



Azure Assist Cost Optimization

REPORT

05/29/2023

Contents

Executive Summary	3
Assessment Report Structure	4
Cost	4
Governance	4
Inventory	5
Cost Optimizations.....	7
Recommendations Summary	8
Reserved Instances Utilization (RIU).....	9
Azure Savings Plan for Compute (ASPC)	11
VM Disk Type Optimization (DUT).....	12
Azure Hybrid Benefit (AHB).....	14
Virtual Servers Rebuild (RVO).....	16
Orphaned Disks Optimization (ODC)	17
VM Rightsizing (Not B-Series) (VUT).....	18
OS Disk Size Optimization (ODO).....	20
Geo Replication Optimization (GRO).....	22
Orphaned IP Addresses Optimization (UIP).....	24
Orphaned Snapshots Optimization (OSS)	25
Snapshot Tiers Optimization (STR)	26
Cross Region Optimization (CRO).....	27
Advanced Cost Optimizations.....	29
Governance and Compliance	30
Cost Management.....	30

Please note: This sample report has been reduced for your convenience.

Executive Summary

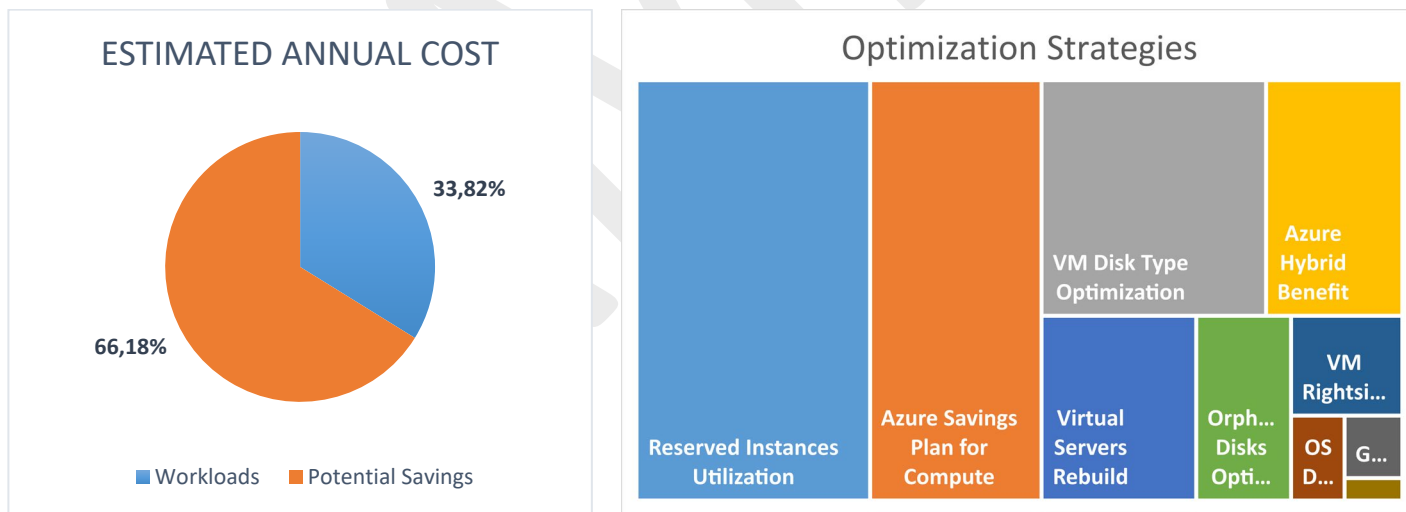
The VIAcode Azure Optimization Assessment (AOA) provides an in-depth analysis of the Azure infrastructure cost. Our analysis delivers actionable recommendations to dramatically improve efficiency and effectiveness of your Azure environment to drive cost savings, reducing risk and strategies to maintain an optimized Azure environment. The recommendations in this assessment can be used to plan necessary improvements and cost savings in your Azure environment. VIAcode can help you implement these cost savings and optimization improvements.

Using data collected from your Azure environment VIAcode experts analyzed 35 optimization strategies to deliver the following:

- Prioritized, actionable and specific recommendations for improving your Azure environment.
- Interactive analytical report to help identify infrastructure affected by recommended improvements.
- Estimated value for each proposed recommendation.

The VIAcode Azure Optimization Assessment provides thorough review of your Azure infrastructure to identify key improvement areas and understand the health of the environment. The recommendations in the Assessment can be used to drive cost savings and governance improvements.

The VIAcode Assessment found potential annual savings of **\$333,982.68** out of **\$504,679.93** predicted spend (**66.18%** cost reduction). These graphs represent the percentage of potential saving as well as the optimization strategies, if implemented, that will provide these savings.



Assessment Report Structure

This report includes a structured analysis of the customer's Azure environment using the VIAcode proprietary software to cover the following areas of cloud infrastructure management:

- Cost optimization
- Governance and compliance

The infrastructure analysis and recommendations for the areas above are described in specific sections of the report.

Cost

Key strategies that contribute to these cost reductions are:

1. Purchase SQL database, virtual machines reservations (RIU) to save **\$101,896.00** (20.19% savings).
2. Purchase savings plan for compute (ASPC) to save **\$74,748.00** (14.81% savings).
3. Change VM disk types (DUT) to save **\$54,863.62** (10.87% savings).
4. Enable Azure Hybrid Benefits for Windows VMs (AHB) to save **\$33,311.71** (6.60% savings).
5. Implement schedule for Virtual Server Rebuild (RVO) optimization strategy to save **\$29,636.39** (5.87% savings).
6. Delete orphaned disks (ODC) to save **\$18,198.35** (3.61% savings).
7. Downgrade virtual servers with underload CPU while preserving memory capacity (VUT) to save **\$11,533.22** (2.29% savings).
8. Rebuild VMs to decrease OS disk sizes (ODO) to save **\$4,705.33** (0.93% savings).
9. Use ZRS Data Stored instead of GRS Data Stored Recovery Vaults (GRO) to save **\$3,743.11** (0.74% savings).
10. Delete unused Public IP addresses (UIP) to save **\$765.50** (0.15% savings).
11. Delete orphaned snapshots (OSS) to save **\$289.73** (0.06% savings).
12. Change Snapshots tier (STR) to save **\$289.73** (0.06% savings).
13. Move Resources to JAPANWEST location (CRO) to save **\$1.99** (0.00% savings).

Note: estimation of annual spend and savings are based on 2023 April monthly spend X 12.

Governance

Cloud cost is an ongoing process. To significantly simplify the burden of controlling compliance and help optimize costs we recommend the implementation of Azure Policies, budgets, and monitoring. We recommend implementing list of policies and use tags for every resource.

Inventory

Subscription Name	Subscription ID
Azure	XXXX-XXXX-XXXX-XXXX-XXXX

Dimension	Count
Subscriptions	1
Resource Groups	23
Resources Total	511
Action group	5
API Connection	1
Automation Account	2
Availability set	4
Azure compute gallery	1
Azure Data Box	1
Bastion	1
Connection	1
Data factory (V2)	3
Disk	146
Image	1
Key vault	2
Local network gateway	1
Logic app	1
Metric alert rule	46
Network interface	43
Network security group	39
Network Watcher	4
Private DNS zone	1
Private endpoint	1
Public IP address	31
Recovery Services vault	6
Relay	1
Restore Point Collection	10
Route table	3
Server - Azure Arc	1
Snapshot	3
SQL database	12
SQL server	7
SQL virtual machine	12
SSH key	1
Storage account	13
Synapse workspace	1
Virtual machine	35
Virtual network	7
Virtual network gateway	1
VM image definition	1

VM image version	1
microsoft.compute/virtualmachines/extensions	48
microsoft.hybridcompute/machines/extensions	1
microsoft.migrate/assessmentprojects	2
microsoft.migrate/migrateprojects	5
microsoft.network/privatednszones/virtualnetworklinks	1
microsoft.offazure/hypersites	1
microsoft.offazure/mastersites	2
microsoft.offazure/vmwaresites	1

SAMPLE

Cost Optimizations

Note: this report is based on analysis of the billing information for the period of April 25, 2023 – May 24, 2023.

Table below provides a summary of applicable optimization strategies. Columns represent the following information:

- Resource count – number of analyzed resources
 - Current cost – Azure cost for resources where optimization is applicable.
 - Optimized cost – how much applicable resources would cost after optimization is applied
 - Savings – delta between current costs and optimized cost
 - Savings/Cost - % of savings within applicable resources. For example, as part of optimization we've analyzed 1000 resources, however, only 200 are not optimized and would be affected by such optimization strategy. Typically, this % shows effectiveness of such optimization strategy within a resource type.
- Savings/Total - % of optimization savings compared to the total spend

Name	Resource Count	Current cost, \$	Optimized cost, \$	Saving, \$	Savings/Cost, %	Savings/Total, %
Reserved Instances Utilization (RIU)	31	\$17,105.64	\$8,614.31	\$8,491.33	49.64%	20.19%
Azure Savings Plan for Compute (ASPC)	1	\$15,997.14	\$9,768.14	\$6,229.00	38.94%	14.81%
VM Disk Type Optimization (DUT)	146	\$22,509.94	\$17,937.97	\$4,571.97	20.31%	10.87%
Azure Hybrid Benefit (AHB)	9	\$3,041.28	\$265.31	\$2,775.98	91.28%	6.60%
Virtual Servers Rebuild (RVO)	34	\$32,632.24	\$30,162.54	\$2,469.70	7.57%	5.87%
Orphaned Disks Optimization (ODC)	146	\$19,009.18	\$17,492.65	\$1,516.53	7.98%	3.61%
VM Rightsizing (Not B-Series) (VUT)	10	\$5,886.03	\$4,924.93	\$961.10	16.33%	2.29%
OS Disk Size Optimization (ODO)	38	\$853.10	\$460.99	\$392.11	45.96%	0.93%
Geo Replication Optimization (GRO)	14	\$986.34	\$674.42	\$311.93	31.62%	0.74%
Orphaned IP Addresses Optimization (UIP)	31	\$102.11	\$38.32	\$63.79	62.47%	0.15%
Orphaned Snapshots Optimization (OSS)	3	\$24.14	\$0.00	\$24.14	100.00%	0.06%
Snapshot Tiers Optimization (STR)	3	\$24.14	\$0.00	\$24.14	100.00%	0.06%
Cross Region Optimization (CRO)	42	\$612.40	\$612.23	\$0.17	0.03%	0.00%
TOTAL:	Monthly	\$42,056.66	\$14,224.77	\$27,831.89		66.18%

Annually

\$504,679.93

\$170,697.25

\$333,982.68

Recommendations Summary

1. Purchase 31 reservations.
2. Purchase savings plan for compute on 1 Subscription(s).
3. Consider replacement of 63 premium SSD with standard SSD.
4. Enable Azure Hybrid Benefits for 6 resources.
5. Develop CI/CD pipeline to rebuild 6 virtual server(s).
6. Delete 28 VM disks/ASR replicas.
7. Downgrade 10 virtual servers with underload CPU while preserving memory capacity.
8. Decrease OS disk size to 64 Gb on 35 virtual servers.
9. Use ZRS Data Stored instead of GRS Data Stored backup for 1 recovery vaults.
10. Delete 18 Public IP Address.
11. Remove 2 orphaned snapshots.
12. Change tier for your 3 Snapshots.
13. Move environment to JAPANWEST.

Governance and Compliance

Azure Policy helps to enforce organizational standards, assess compliance at-scale, and when done properly ultimately eliminate unintended actions that increase cost and create security risk.

Through its compliance dashboard, it provides an aggregated view to evaluate the overall state of the environment, with the ability to drill down to the per-resource, per-policy granularity. It also helps to bring your resources to compliance through bulk remediation for existing resources and automatic remediation for new resources.

Common use cases for Azure Policy include implementing governance for resource consistency, regulatory compliance, security, cost, and management. Policy definitions for these common use cases are already available in your Azure environment as built-ins to help you get started.

We propose the following set of policies to enforce cost measures.

Cost Management

- Increase overall resource tag coverage: current coverage is 12.5%.
- Alert on resource creation without appropriate tags.
 - Service/Application name
 - Owner
 - Cost Center
- Enforce 'Allowed locations' to require deployment in cost-effective regions.
- Alert on usage of Premium/Ultra SSD.
- OS and data disks should be encrypted.
- Only allowed disk sizes policy.
- Only approved VM extensions should be installed.
- Enforce 'Allowed virtual machine SKUs'.
- Prevent/Alert VM creation with big OS disk.
- Azure Backup should be enabled for Virtual Machines.
- Enforce cost effective backup replication configuration.
- Enforce 'Allowed Snapshot tiers'.
- Enable budgets and alerts. Current state of budgets across Subscriptions:

Subscription Name	Subscription ID	Budget	Budget Alerts	Forecast Alerts
Azure	xxxx-xxxx-xxxx-xxxx-xxxx	No	No	No