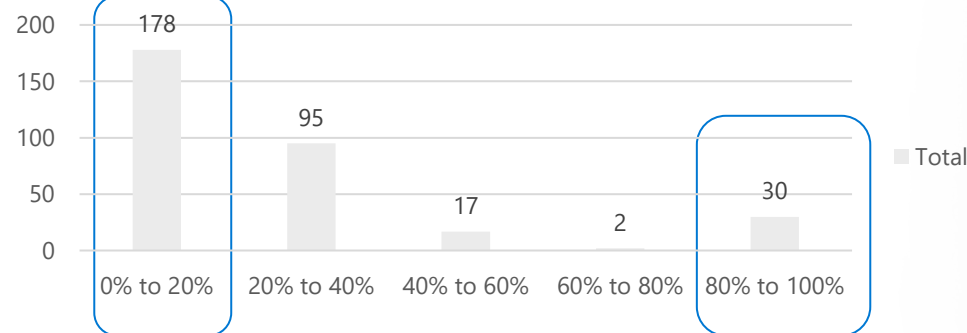


Performance Analysis

CPU Usage



Mem Usage





Cost Analysis

Azure Costing Terminology

Cost Considerations:

When recommending the 1 and 3-year options across pay-as-you-go, Azure Hybrid Use Benefit (AHUB), and Reserved Instances (RI) explain what each option is and the terms and conditions for each option.



Pay-As-You-Go

- This offer is billed at the standard Pay-As-You-Go rates



Azure Hybrid Benefit

- Bring Windows Server and SQL Server on-premises licenses with Software Assurance to Azure



Reserved Instances

- This pricing mechanism from Microsoft offers great discounts compared to the Pay As You Go (PAYG) model



Extended Support

- Get Windows Server and SQL Server Extended Security Updates for 3 more years at no additional charge, only in Azure.

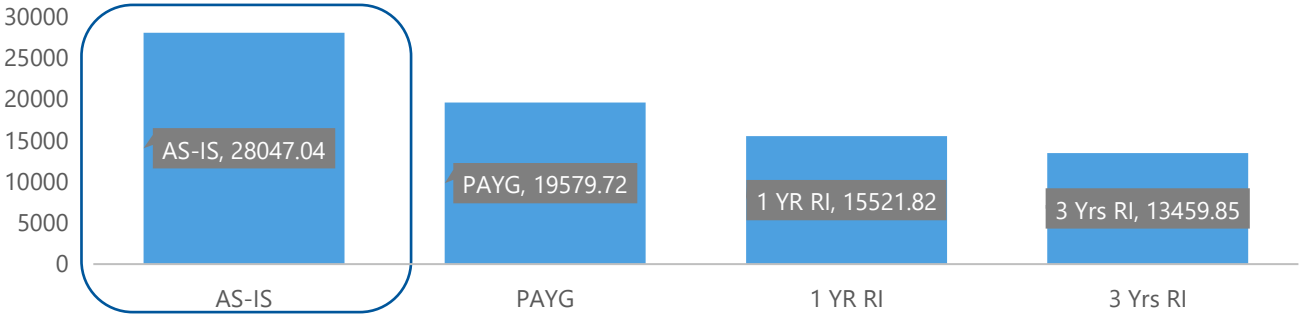
Azure Savings\$

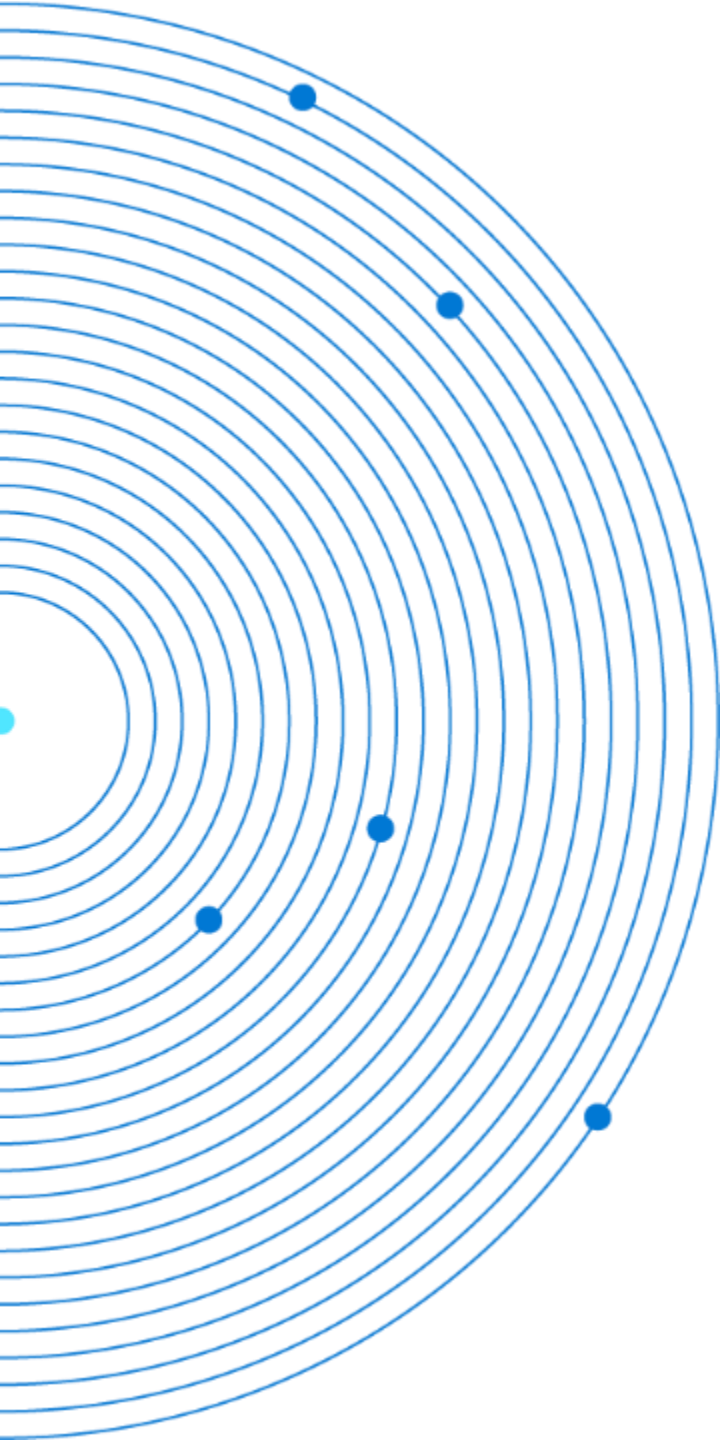
AHUB Applied	As-Is PAYG	Performance Based PAYG	Performance Based 1yr Discounted	Performance Based 3yrs Discounted
Compute	49189.49\$	23157.61\$	13445.5\$	8514.71\$
Storage	16357.79\$	19805.61\$	19805.61\$	19805.61\$
Total	65547.28\$	42963.22\$	33251.11\$	28320.32\$
Saving Percentage		- 34%	- 49%	- 57%



- Performance based recommended Size will save up to -57% comparing with equivalent size.

COST FLOW





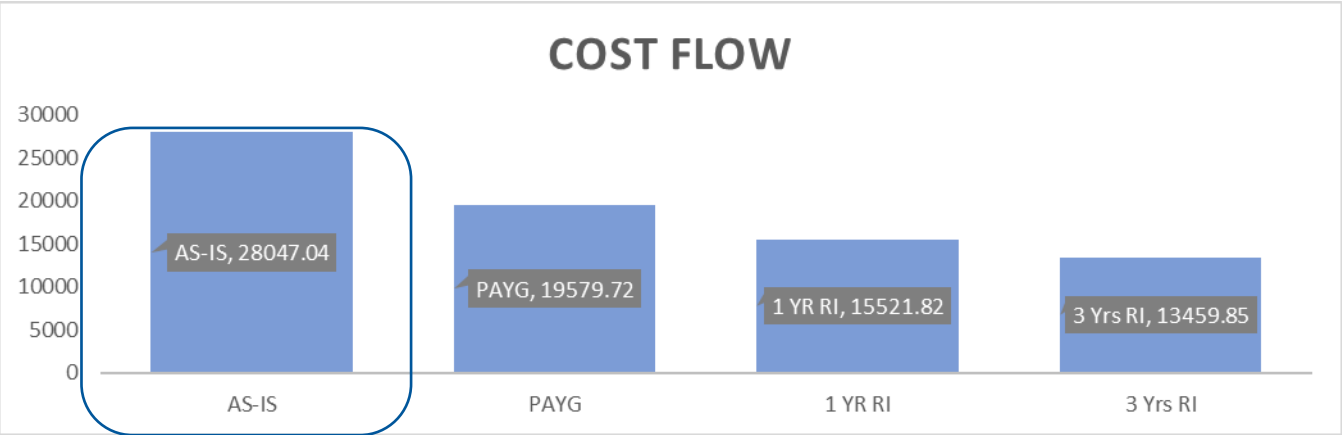
End of support Cost Analysis

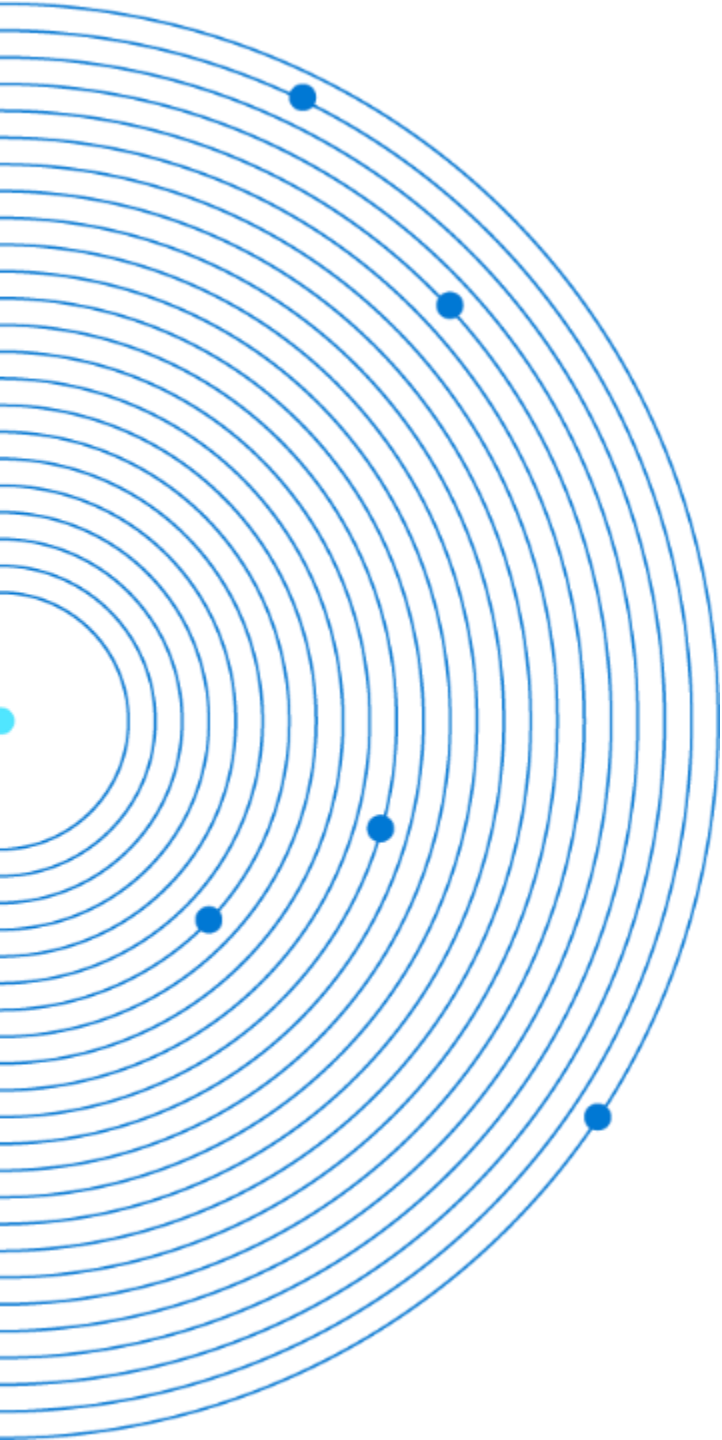
Azure Savings\$

AHUB Applied	As-Is PAYG	Performance Based PAYG	Performance Based 1yr Discounted	Performance Based 3yrs Discounted
Compute	20979.4	9646.33	5588.43	3526.46
Storage	7067.64	9933.39	9933.39	9933.39
Total	28047.04	19579.72	15521.82	13459.85
Saving Percentage		- 30%	- 45%	- 52%



- Performance based recommended Size will save up to -52% comparing with equivalent size.





Data Base

DBs Overall Analysis

MachineName	SQL version	Edition
PSAMZYA0VSQLP00	SQL Server 2008 R2	Enterprise Edition (64-bit)
PSAMZYA0VSQLP03	SQL Server 2016	Enterprise Edition (64-bit)
PSAMZYA0VSQLQ01	SQL Server 2016	Enterprise Edition (64-bit)
PSAMZYC1VMOMP00	SQL Server 2016	Enterprise Edition

SQL Versions

SQL Version Name	End of Life	Extended Support
SQL Server 2008	July 2014	July 2019
SQL Server 2012	End of 2017	July 2020
SQL Server 2014	End of 2019	July 2024
SQL Server 2016	End of 2021	July 2026
SQL Server 2017	End of 2022	October 2027
SQL Server 2019	End of 2025	October 2030

Database Modernization

Database List							
Database Name	Database Type	Server Name	Database Size(MB)	Azure SQL Readiness	SQL VM Readiness	SQL MI Readiness	Action
eprocurement	MSSQL	PSACPTP0CSQLP41\PRODDDB1	736,288.31	<div><div></div></div> 85%	<div><div></div></div> 87%	<div><div></div></div> 92%	View
eprocurement	MSSQL	PSACPTP0VSQLQ00\QAS	481,309.94	<div><div></div></div> 85%	<div><div></div></div> 87%	<div><div></div></div> 92%	View
TheBulldog	MSSQL	PSACPTP0CSQLP44\PRODDDB3	7,075.94	<div><div></div></div> 92%	<div><div></div></div> 87%	<div><div></div></div> 97%	View
SacoEnterpriseArchive	MSSQL	PSAMZYA0VSQLP00	31,774.00	<div><div></div></div> 92%	<div><div></div></div> 95%	<div><div></div></div> 95%	View
SacoEnterprise	MSSQL	PSAMZYA0VSQLP00	100,028.63	<div><div></div></div> 92%	<div><div></div></div> 95%	<div><div></div></div> 95%	View
ReportServer	MSSQL	PSAMZYA0VSQLP00	67.44	<div><div></div></div> 95%	<div><div></div></div> 100%	<div><div></div></div> 100%	View
ReportServer	MSSQL	MZYC1PPRCSQLP02	43.94	<div><div></div></div> 95%	<div><div></div></div> 100%	<div><div></div></div> 100%	View
PSA_Mailer	MSSQL	MZYC1PPRCSQLP02	78.81	<div><div></div></div> 95%	<div><div></div></div> 100%	<div><div></div></div> 100%	View
LNDB	MSSQL	MZYC1PPRCSQLP02	401.06	<div><div></div></div> 95%	<div><div></div></div> 100%	<div><div></div></div> 97%	View
HAWK_PSA	MSSQL	MZYC1PPRCSQLP02	10,857.19	<div><div></div></div> 95%	<div><div></div></div> 100%	<div><div></div></div> 97%	View
<div><div>«</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>6</div><div>7</div><div>...</div><div>25</div><div>»</div></div>							



Scan Result

Project Name	Database Type	Server Name	Server Version	Server Edition	Scanned Date
PetroSASALAssesment	MSSQL	PSACPTP0CSQLP41\PROddb1	10.50.6560.0	Enterprise Edition (64-bit)	05/02/2024

DATABASE

Recommendations

Recommended Database Platform : SQL Database is a general-purpose relational database service that supports structures such as relational data, JSON, spatial, and XML. It delivers dynamically scalable performance and provides options such as columnstore indexes for extreme analytic analysis and reporting, and in-memory OLTP for extreme transactional processing. Microsoft handles all patching and updating of the SQL code base seamlessly and abstracts away all management of the underlying infrastructure.

Why : Highly Scalable without downtime. Enable Failover clustering in minutes. Supports in built auditing , logging , query performance optimization and elastic query in a single connection.

Other Option : SQL Service running on IaaS Virtual Machine and Azure SQL Database managed instance.

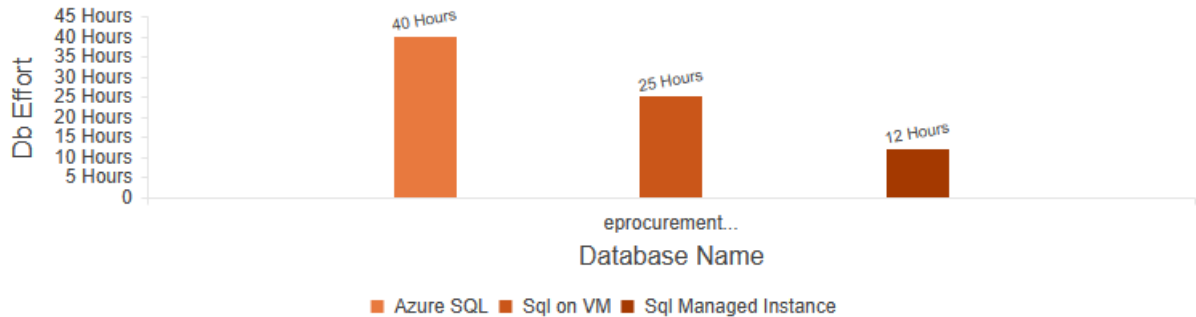
Recommendations Result

Azure SQL DB	8
SQL running On VM	7
SQL Managed Instance	3

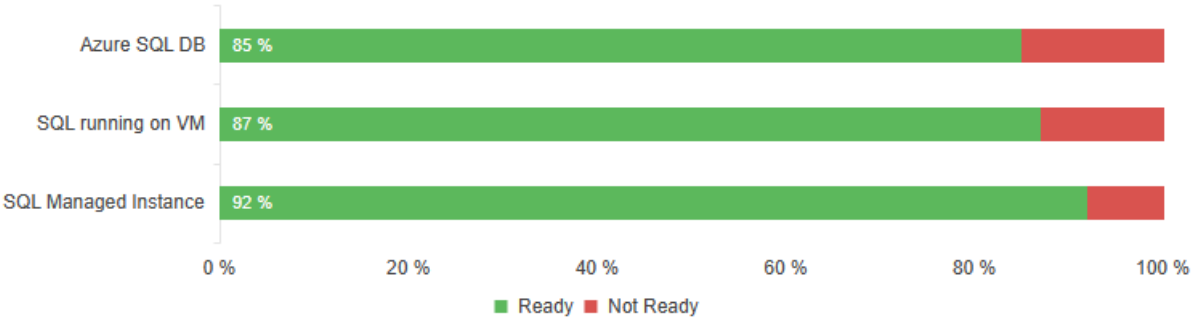
Azure Infrastructure Cost for Database

Azure SQL (VCore)	Gen 5 14 vCore (USD \$ 3106.24)
SQL running on VM	Cost for this region is not available
SQL Managed Instance	16 vCore (USD \$ 3559.72)

Migration Effort



Readiness Status



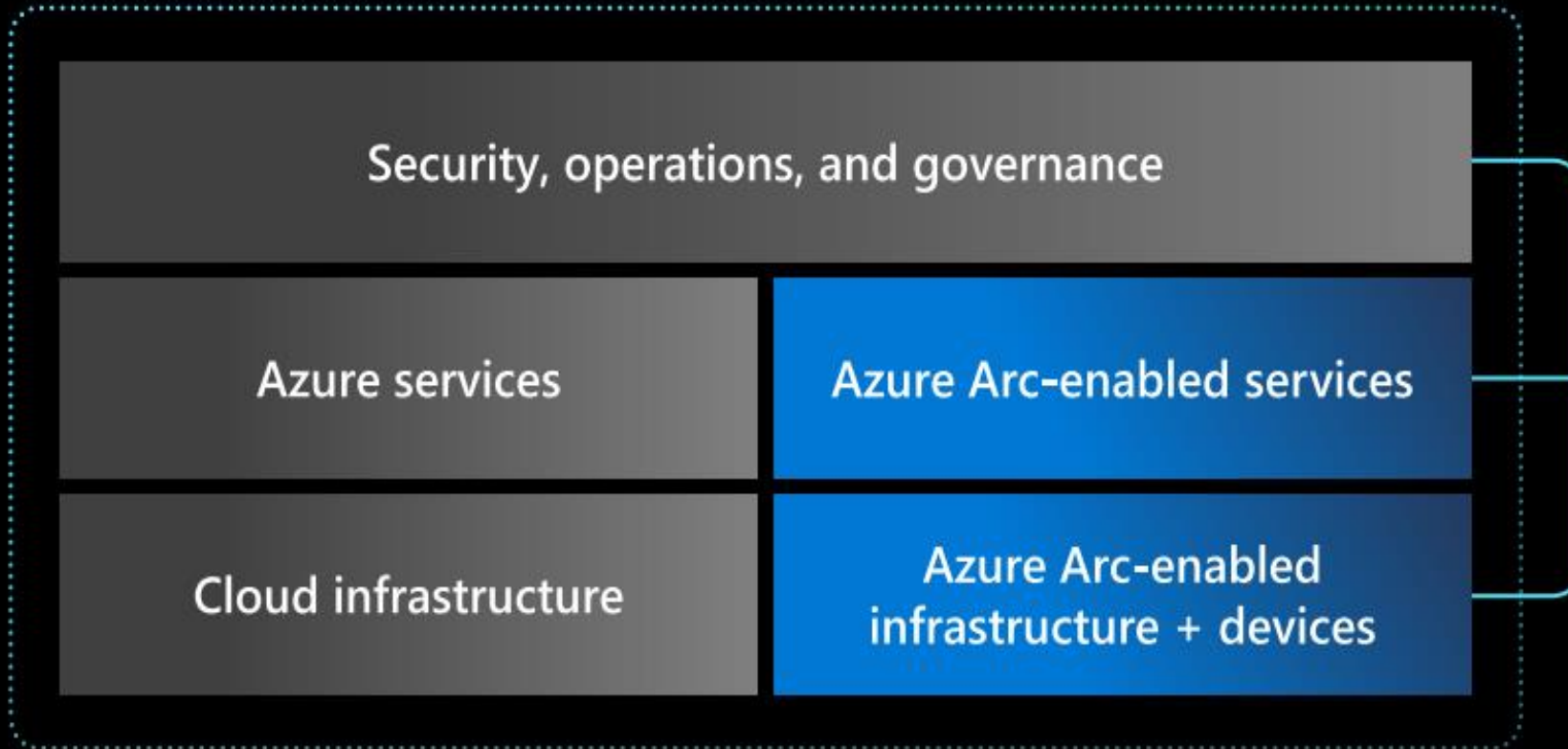
MigrationBlocker	MigrationBlocker - Database compatibility level below 100 is not supported							
Database compatibility level below 100 is not supported								
BreakingChange								
xp_cmdshell is not supported in Azure SQL Managed Instance. Legacy style RAISERROR calls should be replaced with modern equivalents.	<div><div>Issue details</div><div><div>Impact</div><p>Database Compatibility Level is a valuable tool to assist in database modernization, by allowing the SQL Server Database Engine to be upgraded, while keeping connecting applications functional status by maintaining the same pre-upgrade Database Compatibility Level. Azure SQL Managed Instance doesn't support compatibility levels below 100. When the database with compatibility level below 100 is restored on Azure SQL Managed Instance, the compatibility level is upgraded to 100.</p></div><div><div>Recommendation</div><p>Evaluate if the application functionality is intact when the database compatibility level is upgraded to 100 on Azure SQL Managed Instance. Alternatively, migrate to SQL Server on Azure Virtual Machine.</p><p>Supported compatibility levels in Azure SQL Managed Instance (https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/transact-sql-tsql-differences-sql-server#compatibility-levels)</p></div><div><div>Size Estimate</div><p>Medium (4 hours)</p></div><div><div>Action</div><p>Mandatory</p></div></div>	<div><div>Impacted Objects (1)</div><table><tr><th>Impacted Objects</th><th>Impacted Type</th><th>Estimated Size</th></tr><tr><td>eprocurement</td><td>Database</td><td>Medium</td></tr></table></div> <div><div>Object Details</div><div><p>Name: eprocurement</p><p>Type: Database</p><p>Object:</p></div></div>	Impacted Objects	Impacted Type	Estimated Size	eprocurement	Database	Medium
Impacted Objects	Impacted Type	Estimated Size						
eprocurement	Database	Medium						



Tools and
experiences



GitHub



Arc-enabled SQL Server with cloud data manageability

Manage, govern, and secure your SQL Server from Azure



Manage all your SQL estate via Azure Arc

- **Single view** of all SQL Servers deployed on-premises, in Azure and other cloud
- **Fully automated technical assessment** for SQL Server – no additional cost
- **Enhance business continuity** through managing inventory of Availability Group



Control and govern your entire data estate

- **Central insights and governance** across all SQL Servers with Microsoft Purview
- Use Purview to scan and classify the data, multi-cloud and on-premises
- Purview access policies available for SQL Servers



Secure all your data using Azure security

- Protect your on-premises data using **Microsoft Defender for Cloud**
- Secure identities with **Single Sign-On** and **Azure Active Directory***
- Perform **data protection and vulnerability analysis**

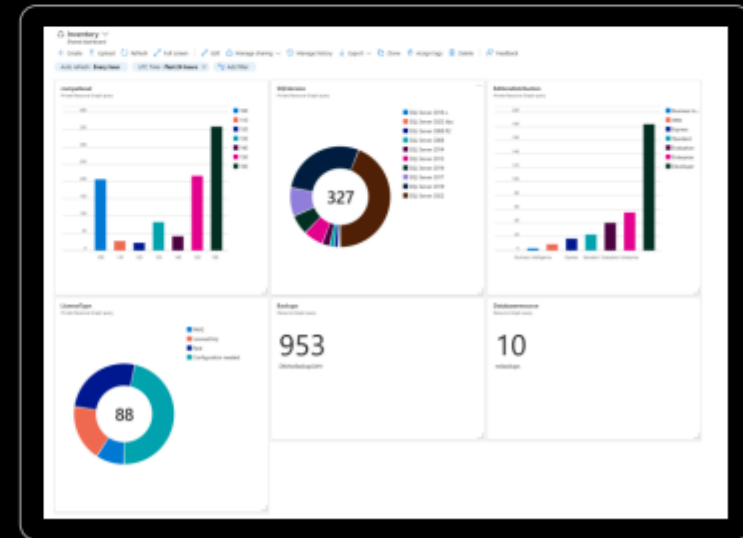
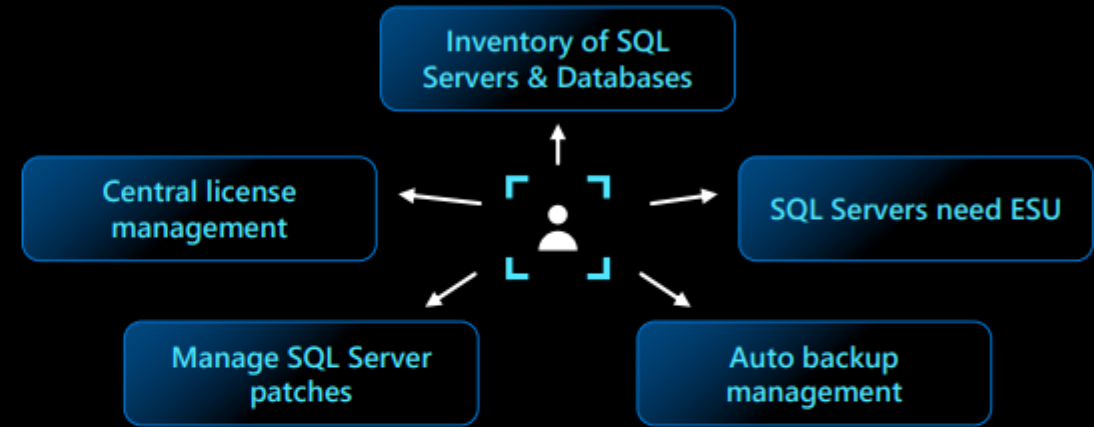


Easy connection enabled by Azure Arc for existing SQL Servers without migration

*SQL Server 2022 required for Azure Active Directory. All other features supported on SQL Server 2012, 2014, 2016, 2017, 2019, 2022, under L+SA or PAYG

Inventory and manage all SQL Servers from Azure Portal

- Single consistent view of all your SQL Servers deployed on-prem, Edge, Multi-cloud
- Inventory and tag management using Resource Graph thus increasing the visibility of the entire data estate
- License management using Azure portal to review license position and compare with the procurement state
- Configure SQL Server patching from Azure
- Manage SQL Server backups from Azure



Azure ARC

End of support SQL machines

For SQL Server 2012

Extended Security Updates	Enterprise Monthly Rate	Standard Monthly Rate
SQL Server 2012 2 Core	\$979	\$249

Extended Security Updates will be available for free for customers on Azure, which includes workloads running on Azure Virtual Machines, Azure Dedicated Host, Azure VMWare Solutions, Nutanix Cloud Clusters on Azure, and Azure Stack Hub/Edge/HCI. [Learn more](#) about your options.

Azure Arc-enabled SQL Server

If you have an existing SQL Server license, you can also unlock Azure manageability and security with Azure Arc. See the complete set of features* available for customers with existing SQL Server licenses including different SQL Server licenses set billing options.

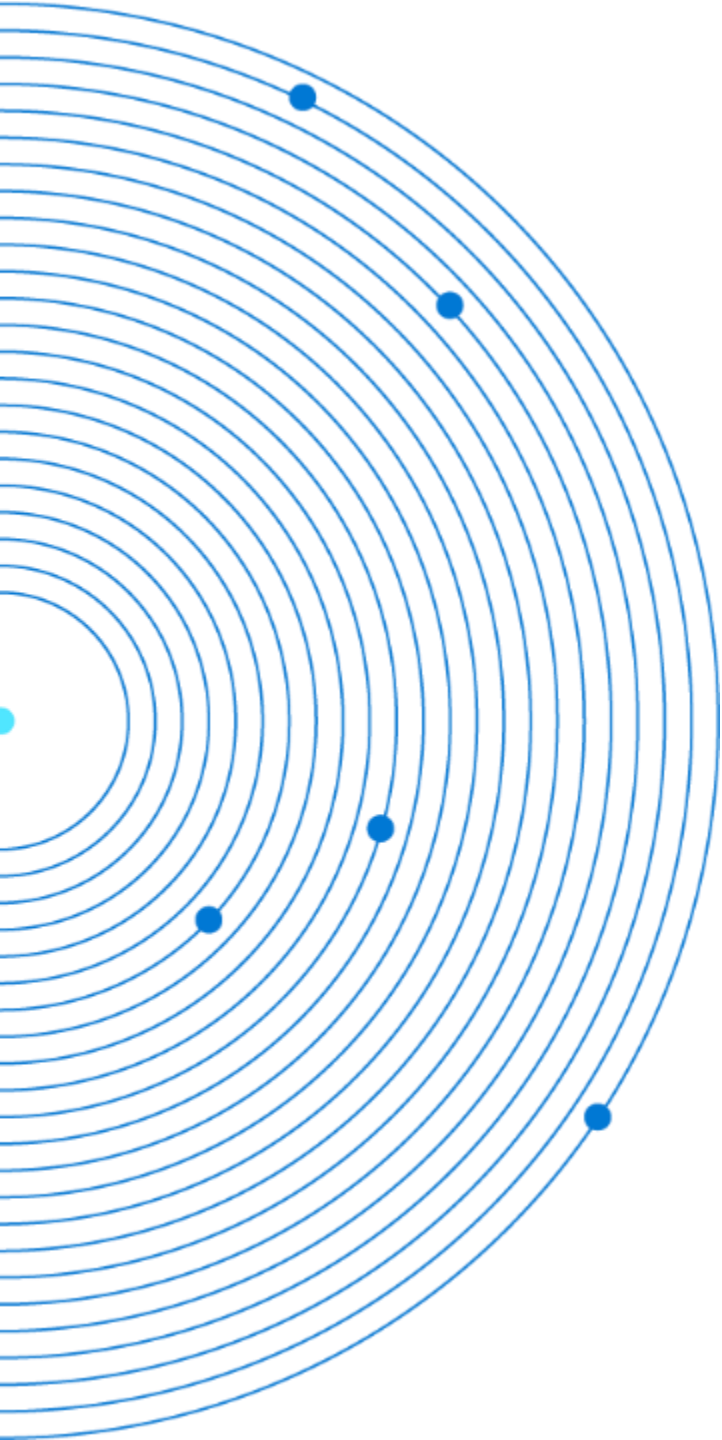
[Manage SQL Server license and billing options - Azure Arc-enabled SQL Server | Microsoft Learn](#)

*Some features may require SA.

For customers without an active SQL Server license:

For organizations who want to leverage a consumption-based model we now offer pay-as-you-go licensing for SQL Server, enabled by Azure Arc for versions 2014 and up. Pay by the hour for spikes and ad-hoc usage and eliminate the need for full upfront licensing costs.

Pay-as-you-go	Monthly Rate	Hourly Rate
Standard Edition	\$73	\$0.10
Enterprise Edition	\$273.75	\$0.375



TCO Analysis

Timeframe ⓘ

3 Years

Region ⓘ

South Africa North

Licensing program ⓘ

Microsoft Online Services Program

Show Dev/Test Pricing ⓘ

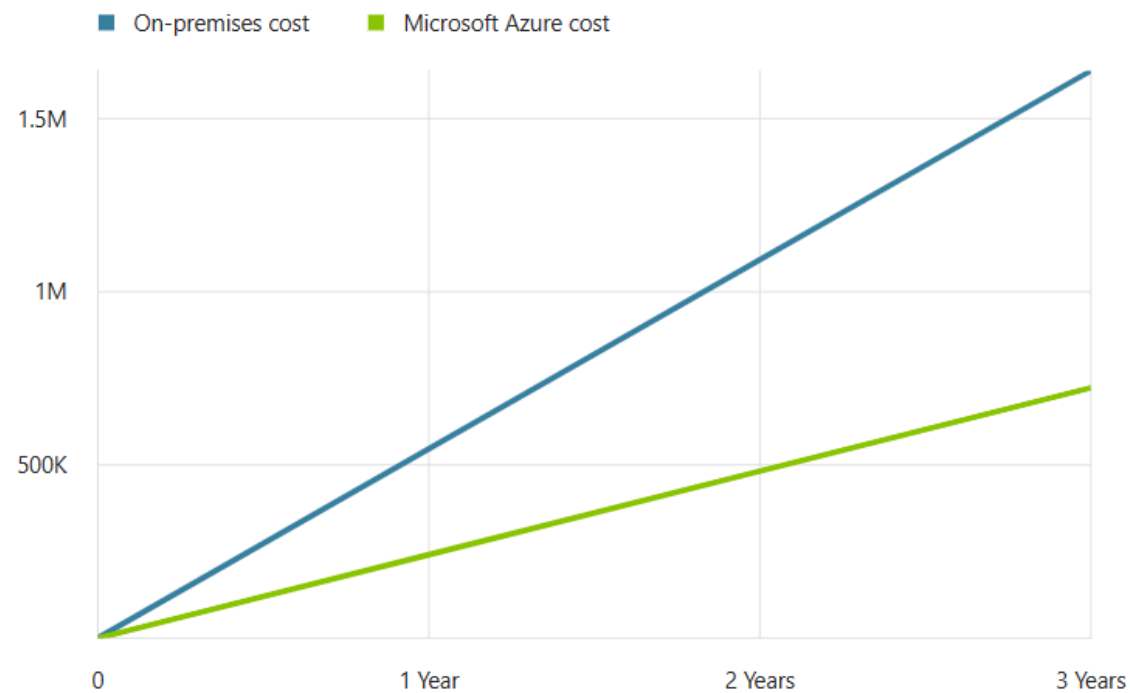


Over 3 year(s) with Microsoft Azure, your estimated cost savings could be as

much as **\$915,363**

Total on-premises vs. Azure cost over time

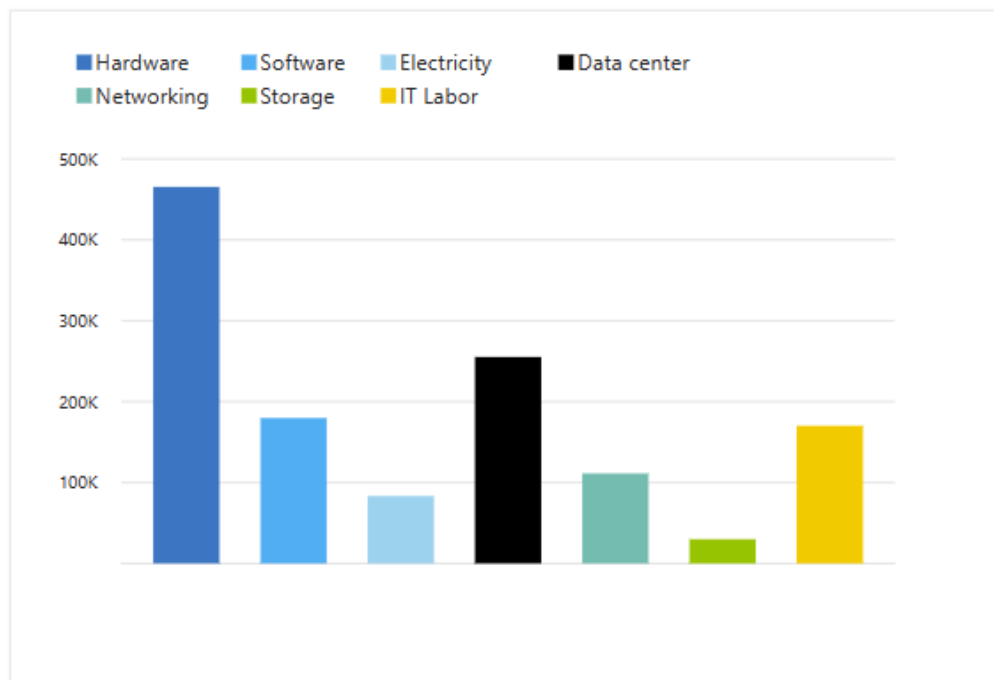
Savings from running workloads in Azure accrue over time. The following shows how those savings add up over years.



Total Cost of Ownership (TCO) Calculator | Microsoft Azure

Total on-premises cost breakdown

In Azure, several of the cost categories from the on-premises environment are consolidated and decrease with the efficiency that comes with the cloud.

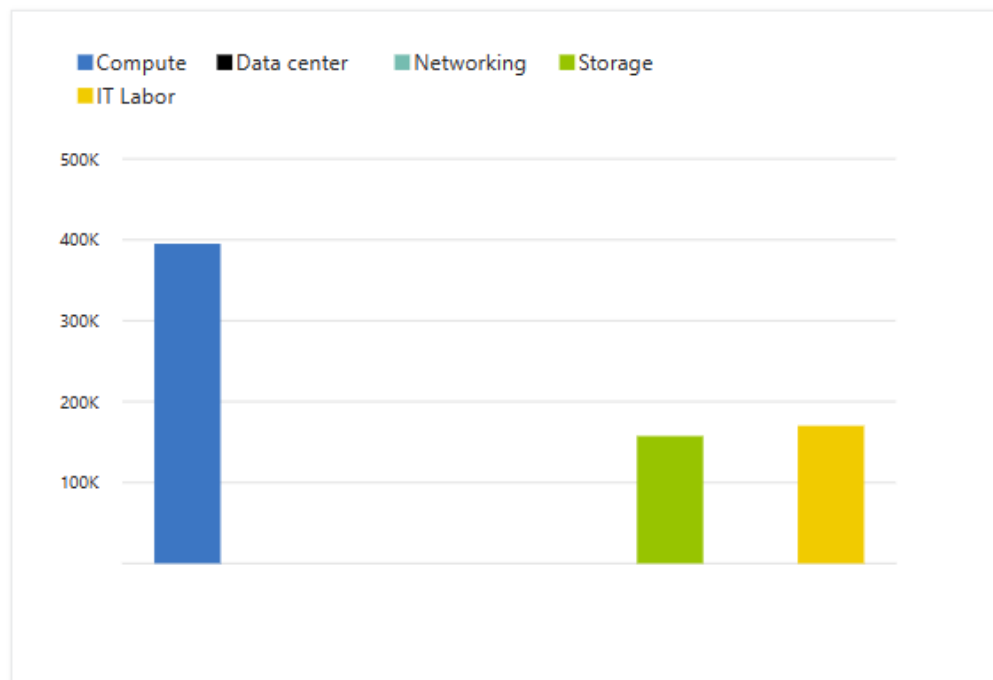


\$1,638,139

Cost over 3 year(s)

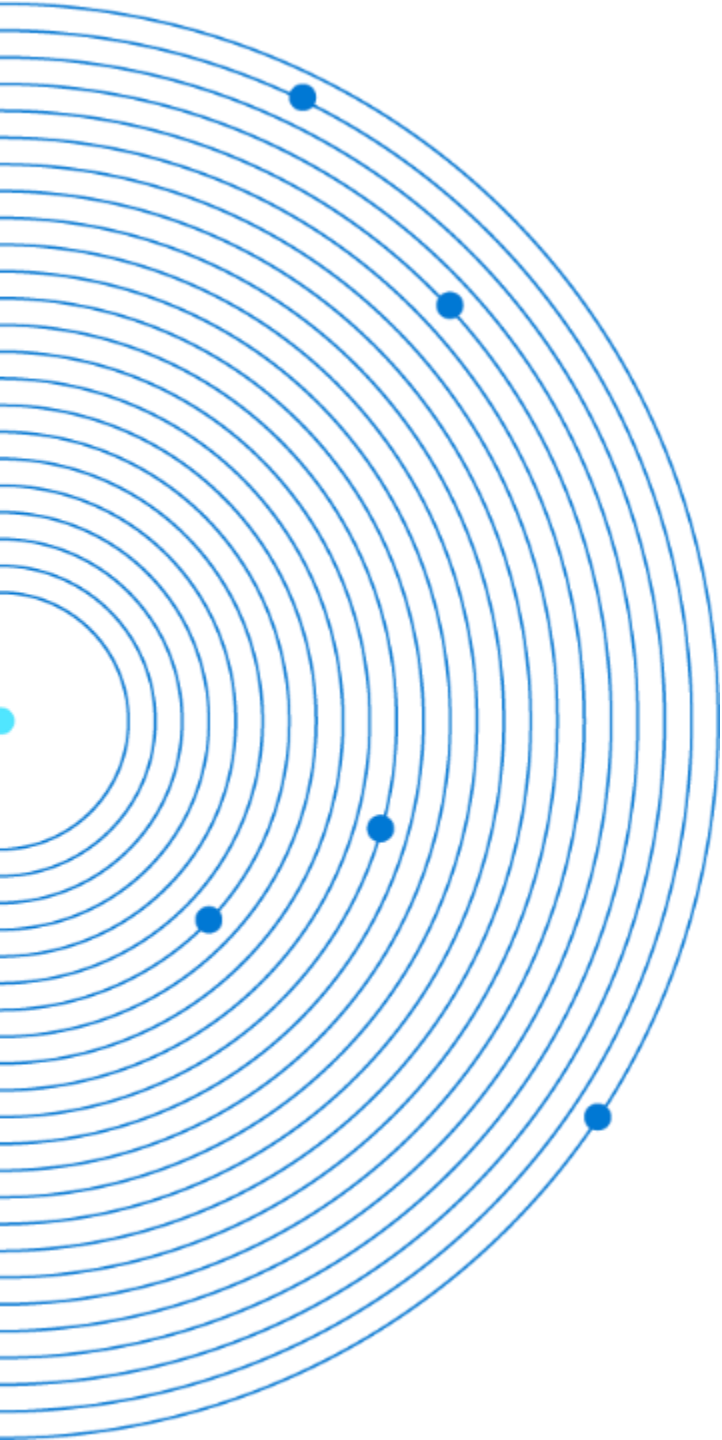
Total Azure cost breakdown

In Azure, several of the cost categories from the on-premises environment are consolidated and decrease with the efficiency that comes with the cloud.



\$722,776

Cost over 3 year(s)



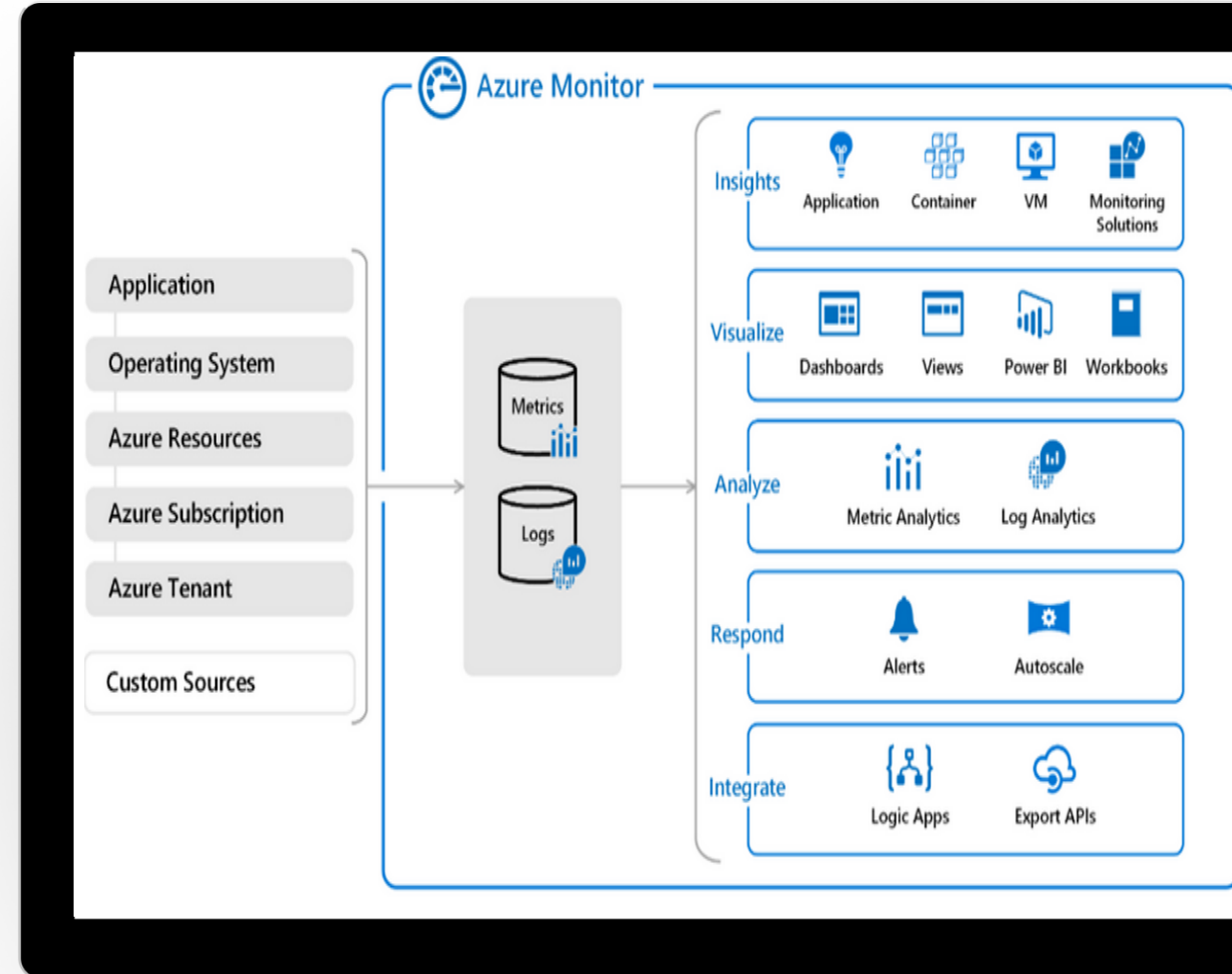
Considerations/Opportunities

- ➔ Azure Monitor
- ➔ Applications analysis
- ➔ Database analysis
- ➔ Building DR

Performance Analysis

- Can monitor resources that are on-premises & in other cloud
- Can be integrated with partners products
ex: Dynamics / Dynatrace / Garfana / Splunk / Qradar
- [What is monitored by Azure Monitor - Azure Monitor | Microsoft Docs](#)

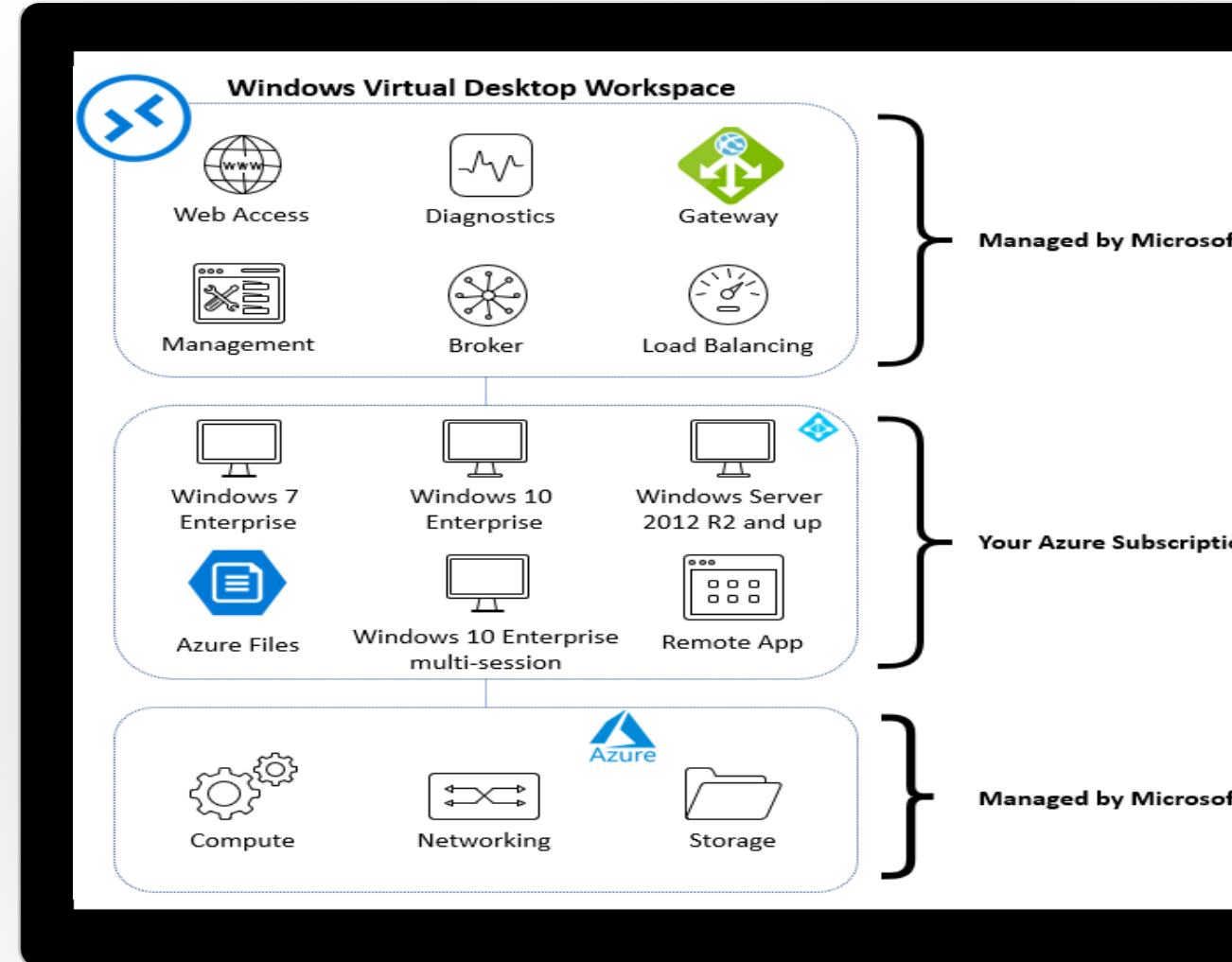
Azure Monitor



Readiness Information

- Setup multi session Windows 11/10 deployment
- Provide Windows 7 virtual desktops
- Virtualize both desktops and apps

Azure Virtual Desktop



Considerations/Opportunities

- ✓ **Global scale with high availability**

Scale up or out manually or automatically

- ✓ **Fully managed PaaS**

Built on the same PaaS service infrastructure
All PaaS features

- ✓ **Security and compliance**

App Service is ISO, SOC, and PCI compliant
Create IP address restrictions and manage service identities

Recommended SKU

Premium_V3 P1 v3

Azure App Service

Azure App Service



Web Apps



Mobile Apps



API Apps



Logic Apps

Considerations/Opportunities

✓ Easy Lift & shift

fully-fledged SQL instance with 100% compatibility with on-premises

✓ Fully managed PaaS

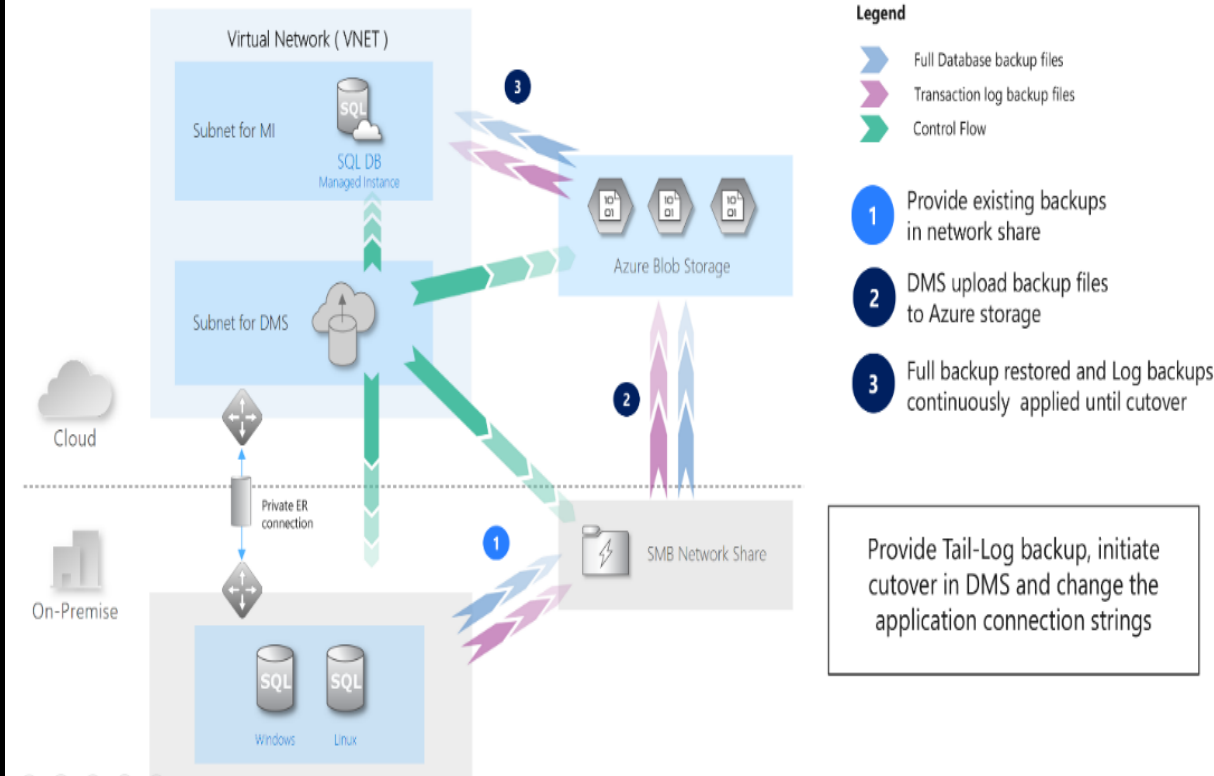
Built on the same PaaS service infrastructure
All PaaS features

✓ Fully isolation and Security

Native VNet implementation
Private IP addresses

SQL MI – PaaS Recommendations

SQL Server –SQL DB MI online migration workflow

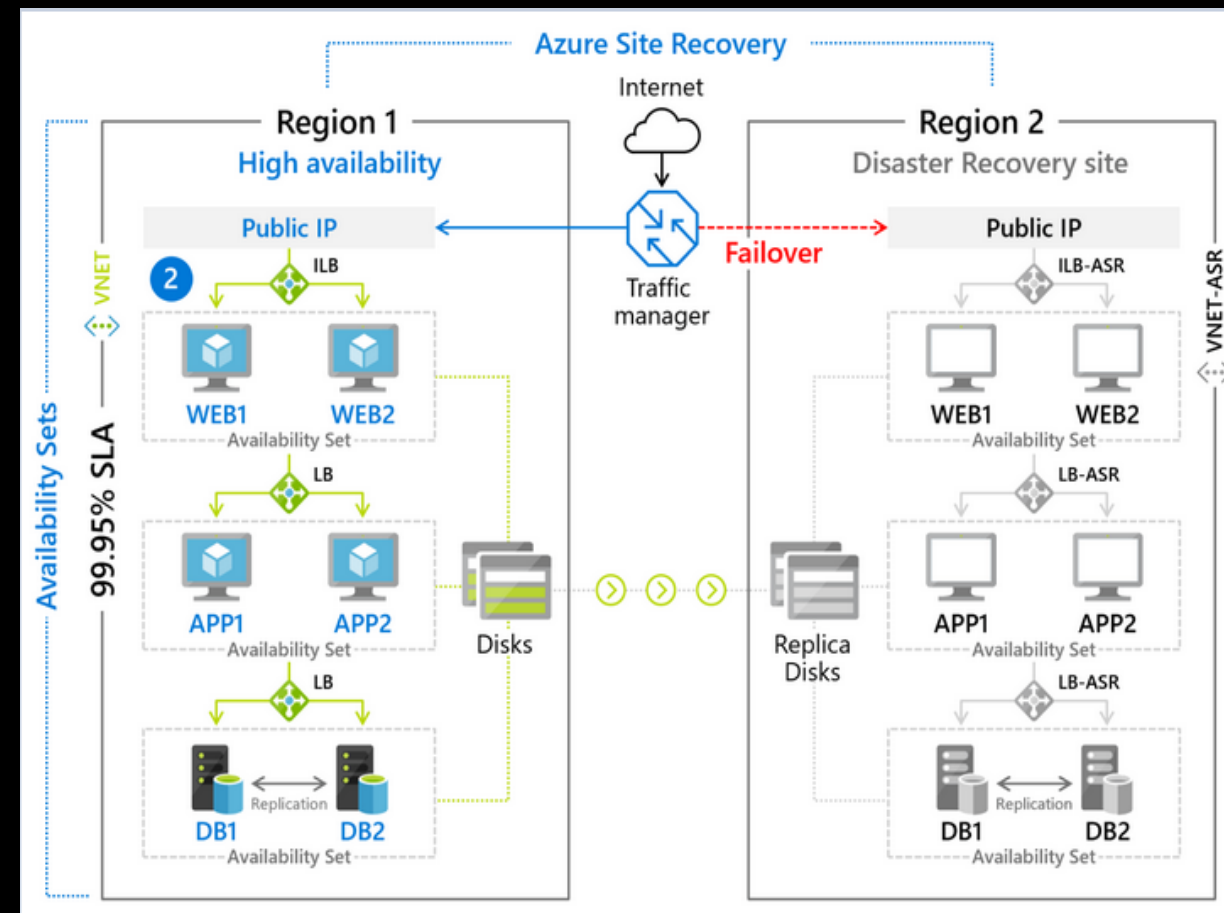


Considerations/Opportunities

Azure site recovery

- Replicated disks cost
- ASR Cost
- Backup Sync
- Compute Cost 60 hour/ month

Building DR Site



Considerations/Opportunities

✓ Unified Security Management:

allows to manage the security posture from a single console, simplifying security operations and reducing complexity.

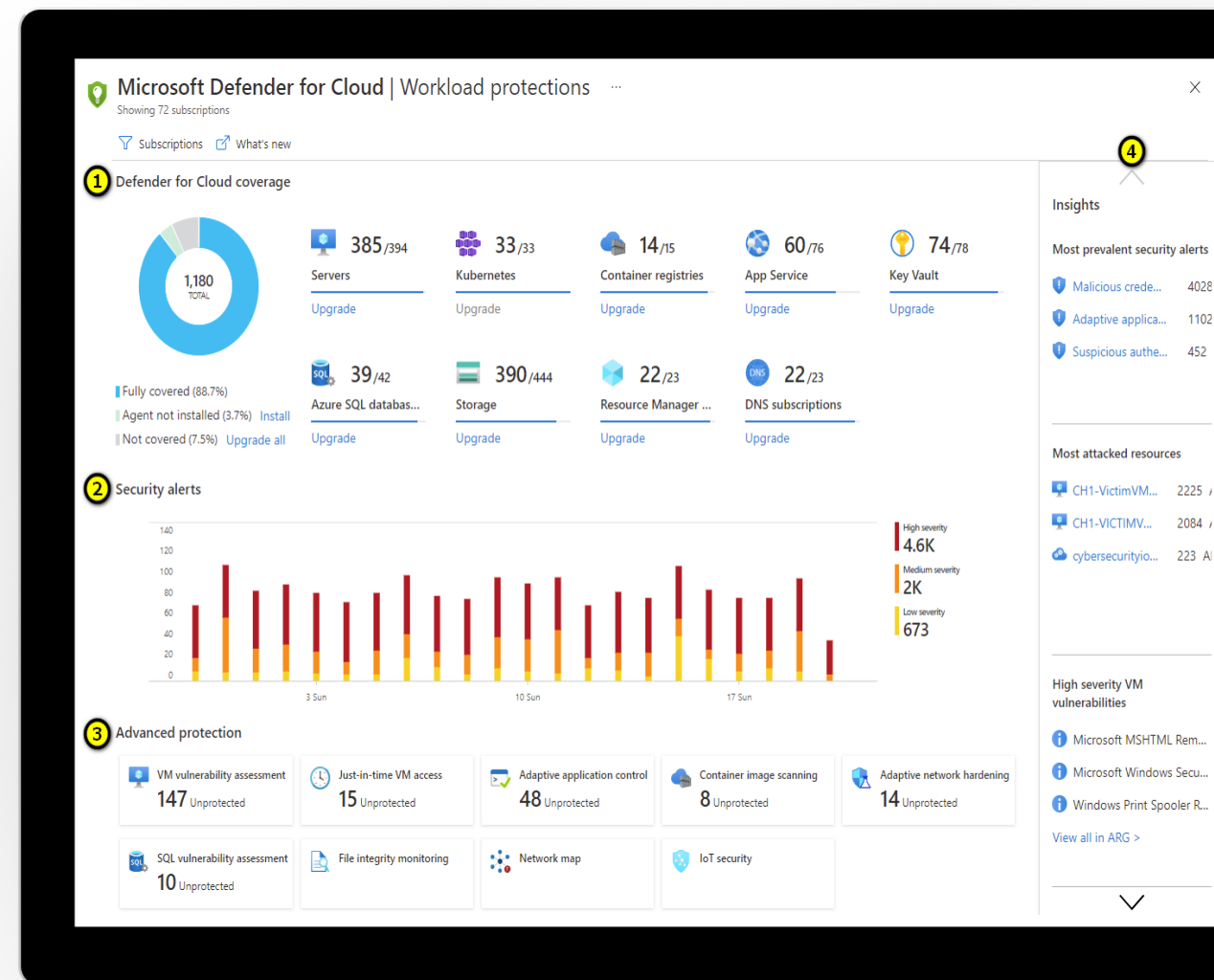
✓ Real-time Threat Detection and Response:

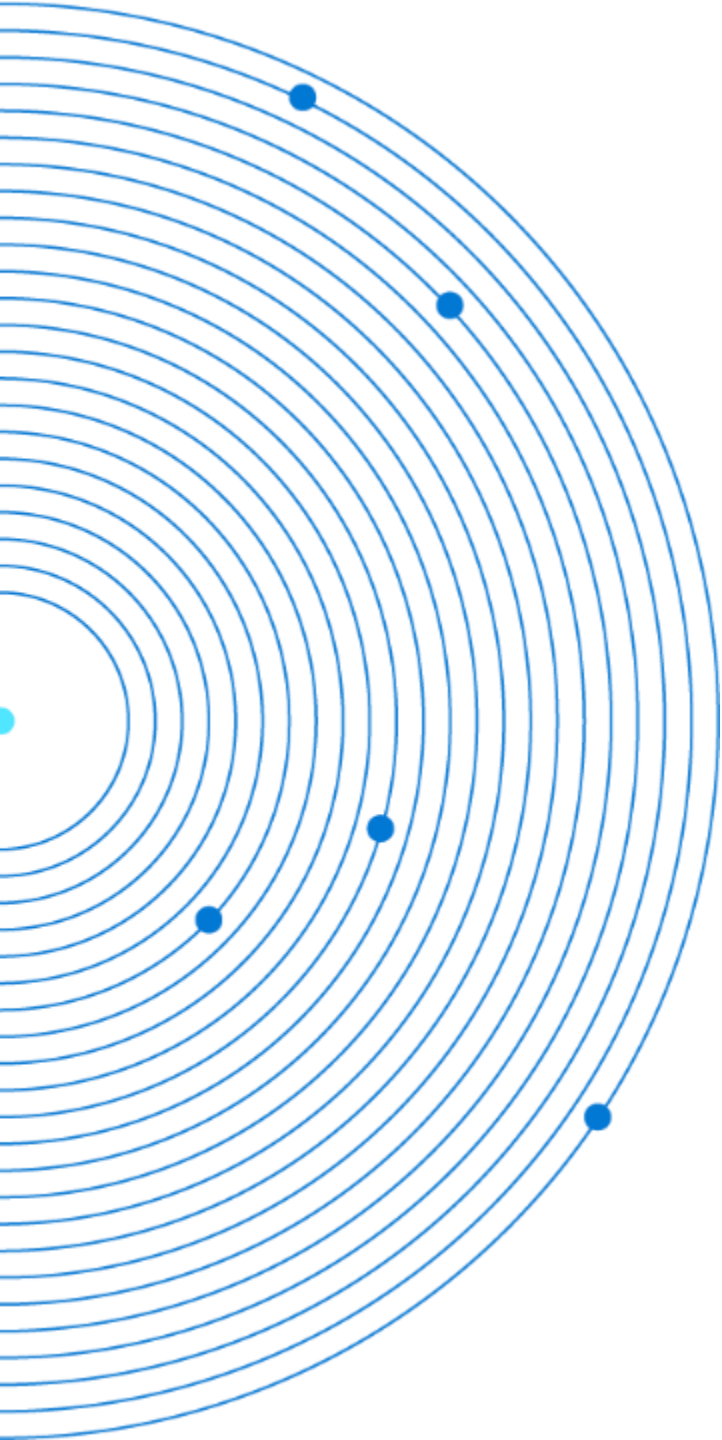
uses advanced machine learning and behavioral analysis to detect and respond to threats in real-time.

✓ Integrated with Microsoft 365:

providing customers with a comprehensive security solution that spans both cloud and on-premises environments.

Microsoft Defender for Cloud

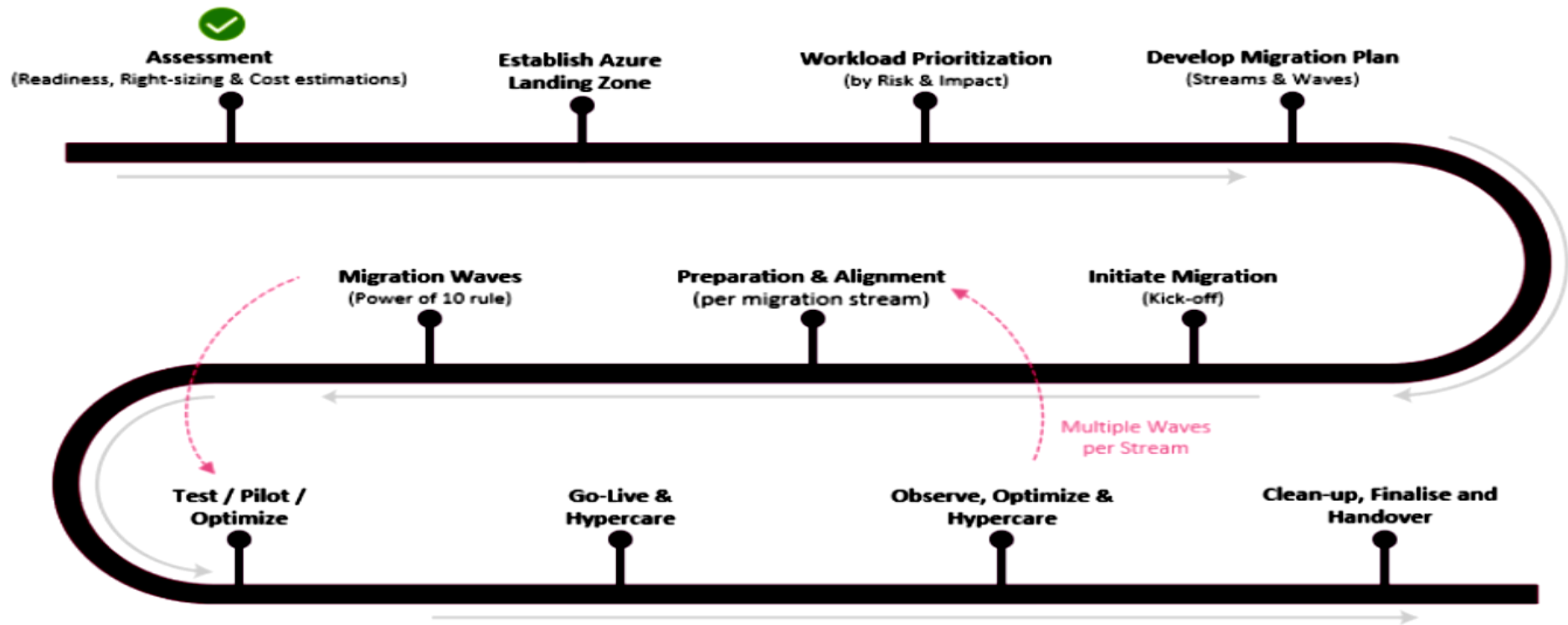




Next Actions ?

Engagement Delivery Approach

Roadmap in phases:





Appendix

[Troubleshoot assessments in Azure Migrate - Azure Migrate | Microsoft Docs](#)

[Azure Monitor overview - Azure Monitor | Microsoft Docs](#)

[Microsoft Azure Marketplace](#)

[Backup and Disaster Recovery | Microsoft Azure](#)

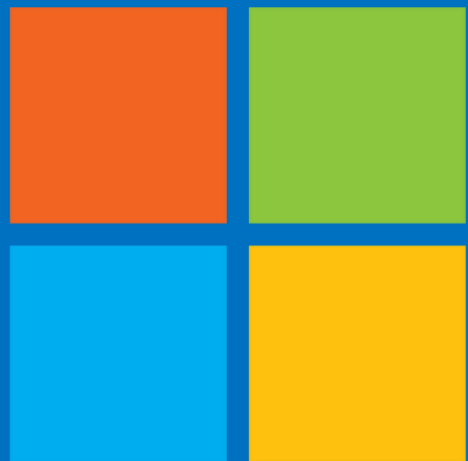
[Azure Sentinel – Cloud-native SIEM Solution | Microsoft Azure](#)

[Azure files | Microsoft Azure](#)

[Azure Virtual Desktop | Microsoft Azure](#)

[SQL Managed Instance | Microsoft Azure](#)

[Azure Arc - Hybrid and Multicloud Management | Microsoft Azure](#)



Q&A

Thank You

