

Cloud Native
Sustainability
Week 2023

**Microsoft Azure GreenOps
made simple with**



CloudXcellence

Henk van der Valk

henk@cloudxcellence.com

Sustainability | What's the big deal ?



Microsoft / Features / Cloud >

"Lobbying with utilities and working with regulators to open up more access for clean energy buying is a massive role that Microsoft and other companies are currently playing," he says.

Microsoft's advocacy for clean energy [starts in-house](#). By 2025, Microsoft will shift to 100% supply of renewable energy, meaning that the company will have PPAs for green energy contracted for 100% of carbon-emitting electricity consumed by all its datacenters, buildings and campuses.

By 2030 Microsoft will have 100% of its electricity consumption, 100% of the time, matched by zero-carbon energy purchases. By 2050, Microsoft has committed to removing from the environment all the carbon the company has emitted, either directly or by electrical consumption since it was founded in 1975. Datacenters can play a role in helping reach these goals.

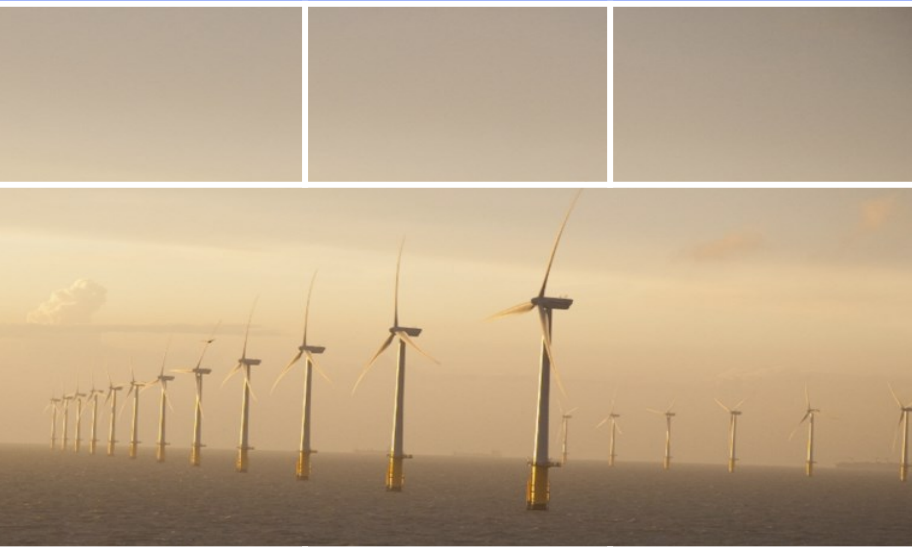


Moreover, the ability to ensure the cloud meets Europe's needs and serves Europe's values is a core part of a [new set of European Cloud Principles](#). Microsoft Vice Chair and President Brad Smith announced in May of this year, after discussions with a number of European partners.



Thanet (2010)

Largest Offshore Wind Farm on the planet

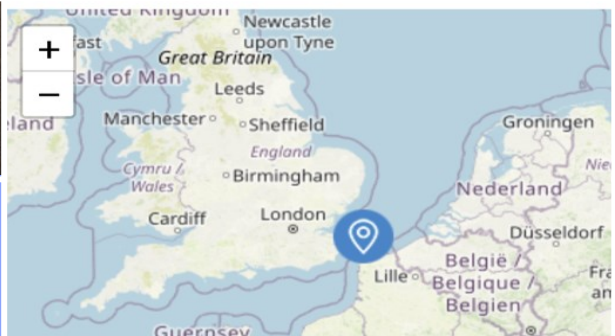


Facts

Country	United Kingdom
Electricity Capacity	300 MWe
Turbines	100
Onshore / Offshore	Offshore
Supplier	Vestas
Vattenfall ownership share	100 %
Status	In Operation

Estimated World Energy consumption in 2010:

4995433789 MWe 🤯



A career - all about IT @ Scale & efficiency

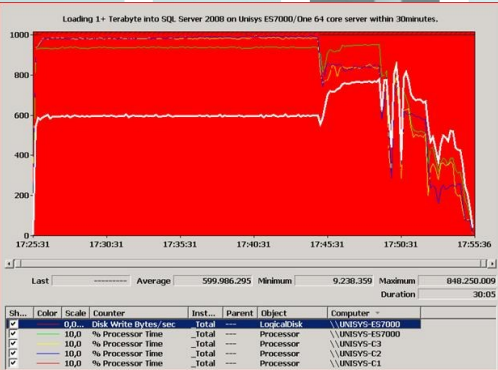
UNISYS



CloudXcellence

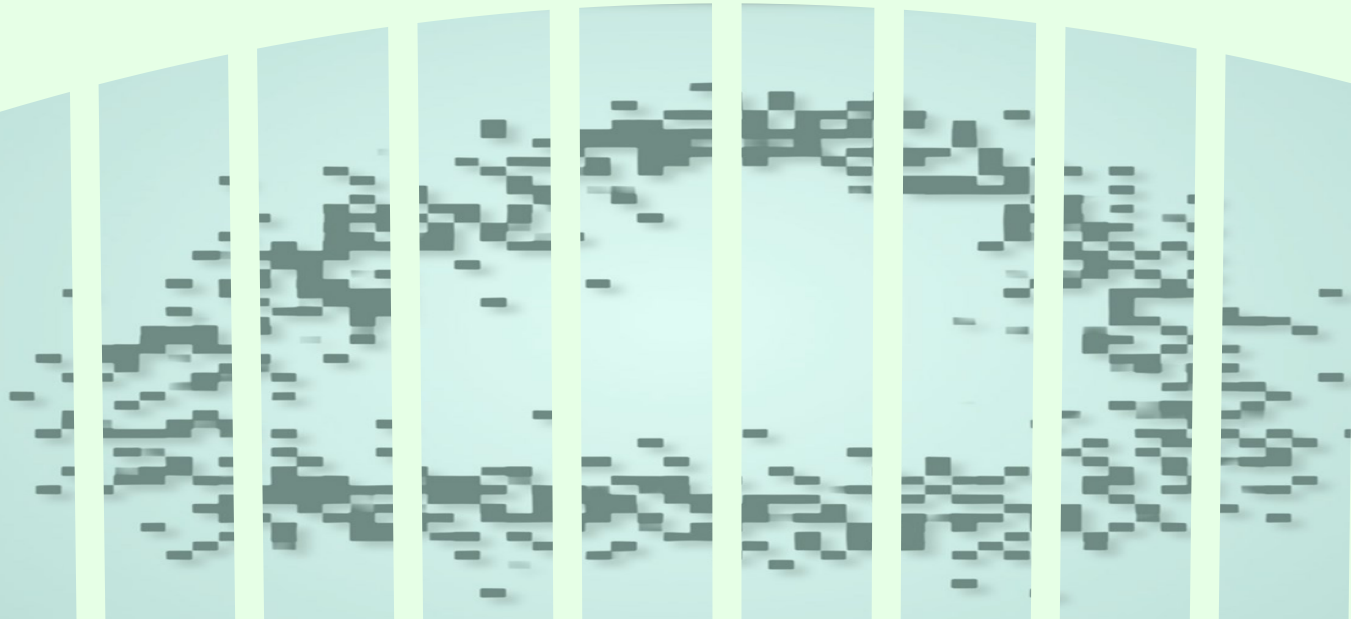
SCHUBERG
PHILIS

- 10 years of Unisys-EMEA Performance Center
- 2002- Largest SQL DWH in the world (SQL2000)
- ETL WR - loading 1TeraByte within 30 mins (SQL 2008)
- [SQL data loading performance guide](#)
- Perf Tips & tricks: www.henkvandervalk.com
- Schuberg Philis-100% uptime for mission critical apps
- 2011 – Microsoft Big Data & AI
- Since 2017- Founder CloudXcellence!



"The true IT sustainability lies in the bits and bytes that flow meaningful, effortlessly, sparing us the wait, processing, storage and retrieval."

-Henk, 2023



Companies look for **improving grip** on their Azure cloud operations

»»» CloudXcellence first promise //

LOWER CO₂ EMISSIONS  IMPROVE CLOUD OPERATIONS

»»» CloudXcellence second promise //

IMPROVE PERFORMANCE  WITH MINIMAL TEAM IMPACT

»»» CloudXcellence third promise //

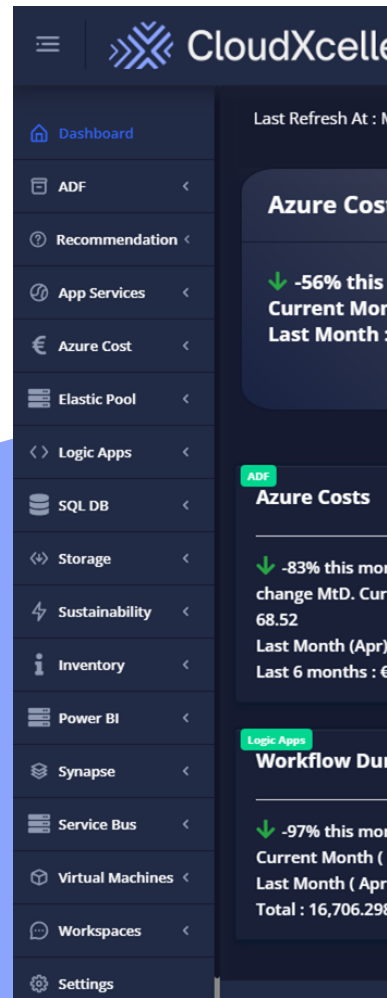
LOWER CLOUD SPEND  EXPECT 20%-30% REDUCTION

AZURE CLOUD OPTIMIZATION MADE ACTIONABLE:

- / REDUCE EMISSIONS
- // IMPROVE PERFORMANCE
- /// SAVE MONEY



CloudXcellence



What's the simplest way to reduce any cloud emission?

#	Entity	Carbon intensity of electricity (gCO2/kWh)
1	Norway	28.82
2	Costa Rica	37.21
3	Sweden	45.08
4	Switzerland	45.62
5	France	84.82
6	New Zealand	97.73
7	Kenya	100.57
8	Brazil	102.04
9	Uruguay	114.81
10	Canada	127.82
11	Finland	130.98
12	Georgia	134.83
13	Slovakia	140.67
14	Austria	157.52
15	Belgium	165.36
16	Luxembourg	168.14
17	Colombia	168.95

12x

Pick your Azure Datacenter region wisely...

#	Entity	Carbon intensity of electricity (gCO2/kWh)
42	Pakistan	344.15
43	Ireland	346.33
44	Netherlands	355.78



Recommended ⓘ

- (Europe) North Europe
- (Africa) South Africa North
- (Europe) Italy North
- (Europe) Norway East**
- (Europe) Switzerland North
- (Middle East) UAE North

Other ⓘ

- (US) North Central US

What's 2nd best option to reduce emissions?

Usage

CloudXcellence

LD Lex Dekkers

Dashboard

ADF

Recommendation

App Services

Azure Cost

Elastic Pool

Last Refresh At : May 10, 2023, 3:18:21 PM

Data since : Dec 12, 2019, 11:48:22 AM

Total CO₂ (grams)

↓ -31% this month.
Current Month : 2,659
Last Month : 3,867
Total : 14,129

Total pkwh (Including Cooling)

↓ -31% this month.
Current Month : 99.78
Last Month : 145.09
Total : 530.05

Smartphones Charged

↓ -31% this month.
Current Month : 5,248
Last Month : 7,632
Total : 27,881
**Used US EPA Greenhouse Gas Equivalent Calculator*

Miles Driven (Gasoline)

↓ -31% this month.
Current Month : 110
Last Month : 160
Total : 583
**Used US EPA Greenhouse Gas Equivalent Calculator*

MEASURING CARBON CLOUD FOOTPRINT REDUCTIONS

Storage

Sustainability

Dashboard

Insights

Inventory

Power BI

Synapse

Service Bus

Virtual Machines

Total Emissions

0.018

0.25

0.15

0.1

0.05

0

Unmanaged

Grip on emissions

0.0109

0.11

Feb-2018

Apr-2018

Jun-2018

Aug-2018

Oct-2018

Dec-2018

Feb-2019

Apr-2019

Jun-2019

Aug-2019

Oct-2019

Dec-2019

Feb-2020

Apr-2020

Jun-2020

Aug-2020

Oct-2020

Dec-2020

Feb-2021

Apr-2021

Jun-2021

Aug-2021

Oct-2021

Dec-2021

Feb-2022

Apr-2022

Jun-2022

Aug-2022

Oct-2022

Dec-2022

Feb-2023

Apr-2023

Month-Year

Average

HDInsight

Service Bus

Security Center

Azure App Service

Advanced Data Secur...

Data Catalog

Azure Data Factory

Event Hubs

Key Vault

Machine Learning St...

Light and Analyt...

Month-Year : Apr-2023

ServiceName : Storage

Location : North Europe

scope : Scope3

subService : Azure Storage

subscriptionName : CLOUDXCELLENCE DATA LAKE

totalEmissions : 0.020352205112

Up to 5 years of emissions history

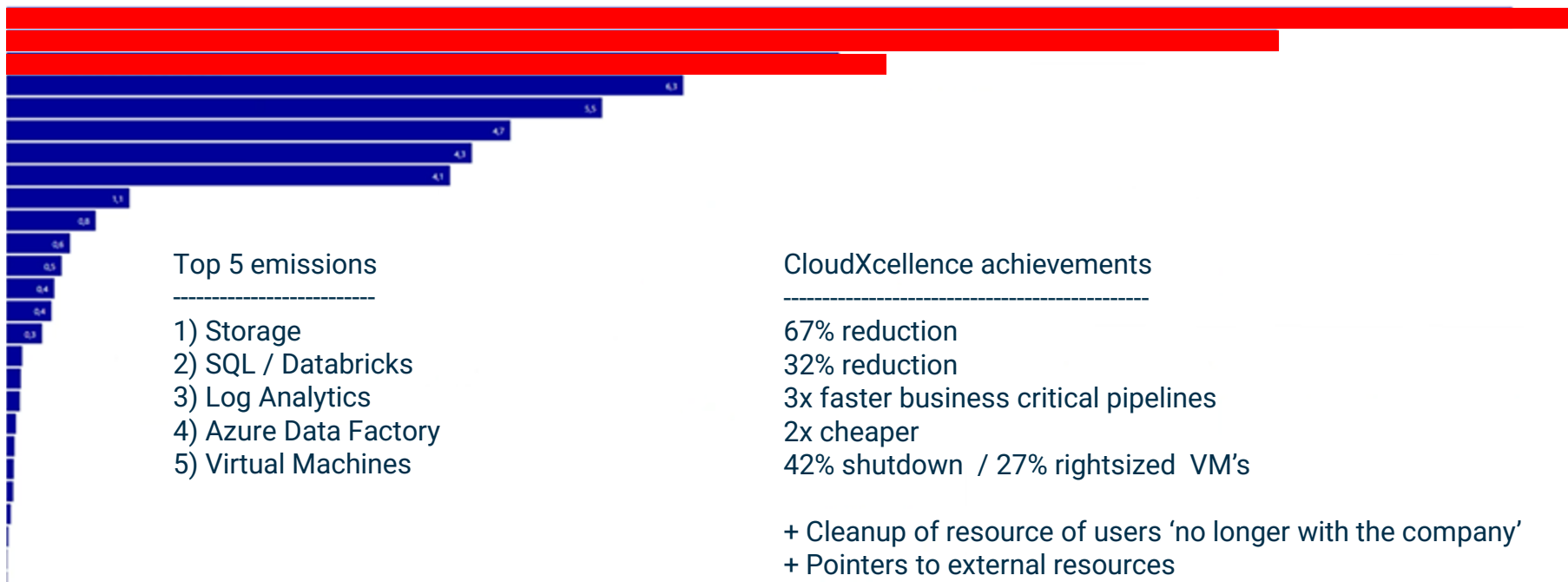
SUSTAINABILITY BENEFITS?

- ☒ // Compliant to legislation
- ☒ // Visible output outside company
- ☐ // Emission reduction

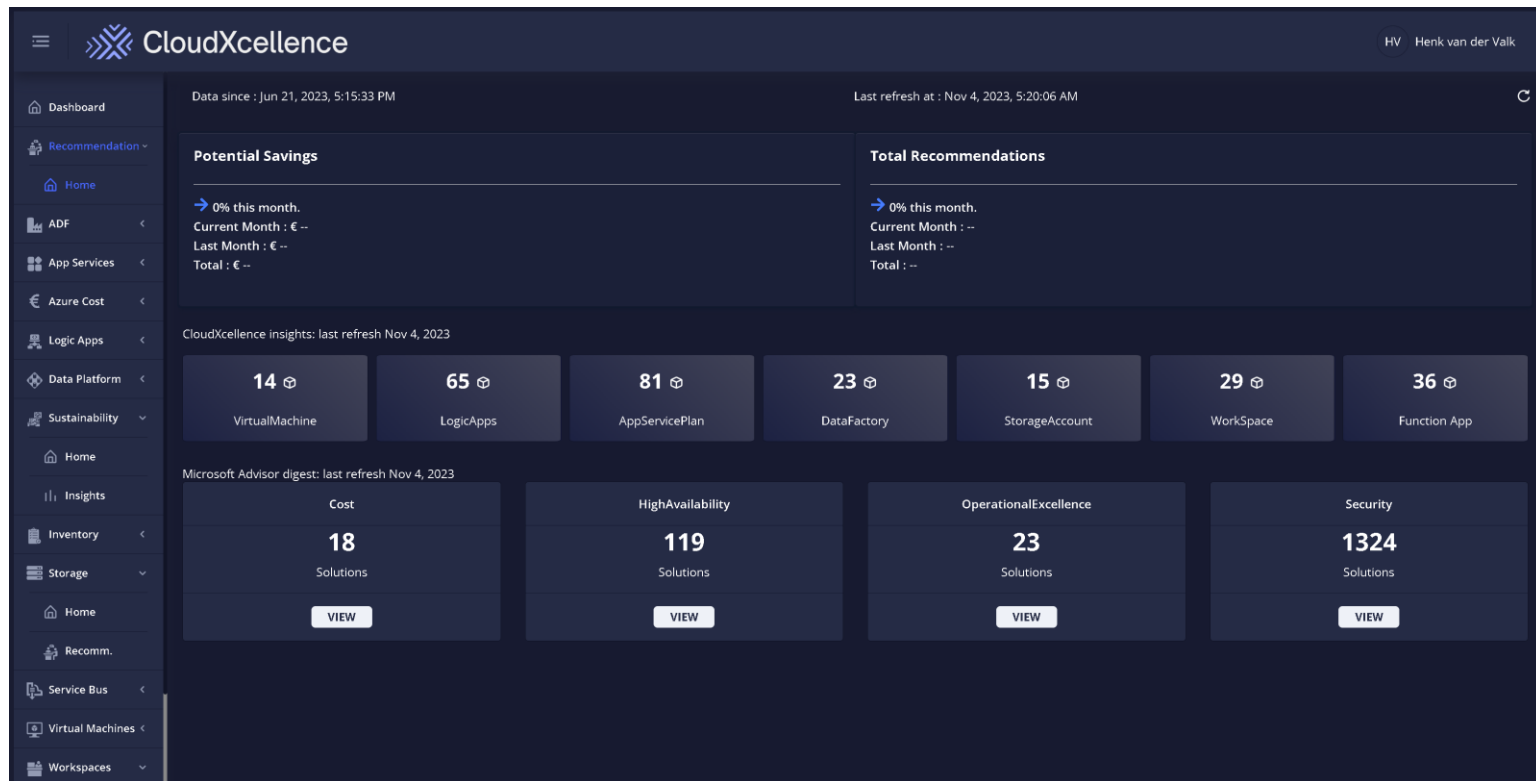
GreenOps to the rescue



How about start reducing carbon emissions!



Usage & Optimizations are everywhere!



3) Use storage Geo redundancy + LCM wisely

SKU Based Summary Information

SKU Name	Accounts	Size (GB)	Storage Account	Size(GB)	Access tier	Resource Group	Kind	Location	Create Time	Deleted
Standard_LRS	144	386976.2	FullDataMedia	213180.0		FullData-Prod-Stor...	StorageV2	n		
Standard_GRS	8	123.5	zstorperfarchief	89453.4		FullData-Prod-Stor...	StorageV2	w		
Standard_RAGRS	22	47.7	zstorvideoarchief	72415.3		FullData-Prod-Stor...	StorageV2	w		
Standard_ZRS	3	0.4	performancedatalake	15761.2		I...arformance...	StorageV2	w		
			ticketingblob	6573.8		Ti...igRG	StorageV2	w		

Less used storage accounts

Storage Account	Subscription	Resource Group	Egress (MB)	Ingress (MB)
csbah426d8c2266v4d58x9c0	Test AreA Innovation CloudXcellence	cloud-shell-storage-...	0	0
geodiag699	Test AreA Innovation CloudXcellence	GEO	0	0
testbotCloudXcellence9d2f	CloudXcellence Data Lake	DataLake	0.03	0.07
apidia996	CloudXcellence Data Lake	Api	0.03	0.07
apidia996	CloudXcellence Data Lake	Api	0.06	0.13
testbotCloudXcellence9d2f	CloudXcellence Data Lake	DataLake	0.06	0.12
dbstorageoev6bvxmciem	CloudXcellence Data Lake	databricks-rg-databr...	0.14	0.15

Home > Storage accounts > adxcxstoragetest | Lifecycle management >

Add a rule

Details

Base blobs

Lifecycle management uses your rules to automatically move blobs to cooler tiers or to delete them. The associated actions must be implemented in tier order (from hot to cool storage, then a

If

Base blobs were *

☒ Last modified

☐ Created

More than (days ago) *

Enter a value

Then

Delete the blob

Move to cool storage
For infrequently accessed data that you want to keep on cool storage for at least 30 days.

Move to cold storage
For rarely accessed data that you want to keep for at least 90 days.

Move to archive storage
Use if you don't need online access and want to keep the object for 180 days or longer.

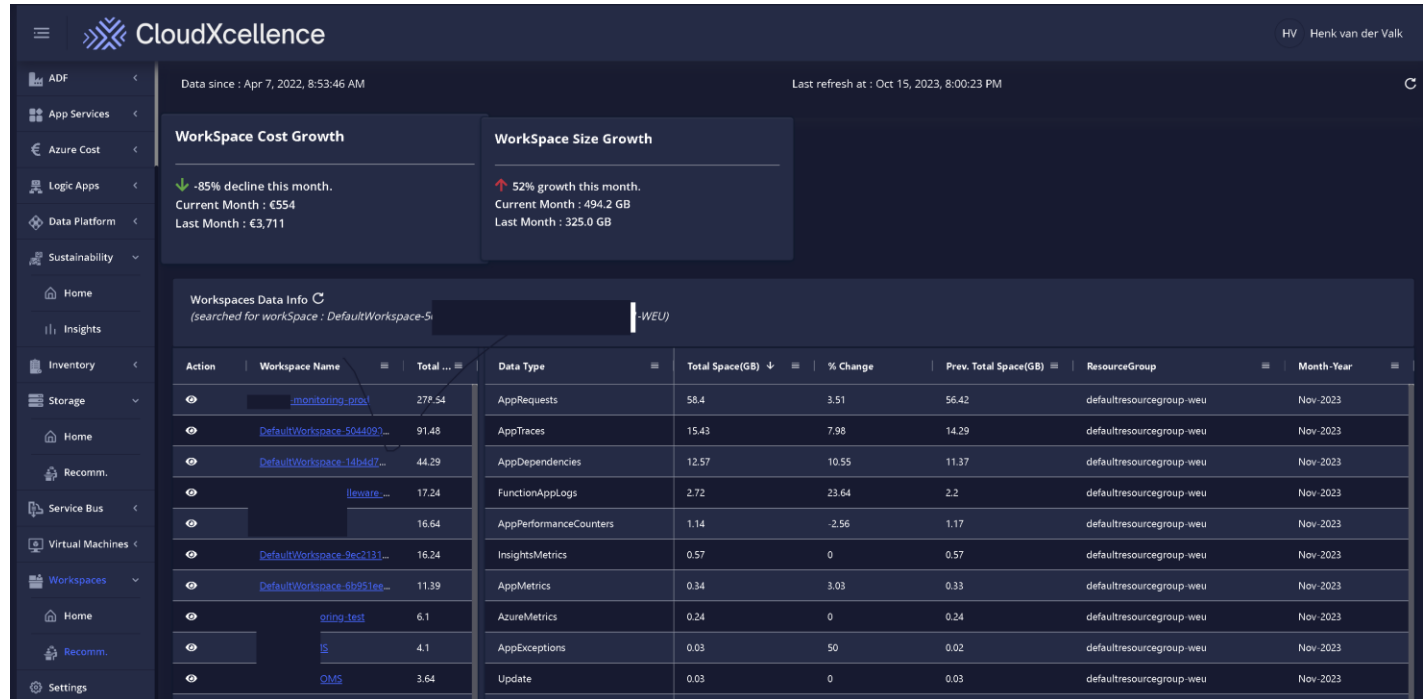
Delete the blob
Deletes the object per the specified conditions.

4) Check Monitoring workspaces

Monthly ingest

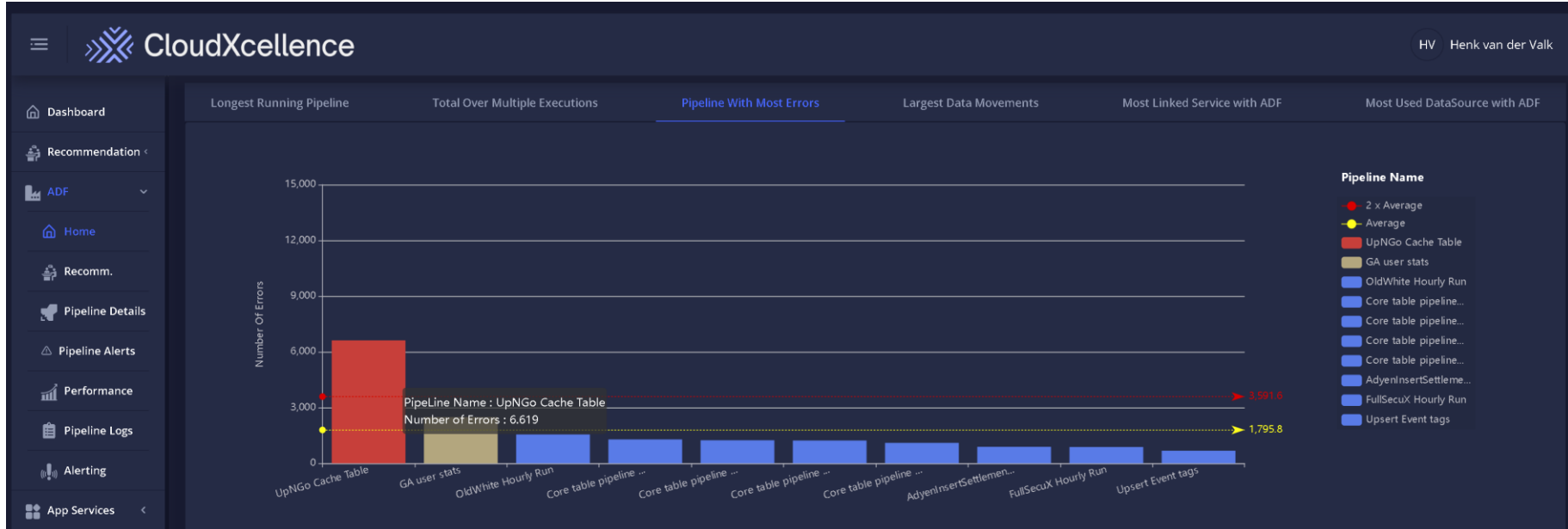
350+ Sources

Errors



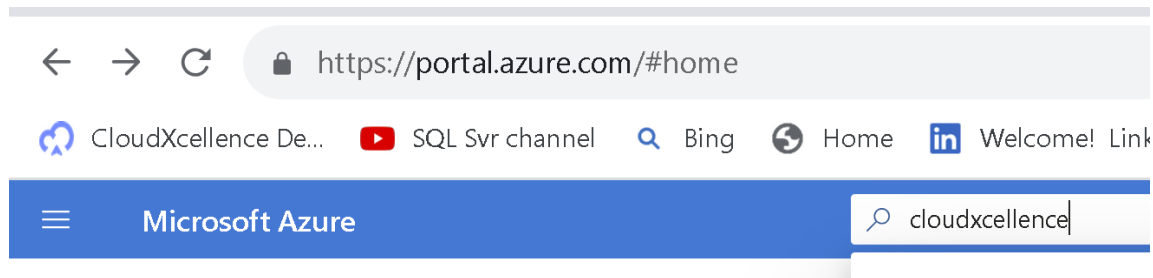
5) (Pay for use, not for Errors)

Check where possible, on app level & Azure overall



Get started!

Install CloudXcellence direct from Azure portal



Marketplace



CloudXcellence

30 day trial

Step by Step Installation manual on
Github:

<https://github.com/cloudxcellence>

APPLYING FOR AZURE SUSTAINABILITY API ACCESS

// For customers with a direct Microsoft billing relation

// Create a separate sustainability service user account
The accounts that logs on the first time becomes the administrator of that instance

// Sign Up for the Microsoft sustainability preview program
-> <https://forms.office.com/r/rTVhJxVjGw>

// Retrieve the companies Enrollment Number
(Enterprise Agreement or MCA)
-> <https://ea.azure.com/>

// Retrieve the Billing ID; select Billing Profile / Properties
-> portal.azure.com

// Receive your Microsoft Cloud for Sustainability email

The image shows two screenshots. The top screenshot is the 'Microsoft Cloud for Sustainability API Preview: Onboarding' page, dated March 3, 2023. It includes a public preview notice and a privacy statement link. The bottom screenshot is the Azure portal 'Enrollment' page. It shows the 'Enrollment' tab selected, with a message stating 'The EA Portal is now read-only. You can manage your billing account on the Azure portal.' Below this, the 'Enrollment Detail' section shows the 'Enrollment Number' as '509f4c4c1'. A sidebar menu on the left lists options like 'Azure subscriptions', 'Recurring charges', 'Settings', 'Properties', 'Exports', 'Policies', and 'Transfer requests'. The 'Properties' section is expanded, showing 'Enabled Azure plans', 'My role', 'Tags', and 'Billing account' with an 'ID' field.

Microsoft Cloud for Sustainability API
Preview: Onboarding

Updated March 3, 2023

Public Preview customers and partners: The Microsoft Cloud for Sustainability API requires registration and is currently only available to approved customers and partners during the preview period. Request access to the Microsoft Cloud for Sustainability API during the preview period by completing the quick form below.

Your Privacy is important to us. Our privacy statement explains the personal data Microsoft processes, how Microsoft processes it, and for what purposes. Please see the privacy link for more details: <https://go.microsoft.com/fwlink/?LinkID=521839>

1. Organization name *

2. Company Email Address

Note: Applications submitted with a personal email address (e.g., outlook.com) or incomplete email addresses will be rejected.

Enrollment

Department Account Subscription

The EA Portal is now read-only. You can manage your billing account on the Azure portal. [Go to the Azure portal](#)

Enrollment Detail [\[View this on Azure portal\]](#). [Learn more.](#)

Enrollment Number 509f4c4c1

Azure subscriptions

Recurring charges

Settings

Properties

Exports

Policies

Transfer requests

Enabled Azure plans

My role

Tags

Billing account

ID

Microsoft.Sustainability.Data.Services.Api

Search operations Group by tag

API definition Changelog

GET EmissionsByEnrollment

GET ExportJobs

EmissionsByEnrollment

Connect low-latency OData APIs to your dashboards and applications for programmatic access to emissions data. Microsoft Cloud for Sustainability API

CloudXcellence helps companies to open up Microsoft Azure's 'black box' by getting insights out of the deepest depths of their cloud. CloudXcellence translates these insights into actionable optimisations that cloud experts can execute right away.

The result? An Azure cloud that runs smooth,
sustainable 🌱 and cost-efficient 🚀

Available via the Azure Marketplace without any line of code.
So companies save money and reduce emissions within hours.



CloudXcellence



Available on
Microsoft Azure
Marketplace

INCLUDING
GREENOPS INSIGHTS

REDUCE ☁ CARBON FOOTPRINT
INCREASE ☁ PERFORMANCE
DECREASE ☁ SPEND



CloudXcellence **promise: 2 months = 20% less Azure emissions**

ARE YOU TAKING ON THIS GREENOPS CHALLENGE WITH US?

'PLEASE CHECK WITH YOUR CLIENT IF (S)HE DID A
 CLEANUP OF THE CLOUD RECENTLY?'

AZURE GREENOPS // ACTIONABLE



CloudXcellence

henk@cloudxcellence.com // lex@cloudxcellence.com