VIACODE MANAGED SERVICES

Azure Optimization Assessment

Report

10/20/20

Contents

Executive Summary

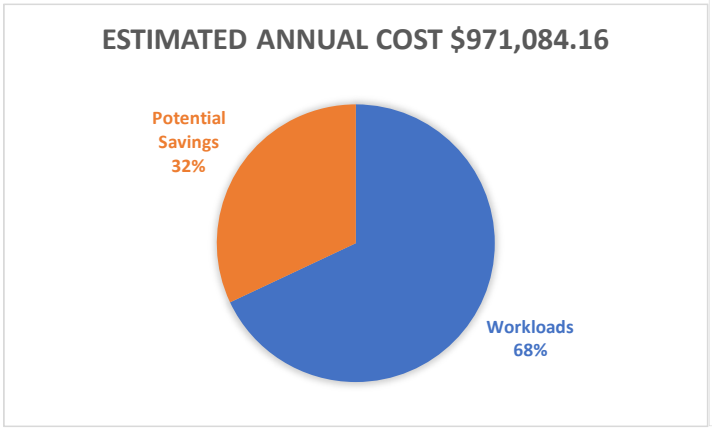
The VIAcode Azure Optimization Assessment (AOA) provides in-depth analysis of the Azure infrastructure cost and security posture. It delivers actionable recommendations to dramatically improve efficiency and effectiveness of an Azure operation saving you money and reducing risk along with strategies to maintain an optimized state.

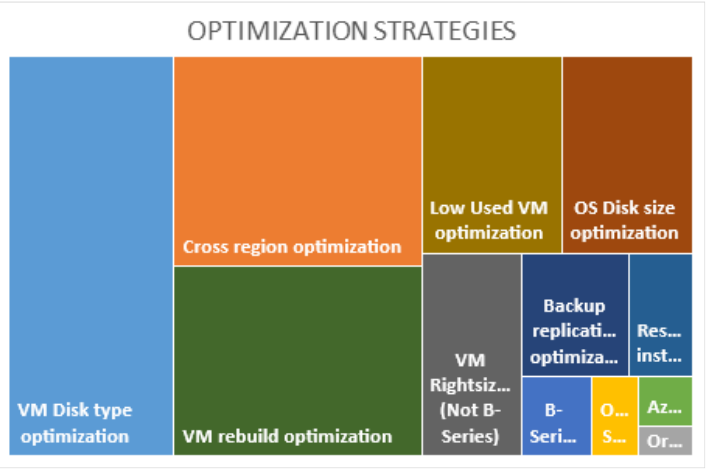
Using data collected from your Azure environment VIAcode experts analyzed 29 optimization strategies to deliver the following:

- 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 Assessment allows VIAcode to do a thorough review of your Azure infrastructure, identify key improvement areas, understand environment health state. The optimization recommendations in the Assessment report can be used to plan necessary improvements to the cloud infrastructure. These improvements can be done by customer, using VIAcode Professional Services, or by VIAcode as part of our Managed Services.

The VIAcode Assessment found potential annual savings of **$306,151.51** out of **$971,084.16** predicted spend (a **31.53%** cost reduction). These graphs represent the percentage of potential saving as well as the optimization strategies that will provide the savings.





Cost

Key strategies that contribute to this cost reduction are:

- Rebuild VMs to optimize usage of premium disk types (DUT), decrease OS disk sizes (ODO), optimize tiers (VUT) and/or transition to B-Series (BSR) to save **$125,150.40** (12.89% savings)
- Implement schedule for VM rebuild (RVO) and Low utilization VM (LUV) optimization strategy to save **$86,632.82** (8.92% savings)
- Transition VMs to WESTUS2 and migrate all ASR disks to EASTUS2 to save **$60,497.57** (6.23% savings)

Note: estimation of annual spend and savings are based on August 2020 monthly spend X 12.

Security

We understand that the Azure environment us used for Dev/QA needs. While this environment is not for production usage there are certain measures that would increase the security depth and lower security expose.

- Secure storage by enforcing HTTPS and removing public access
- Encrypt Azure Automation variables
- Delete deprecated accounts and require MFA on accounts with owner permissions

Governance

Cloud cost and security management is an ongoing process. To significantly simplify the burden of controlling compliance, help optimize costs, and reduce security risk we recommend the implementation of Azure Policy in order to enforce the following best practices:

- Require Azure Hybrid Benefit enablement
- Alert on usage of Premium SSD
- Prevent/Alert VM creation with OS disk >=64 Gb
- Require VMs to be deployed in cost-effective regions
- Enforce cost effective backup replication configuration

Assessment Report Structure

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

- Cost optimization
- Security depth
- Governance and compliance

The infrastructure analysis and recommendations for the areas above are described in specific sections of the report. The next section (“Executive Summary”) includes information about the overall assessment results and the improvement recommendations that VIAcode identified as necessary/recommended based on the infrastructure condition.

Inventory

Directory:

Subscription Name	Subscription ID
ABC-DEF-XXX-DEV-Lab-DevTest	88xx38x7-x427-428x-8x69-152821x028x5
ABC-DEF-YYY-MSDN-DevTest	987x3695-1584-460x-8x7x-749x9989xx9x

Dimension	Count
Subscriptions	2
Resource Groups	98
Resources Total	5734
Virtual Machines	1403
Disks	2359
Snapshots	108
Storage Accounts	70
Load Balancers	13
Key Vaults	13
Virtual Networks	5
App Service Plans	5

ABC-DEF-XXX-DEV-Lab-DevTest
ABC-DEF-YYY-MSDN-DevTest

Cost Optimizations

Note: this report is based on analysis of the billing information for the period of August 1, 2020 – August 31, 2020.

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 applicable resources. For example, all VM's with OS disks > 64GB or all Azure resources where Azure Hybrid Benefits are not enabled.
- 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

Code	Name	Resource Count	Current cost, $	Optimized cost, $	Saving, $	$Savings/ $Cost, %	$Savings/ $Total, %
BSR	B-Series optimization	1370	24,006.20	23,462.26	543.94	2.30%	0.67%
CRO	Cross region optimization	1398	56,639.04	51,597.58	5,041.46	8.90%	6.23%
ODC	Orphaned Disks optimization	2295	36,164.91	36,009.45	155.47	0.40%	0.19%
OSS	Orphaned Snapshots optimization	105	359.15	0.00	359.15	100.00%	0.44%
DUT	VM Disk type optimization	2309	37,774.19	31,419.12	6,355.07	16.80%	7.85%
AHB	Azure Hybrid Benefit	793	266.41	0.00	266.41	100.00%	0.33%
BUT	Backup replication optimization	5	11,152.92	9,884.19	1,268.73	11.40%	1.57%
ODO	OS Disk size optimization	960	4,540.16	2,973.55	1,566.61	34.50%	1.94%
VUT	VM Rightsizing (Not B-Series)	1396	24,323.55	22,359.96	1,963.59	8.10%	2.43%
LUV	Low Used VM optimization	1348	55,357.70	52,688.49	2,669.21	4.80%	3.30%
RIU	Reserved instance	1143	24,027.84	23,255.04	772.80	3.20%	0.95%
RVO	VM rebuild optimization	1045	52,688.49	48,138.30	4,550.19	8.60%	5.62%
	TOTAL:	**Monthly**	**80,923.68**	**55,411.05**	**25,512.63**		**32%**
		Annually	**971,084.16**				

Recommendations summary

1. Consider replacement of 221 premium SSD with standard SSD
2. Migrate dev environment to WESTUS2 and migrate ASR disks to EASTUS2
3. Decrease OS disk size to 64Gb on 55 virtual servers
4. Downgrade 96 virtual servers with underload CPU while preserving memory capacity
5. Migrate 2 resources from RA-GRS to GRS
6. Purchase additional 72 reserved instances
7. Migrate 82 virtual servers to B-series with the same memory/core capacity.
8. Delete 103 orphaned snapshots and 9 VM disks/ASR replicas
9. Enable Azure Hybrid Benefits for 7 VMs in GRC-GRC-XXX-Dev-Lab-DevTest subscription
10. Delete or consolidate 303 virtual servers
11. Develop CI/CD pipeline to rebuild 72 virtual servers