

OPTIMISE YOUR INVESTMENT IN CLOUD

# Crayon Cloud Economics Health Check

**Direct savings** through optimization way beyond  
system-based recommendations

Solid governance to ensure **budget predictability**  
and **better ROI**

**Best practice** from thousands of companies



# Content of Crayon Cloud Economics



## Consumption

Examples:

- Usage in specific periods
- Use of commitments
- Use of Azure Hybrid Benefit (AHB)
- Utilization of RI for relevant products
- Usage breakdowns into areas like
  - Tags
  - Subscriptions
  - Products
  - Resource groups



## Trends

Examples:

- Usage compared to budgets
- Mapping of known and unknown peaks
- Mapping of expected and unexpected downtime
- Overall timeline for new cloud service launches
- Budget predictions



## Optimization

Examples:

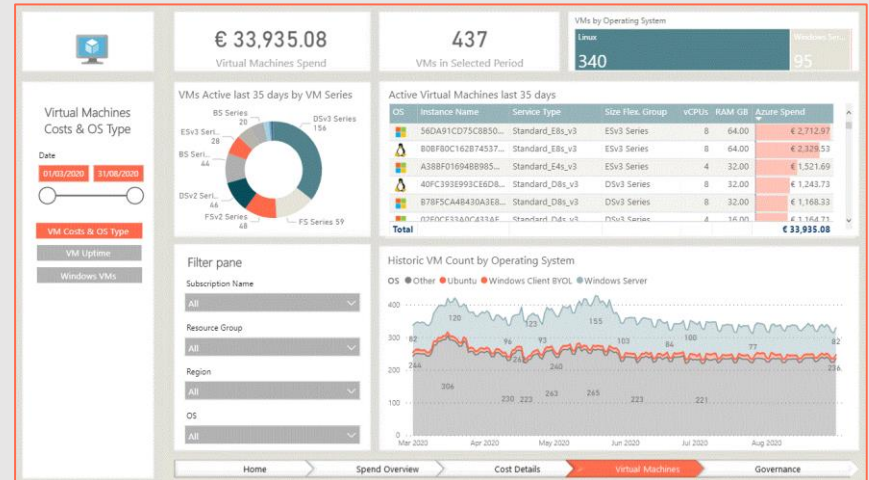
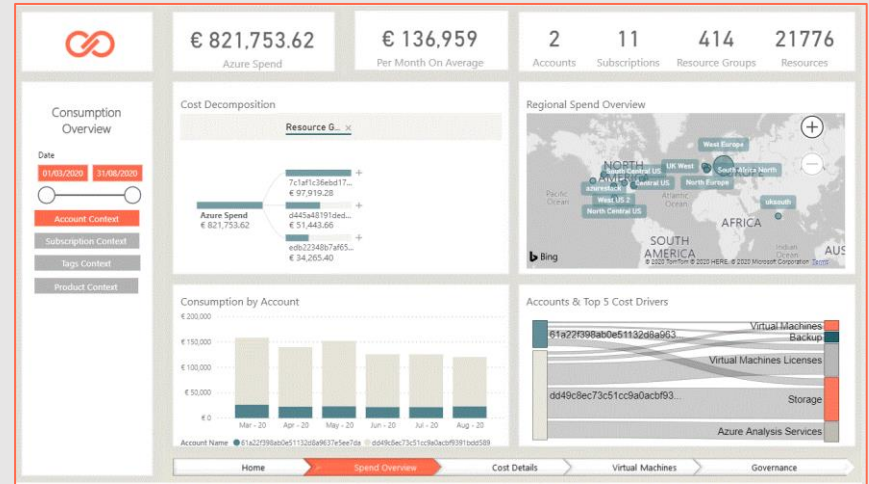
- Potential cost savings through RI
- Potential cost savings using AHB
- Potential benefit of commitments vs pay-as-you-go vs spot
- Benefits of Dev/Test subscriptions
- Potential removals
- Potential utilization optimizations

## OUR DELIVERABLES

# BI Reports and dashboards

A set of BI reports based on your cloud commitment

- Spend overview
- Cost details
- Virtual machines overview
- Governance overview



OUR DELIVERABLES

# Full Analysis Report

Full study with in-depth analysis (typically quarterly)

- Spend overview
- Cost optimization details
- Governance
- Recommendations and detailed list of actions

## 4. Executive Summary

This report presents findings from Crayon's analysis of CUSTOMER's running services in Azure. The report provides insight into cloud consumption and presents cost saving opportunities along with other recommendations, based on historical usage from January 2020 until July 2020.

CUSTOMER's monthly spend in July 2020 was approximately \$3.1 million. Monthly spend has increased at a steady level throughout the period, representing an estimated annual spend of \$37 million for the next 12 months.

Crayon has identified annual potential savings of \$11.4 million, i.e. 30% of CUSTOMER's estimated spend for the next 12 months (see Table 1).

Potential savings relate to changes in database tiers, sizes of SQL and Microsoft Service licenses and reserved capacity across multiple products. In addition to these specified savings, Crayon has identified other areas of potential future cost optimization, such as block blob storage and edge services lightning.

Throughout the period in scope, CUSTOMER has used 21 resource tags in Azure and the fraction of costs tagged was 16% in July 2020. Crayon recommends that defining resource standards and increasing tags.

After implementing RI and AHV, CUSTOMER needs to effectively manage their cost optimization activities. Crayon recommends that CUSTOMER implement governance processes to ensure that current and future cloud expenditure levels are implemented, monitored and followed up according to company standards.

Crayon's recommendations are based on historical data, and savings can be materialized when future plans for the environment has been taken into account.

Table 1: Potential Savings. \*10% applicable if AHV is applied to SQL databases.

Product Category	Cost Saving Measure	Annual Savings (Year 0) (\$)	Annual Savings (Year 1) (\$)
Virtual Machines	Reserved Instance	118 (0.0)	1,137 (0.0)
Virtual Machines	Azure Windows License	111 (0.0)	1,111 (0.0)
SQL Database	DTU to vCore + AHV	4,100 (0.0)	4,100 (0.0)
SQL Database	Reserved Instance	90 (0.0)	7,000 (0.0)
Azure Blob Storage	Reserved Capacity	300 (0.0)	300 (0.0)
Cloud Services	Reserved Capacity	10 (0.0)	10 (0.0)
<b>Total Savings</b>		<b>9,881 (0.0)</b>	<b>11,415 (0.0)</b>

## 5. Action List

Crayon has prepared a list of specific actions for CUSTOMER to consider in order to materialize the potential savings presented in this report.

Action	Recommendation	Reference
1. Cost Optimizations	1. Migrate R1 Premium SQL databases to vCore based pricing model. 2. Rightsize Azure Hybrid use benefits to those databases. 3. Purchase reserved capacity for the number of vCores required, for a period of 1-3 years.	Section 8.3
2. Virtual Machines	1. Standardize on machine series and reduce number of size families present. 2. Purchase reserved instances for 1-3 years for VMs with an expected lifetime of 1-3 years.	Section 8.3.1
3. Storage	1. Evaluate potential for utilizing lower storage tiers for blob data. 2. Implement lifecycle policy for blob files. 3. Convert to reserved capacity according to findings in 8.3.1.9. purchase 2 x 100 TB reservations for North Europe in this account tier.	Section 8.3.3
4. Cloud Services	1. Evaluate expected lifetime of running resources. 2. Convert to reserved instances for 1-3 years.	Section 8.3.1
5. Azure App Service	1. Evaluate potential app service plans in low response tiers.	Section 8.3.3
6. Governance	1. Evaluate existing levels and introduce tagging accordingly.	Section 8.3.1

## 7. Spend Overview & Trends

CUSTOMER's monthly spend in July 2020 was \$3,099,246. Monthly spend has increased by 330% year to date, i.e. an increase of 4.6%. Crayon's overall spend represents estimated annual costs of nearly \$37 million over a 12 months period.

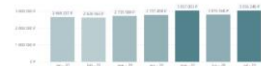


Figure 1: Azure spend 1/01/2020  
 Five product categories account for 96% of CUSTOMER's total consumption in July 2020.  
 Table 2 lists these categories along with category spend July 2020. These categories constitute the focus area for Crayon's analysis and reporting.



Product Category	Spend July 2020 (\$)	% of spend	Est. Annual Spend (\$)
SQL Database	1,139,918	37%	13,139,136
Virtual Machines	507,453	16%	5,969,436
Azure App Service	369,393	12%	4,392,716
Storage	293,971	10%	3,527,652
Cloud Services	207,509	7%	2,490,108
<b>Total</b>	<b>2,518,244</b>	<b>96%</b>	<b>30,519,048</b>

Table 4: License savings SQL

Product	Current License	Recommended License	Current Cost	Recommended Cost	Savings
SQL Database	100 vCores	100 vCores	\$1,000,000	\$1,000,000	\$0
SQL Database	100 vCores	100 vCores	\$1,000,000	\$1,000,000	\$0
<b>Total</b>			<b>\$2,000,000</b>	<b>\$2,000,000</b>	<b>\$0</b>

8.3.3 Recommendations  
 If qualifying SQL licenses are available for use in Azure, 67 of CUSTOMER's Premium DTU databases should be migrated to the vCore based pricing model (a low disk in the Azure period).

The migration will make databases eligible to Azure Hybrid use benefits discounts and capacity reservations, which can reduce the annual overall database cost by up to \$7.1 million.

Table 5 shows estimated annual savings from the following actions:

- Migrate R1 SQL databases from DTU to vCore based pricing model
- Rightsize / Validate that migrated vCore databases meet performance requirements
- Enable Azure Hybrid use benefits on the databases to use license discounts
- Purchase reserved instance for up to 20 2U vCores in North Europe region within the Business Critical tier, with 1-3 year commitment.

Table 6: Database with cost savings potential (AHV/RI/RES). Includes monthly cost of payment (DTU savings by the hybrid licenses in the DTU based model).

ID	DB	DB Type	Current License	Current Cost	Recommended License	Recommended Cost	Savings
111216	SQL01	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111217	SQL02	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111218	SQL03	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111219	SQL04	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111220	SQL05	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111221	SQL06	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111222	SQL07	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111223	SQL08	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111224	SQL09	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
111225	SQL10	SQL	100 vCores	\$1,000,000	100 vCores	\$1,000,000	\$0
<b>Total</b>			<b>100 vCores</b>	<b>\$1,000,000</b>	<b>100 vCores</b>	<b>\$1,000,000</b>	<b>\$0</b>

Note that as the DTU Premium tier maps to Business Critical SQL databases in the vCore model, SQL Enterprise Edition licenses with Software Assurance is required to be eligible for discounts from Azure Hybrid use benefits. Hence, a total of 30 2U vCores, i.e. 10 1U vCores Enterprise 3-core licenses with SA are required.

Also note that reserved instances alone not necessarily justify migrating from the DTU pricing model. However, if Azure Hybrid use benefits can be activated, savings costs for vCore based databases will reduce dramatically, and reservations will further reduce costs.

Assumptions in 8.3.1 should be validated carefully prior to applying steps 4 & above.