Cloud Native Sustainability Week 2023

Microsoft Azure GreenOps made simple with

CloudXcellence

Henk van der Valk

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Sustainability | What's the big deal ?

Microsoft / Features / Cloud >

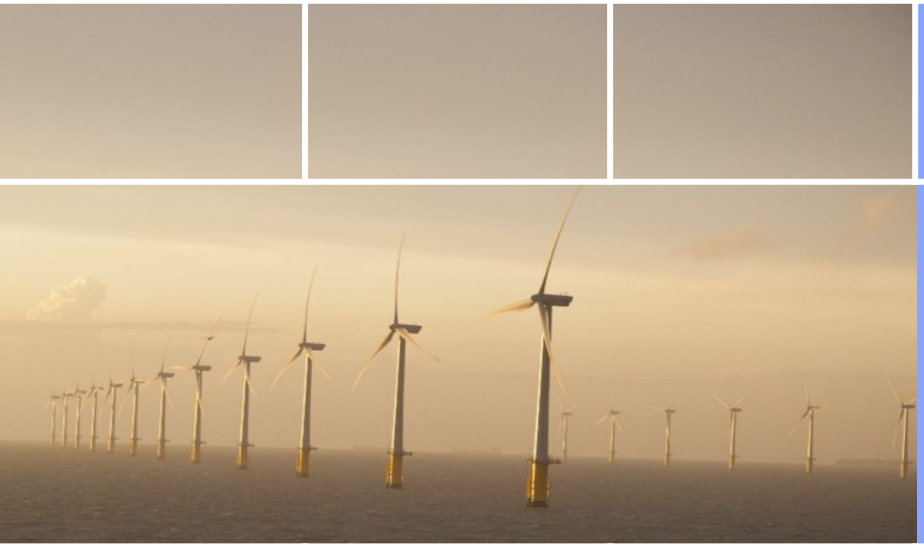
"Lobbying with utilities and working with regulators to open up more access for clean energy buying is a massive role that Microsoft and other companies are currently playing," he says.

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

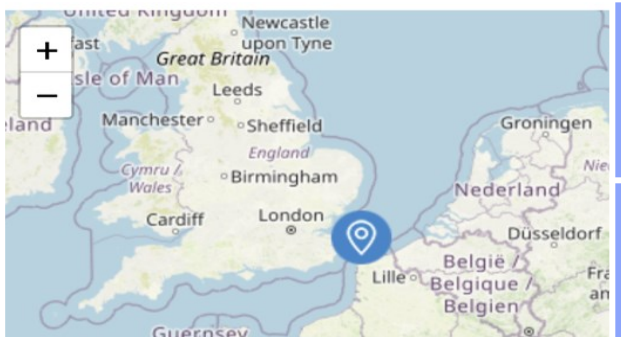


Facts

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:

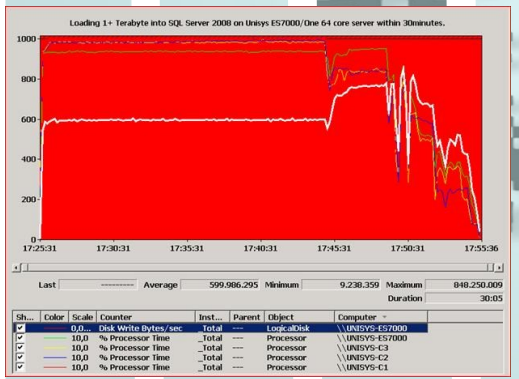
4995433789 MWe 😳



A career - all about IT @ Scale & efficiency

UNISYS Microsoft CloudXcellence

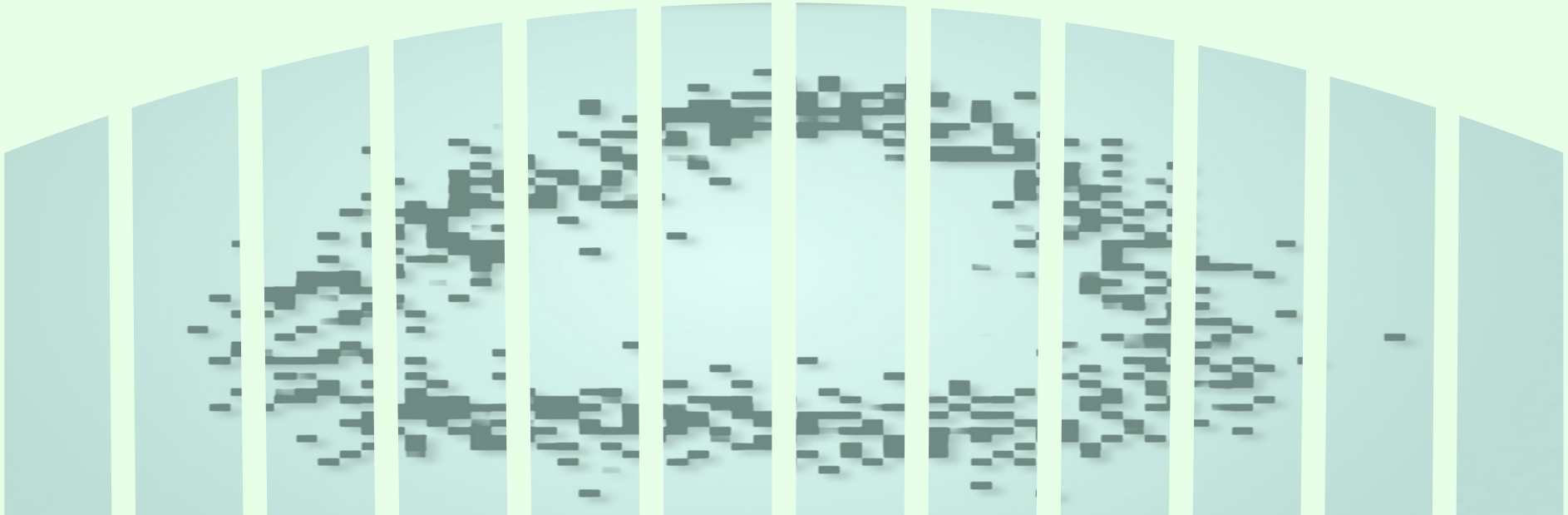
SCHUBERG PHILIS



- 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 CO_2 EMISSIONS IMPROVE CLOUD OPERATIONS

CloudXcellence second promise //

IMPROVE PERFORMANCE WITH MINIMAL TEAM IMPACT

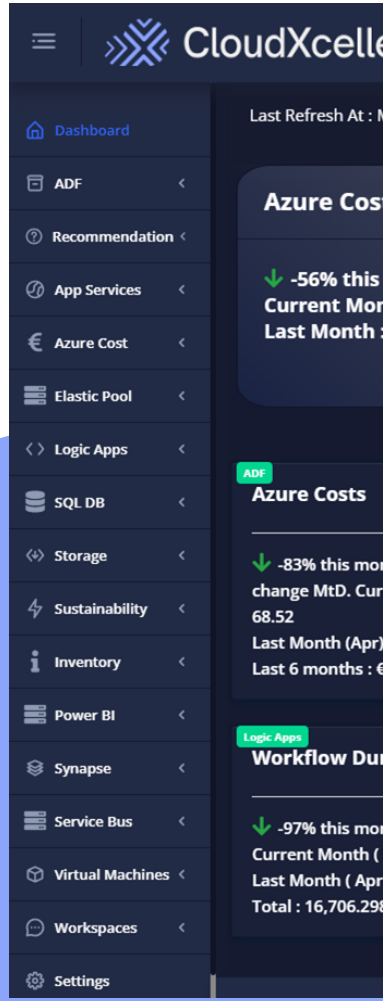
CloudXcellence third promise //

LOWER CLOUD SPEND EXPECT 20%-30% REDUCTION

CloudXcellence

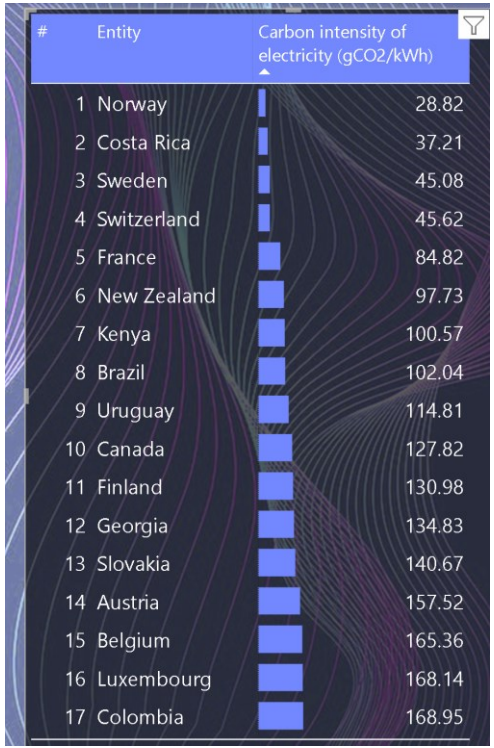
AZURE CLOUD OPTIMIZATION MADE ACTIONABLE:

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

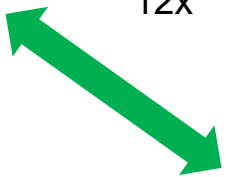


CloudXcellence

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

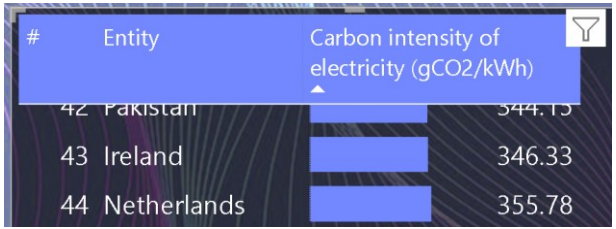


#	Entity	Carbon intensity of electricity (gCO2/kWh)
1	Norway	28.82
2	Costa Rica	37.21
3	Sweden	45.08
4	Switzerland	45.62
5	France	84.82
6	New Zealand	97.73
7	Kenya	100.57
8	Brazil	102.04
9	Uruguay	114.81
10	Canada	127.82
11	Finland	130.98
12	Georgia	134.83
13	Slovakia	140.67
14	Austria	157.52
15	Belgium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

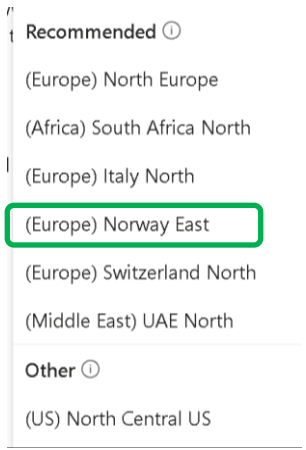


12x

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



What’s 2nd best option to reduce emissions?

CloudXcellence
HV Henk van der Valk
Dashboard
Recommendation
ADF
App Services
Azure Cost
Logic Apps
Data Platform
Sustainability
Inventory
Power BI
Storage
Power BI
Synapse
Service Bus
Virtual Machines
Workspaces
Settings
Data since : Dec 12, 2019, 11:48:22 AM
Last refresh at : Nov 4, 2023, 2:30:44 AM
Azure Cost
-22% this month.
Current Month : € 21442
Last Month : € 27322
Subscriptions
% this month.
Current Month :
Last Month :
Resource Groups
0% this month.
Current Month : 220
Last Month : 220
Resources
25% this month.
Current Month : 66141
Last Month : 53065
Total CO₂ (grams)
-31% this month.
Current Month : 2,659
Last Month : 3,867
Total : 14,129
ADF
Azure Costs
% this month
change MtD.Current Month (Nov) : €
Last Month (Oct) : €
Last 6 months : €
Runtime
-99% this month.
Total : 4.829,64 Hour(s)
Current Month : 8,73 Hour(s)
Last Month : 1.211,42 Hour(s)
ADFs
0% this month.
Month : 0
Last Month : 0
Errors
-99% this month.
Total : 11,292
Current Month : 47
Last Month : 5,041
Email Alerts
0% this month.
Total : 12
Current Month : 0
Last Month : 0
CLOUDXCELLENCE AZURE INSIGHTS
Logic Apps
Workflow Duration
-97% this month.
Current Month (May) : 138.892 Hours
Last Month (Apr) : 5,531.572 Hours
Total : 16,706.298 Hours
Total Logic Apps
6% this month.
Current Month : 355
Last Month : 334
Total Executions
% this month.
Current Month ( ) :
Last Month ( ) :
Total : 0
Failed Workflows

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 CO_2 (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

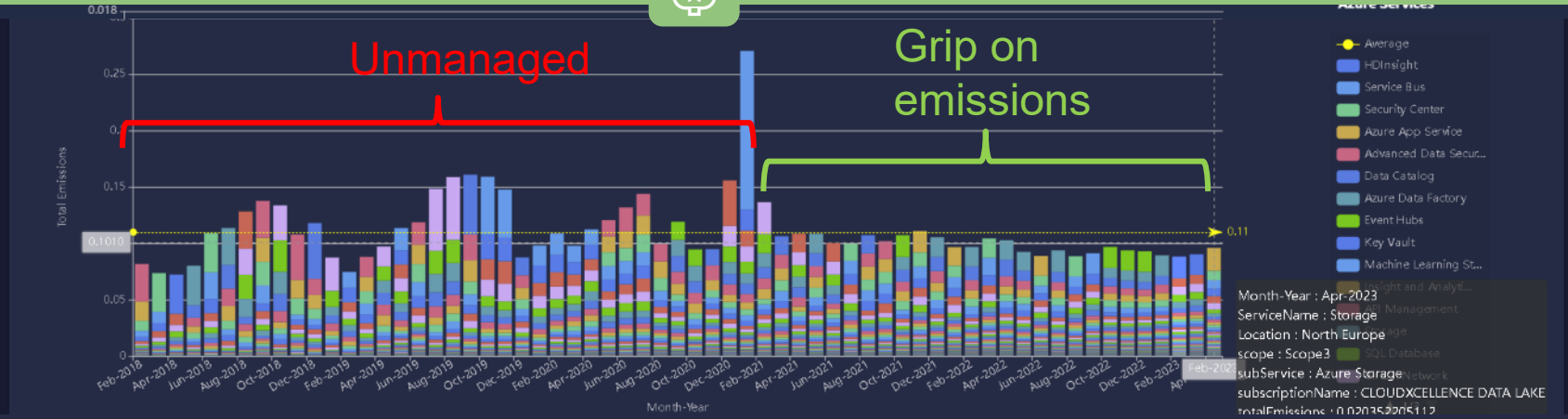
-31% this month.
Current Month : 5,248
Last Month : 7,632
Total : 27,881
**Used US EPA Greenhouse Gas Equivalent Calculator*

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
Storage
Sustainability
Dashboard
Insights
Inventory
Power BI
Synapse
Service Bus
Virtual Machines



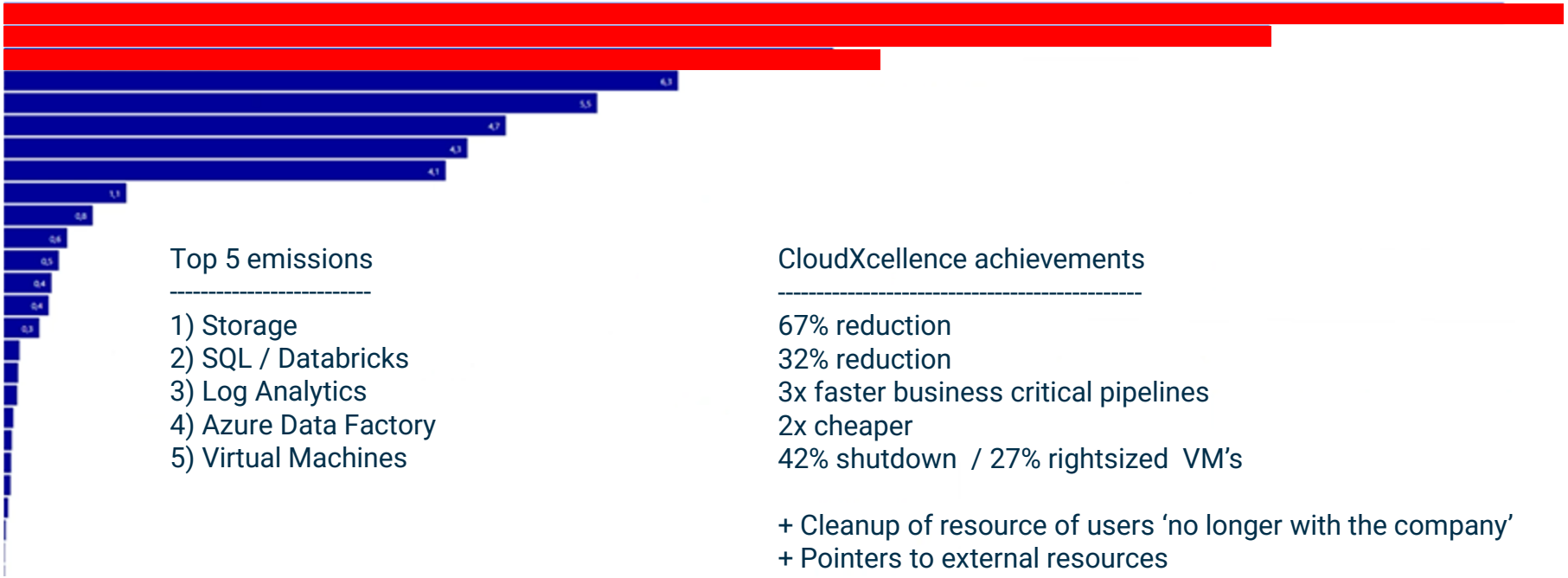
Up to 5 years of emissions history

SUSTAINABILITY BENEFITS?

- [x] // Compliant to legislation
- [x] // Visible output outside company
- [ ] // Emission reduction

GreenOps to the rescue

How about start reducing carbon emissions!



Top 5 emissions
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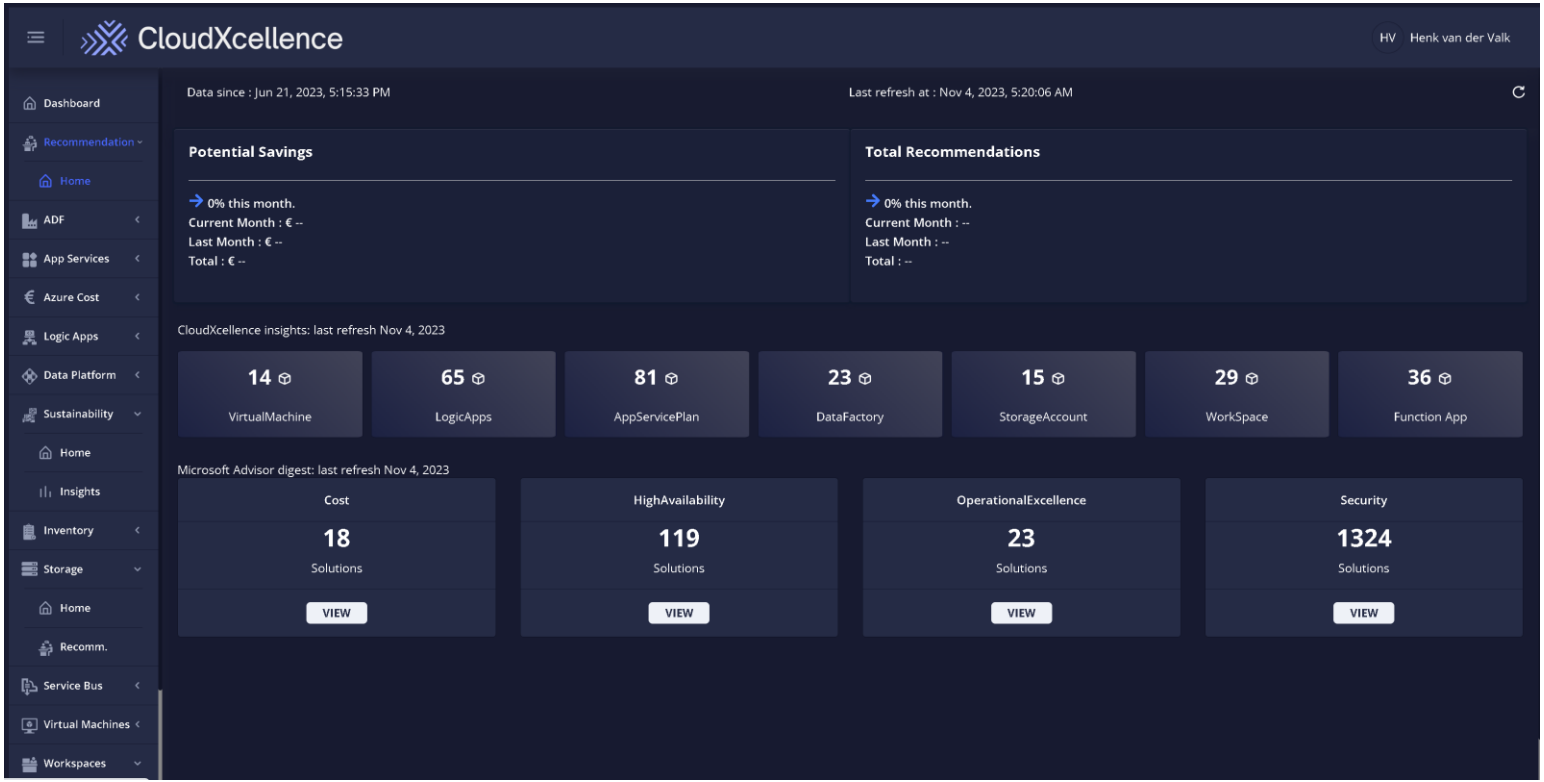
1) Storage
2) SQL / Databricks
3) Log Analytics
4) Azure Data Factory
5) Virtual Machines

CloudXcellence achievements

67% reduction
32% reduction
3x faster business critical pipelines
2x cheaper
42% shutdown / 27% rightsized VM's

+ Cleanup of resource of users 'no longer with the company'
+ Pointers to external resources
+ Database datatypes sharpened of 100% CPU databases

Usage & Optimizations are everywhere!



3) Use storage Geo redundancy + LCM wisely

SKU Based Summary Information

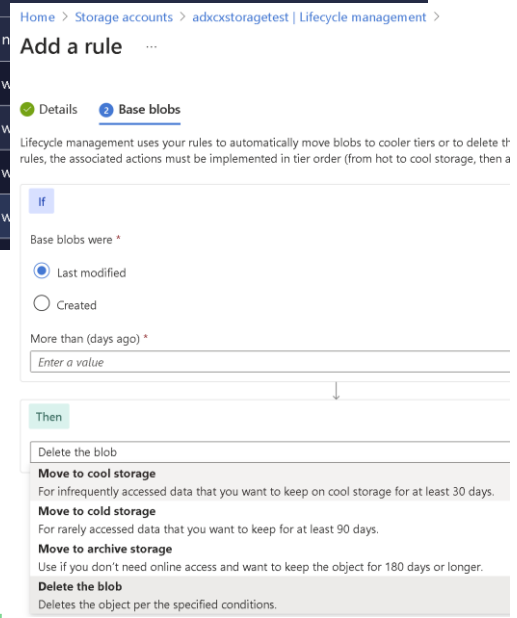
SKU Name	Accounts	Size (GB)
Standard_LRS	144	386976.2
Standard_GRS	8	123.5
Standard_RAGRS	22	47.7
Standard_ZRS	3	0.4

Storage Account	Size(GB)	Accesstier	Resource Group	Kind	Location	Create Time	Deleted
FullDatamedia	213180.0		FullData-Prod-Stor...	StorageV2	n		
zstorperfarchief	89453.4		FullData-Prod-Stor...	StorageV2	w		
zstorvideoarchief	72415.3		FullData-Prod-Stor...	StorageV2	w		
performancedatalake	15761.2		I erformance...	StorageV2	w		
ticketingblob	6573.8		Ti igRG	StorageV2	w		

?

Less used storage accounts

Storage Account	Subscription	Resource Group	Egress (MB)	Ingress (MB)
csbab426d8c2266x4d58x9c0	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
apidiag896	CloudXcellence Data Lake	Api	0.03	0.07
apidiag896	CloudXcellence Data Lake	Api	0.06	0.13
testbotCloudXcellence9d2f	CloudXcellence Data Lake	DataLake	0.06	0.12
dbstorageuoev6bxmaciem	CloudXcellence Data Lake	databricks-rg-databr...	0.14	0.15

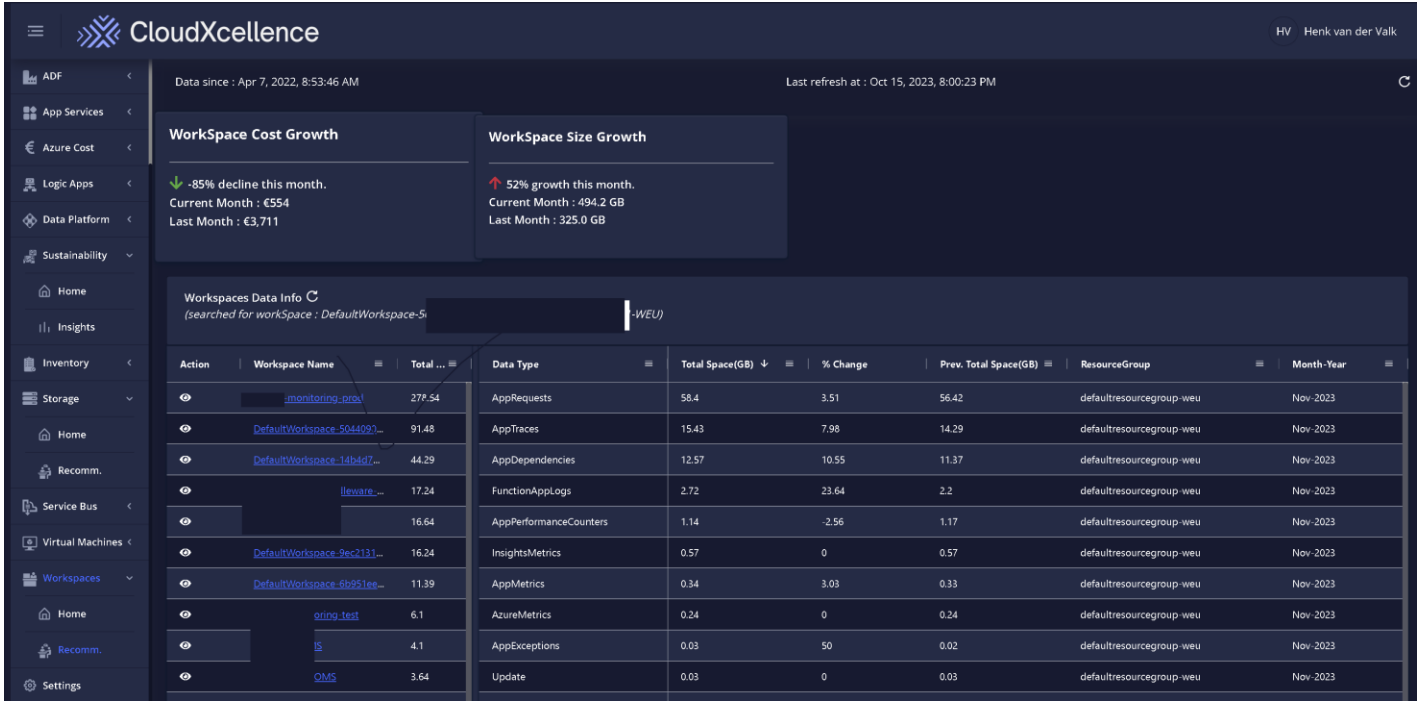


4) Check Monitoring workspaces

Monthly ingest

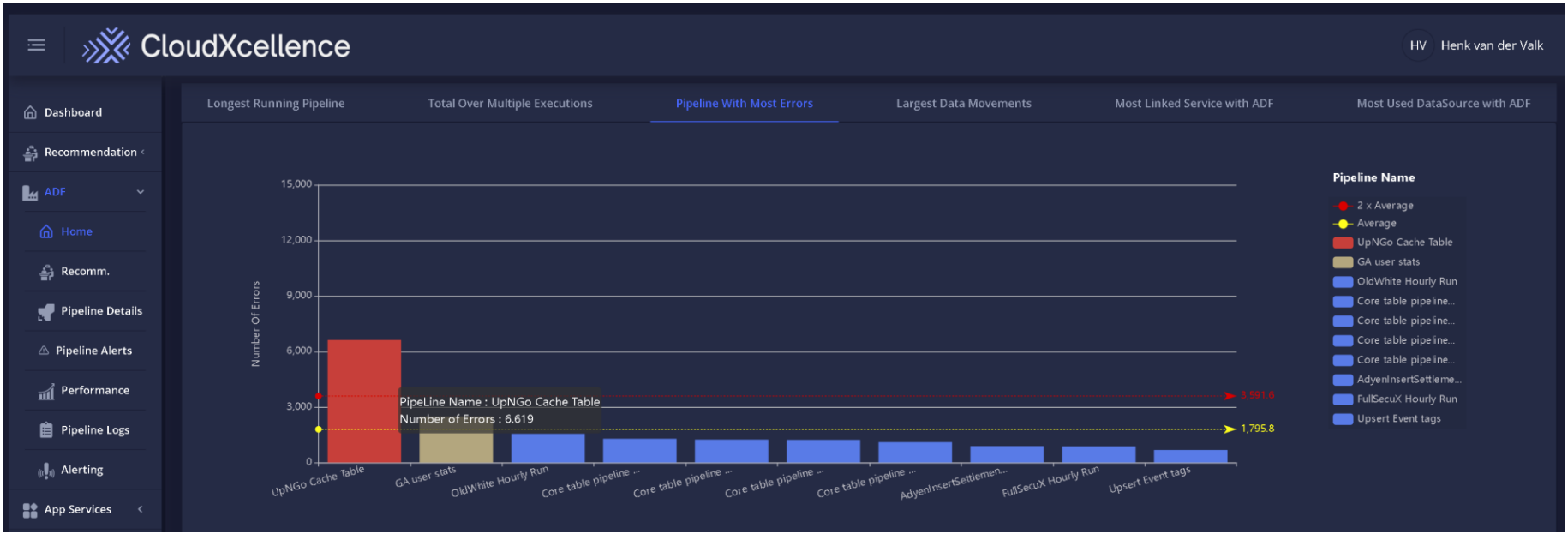
350+ Sources

Errors

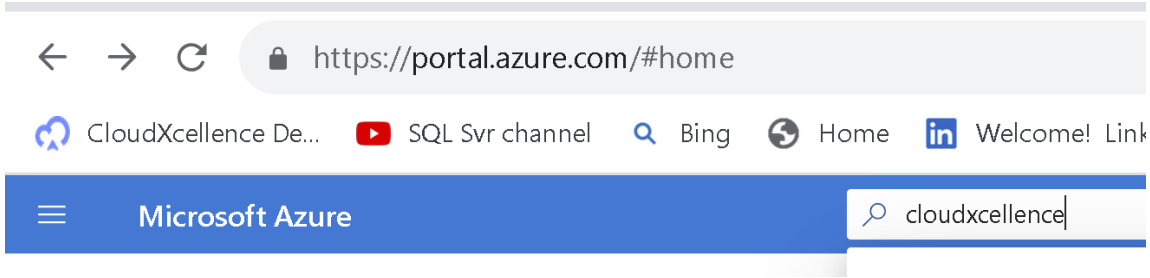


5) (Pay for use, not for Errors)

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 SUSTIAINABILITY API ACCESS

// For customers with a direct Microsoft billing relation

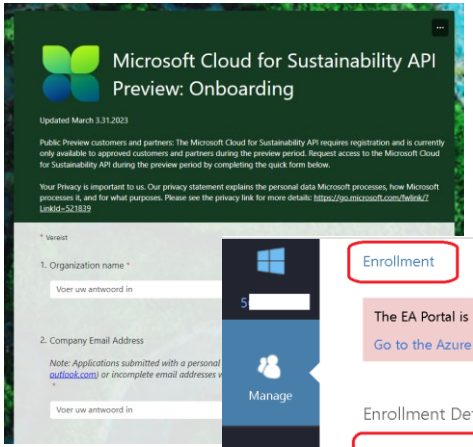
// Create a separate sustainability service user account
The accounts that logs on the first time becomes the administrator of that instance

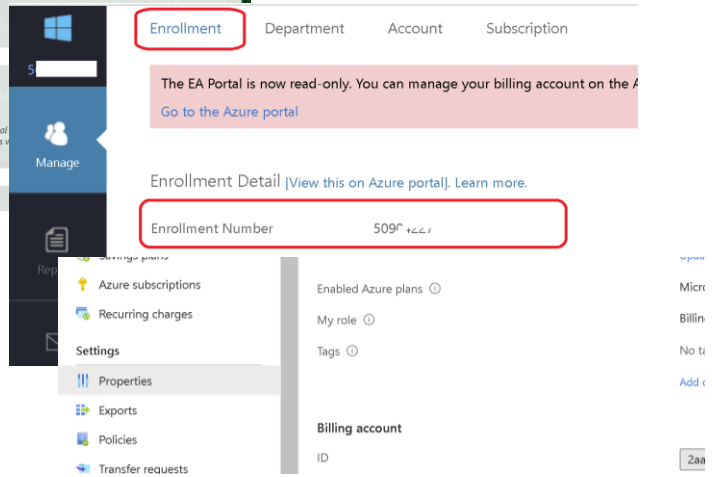
// Sign Up for the Microsoft sustainability preview program
-> https://forms.office.com/r/rTVhjxVjGw

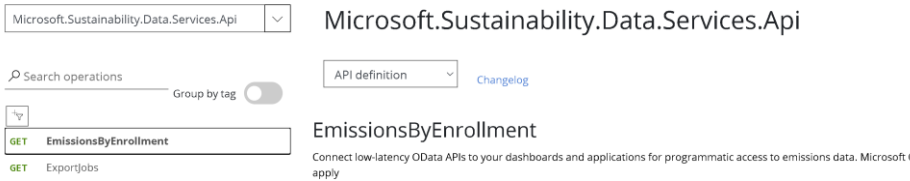
// Retrieve the companies Enrollment Number (Enterprise Agreement or MCA)
-> https://ea.azure.com/

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

// Receive your Microsoft Cloud for Sustainability email







SVC_SustainabilityName@CompanyName.com

CloudXcellence

SOLUTION

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

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