

# Azure Cost Management

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#GlobalAzureTO

# Thanks to our Global and Local Sponsors



#GlobalAzure

# What's covered here

## What is Azure Cost Management (ACM)

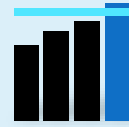
### Walkthrough of features currently available in ACM

- Cost Analysis
- Exports
- Forecasting
- Budgets & Alerts
- Optimization
- Cost Analysis (preview)

“Cost management” is the continuous process of **planning and controlling** costs



Visibility



Accountability



Optimization



# Visibility



# Azure Cost Management

Built into Azure



NEW

On by default

Better experience for more users

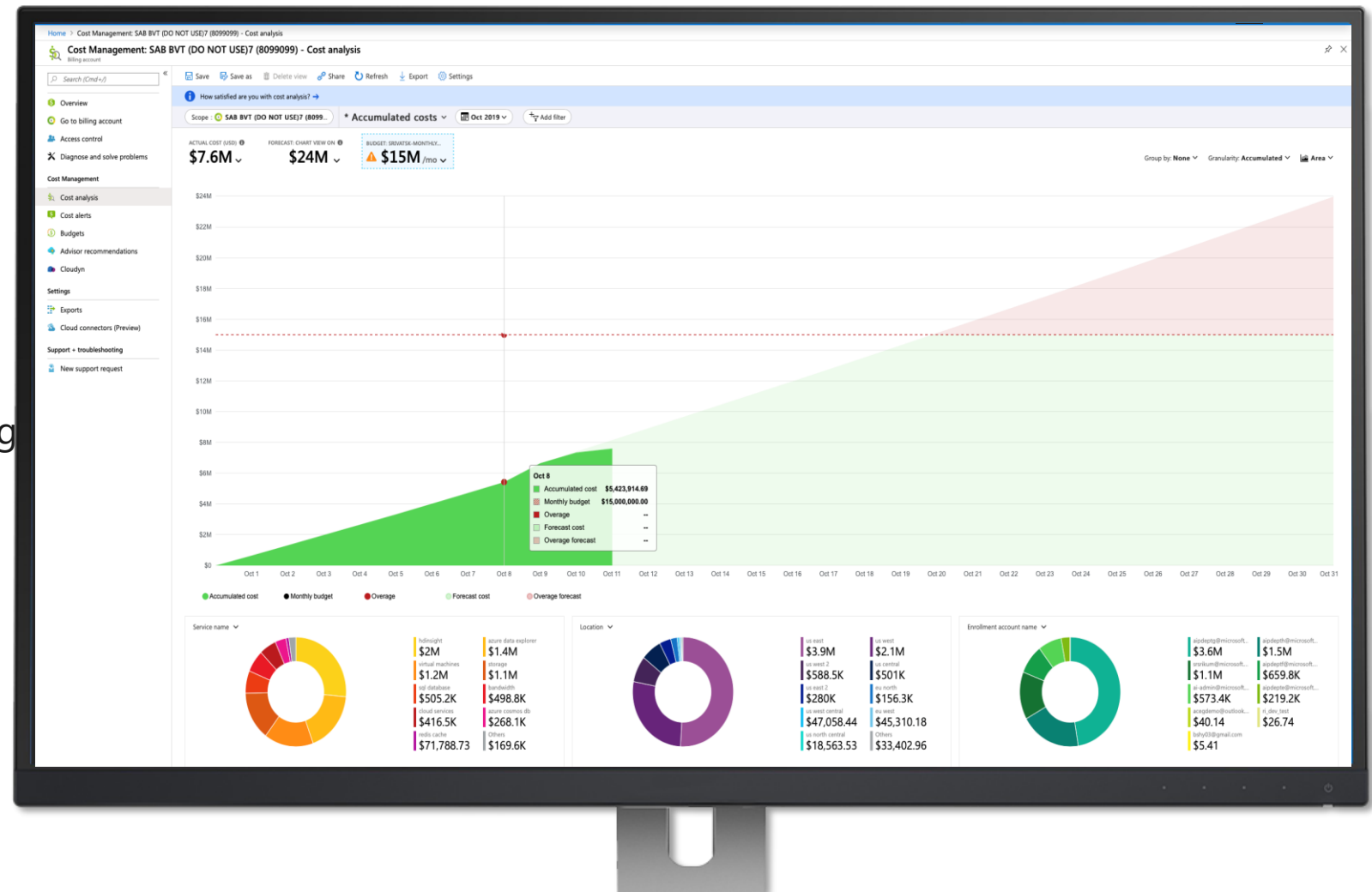
Richer analysis, budget alerting, forecasting

Integrated with Azure Advisor

Reduced data latency by up to 80%

Free to manage Azure costs

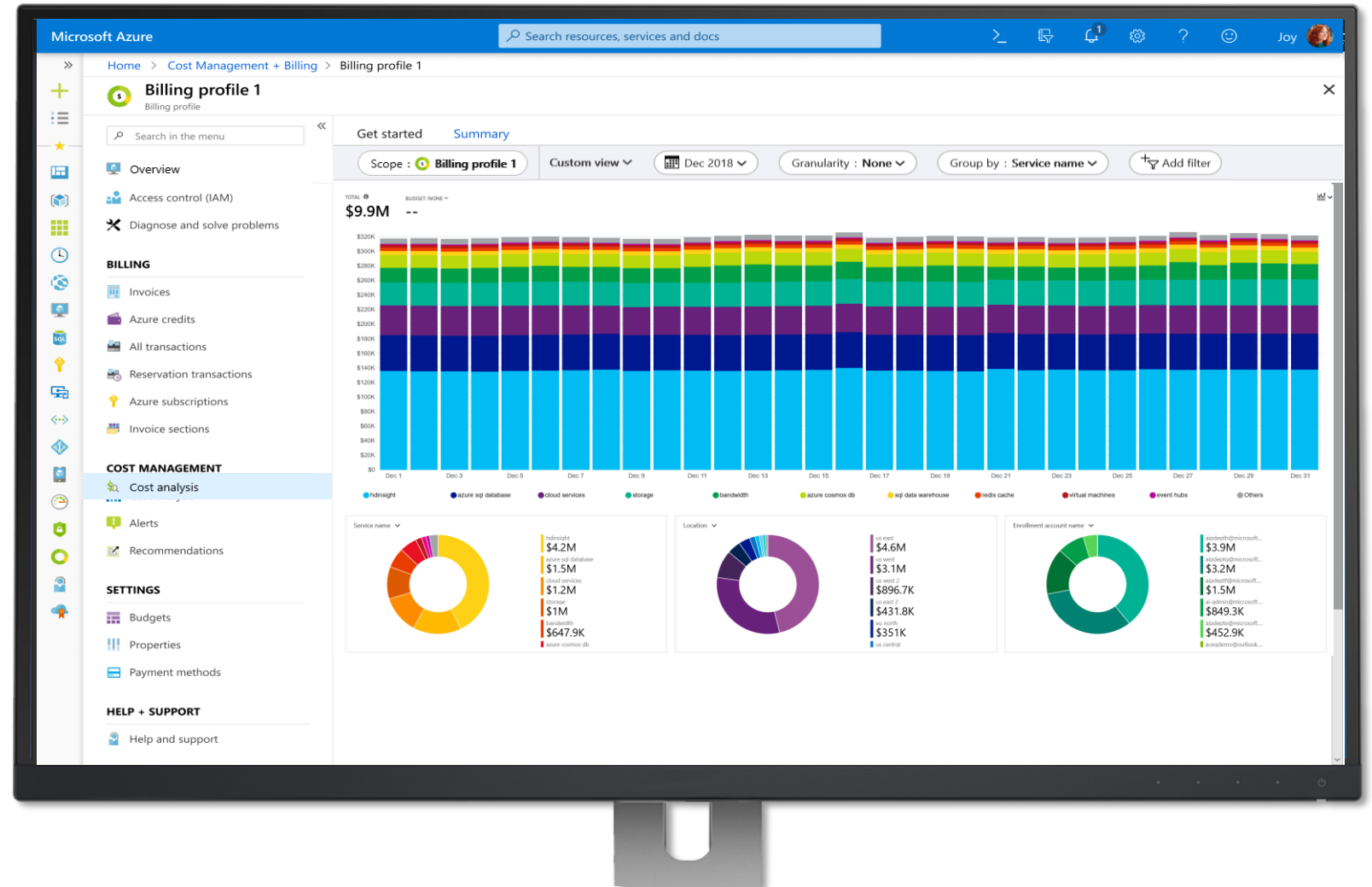
Least privileged access with RBAC



# Cost Analysis



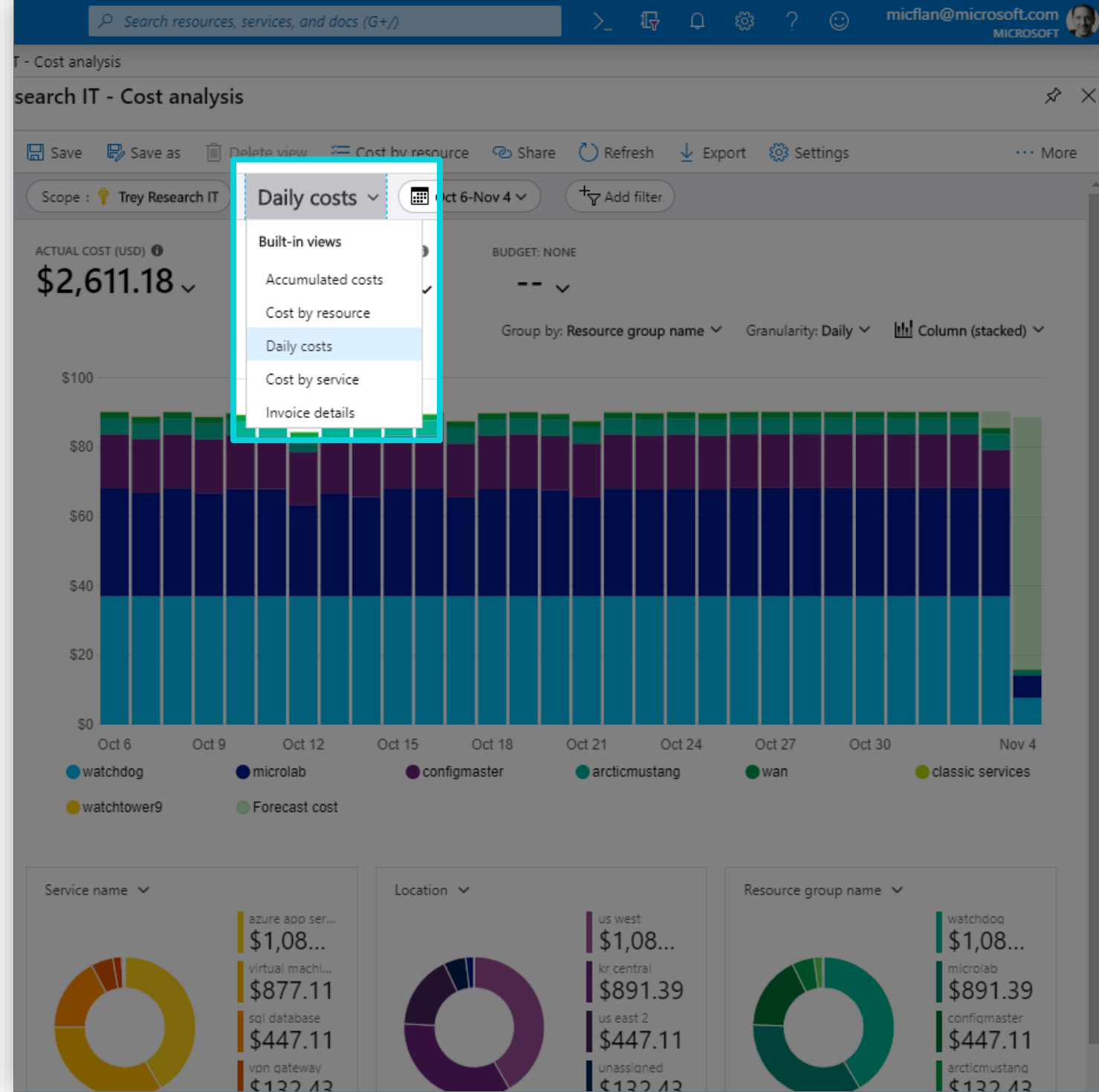
- Detailed Cost Exploration
- Group, filter and view by 20+ dimensions
- Date Ranges
- Daily, accumulated, monthly grain
- Saved and share reports
- Integrated with Budgets
- Enrollment, subscription, management group and resource group scopes







Start with [built-in views](#),  
customize to explore





# Invoice Reconciliation

**Contoso (Demo) (8608480) - Cost analysis**

Search (Ctrl+/)

Save Save as Delete view Share Refresh Export Settings

Scope : Contoso (Demo) Invoice details Sep 2019 Add filter

ACTUAL COST (USD) \$72,273.21

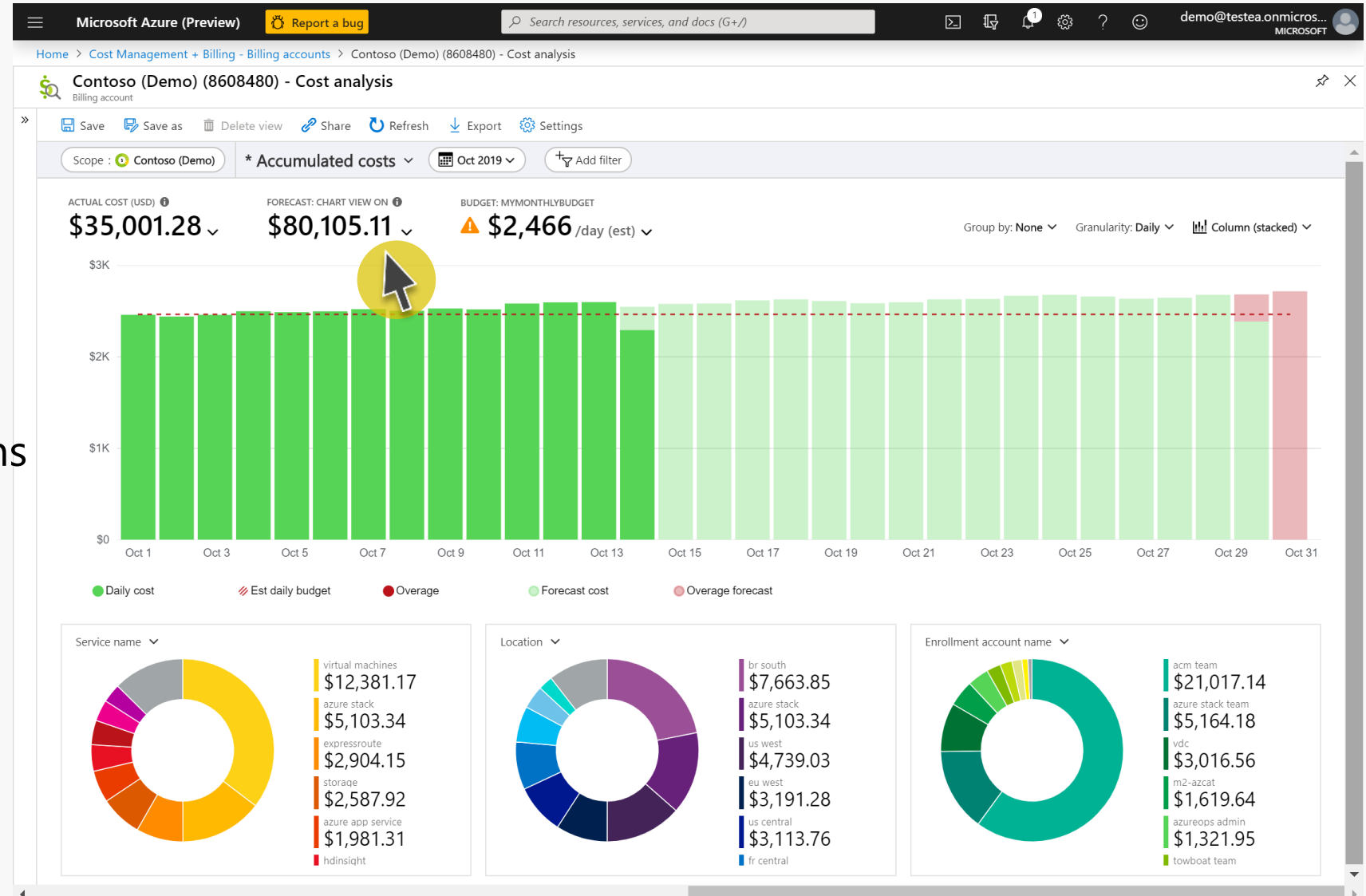
BUDGET: NONE

Group by: Meter Granularity: None Table

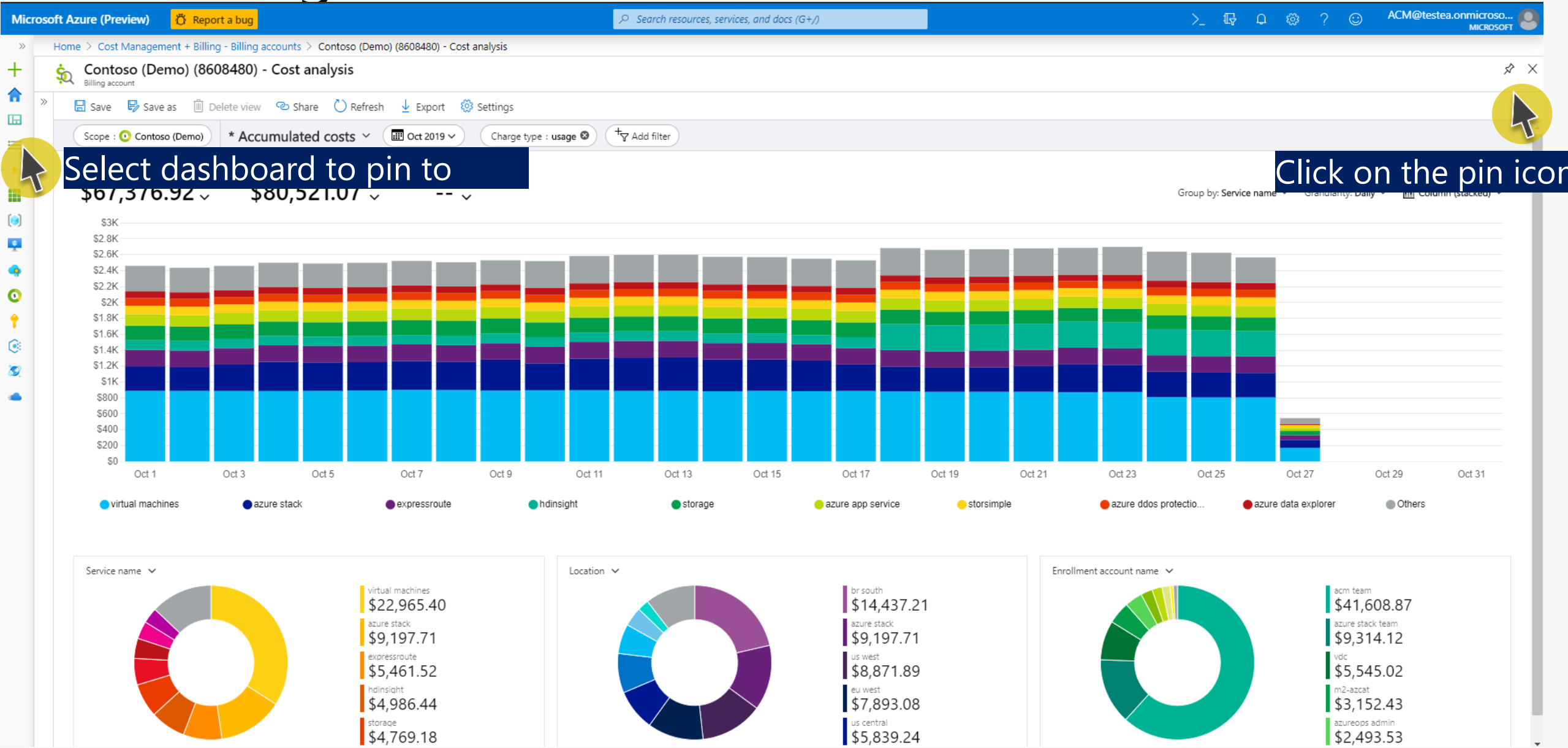
Publisher type	Service name	Service tier	Meter	Part Number	Cost
azure	virtual machines	fsv2 series windows vm	f72s v2	aad-10036	\$11,547.05
azure	azure stack	azure stack-windows vm	1 core	aaa-56070	\$6,354.23
azure	expressroute	expressroute	premium metered data 10 gbps circuit	j2q-00792	\$6,189.12
azure	usage	virtual machines	dv2 series windows vm	d15 v2/ds15 v2	\$2,904.39
azure	usage	azure data explorer	data explorer	engine cluster markup	\$2,533.93
azure	usage	azure app service	azure app service isolated plan	stamp fee	\$2,339.13
azure	usage	virtual machines	dv2 series vm	d14 v2/ds14 v2	\$2,133.67
azure	usage	hdinsight	hdinsight d series	d4	\$2,072.59
azure	usage	virtual machines licenses	sql server ent	16 vcpu vm license	\$1,748.70
azure	usage	azure ddos protection	azure ddos protection	plan	\$1,744.99
azure	usage	azure firewall	azure firewall	deployment	\$1,466.34
azure	usage	storsimple	storsimple subscription	model 8600 unit	\$1,354.71
azure	usage	scheduler	azure scheduler	p20 premium unit	\$1,352.90
azure	usage	virtual machines	dv2 series windows vm	d3 v2/ds3 v2	\$1,265.55
azure	usage	virtual machines licenses	sql server ent	1-4 vcpu vm license	\$1,080.45
azure	usage	azure app service	azure app service isolated plan	stamp fee	\$1,028.88
azure	usage	virtual machines	nv series vm	nv6	\$982.77
azure	usage	storsimple	storsimple subscription	model 8100 unit	\$942.56
azure	usage	azure stack	azure stack-vm	1 core	\$920.67
azure	usage	virtual machines	ev3 series vm	e16 v3/e16s v3	\$920.26
azure	usage	storage	standard hdd managed disks	s30 disks	\$884.70
azure	usage	virtual machines	dv2 series windows vm	d13 v2/ds13 v2	\$699.82

# Cost Analysis – Forecasted Spend

- Forecast costs up to a year
- Forecast on available dimensions
- View forecast against a budget



# Cost Management - Dashboard



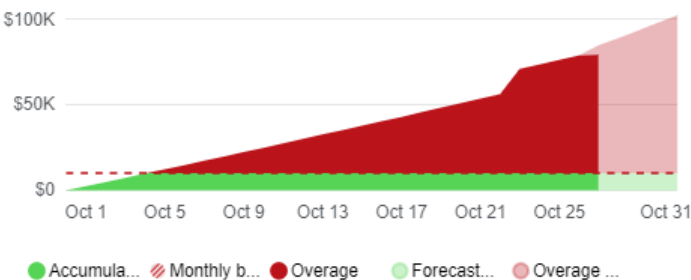
# Cost Management - Dashboard

Cost Management Demo + New dashboard Upload Download Edit Unshare Full screen Clone Delete Refresh

Auto refresh : Every hour UTC Time : Past 24 hours

## Contoso (Demo)

Cost analysis



## Cost Management Research

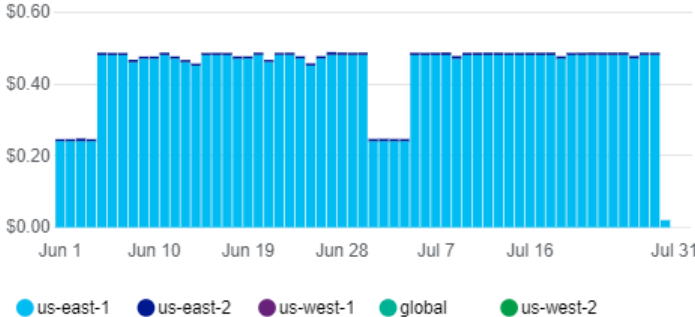
Cost analysis

Filter items 77 rows

P...	C...	Se...	Se...	M...	Pa...	↑↓
azure	usage	storsimple	storsimpl...	model 8...	aaa-37410	\$1,3...
azure	usage	virtual m...	sql serve...	1-4 vcpu...	n7h-06283	\$1,0...
azure	usage	storsimple	storsimpl...	model 8...	aaa-37409	\$94...
azure	usage	virtual m...	a series ...	a3	n7h-02419	\$25...
azure	usage	virtual m...	dv2 serie...	d3 v2/ds...	997-02792	\$21...
azure	usage	virtual m...	a series ...	a1	n7h-00352	\$12...
azure	usage	security ...	security ...	standard...	aaa-97320	\$10...

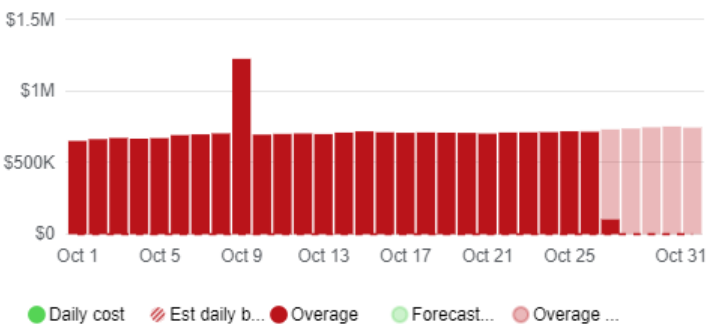
## Trey Research

Cost analysis



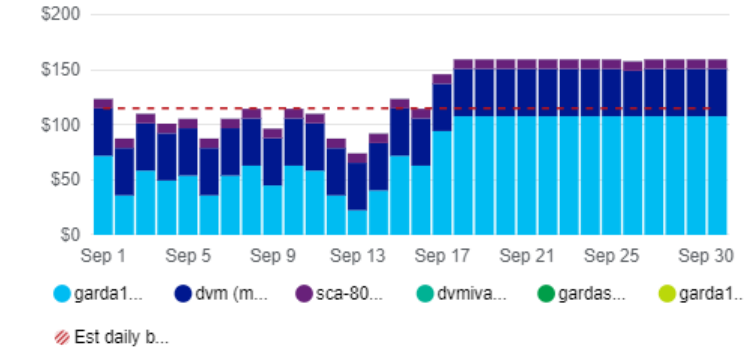
## SAB BVT (DO NOT USE)7

Cost analysis



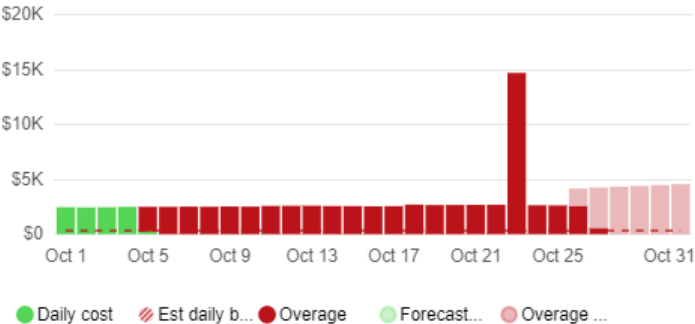
## Cost Management Research

Cost analysis



## Contoso (Demo)

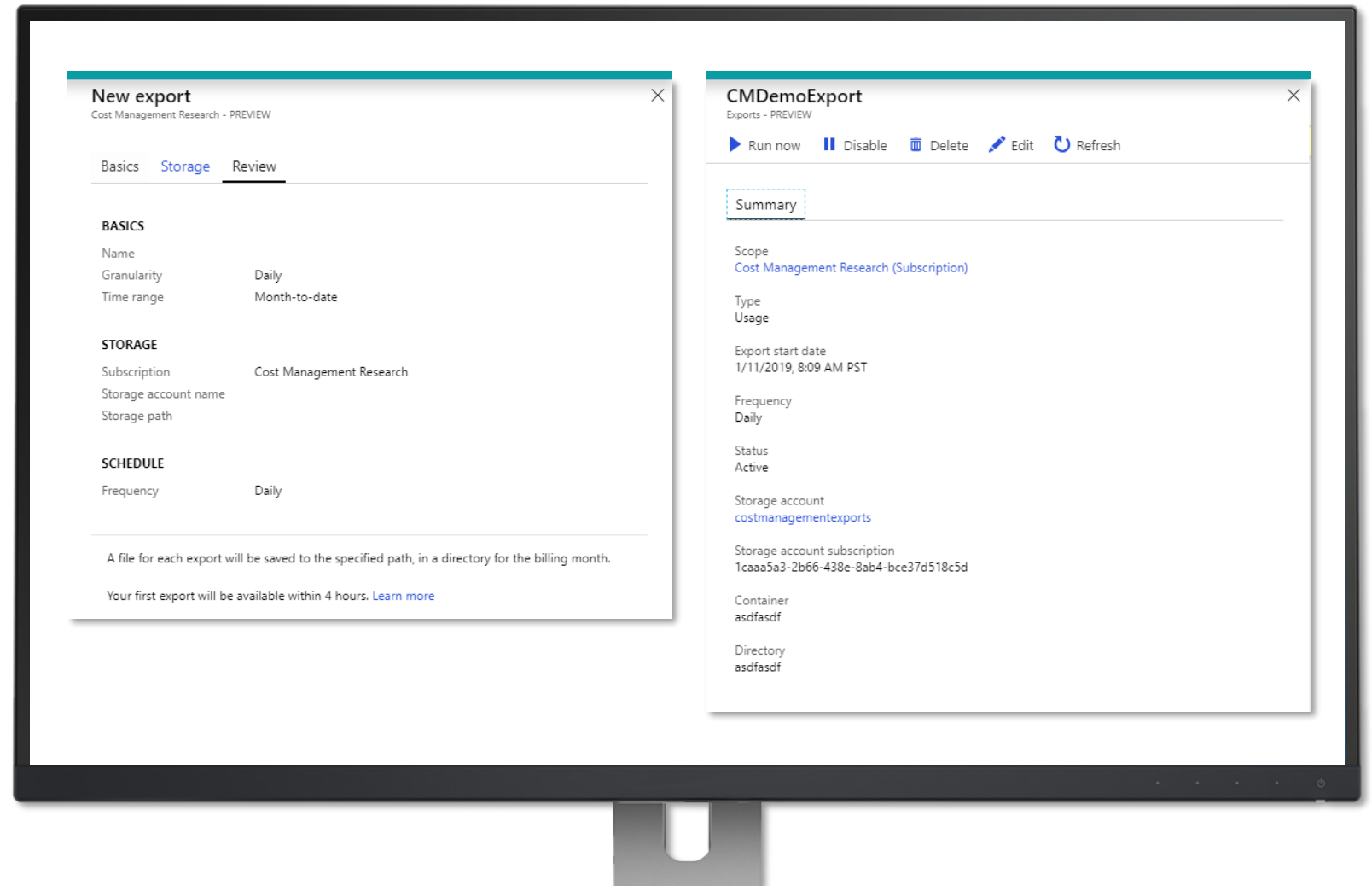
Cost analysis



# Export data to your storage account

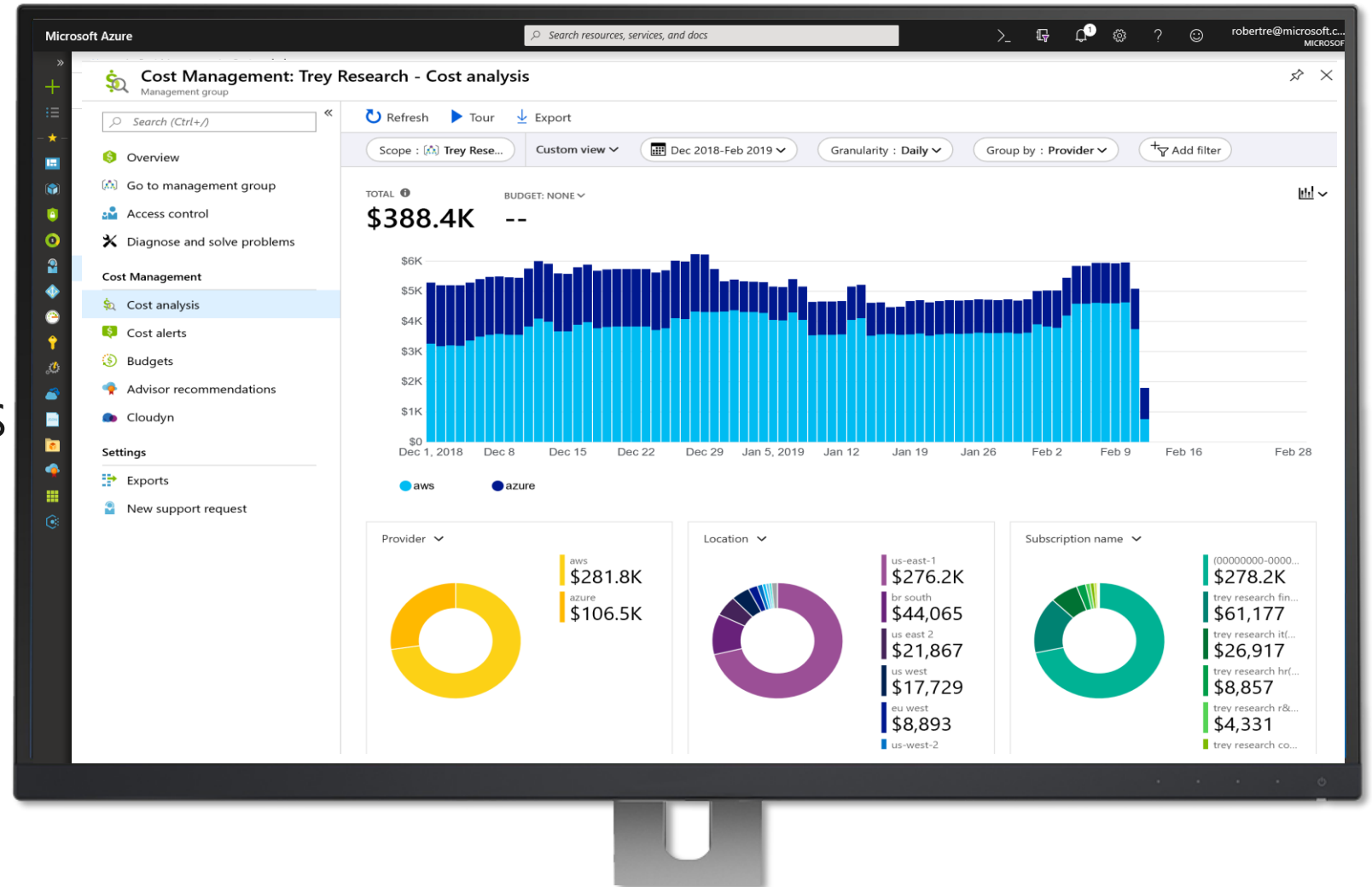


- ❖ Schedule exports for your data
- ❖ Automatically loaded to storage account
- ❖ Integrated into cost analysis



# Cost Management support for **Cross Cloud - AWS**

- ❖ AWS spend is available in ACM
- ❖ Analyze costs across Azure & AWS
- ❖ Viewing & setting AWS spend

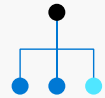


# Accountability





# Keys to accountability



Management teams

**Extend visibility to stakeholders**

Management groups, RBAC, and tagging

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Finance teams

**Set clear goals**

Budgets and alerts

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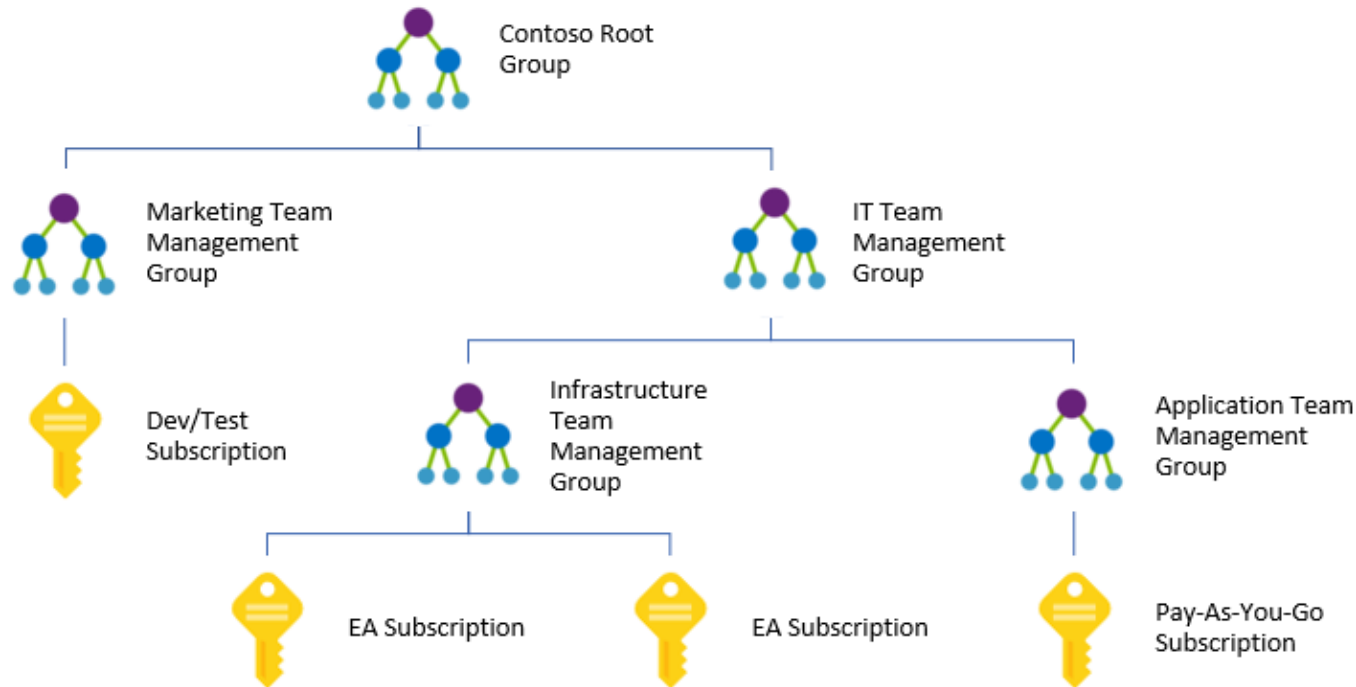


App teams

**Hold teams accountable  
for improvement**

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# Management Groups to organize subscriptions



- ❖ Create a custom management hierarchy to fit your organization
- ❖ Enables RBAC, policies for tagging, cost analysis and budgets at any scope
- ❖ Shared with Policy, Security Center, Privileged Identity Management services

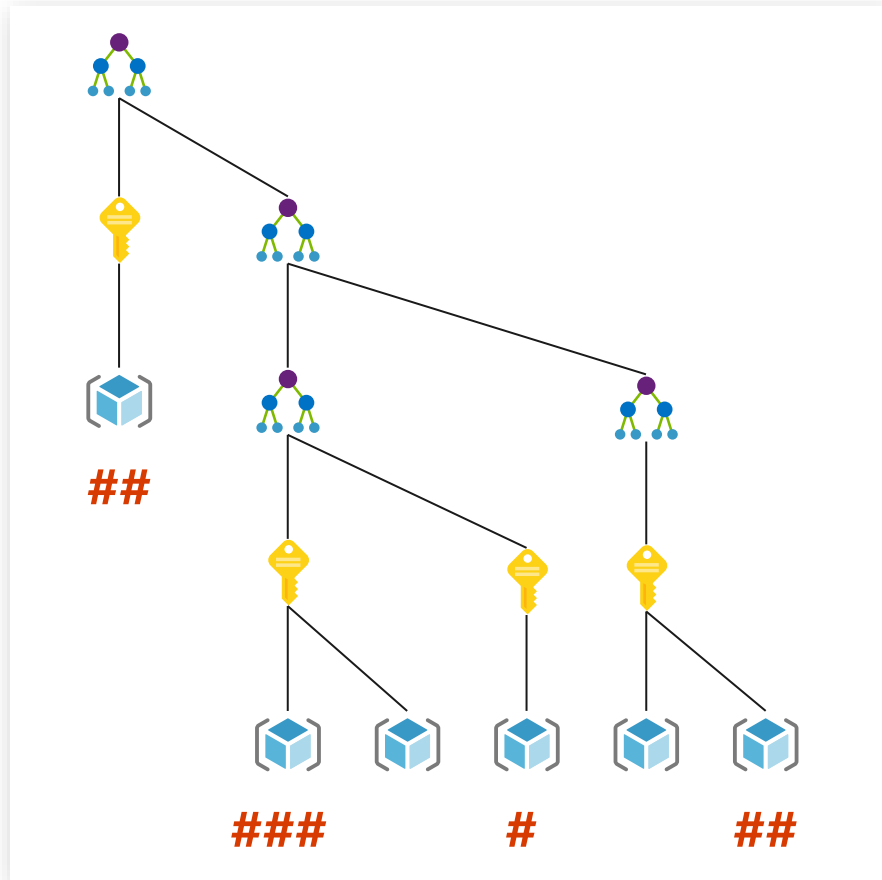
# Least-privileged RBAC roles



Azure RBAC Role	Description	Example Personas
Cost Management Reader	Read access to all cost mgmt. features, but no changes allowed	Azure service owner, it dev ops, finance analyst
Cost Management Contributor	In addition cost management reader can create budget and alert creation	Azure service owner, finance manager, dept. or product owner
Billing Reader	Has read-only access to billing information in Azure portal	Finance manager
Reader	Read access	
Contributor	Lets you view everything, but not make any changes	
Owner	Lets you manage everything, including access to resources	

*With RBAC you can now grant access to users to only the scope(s) they need access to, all the way down to a specific Resource Group*

# Tags add context for cost analysis



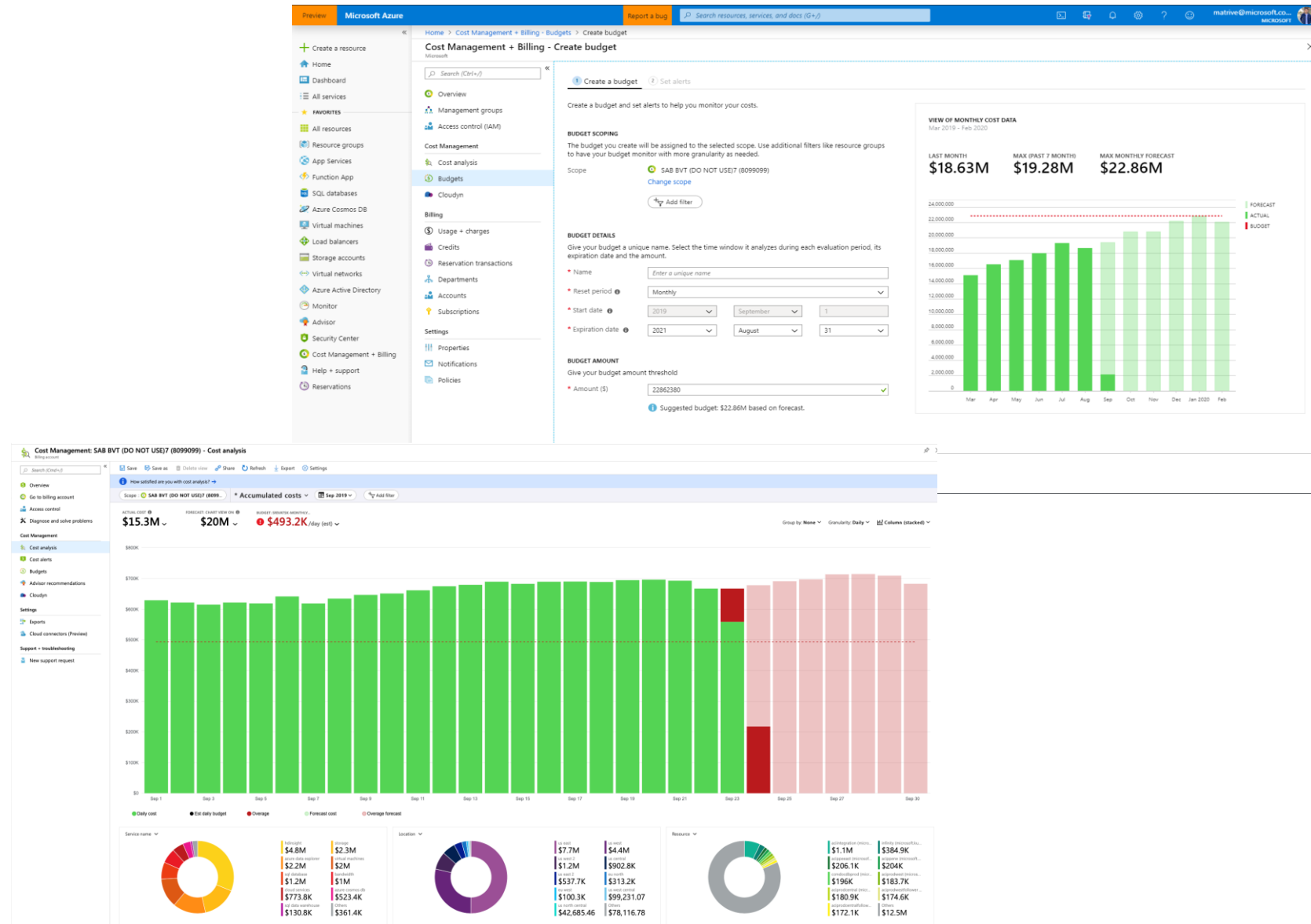
Finance codes - CostCenter tag, etc.

## Tags should be enforced by configuration policies

## MG, Subscription, RG scopes

# Budgets for monitoring and notifications

- ❖ Monitor your costs using budgets
- ❖ Get notified when threshold are met
- ❖ Automate with Action Groups
- ❖ Integrated into cost analysis
- ❖ Integrated with forecasts



# Cost Allocation (Private Preview)

## Allocate shared costs

- From a Subscriptions, Resource Groups or Tagged resource to a target Subscription, RG or tagged resource
- Allocation Rules supported
  - Prorate based on Total costs, compute, storage, network costs of target
  - OR
  - Distribute costs evenly

The screenshot shows the 'Create cost allocation rule' page in the Microsoft Azure Cost Management interface. The page is titled 'Cost Management: SAB BVT (DO NOT USE) (7898901) - Create cost allocation rule'. The left sidebar contains navigation options like Overview, Go to billing account, Access control, Diagnose and solve problems, Cost Management, Cost analysis, Cost alerts, Budgets, Advisor recommendations, Cloudyn, Settings, Exports, Cloud connectors (Preview), Showback (Preview), and New support request. The main content area has the following sections:

- \*Rule name**: A text box containing 'myCostAllocationRule' with a green checkmark.
- \*Cost to allocate**: A dropdown menu showing 'aksengineversion: v0.35.3-aks' with a 'Select' button.
- \*Targets**: A dropdown menu showing '4 subscriptions selected' with a 'Select' button.
- \*Policy**: A section titled 'Select the policy that will be used to distribute the cost'. It includes a dropdown for 'Allocation policy' set to 'Proportional' and a dropdown for 'to' with a list of options: 'Total cost', 'Compute cost', 'Storage cost', and 'Network cost'.

At the bottom of the main content area is a 'Save cost allocation rule' button.

On the right side, there is a 'Last 30 Days Preview' section. It shows a donut chart for 'Cost to allocate' with a value of '\$177.07'. Below this, it says 'This cost will be deducted from'. Another donut chart shows 'And will be added to' with a list of subscriptions and their respective costs:

Subscription	Cost (USD)
aksengineversion: v...	177.07
account2_subscripti...	105.43
account2_subscripti...	65.20
account3_subscripti...	4.32
account2_subscripti...	2.13

# Markups (Private Preview)

Shut down or resize your virtual machine | Cost Management: SAB BVT (DO NOT USE) (7898901) - Showback (Preview) | Create pricing rule

Home > Cost Management: SAB BVT (DO NOT USE) (7898901) - Showback (Preview) > Create pricing rule

### Cost Management: SAB BVT (DO NOT USE) (7898901) - Create pricing rule

Billing account

Search (Ctrl+J)

Overview

Go to billing account

Access control

Diagnose and solve problems

Cost Management

Cost analysis

Cost alerts

Budgets

Advisor recommendations

Cloudyn

Settings

Exports

Cloud connectors (Preview)

Showback (Preview)

New support request

Edit a pricing rule in order to display to customers your wanted cloud costs. [Learn more](#)

#### Rule details

Set your price sheet that will be used to calculate costs

Pricing rule name: Default

Pricing Sheet: Default

#### Percentage + filters

Set flat percentage markup/markdown

Percentage: 0 %

Set on: Subscription (0 selected)

Subscription

Resource group

Department

Enrollment account

All billing account child scopes inherit from the selected scope. All customers are included by default. [Learn more](#)

Discard Save

Type here to search

8:44 PM 8/6/2019



# Optimization



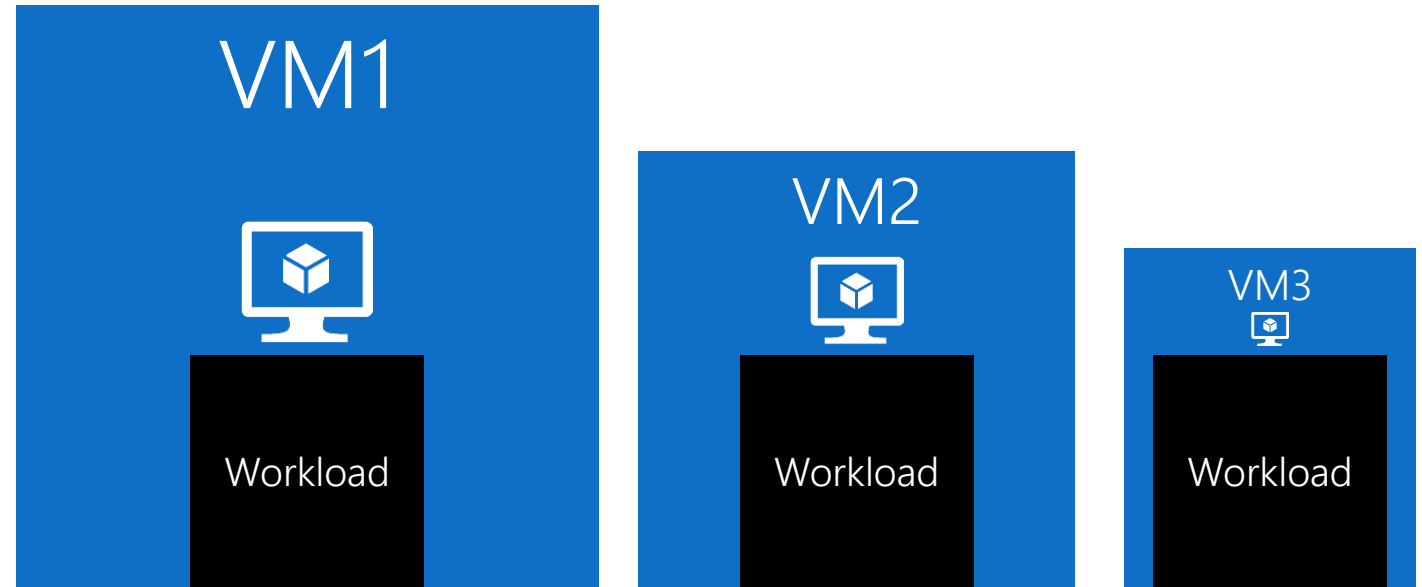
# Cost optimization is a key to cloud success

The workload will run fine in all three VM sizes

Which will a developer naturally choose?

Which will deliver more success to the business?

Which one will make managers and finance want more things in the cloud?



How do you know when there are opportunities to optimize?

# Azure Advisor provides optimization recommendations



## Cost

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Maximize the return  
of your IT budget  
investment



## High Availability

---

Improve the availability  
of your business-critical  
applications



## Security

---

Enhance protection of your  
Azure resources from  
potential security threats



## Performance

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Optimize performance  
to make the most of your  
resources

*Cost Recommendations provide cost savings opportunities and is deep linked in Cost Management*

*Advisor also has other recommendations like Security, High Availability, Performance, Operation Excellence*

Do more with less by  
optimizing costs

Always start in [Azure Advisor](#)



VM right-sizing



Delete unused resources



Use standard snapshots



Save with VM reservations

# Right Sizing & Idle VM Shutdown recommendation

Microsoft Azure (Preview)

Report a bug

Search resources, services, and docs (G+)

3

demo@testea.onmicros...

MICROSOFT

Dashboard > Cost Management + Billing > Cost Management: Contoso (Demo) - Advisor recommendations > Shut down or resize your virtual machine

Shut down or resize your virtual machine

Feedback

Download as CSV

Download as PDF

Create alert

Manage alert rules

Configure recommendation r...

Recommendation details

We've analyzed the usage patterns of your virtual machine over the past 7 days and identified virtual machines with low usage. While certain scenarios can result in low utilization by design, you can often save money by managing the size and number of virtual machines. [Learn more](#)

potential yearly savings\*

79,698.47 USD

Impacted resources

17 selected subscriptions








No grouping

Active (22)

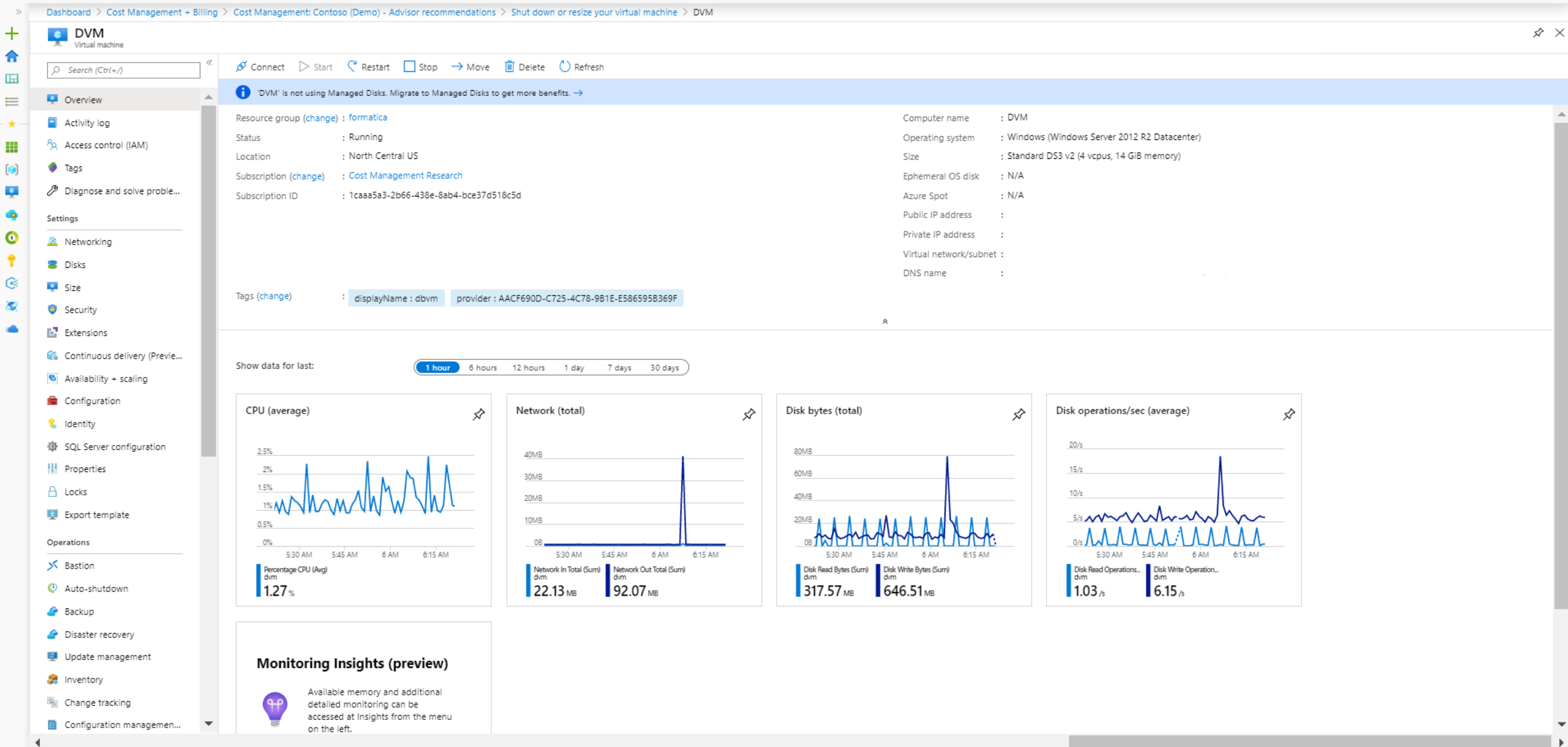
Postponed & Dismissed (0)

Postpone

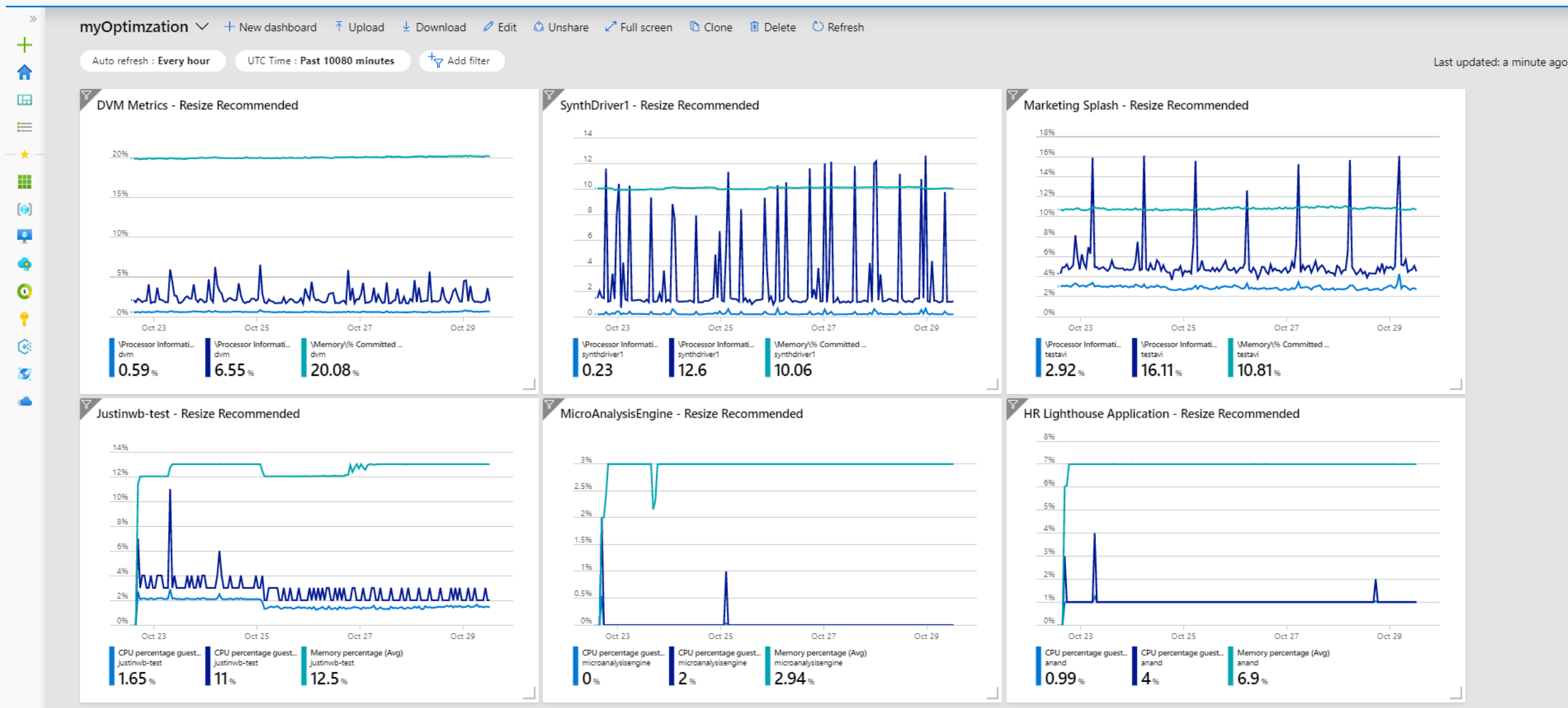
Dismiss

select	Virtual machine	Recommended actions	Potential savings*	Subscription	Recommendation rule	updated at	Action
<input type="checkbox"/>	 prod-sh01-dbslave-etl-05-az	<div>Resize Standard_DS14_v2 to Standard_DS12-2_v2</div> <div><a href="#">View Usage Patterns</a></div>	9,927.94 USD (75%)	Cloudyn Production	CPU utilization < 5%	10/14/2019, 9:45:27 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	 prod-backup1	<div>Resize Standard_DS15_v2 to Standard_DS12-2_v2</div> <div><a href="#">View Usage Patterns</a></div>	13,231.30 USD (80%)	Cloudyn Production	CPU utilization < 5%	10/14/2019, 9:51:29 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	 prod-backup2	<div>Resize Standard_DS15_v2 to Standard_DS12-2_v2</div> <div><a href="#">View Usage Patterns</a></div>	13,231.30 USD (80%)	Cloudyn Production	CPU utilization < 5%	10/14/2019, 9:51:29 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	 prod-sh01-configdb-slave-0 azure	<div>Resize Standard_DS14_v2 to Standard_B16ms</div> <div><a href="#">View Usage Patterns</a></div>	Unavailable	Cloudyn Production	CPU utilization < 5%	10/14/2019, 9:53:08 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	 ContosoClient2	<div>Shut down the virtual machine</div> <div><a href="#">View Usage Patterns</a></div>	508.90 USD	Contoso IT - demo	CPU utilization < 5%	10/14/2019, 9:44:42 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	 AA-contoso-01	<div>Shut down the virtual machine</div> <div><a href="#">View Usage Patterns</a></div>	146.42 USD	Contoso IT - demo	CPU utilization < 5%	10/14/2019, 9:44:43 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	 ContosoVM21	<div>Shut down the virtual machine</div> <div><a href="#">View Usage Patterns</a></div>	219.63 USD	Contoso IT - demo	CPU utilization < 5%	10/14/2019, 9:44:58 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>

# VM – Usage metrics



# Right Sizing sample dashboard





# Reserved Instance (RI) Recommendations

- Available in Azure Advisor
- Provides Qty, SKU & Location
- Potential savings on 3Y RI

Microsoft Azure (Preview)

Report a bug

Search resources, services, and docs (G+)

Dashboard > Cost Management + Billing > Cost Management: Contoso (Demo) - Advisor recommendations > Buy reserved instances

Buy reserved instances

Feedback

Download as CSV

Download as PDF

Create alert

Manage alert rules

Recommendation details

Reserved instances can provide a significant discount over pay-as-you-go prices. With reserved instances, you can pre-purchase the base costs for your virtual machines. Discounts will automatically apply to new or existing VMs that have the same size and region as your reserved instance. We analyzed your usage over the last 30 days and recommend money-saving reserved instances.  
[Learn more](#)

potential yearly savings\*

96,741.39 USD

Impacted resources

17 selected subscriptions

No grouping

Active (9) Postponed & Dismissed (0)

Postpone

Dismiss

select	Virtual machine	Recommended Qua...	Recommended actions	Potential savings*	Subscription	updated at	Action
<input type="checkbox"/>	Standard_B1s virtual machin in eastus	1	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	55.49 USD (62%)	Cost Management Research	10/14/2019, 11:04:01 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_B1s virtual machin in northcentralus	1	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	55.61 USD (62%)	Cost Management Research	10/14/2019, 11:04:42 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_DS3_v2 virtual machines in northcentralus	1	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	1,819.00 USD (72%)	Cost Management Research	10/14/2019, 11:05:31 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_D3_v2 virtual machines in centralus	2	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	3,365.84 USD (67%)	Trey Research Finance	10/14/2019, 11:08:23 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_DS13_v2 virtual machines in westus2	1	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	3,173.78 USD (38%)	Trey Research Finance	10/14/2019, 11:06:04 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_D14_v2 virtual machines in centralus	2	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	15,751.27 USD (62%)	Trey Research Finance	10/14/2019, 11:09:06 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_D15_v2 virtual machines in brazilsouth	1	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	14,098.87 USD (41%)	Trey Research Finance	10/14/2019, 11:05:43 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>
<input type="checkbox"/>	Standard_F72s_v2 virtual machines in brazilsouth	2	<a href="#">Buy reserved instances to save over pay-as-you-go costs</a>	51,719.01 USD (37%)	Trey Research Finance	10/14/2019, 11:08:01 PM	<a href="#">Postpone</a>   <a href="#">Dismiss</a>

# What's new with Azure Reservations



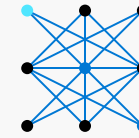
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Significant cost savings up to 72% over pay-as-you-go models



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Budget predictability and prioritized compute capacity



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Flexibility to modify reservations and simplicity of purchase

- Azure Reservations offer capacity prioritization (for single scope)
- Multiple product families: Available for VMs, SQL Database and Cosmos DB.
- You can also pre-purchase at a discount SUSE Enterprise Linux
- Apply RI to Classic VMs, cloud services and Dev/Test subscriptions – constrained cores (you can constrain cores of RIs you purchased and the rest of the cores can go to another box)

#GlobalAzureTO

# Demo

