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FinOps in Azure mit BI-Vorgehen die Kosten Optimieren zum Bedarf

Patrick Heyde

Microsoft

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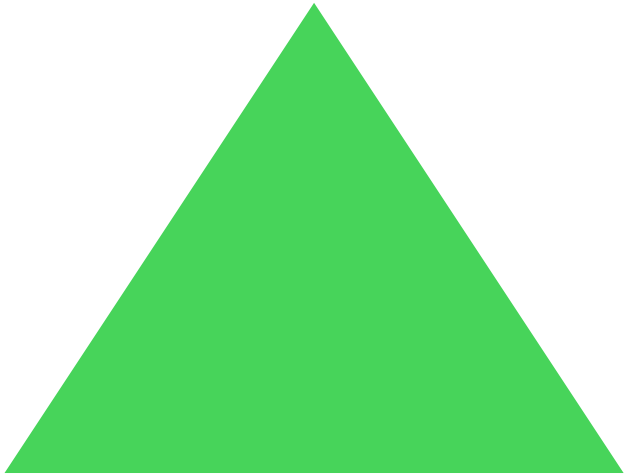


FinOps

Finance & Operations

FinOps – find your Balance

CIO macht Budget – IT Plan
für 12+ Monate
Zentral IT



Project Owner/Team
Product Owner/Team
IT Verbraucher

Controlling / Finanz
(vergibt ein Budget)

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- Meine Erfahrungen von FinOps und Optimierungen
  - Re-Design durch Wechsel der Technologiewahl
    - 1.000 €/Monat -> 10 €/Monat
  - Easy Quick-Win
    - In kleiner 10 Click 30.000 €/Monat eingespart (Aufwand: 30 Sekunden)
    - German Kultur -> 3-12 Monate benötigt um alle Entscheider abzuholen und alignen
  - Unternehmen Robust für die Zukunft aufstellen
    - In der aktuellen Zeit hat das Unternehmen 80+ IT & Dev. Mitarbeiter reduziert mit einer Ausnahme, das Infra Team. **Ursache:** in den letzten 18 Monaten wurde eine Starke Effizienzsteigerung im Unternehmen erreicht:
      - Eine Bereits vorhandene Azure Workload von 70k/m auf 20k/m optimiert
      - Lokalen Systeme bei der Erneuerung auf Azure PaaS Dienste Modernisiert ca. 1,5m/y Einsparung (von Outsourcing zum Inhousing auf PaaS-Dienste)



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Azure Cost Management

FinOps ist ein Cost Management und ein Prozess aus:

- Kostenreporting / Transparenz schaffen
  - Kosten an Fachbereiche durchschleifen
- Optimierung finden und Umsetzen
- Re-Think yourself in wiederkehrenden Zeiträumen

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- Cost Management auf Basis der default Azure Rechnung…



Rechnung

Wir berechnen Ihnen f

Menge	Beschreib	VK-Preis	Betrag
	Leistungszeitra		
1 X	Azure Consumption	10,24	10,24
		Zwischensumme	**10,24**
		MwSt.-Betrag 19%	1,95
		samt (EUR)	**12,19**

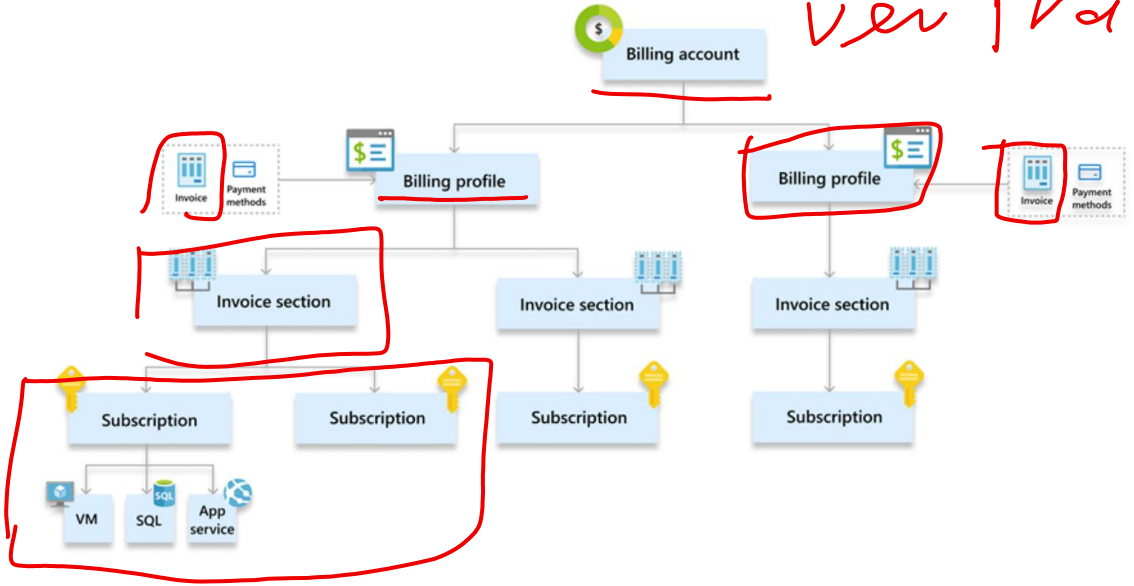
Ihre Leistung wurde erbracht am 30.11.2024

Zahlungsbedingungen: 8 Tage n

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Design & structure your azure invoice



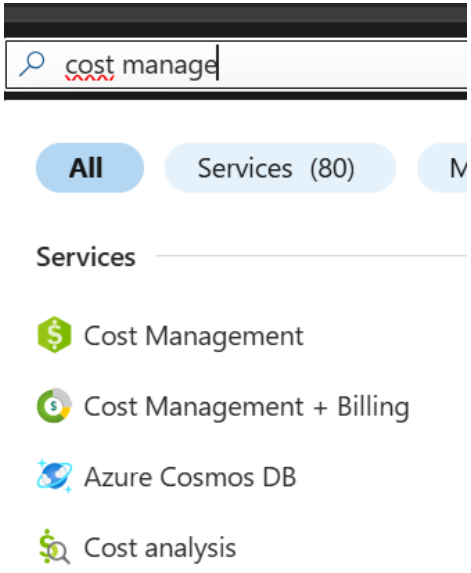


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FinOps mit Mittel aus Operation – Verbrauchsanalyse nutzen bevor eine Rechnung erstellt wird

- Portal.azure.com





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Gruppieren nach Service Name oder TAGs oder RessourceGroup Name



Feb 2025 | Add filter

ACTUAL COST (EUR ONLY) €793.82 | FORECAST: CHART VIEW OFF -- | BUDGET: NONE --

Group by: Service name | Granularity: None | Table

Pin to dashboard

Filter items | 10 rows

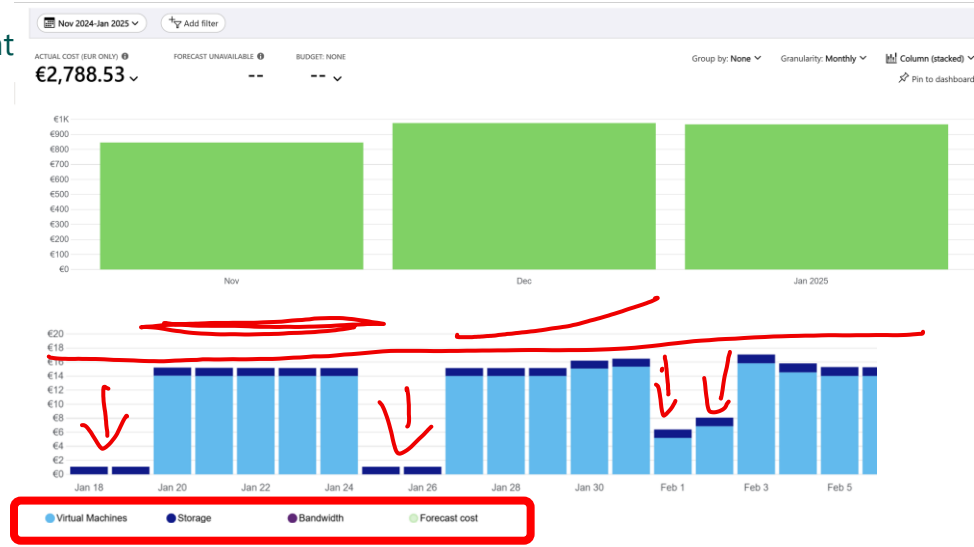
Service name	Cost
Virtual Machines	€394.70
Storage	€178.03
Virtual Machines Licenses	€131.18
Microsoft Entra Domain Services	€53.82
VPN Gateway	€20.07
Load Balancer	€9.07
Virtual Network	€3.81

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Wie hoch sind meine Kosten?

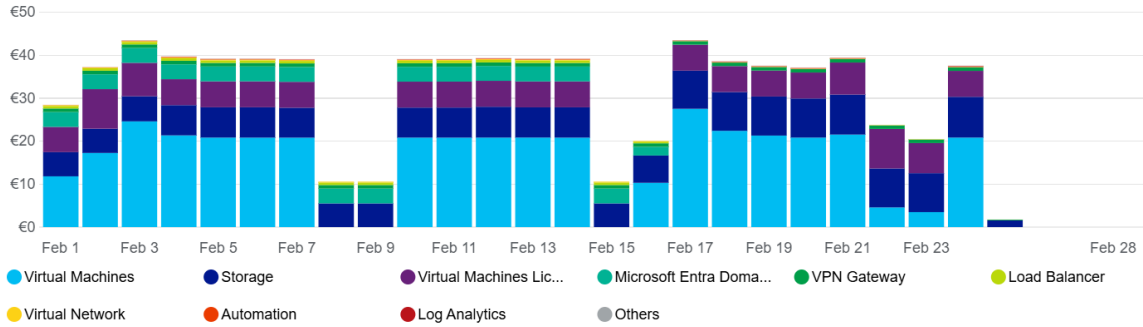
- Pro Monat
- Pro Tag





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Gruppieren nach Service Name oder TAGs oder RessourceGroup Name

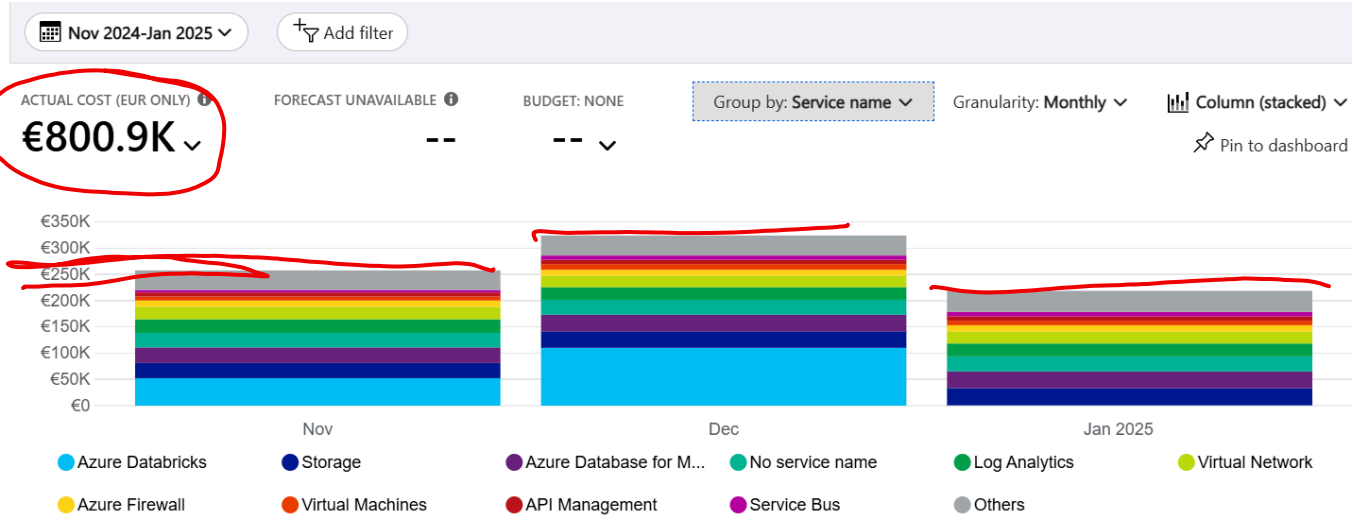




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Und das funktioniert auch bei großen Organisationen





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Was für Kostenarten gibt es?

- Statische & Dynamische
  - Pro Jahr/Monat/Tag/Stunde
- Wie sieht es bei Compute aus?
- Wie sieht es bei Lizenzen aus?
- Wie sieht es bei Storage aus?
- Wie sieht es bei Netzwerk aus?

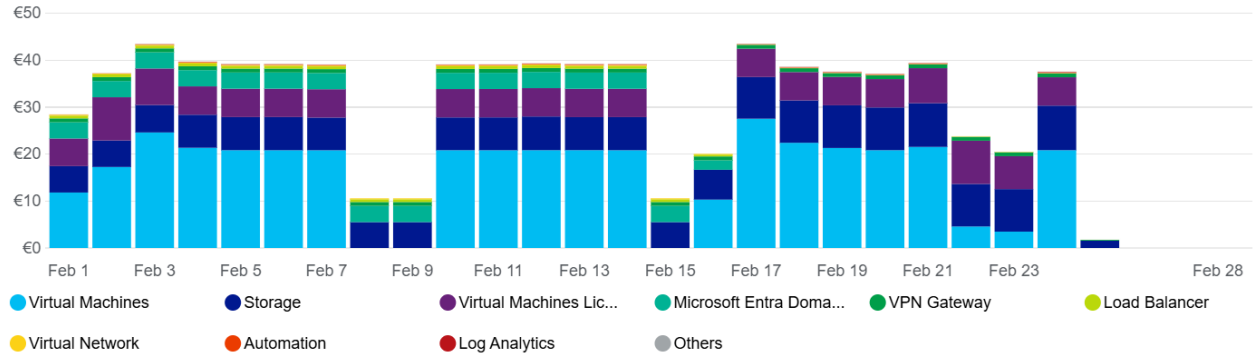
statisch	dynamisch	As I design it
statisch	dynamisch	As I design it
statisch	dynamisch	As I design it
statisch	dynamisch	As I design it

Traditionell
und meistens
inplace



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Ein genauer Blick bitte – Was ist hier statisch und was dynamisch?





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Azure Advisor

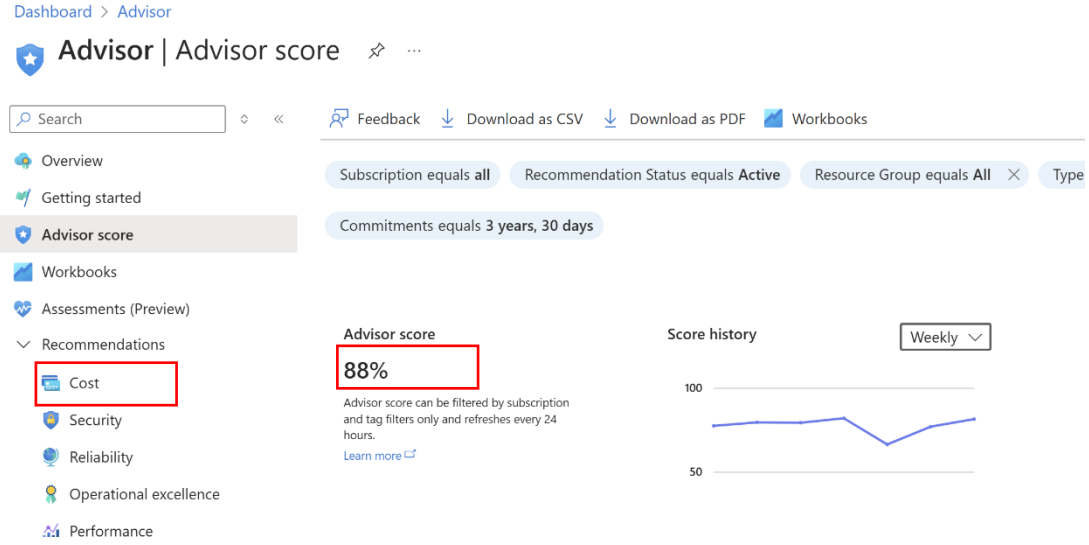
Kosteneffizienz

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Target 95+%

Cost Advisor Score im Azure Portal





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Advisor arbeitet dauerhaft und zeigt jede Verbesserung an



Dashboard > Advisor

Advisor | Cost

Search

- Overview
- Getting started
- Advisor score
- Workbooks
- Assessments (Preview)
- Recommendations
  - Cost
  - Security
  - Reliability
  - Operational excellence
  - Performance
  - All recommendations
- Monitoring
- Settings
- Support + troubleshooting

Feedback | Download as CSV | Download as PDF | Create alert | Create recommendation digest

Subscription equals **all** | Recommendation Status equals **Active** | Resource Group equals **All** | Type equals **All** | Add filter

Commitments equals **1 year, 30 days**

No grouping

As of September 30th, 2024, Azure Advisor no longer displays aggregated potential yearly savings.Learn more about calculating cost savings.

Total recommendations **1**

Recommendations by impact: 1 High impact, 0 Medium impact, 0 Low impact

Impacted resources **1**

For more cost management and optimization capabilities, visit Cost Management

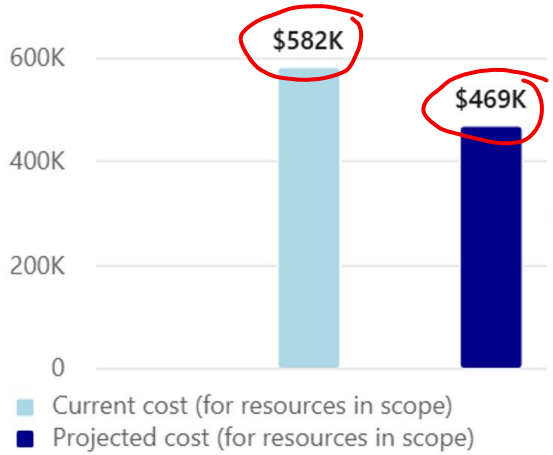
Impact	Description	Potential yearly savings based ...	Impacted resources	Last updated
High	Consider virtual machine reserved instance to save over your on-demand costs	17 USD	1 Subscription	25.2.2025, 05:36

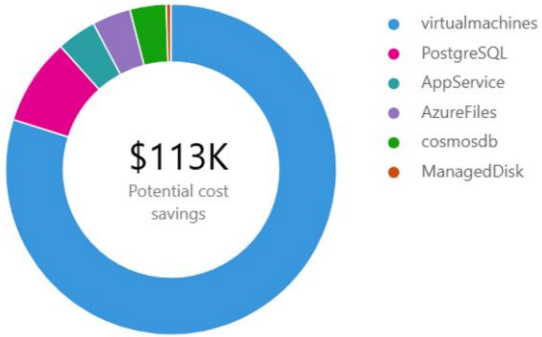
Showing 1 - 1 of 1 results.

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Wenn kein FinOps inplace ... „wait and do nothing“ or „start with 1st steps“



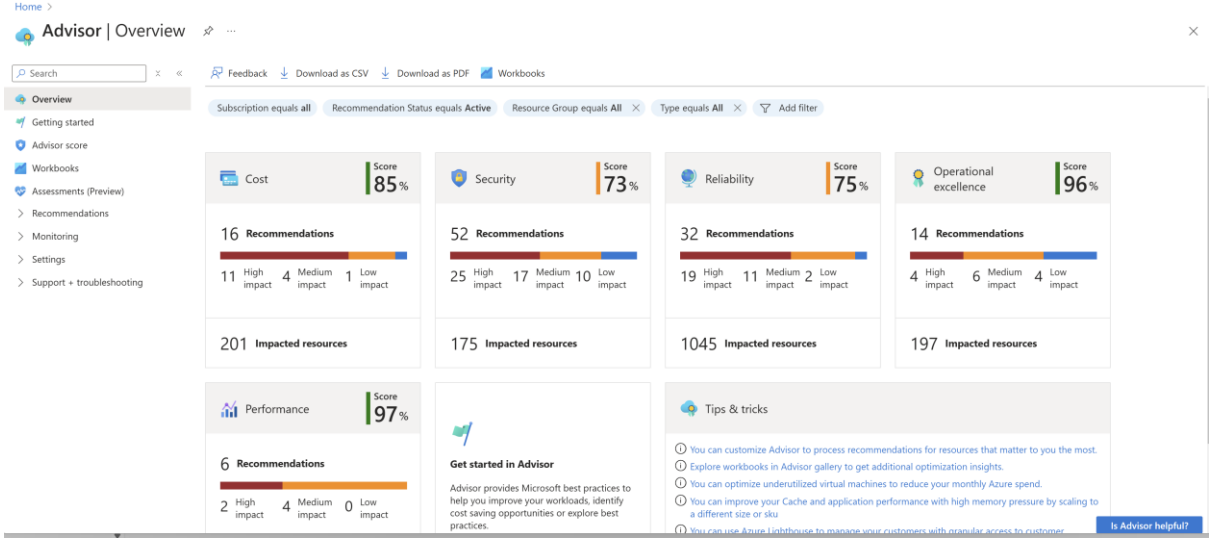




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Cost Advisor Score im Portal





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Wichtige Optimierungen



- Folge den Azure Advisor Empfehlungen
  - Reservierungen
  - Compute Saving Plan
  - Pre-Purchase Plan -> Defender / Sentinel – Pre-Purchase Plan
  - Storage Life Cycle
  - Log Analytics
    - Daily Commitment setzen
- Zusätzlich beobachten - Lizenzbezug
  - SPLA, EA, MPSA, Azure, Azure Marketplace, CSP, …
- Re-think the whole Process?

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Reservierungen

- Reservation bindet 3 Elemente:
  - Scope + Region + SKU (Bsp: Standard D8s v3)

Scope * Shared

Shared

Management Group (previ...

Single subscription

Single resource group

Recommend

Filter by n

0-0 of 0

France Central

France South

Germany North

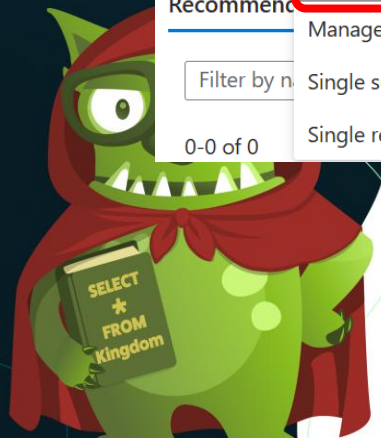
Germany West Cen...

Israel Central

Italy North

Japan East

VM Size	Type	vCPUs	RAM (GiB)
Most used by Azure users	The most used sizes by users in Azure		
B4ms	General purpose	4	16
D4s_v3	General purpose	4	16
[illegible]	General purpose	4	14
D8s_v3	General purpose	8	32
D-Series v6	The latest generation D family sizes recommended for		
D4ads_v6	General purpose	4	16
D4alds_v6	General purpose	4	8
D4als_v6	General purpose	4	8
D4as_v6	General purpose	4	16

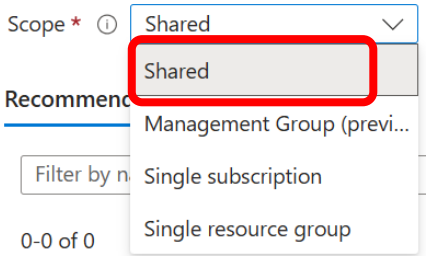


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Compute Saving Plan



- Einfache zu Verwalten und besteht aus
  - Commitment per Hour
  - Scope:

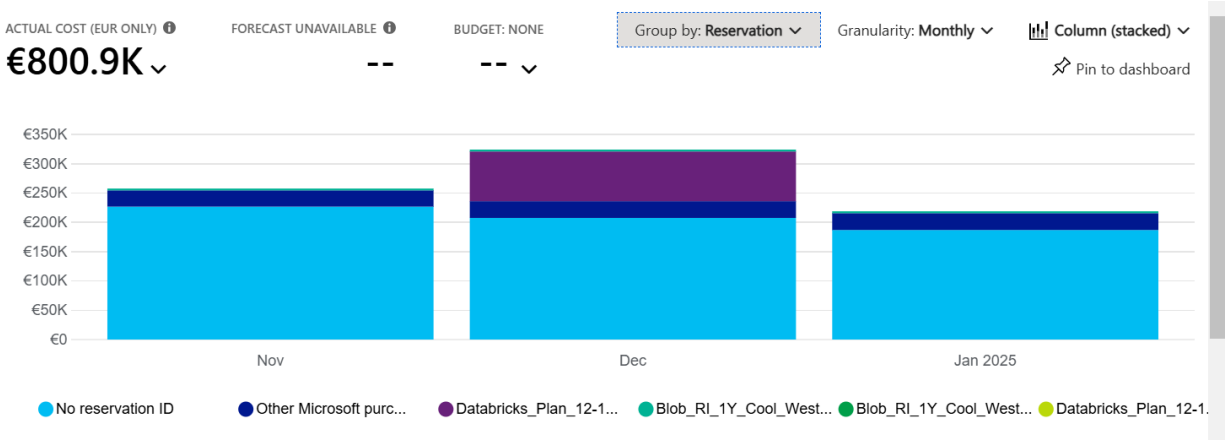


- Wirkung: Compute Services usage über alle Regions
- Very easy to Implement >10 clicks

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Reservations/ComputeSavingplan im Cost Management View

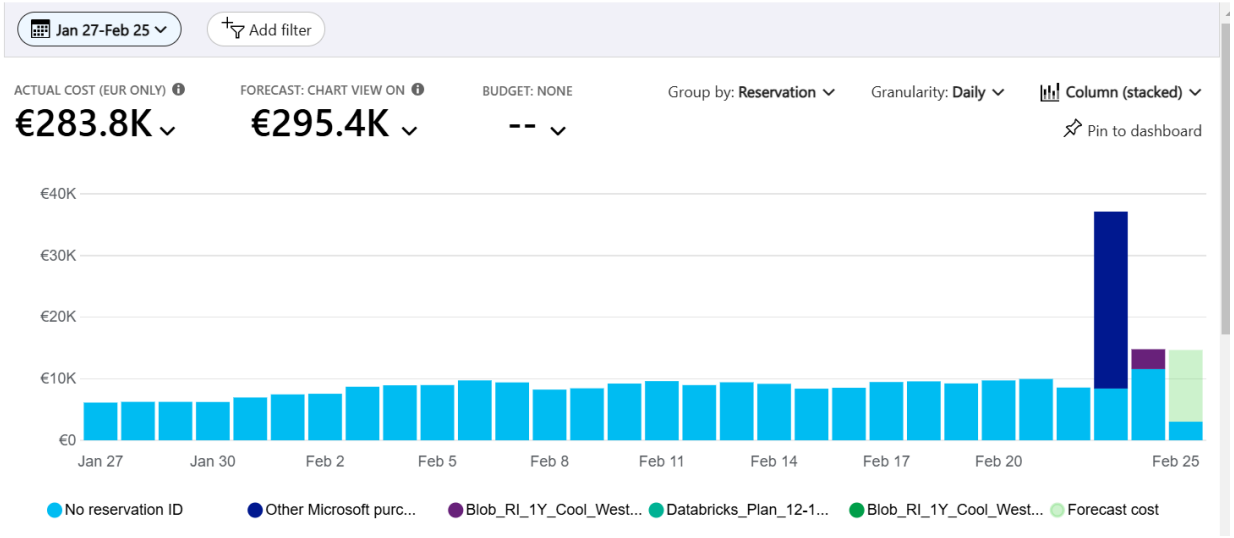




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Reservations & SP im Cost Management View daily





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Compute Saving Plan – Result of an Analysis

- Current cost: 120k/m, Saving 3Y: 374k/3y -> Saving per 10,39k/m



Savings plan type	Term	Currency	Commitment/hour	Net savings	Expected coverage
Compute_Savings_Plan	P3Y	USD	$25.98	$374K	64%



Pre-Purchasing Plans (PPP – triple P)

- Defender, Sentinel, Databricks, SoftwarePlans, Co-Pilot & Agents

- Virtual machine
- Azure Blob Storage
- Azure Managed Disks
- SUSE Linux
- Azure VMware Solution
- Nutanix on Azure BareMetal
- Virtual Machine software reservation
- Microsoft Foundry Provisioned Throughput
- Microsoft Agent Pre-purchase Plan

- SQL Database and SQL Managed Instance
- Azure Dedicated Host
- Azure Databricks Pre-Purchase Plan
- Red Hat Plans
- Azure Files Reserved Capacity
- Azure SQL Edge
- JBoss EAP Integrated Support (App Service)
- Microsoft Defender for Cloud Pre-Purchase Plan

- Azure Synapse Analytics (data warehousing only)
- Azure Database for MySQL
- Azure Cache for Redis and Managed Redis
- Azure Red Hat OpenShift
- Data Factory
- Azure Arc-enabled SQL Managed Instance
- Azure Backup
- Microsoft Sentinel Pre-Purchase Plan

- Azure Cosmos DB
- Azure Database for PostgreSQL
- Azure Data Explorer
- App Services
- Azure NetApp Files
- Azure Synapse Analytics Pre-Purchase Plan
- Microsoft Fabric
- Copilot Credit Pre-Purchase Plan



Storage Life Cycle Management

- Hot -> Cool -> Archive -> Delete
- Sample from 2023
  - 76 sql server backup nativly to azure blob storage
    - Onpremise Alternative Kosten: 7.000 €/Monat
    - Und Testing zeigt: onpremise war langsamer in Backup Performance im Vergleich zu Backup nach Azure Blob
  - SQL Backup optimiert
    - 100% Hot -> 3.500 €/m
  - Weiter optimiert nach 10 min:
    - 10% (1 week windows) - Hot
    - 90% (6 weeks windows) – Cold
    - Total: 2.100 €/m
- https://learn.microsoft.com/de-de/azure/storage/blobs/lifecycle-management-overview

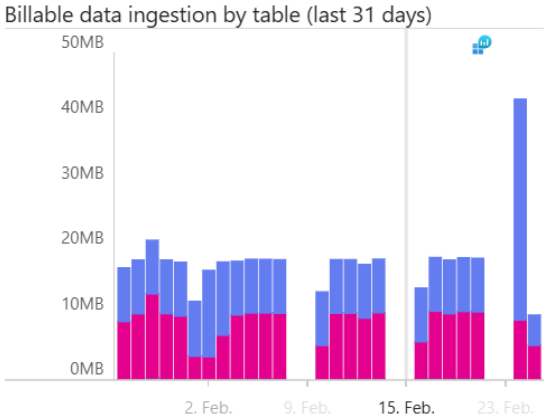
100 GB/day Commitment Tier
15% discount over Pay-as-you-go

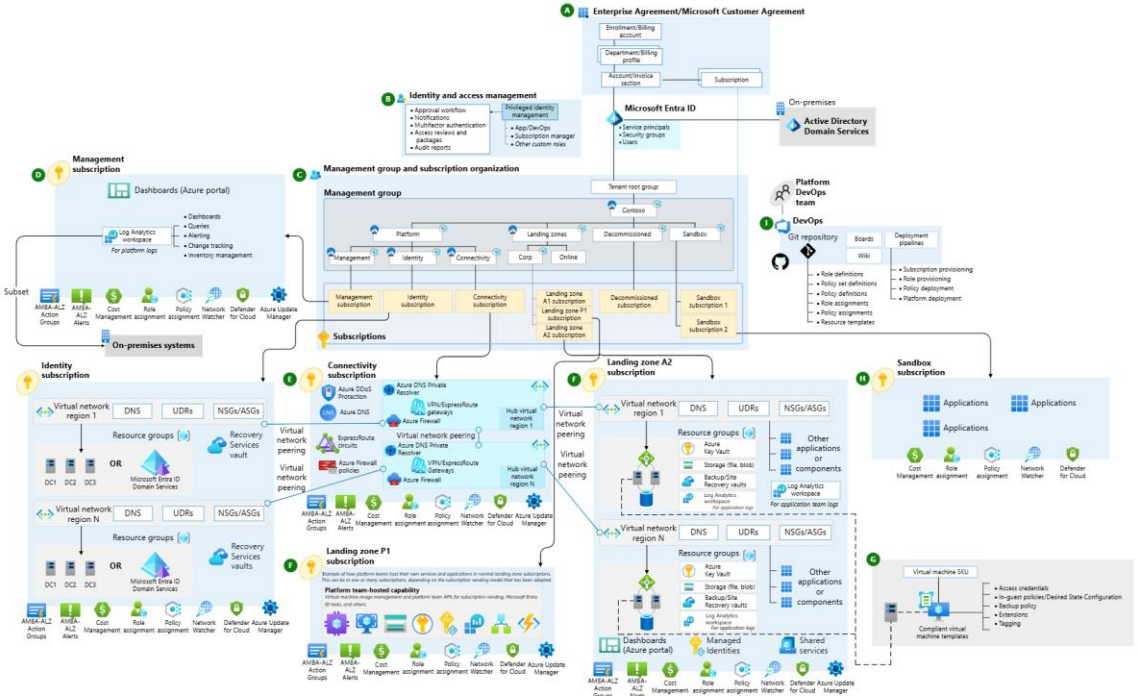
200 GB/day Commitment Tier
20% discount over Pay-as-you-go

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Log Analytics workspaces & LAW dedicated Cluster

- Verteilte Sturkturen und Fachbereiche vs. Eine
- Eine Folge vom Landingzone Konzept
  - Es entstehen ggf. viele Log Workspaces
  - Viele nur mit wenig Vol. Eingang





100 GB/day Commitment Tier
15% discount over Pay-as-you-go

200 GB/day Commitment Tier
20% discount over Pay-as-you-go



Log Analytics dedicated Workspace Cluster

- Verbindet die Kapazität von allen „Linked" Log-Workspaces zu einem Large workspaces in einer Region
- https://learn.microsoft.com/en-us/azure/azure-monitor/logs/logs-dedicated-clusters?tabs=azure-portal

Pricing Tiers

Pay-as-you-go
Per GB

The Pay-as-you-go pricing tier offers flexible consumption pricing in which you are charged per GB of data ingested. This only includes estimated costs from data ingestion to aid selecting the optimal pricing.

Estimated costs

Item type	Price	Monthly usage (last 31 days)	Estimated monthly data ingestion cost
Analytics Logs data ingestion	2,99 $	3458.02 GB	10.339,49 $
Basic Logs data ingestion	0,65 $	0.00 GB	0,00 $
Total			**10.339,49 $**

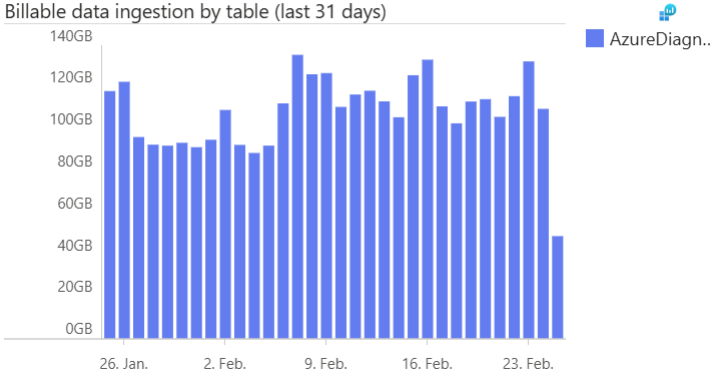
This is the current pricing tier.

Select

100 GB/day Commitment Tier Recommended Tier
15% discount over Pay-as-you-go

Usage Charts

Billable data ingestion by table (last 31 days)



Re-thinkg – The Whole Process: Fokus on the Regions & Software Regeln & Lizenz Benefits

- Ergebnis einer GCP-Workload Auswertung -> Microsoft Software Runs best in Azure
  - GCP Rechnung all up: 13.500 € (Hardware + Lics)
    - 67 Win Server Lics: ~3.700 €/Monat
- Assessment Results mit Einsatz von Azure Hybrid Use Benefits

mit Lizenzkauf

Total cost		
France Central	Sweden Central	
7.623,54	7.207,27	€/Monat

Gesamt: **7.207,27 €/Monat**

- Compute: 2.826,73 €/Monat
- Storage: 3.296,01 €/Monat
- Lizenzen: 0 € - 1.084,53 €/Monat
  488 WS cores required

ohne Lizenzkauf

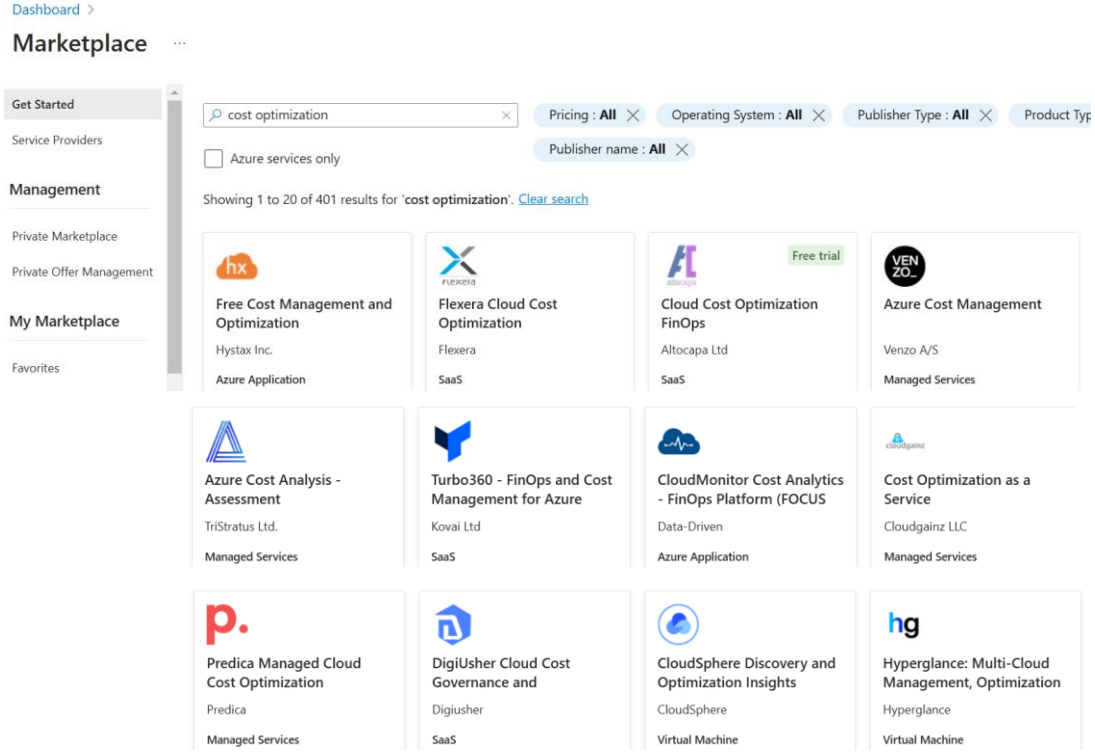
Total cost		
France Central	Sweden Central	
6.539,01	6.122,74	€/Monat

Gesamt: **7.623,54 €/Monat**

- Compute: 3.076,10 €/Monat
- Storage: 3.462,91
- Lizenzen: 0 € - 1.084,53 €/Monat,
  488 WS cores required

Automate FinOps

- 3rd Party



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Automate FinOps



- Powershell
  https://www.powershellgallery.com/packages/Az.Advisor/1.1.2

  Get all recommendation

  Define a Process foreach Recommendation Type
  start a process to each Decision Maker per Recommendation

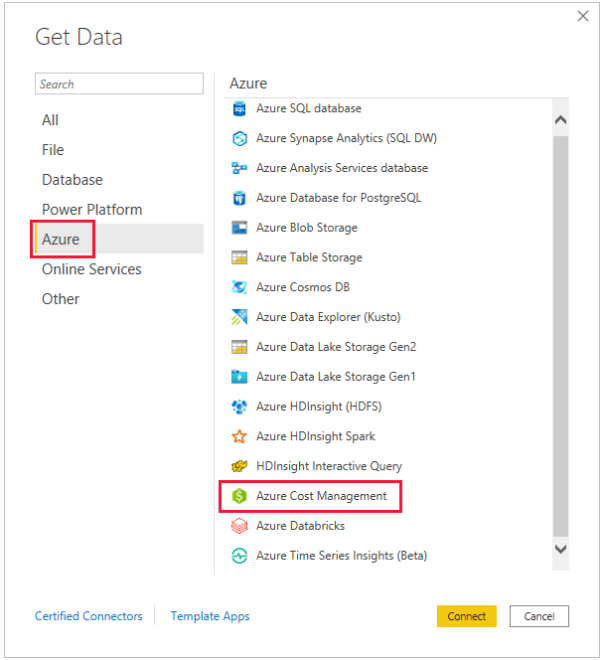
  Shared Decision Makers vs. Single Decision Maker?
  # is this possible with an Agent?

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PowerBI für Azure cost Management

- https://learn.microsoft.com/en-us/power-bi/connect-data/desktop-connect-azure-cost-management





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Cost Management API - Tables

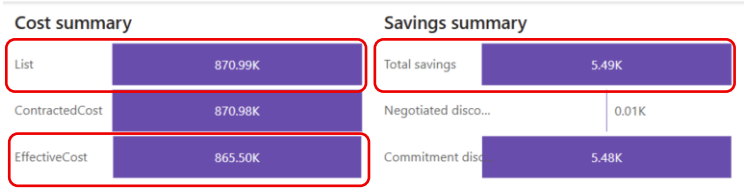
Table	Account Type	Supported Scopes	Description
Balance summary	EA only	EA Enrollment	Summary of the balance for the current billing month for Enterprise Agreements (EA).
Billing events	MCA only	Billing Profile	Event log of new invoices, credit purchases, etc. Microsoft Customer Agreement only.
Budgets	EA, MCA	EA Enrollment, MCA Billing Account, MCA Billing Profile	Budget details to view actual costs or usage against existing budget targets.
Charges	MCA only	MCA Billing Profile	A month-level summary of Azure usage, Marketplace charges, and charges billed separately. Microsoft Customer Agreement only.
Credit lots	MCA only	MCA Billing Profile	Azure credit lot purchase details for the provided billing profile. Microsoft Customer Agreement only.
Pricesheets	EA, MCA	EA Enrollment, MCA Billing Profile	Applicable meter rates for the provided billing profile or EA enrollment.
RI charges	EA, MCA	EA Enrollment, MCA Billing Profile	Charges associated to your Reserved Instances over the last 24 months. This table is in the process of being deprecated, use RI transactions instead
RI recommendations (shared)	EA, MCA	EA Enrollment, MCA Billing Profile	Reserved Instance purchase recommendations based on all your subscription usage trends for the last 30 days.
RI recommendations (single)	EA, MCA	EA Enrollment, MCA Billing Profile	Reserved Instance purchase recommendations based on your single subscription usage trends for the last 30 days.
RI transactions	EA, MCA	EA Enrollment, MCA Billing Profile	List of transactions for reserved instances on billing account scope.
RI usage details	EA, MCA	EA Enrollment, MCA Billing Profile	Consumption details for your existing Reserved Instances over the last month.
RI usage summary	EA, MCA	EA Enrollment, MCA Billing Profile	Daily Azure reservation usage percentage.
Usage details	EA, MCA	EA Enrollment, MCA Billing Account,MCA Billing Profile	A breakdown of consumed quantities and estimated charges for the given billing profile on EA enrollment.
Usage details amortized	EA, MCA	EA Enrollment, MCA Billing Account,MCA Billing Profile	A breakdown of consumed quantities and estimated amortized charges for the given billing profile on EA enrollment.



Looks in some samples in the past, after your FinOps Optimiation

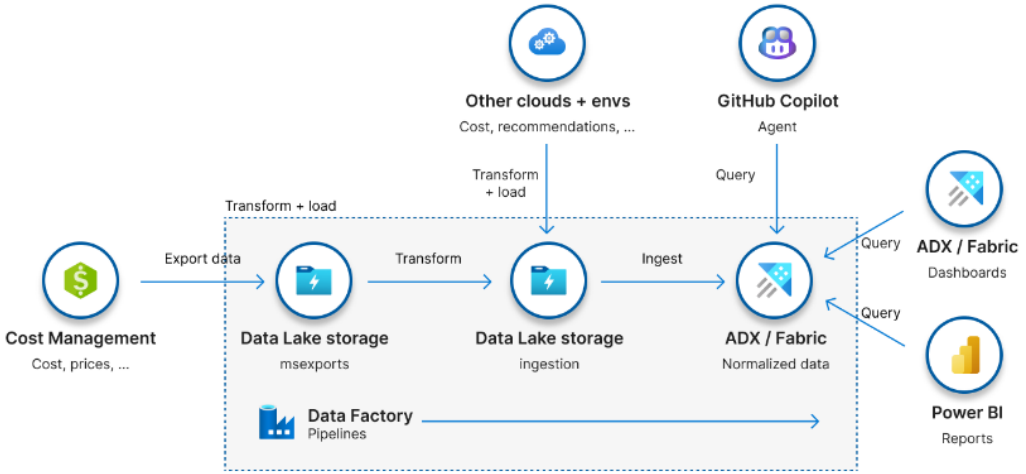
Start cross charging shared ressources splitted to departments

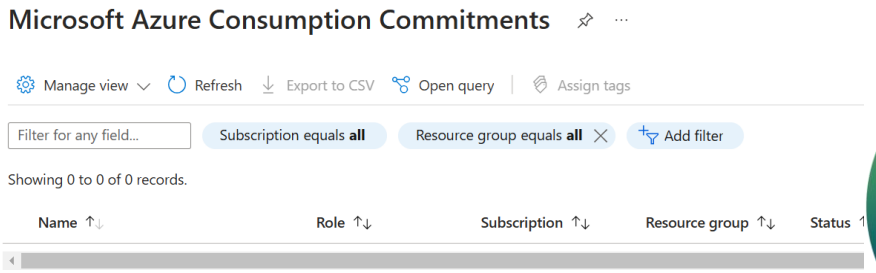
- Real Life Data
  - Finops hub toolkit for large usage reports and azure invoices
  - FinOps hubs - FinOps toolkit
    - Tipp: Report
      - Was ist dein Listpreis –Verbrauch?
      - Welchen Preis bezahlst du optimiert?



- Ist das ein Gutes Ergebnis?

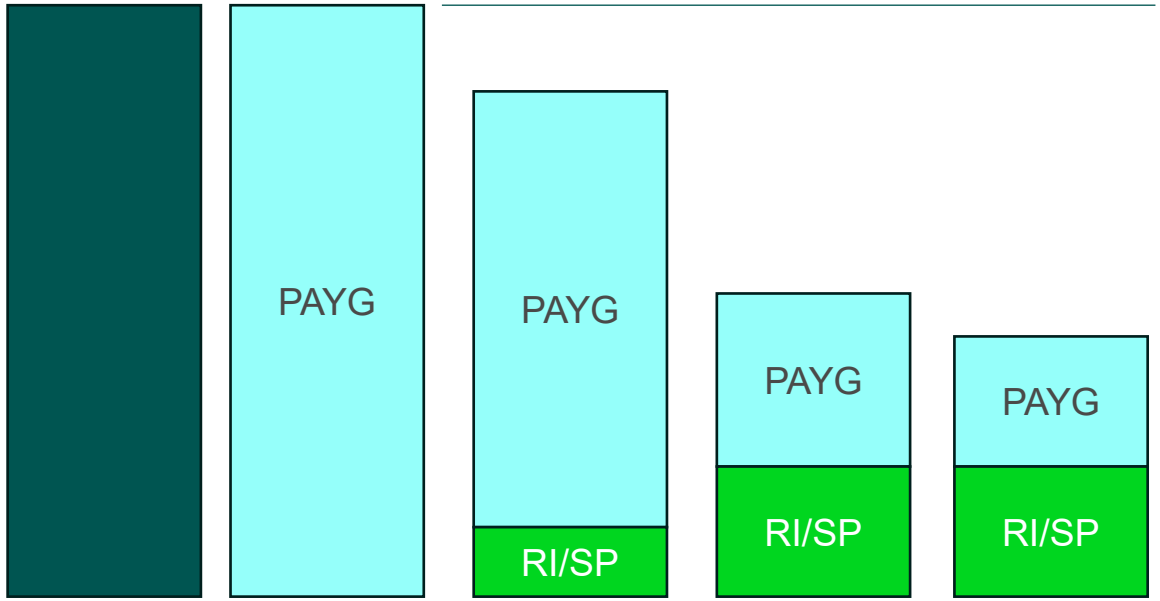
0,63 %





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Another View – consumption Types



No FinOps inplace

Start with FinOps Analyse

continue with FinOps

Optimized Consumption

MACC Established

Was ist ein Realistisches Saving durch FinOps?

All up ~50 - 60 %...

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Reference



- https://techcommunity.microsoft.com/blog/azurearchitectureblog/azure-cost-optimisation/3624817
- https://learn.microsoft.com/en-us/azure/well-architected/cost-optimization/
- https://learn.microsoft.com/en-us/azure/cost-management-billing/
- https://www.youtube.com/c/AzureCostManagement
- MACC + Services
  - https://learn.microsoft.com/en-us/marketplace/azure-consumption-commitment-benefit#determine-which-offers-are-eligible-for-azure-consumption-commitments-maccctc

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Cost Management Automation – 1st Steps



- FinOps & Cost Optimasation ist eine wiederkehrende Aufgabe
  - Eine Automation & Prozess gilt es zu bauen
- https://learn.microsoft.com/en-us/azure/cost-management-billing/automate/automation-overview#available-apis

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Feedback

