Turbonomic and Cloudability Better Together

J Platt, Director, Global Partner Solutions

Michael Lau, Sr. Innovations Consultant

Rule of Three – FinOps Maturity

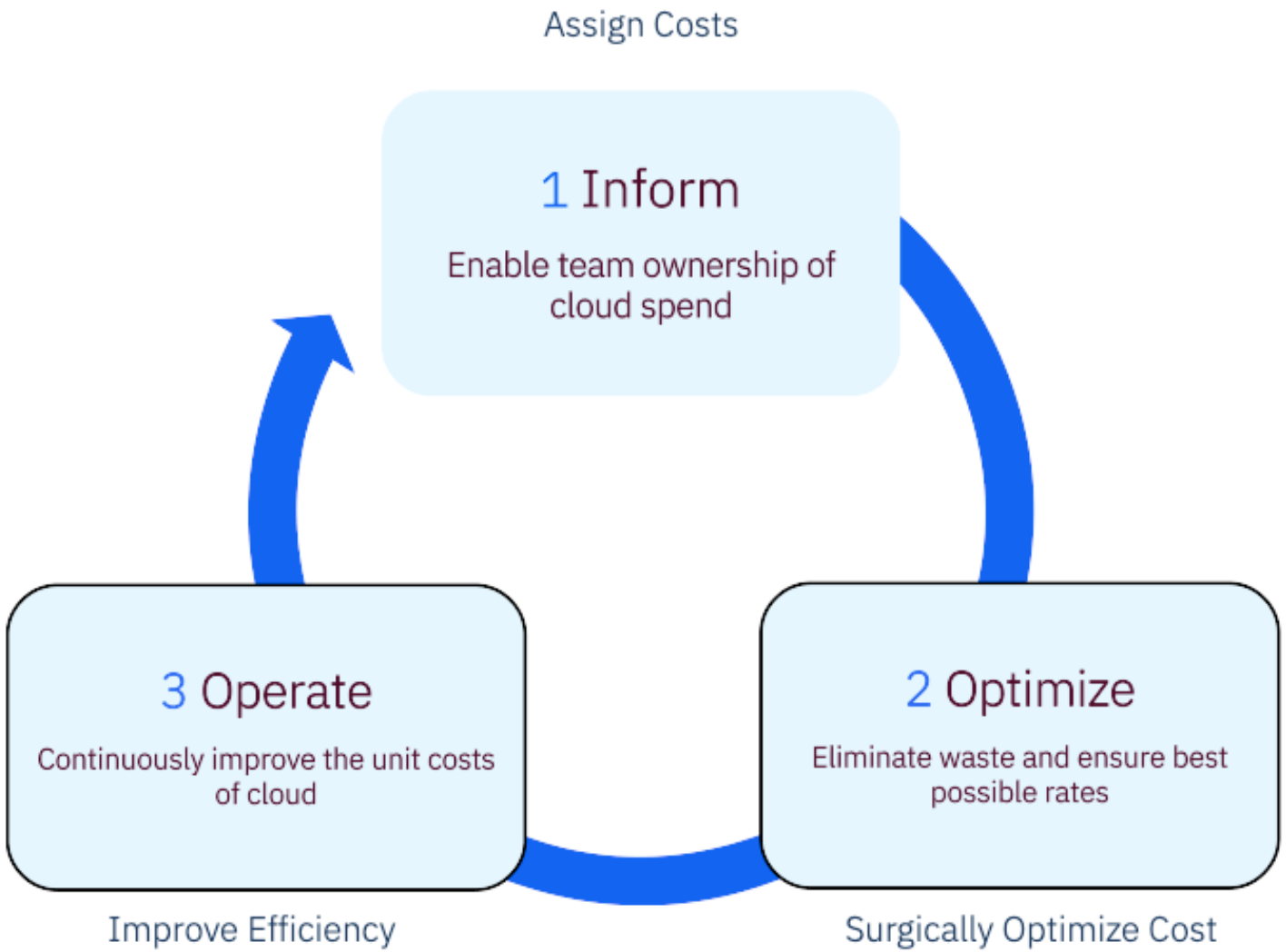
Crawl

Walk

Run

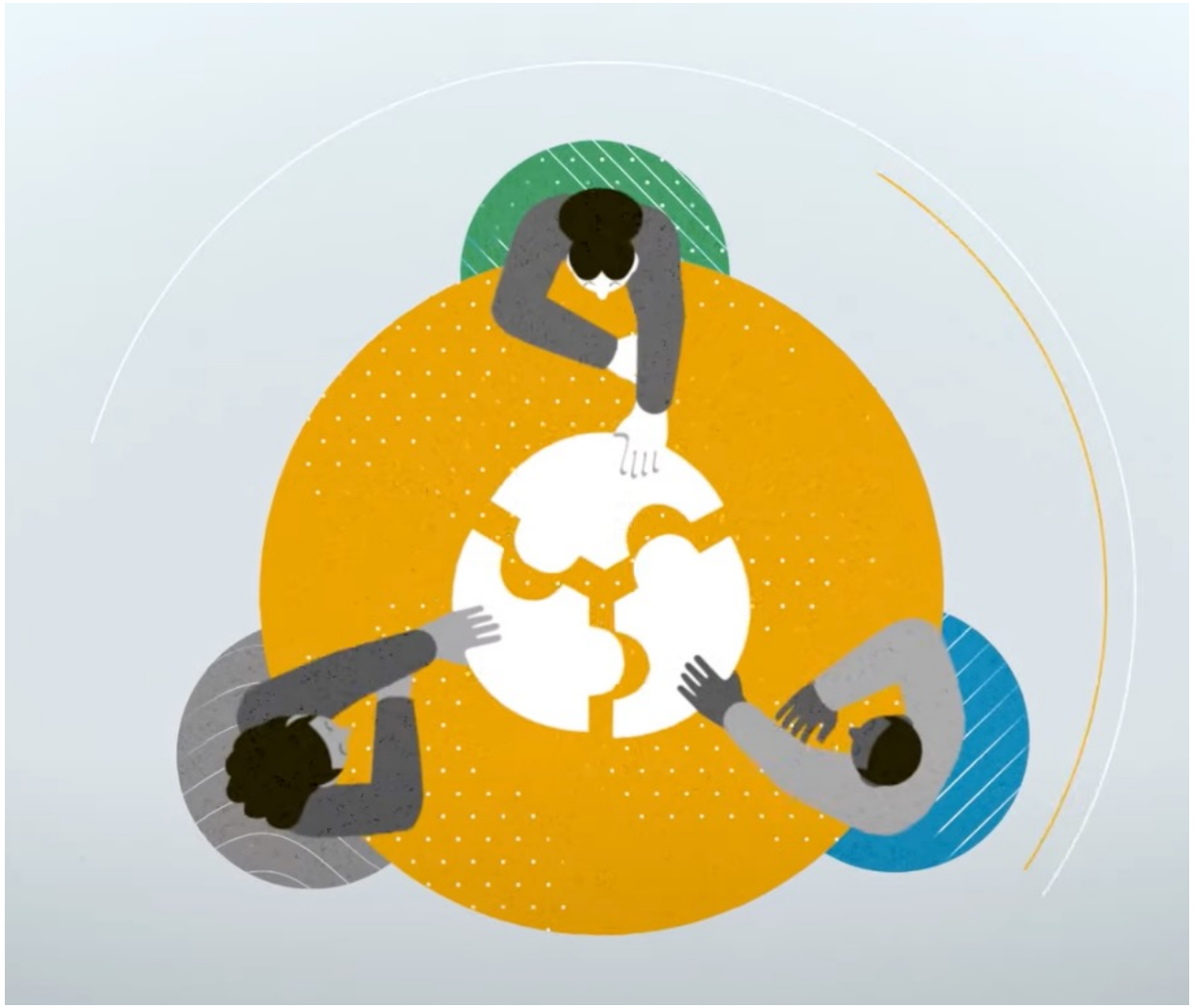
"A 'Crawl, Walk, Run' approach to performing FinOps enables organizations to start small, and grow in scale, scope and complexity as business value warrants maturing a functional activity." – FinOps Maturity Model

Rule of Three – FinOps Phases



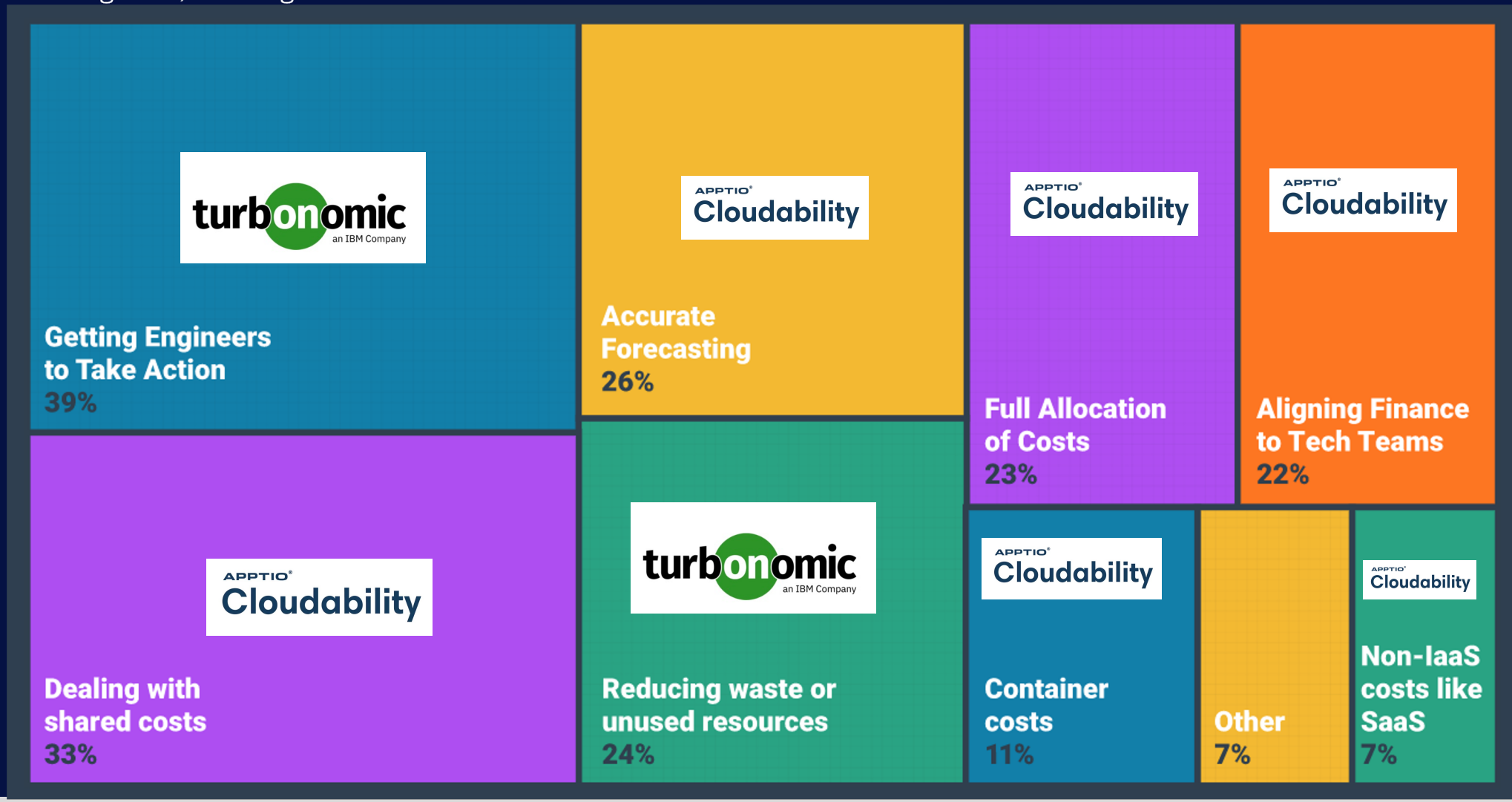
Why does this stuff matter?

“Cross-functional teams in Engineering, Finance, Product, etc work together to enable faster product delivery, while at the same time gaining more financial control and predictability.”
- What is FinOps

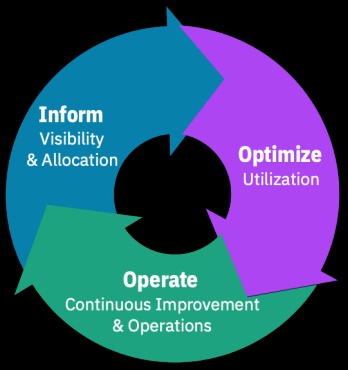


Market Maturity

In understanding which challenges members of the FinOps market face, IBM and Apptio can determine the stages to solution together, meeting market needs.



IBM & Apptio: Together



The Foundational Tools to empower your FinOps Organization

Inform

Gain better visibility over cloud operations and costs, creating deeper understanding of applications and driving shared accountability

Optimize

Empower teams to make informed decisions balancing performance and cost, improving efficiencies without sacrificing speed

Operate

Automate the continuous improvement process while providing clear reports and dashboards to track progress

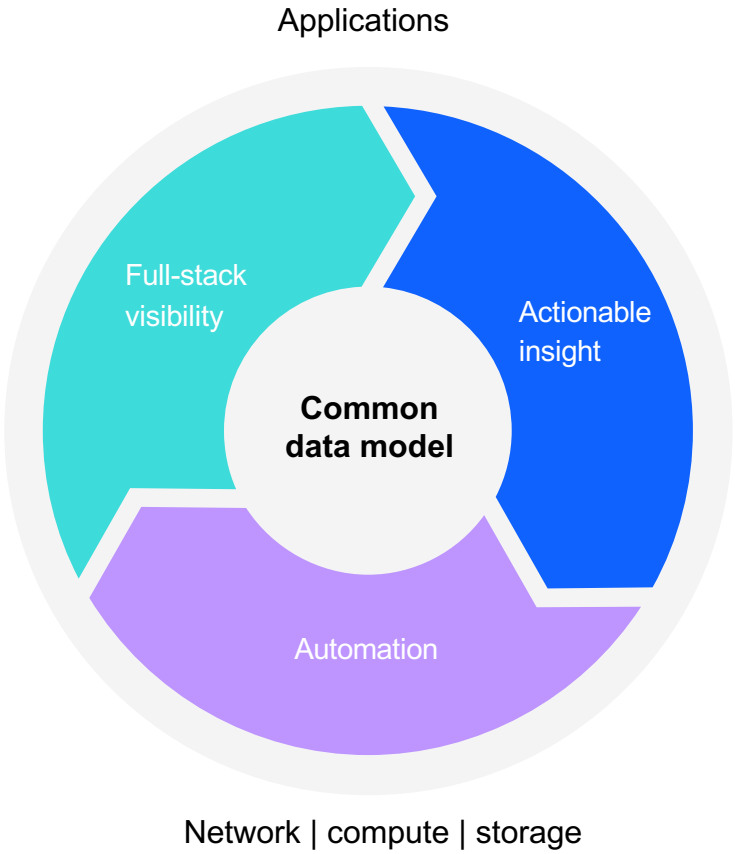
Alignment & Optimization

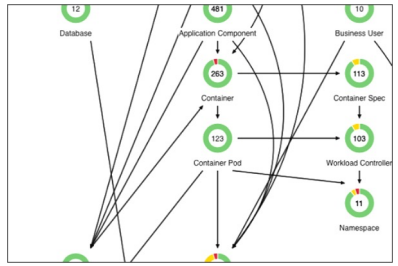
Observability & Cost

Tracking & Benchmarking	Cloud Usage Optimization	FinOps Alignment	Real-Time Decision Making

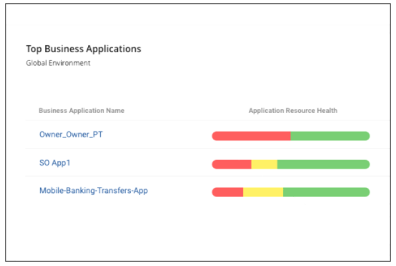
IBM | APPTIO

Turbonomic unlocks cloud elasticity through trustworthy, automatable AIOps actions

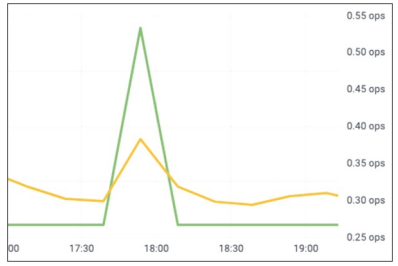




- **Collect in a common data model.**
- Collect application, cloud, infrastructure and network data, and manage in a common data model.



Visualize data with an app-centric lens.
Understand how applications consume resources from the infrastructure, from logical to physical, with a common perspective across LOB, DevOps, cloud, network and ITOps teams.



Analyze data in real time and over time.
AIOps software helps you make the right resourcing decisions at the right time, for any application at any scale.

Take actions with automatable decisions.
Safely execute actions as it suits your processes—and integrated with your ITSM and IAC processes—in real time, manually with a click, or scheduled.

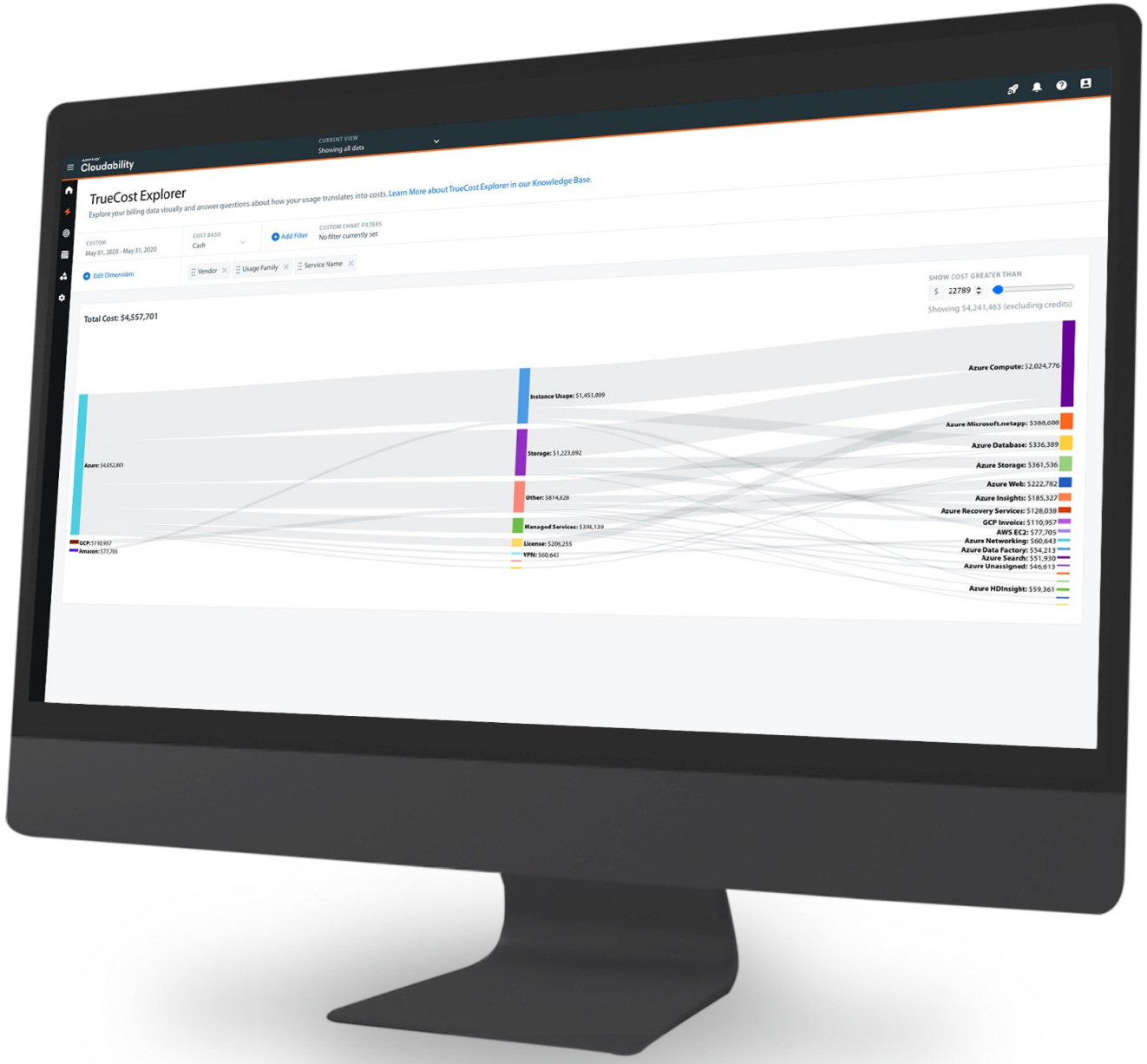
APPTIO®

Cloudability

Rule Cloud Spending with Your Team

Apptio's flexible data platform enables IT, finance and business teams to optimize cloud costs and communicate the business value of cloud.

- Enable team ownership of cloud costs
- Save money and rightsize cloud usages
- Continuously improve the unit economics of cloud



Enterprise FinOps for all Cloud Costs and Resources

APPTIO® Cloudability

Bringing together cloud cost management and application resource optimization to operationalize and automate FinOps while delivering data-driven business outcomes.

turbonomic an IBM Company

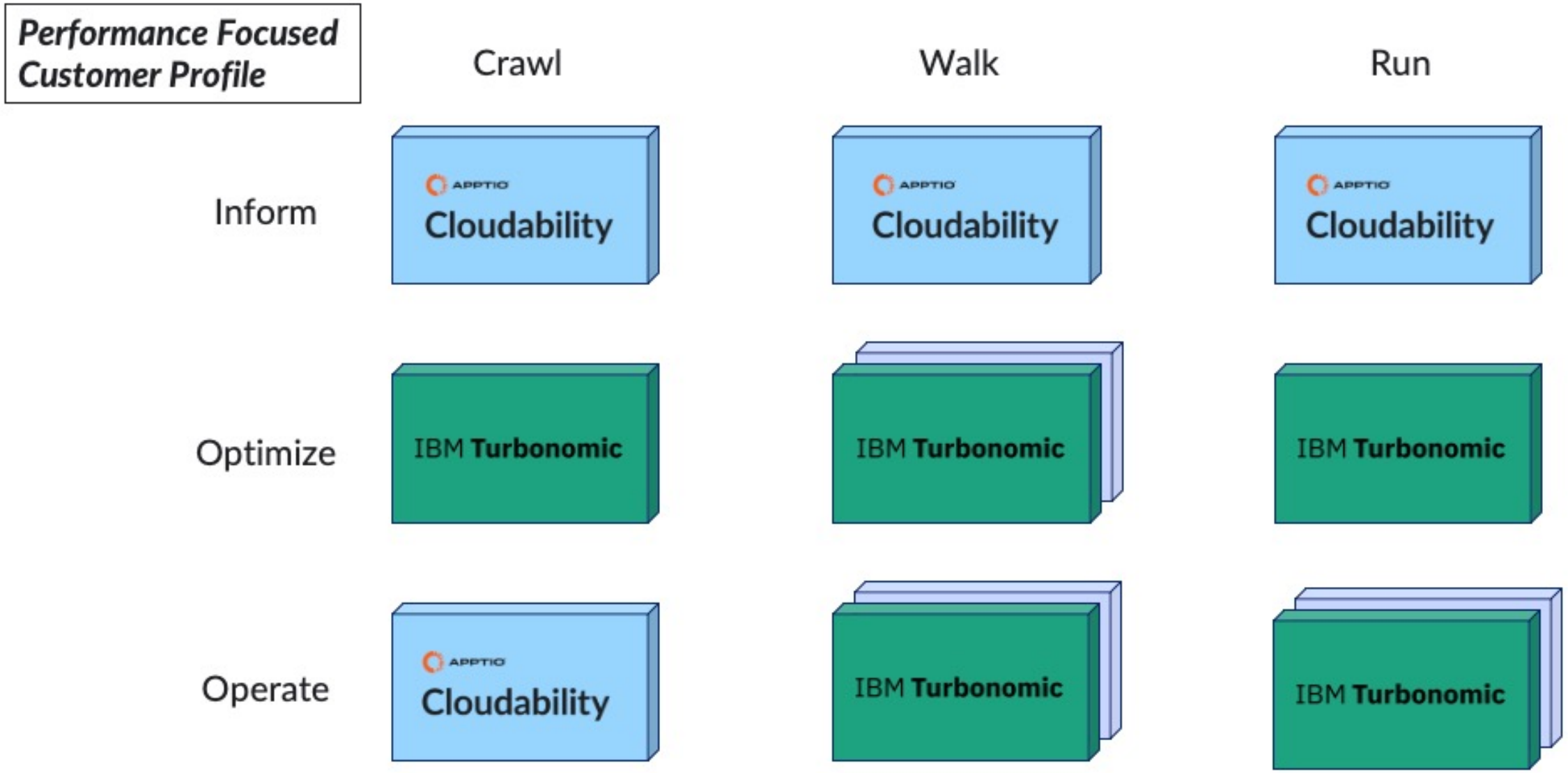
Control the "Fin" in your FinOps

- Visualize and allocate all public cloud and container costs
- Detect anomalies and reduce waste
- Automate savings program coverage
- Track and allocate total cloud spend
- Drive unit economics
- Up to 30% reduction in cloud spend with faster migration decisions
- 90% improvement in forecasting accuracy

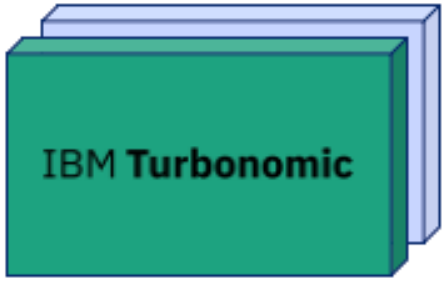
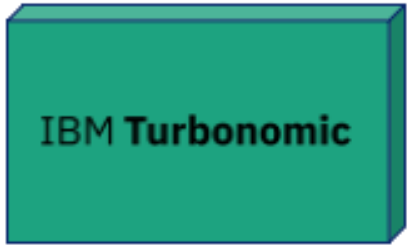
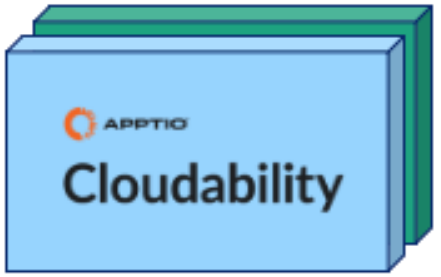
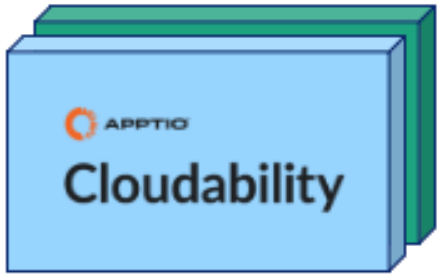
Advance *the* "Ops" in your FinOps

- Assure application performance while optimizing cost across resources
- Continuously match application demand to the right cloud resources
- Performance driven resource recommendations
- Intelligent action automation to unlock resource elasticity
- Reduce resource waste by 30+%
- Increase team productivity by 35+%

How do you FinOps?

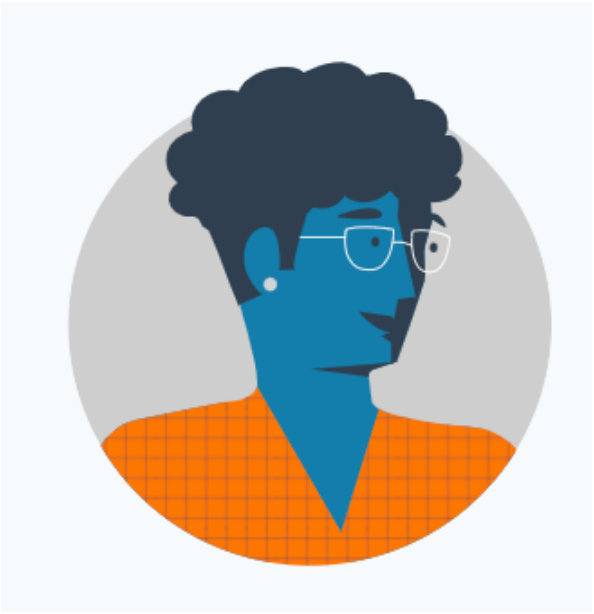


How do you FinOps?

Cost Focused Customer Profile	Crawl	Walk	Run
Inform			
Optimize			
Operate			

Meet Linda

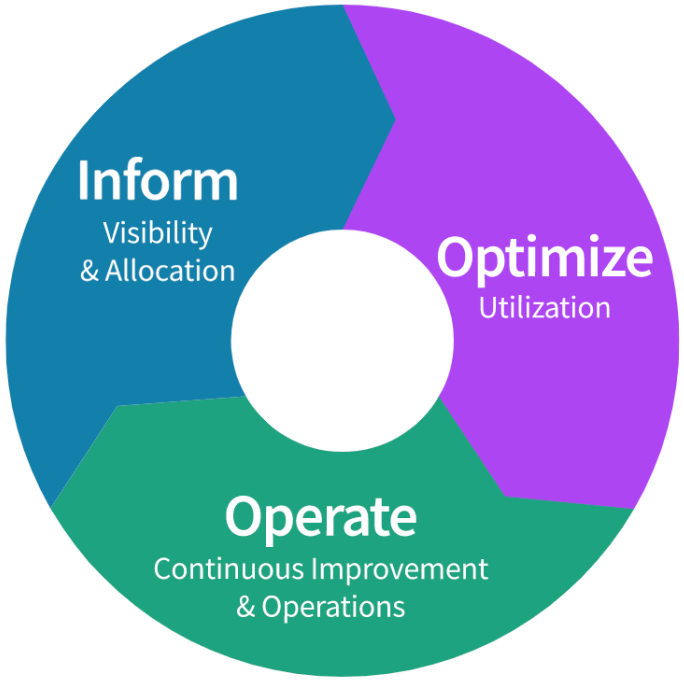
Linda is a FinOps Practitioner working in the Cloud Center of Excellence. **Her main goal is to bridge the gap between Cloud cost and performance to bring efficient business value for the entire company.**



Linda wants to enable optimal observability, performance, and cost across all Cloud functions and processes through the FinOps phases.

At a high level, Linda focuses on:

- Key events/incidents that are/can hinder product performance
- Cloud costs in various views i.e. application and team level.
- Rightsizing opportunities to optimize workloads for performance and costs



Single view, all the Data

Apptio and IBM Dashboard

Report | Insights

Application, # Calls, # Errors, Server Count, Storage GB, Tickets, Action Count, Cost
This Month (Dec 2021)

Pivot By: None

Application	# Calls	# Errors	Server Count	Storage GB	Tickets	Action Count	Cost	Turbo Potential Savings
Robot Shop	55,000	43	123	2,000	112	61	$130,857	$45,298
Raw Materials Inventory	3,300	33	33	450	45	17	$10,758	$12,680
Acme.com	20,000	7	45	500	33	3	$776	$2,113
SAP Data Warehousing	1,000	45	31	700	98	3	$3,636	$2,095
Mobile Direct Order	12,000	21	21	100	8	2	$3,289	$851
Workday	8,000	12	12	200	76	1	$2,729	$456
Oracle CRM	23,000	76	9	250	7	1	$3,063	$1,000
Major Accounts Program	12,000	33	14	100	11	1	$2,298	$234
Mobile Workforce Manageme	12,000	8	9	1,000	46	1	$895	$549
							302	$65,276

Columns

Page 1 of 1

INSTANA an IBM Company

APPTIO turbonomic APPTIO turbonomic

The high level KPIs track overall spend. If I want data on specific application, this table brings together Instana, Turbonomic and Apptio data together for a wholistic view of the Cloud.

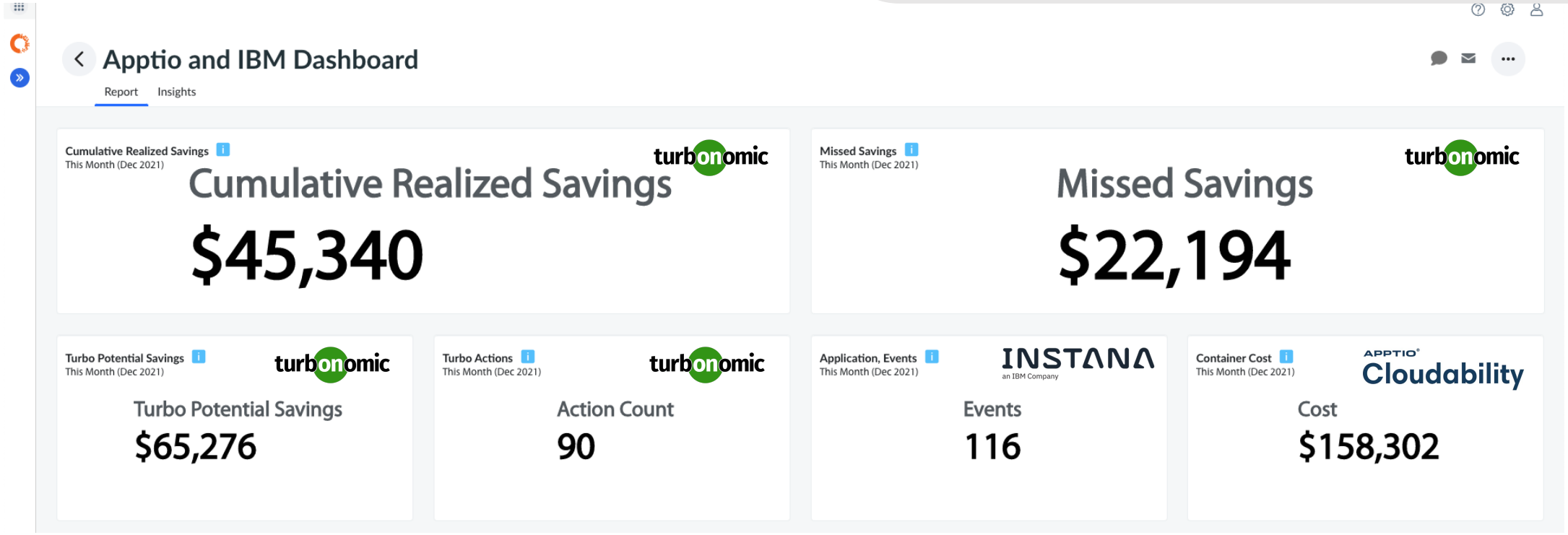
KPI and Metrics

These KPIs help me to see two things:

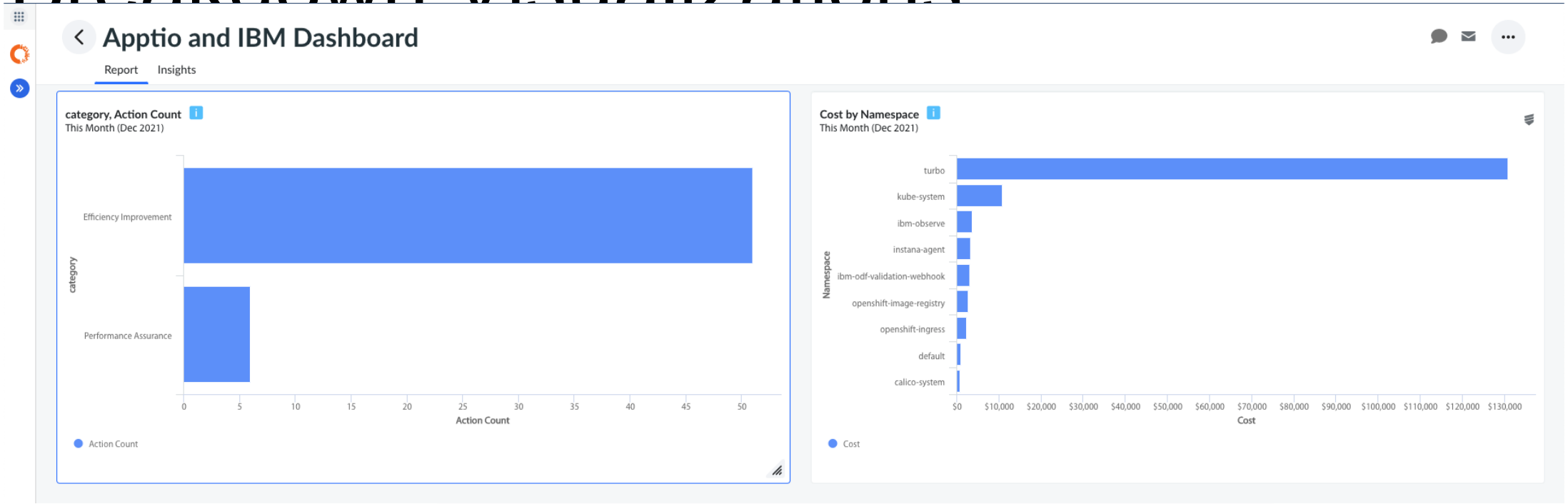
1. The current status of my cloud performance and cost
2. The avenues of potentials savings I can achieve

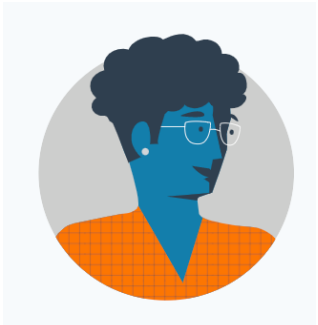
I want to **dig deeper and understand:**

1. Performance and cost for individual applications
2. Container costs
3. Performance rightsizing savings
4. Events affecting Performance



Breakdown Visualizations





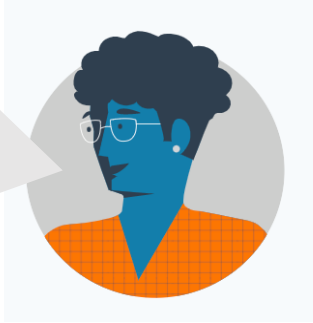
The graph on the left shows me what type of performance rightsizing actions that Turbonomic has surfaced. I can drill down into each type to see the recommended actions.

The graph on the left breaks down the Container Cost KPI into specific namespaces. I can also drill down into these costs to see the cost breakdown for individual namespaces.

Cost and Savings

In a combined table, I can view Turbonomic and Cloudability data side by side. For a specific namespace, I can see the number of rightsizing actions, savings, and Average Savings per Action from Turbo.

Meanwhile from Cloudability, I can see the cost of each namespace.



Apptio and IBM Dashboard

Report | Insights

Namespace, Action Count, Cost
This Month (Dec 2021)

Pivot By: None

Columns

Namespace	Action Count	Cost	Turbo Potential Savings	Avg Savings per Action
turbo	61	$130,857	$45,298	$743
kube-system	17	$10,758	$12,680	$746
ibm-observe	3	$3,636	$2,095	$698
calico-system	3	$776	$2,113	$704
instana-agent	2	$3,289	$851	$426
default	1	$895	$549	$549
openshift-ingress	1	$2,298	$234	$234
openshift-image-registry	1	$2,729	$456	$456
ibm-odf-validation-webhook	1	$3,063	$1,000	$1,000
	turbonomic	APPTIO Cloudability	turbonomic	turbonomic
(Total)	90	$158,302	$65,276	$725

Drill down - Turbo

Drilling into the previous table, I gain insight into individual actions for a specific namespace. These actions are detailed with contextual data that is linked back to the Turbonomic environment.

IBM and Apptio Dashboard

Report Insights

Namespace, Action Count, Cost
This Month (Dec 2021)

Namespace
turbo
kube-system
ibm-observe
calico-system
instana-agent
default
openshift-ingress
openshift-image-registry
ibm-odf-validation-webhook

Pivot By None

Avg Savings per Action
$743
$746
$698
$704
$426
$549
$234
$456
$1,000

Columns

Details

turbonomic

Namespace = "turbo"

Namespace, Action Category, Action State, Cluster, Container Spec, Current Value, Impacted Commodity, Name, Action Count, Cost, Turbo...
This Month (Dec 2021)

Nam...	Actio...	Actio...	Cluster	Cont...	Curr...	Impa...	Name	Actio...
turbo	Efficiency	Action accep	Kubernetes-T	db	12,582,912	VMem	db	1
turbo	Efficiency	Action accep	Kubernetes-T	api	16,777,216	VMem	api	1
turbo	Efficiency	Action accep	Kubernetes-T	auth	16,777,216	VMem	auth	1
turbo	Efficiency	Action accep	Kubernetes-T	auth	524,288	VMemReque	auth	1
turbo	Efficiency	Action accep	Kubernetes-T	cost	33,554,432	VMem	cost	1
turbo	Efficiency	Action accep	Kubernetes-T	group	33,554,432	VMem	group	1
turbo	Efficiency	Action accep	Kubernetes-T	kafka	8,388,608	VMem	kafka	1
turbo	Efficiency	Action accep	Kubernetes-T	market	33,554,432	VMem	market	1
turbo	Efficiency	Action accep	Kubernetes-T	history	33,554,432	VMem	history	1
(Total)								61

Columns

Page 1 of 2

Close

Appendix

Cloud Optimization Index Number (COIN)

KPI to measure cloud efficiency over a period of time
3 numbers with clear plan of action to control

$$\frac{\text{1. Rightsize Opportunity} + \text{2. Non-Prod Weekend \& Weeknight}}{\text{3. Cloud Spend}}$$

1. Total Rightsize Opportunity (Unit Optimization)
2. Total Non-prod Weekend and Weeknight runtime (Process / Automation)
3. Total Cloud Spend (Rate Optimization)

Cloud Carbon Footprint Methodology

***Total CO2e** = operational emissions + embodied Emissions*

Metric from Workload Operation

***Operational emissions* =** (Cloud provider service usage) x (Cloud energy conversion factors [kWh]) x (Cloud provider Power Usage Effectiveness (PUE)) x (grid emissions factors [metric tons CO2e])

Metric from Manufacturing Hardware

***Embodied emissions* =** estimated metric tons CO2e emissions from the manufacturing of datacenter servers, for compute usage

https://www.cloudcarbonfootprint.org/docs/methodology

Operational Emissions

Data Origins

= CCF = Cloudability data = SPEC Power Table

Operational emissions = (Cloud provider service usage) x (Cloud energy conversion factors [kWh]) x (Cloud provider Power Usage Effectiveness (PUE)) x (grid emissions factors [metric tons CO2e])

Operational Emissions calculations are done for:

- Compute
- GPU
- Storage
- Networking
- Memory

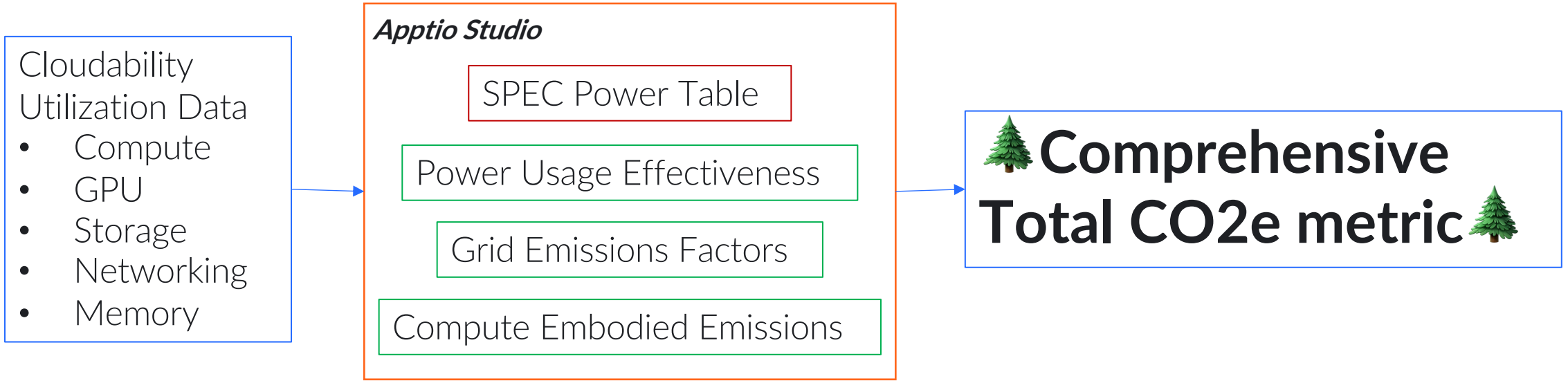
Apptio Sustainability

Data Origins

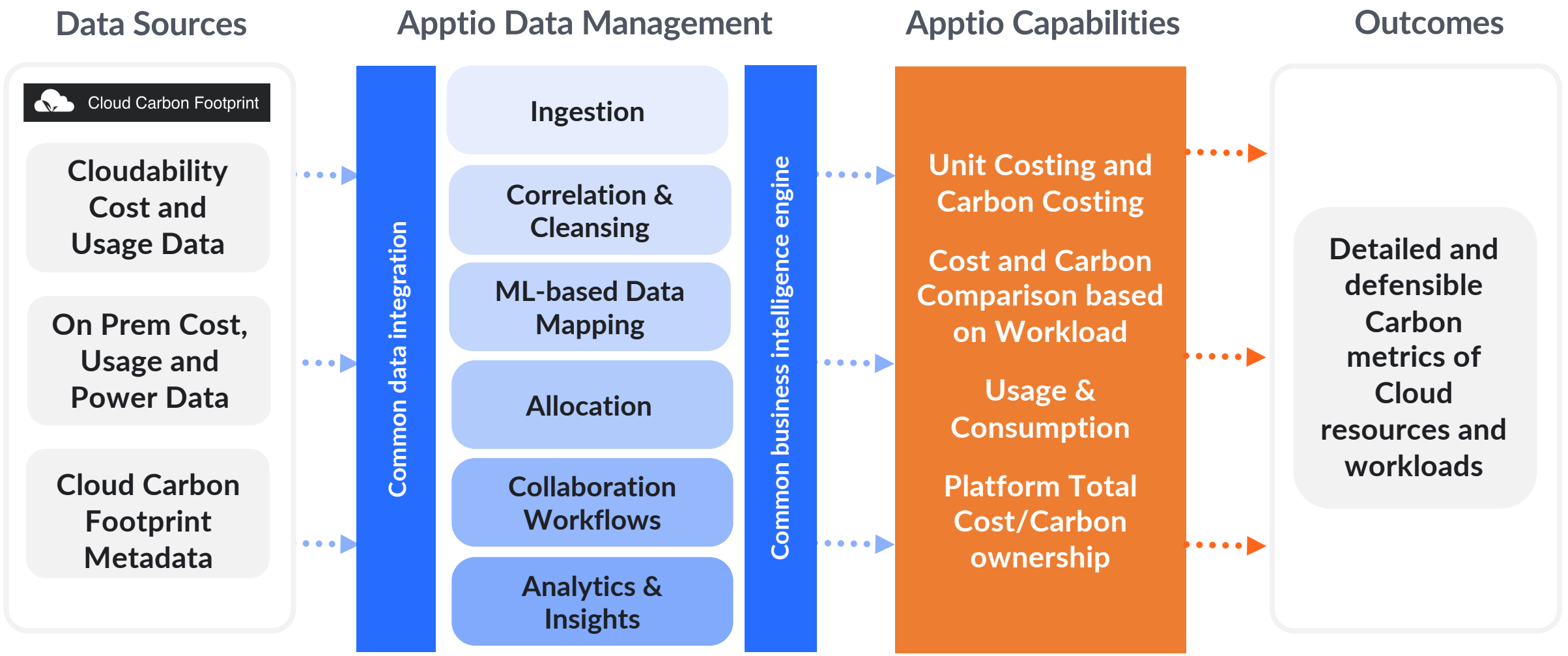
= CCF = Cloudability data = SPEC Power Table

Operational emissions = (Cloud provider service usage) x (Cloud energy conversion factors [kWh]) x (Cloud provider Power Usage Effectiveness (PUE)) x (grid emissions factors [metric tons CO2e])

Embodied emissions = estimated metric tons CO2e emissions from the manufacturing of datacenter servers, for compute usage



Apptio Sustainability



Turbo Integration

Report Collections

- Home
- ACM
- Benchmarking
- Business Units
- Data Dimensions
- Data Quality
- IT Financials
- Labor
- Sustainability
- TBM Overview
- Turbo Integration
- Vendors

Signed in as:
Derrick King

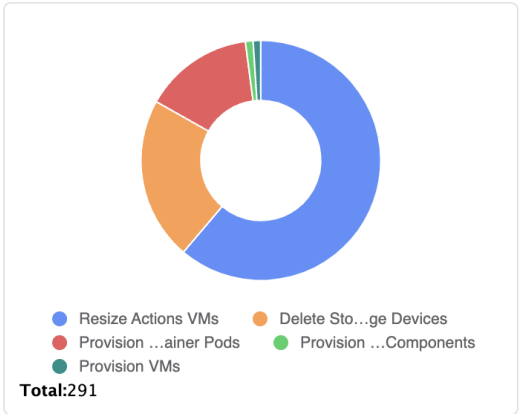
APPTIO an IBM Company

Cloud Cost	Potential Savings	COIN Index (Target 10%)	Action Count
$205,815 0% MoM ↑	$20,735 0% MoM →	10.07% 0% MoM ↓	844 0% MoM →

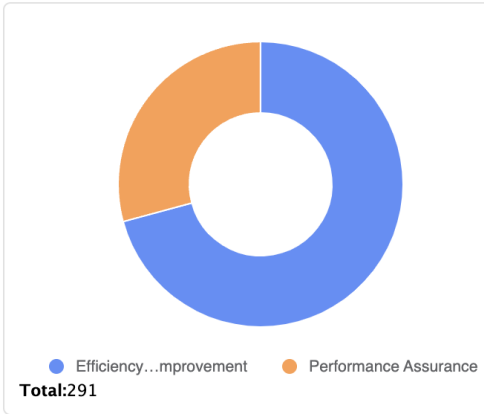
COIN Index Thresholds:
For *COIN Index* columns:
- Less than 10%: green
- Greater than 10% and less than 30%: yellow
- Greater than 30%: red

Summary | Details | On Prem

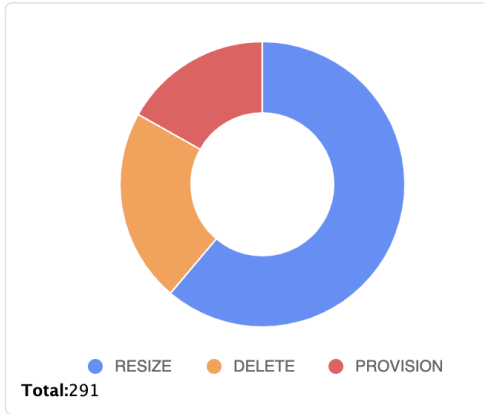
Actions by Source



Actions by Categories



Actions by Action Type



Vendor
No Filter Applied

Team
No Filter Applied

Service
No Filter Applied

Business Unit
No Filter Applied

Action Details

actionID	actionType	category	severity	details	entity	justification	Turbo URL
637808101926103	RESIZE	Efficiency Improvement	MINOR	Resize down VCPU for Virtual Machine dedwdc06-vcenter-Active from 8 to 1 vCPUs	dedwdc06-vc.na.cloud.techzone.ib…	Underutilized VCPU in Virtual Machine dedwdc06-vcenter-Active	Link
637808101926104	RESIZE	Efficiency Improvement	MINOR	Resize down VCPU and Reservation for Virtual Machine ded-wdc06-nsxt-ctrlmgr0 from 6 to 2 vCPUs	dedwdc06-vc.na.cloud.techzone.ib…	Underutilized VCPU in Virtual Machine ded-wdc06-nsxt-ctrlmgr0	Link
				Resize down VCPU and Reservation for Virtual Machine	dedwdc06-	Underutilized VCPU in Virtual	

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ACM

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Benchmarking
Business Units
Data Dimensions
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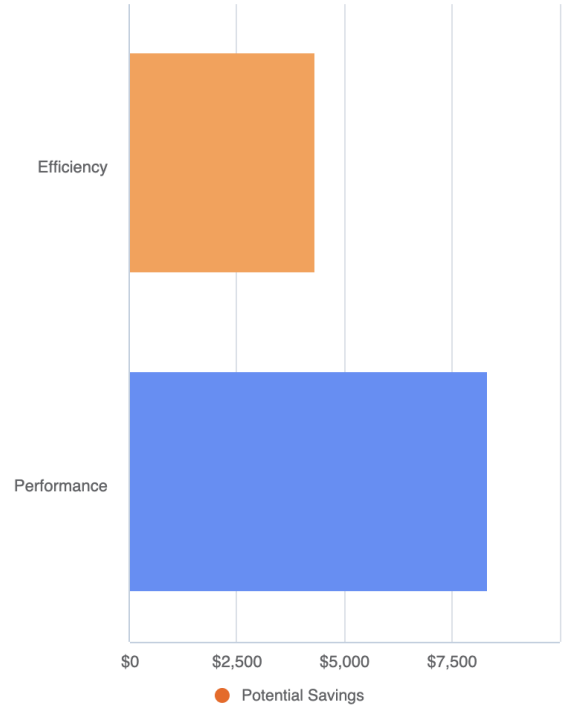
IT Financials
Labor
Sustainability
TBM Overview
Turbo Integration
Vendors

Services Details

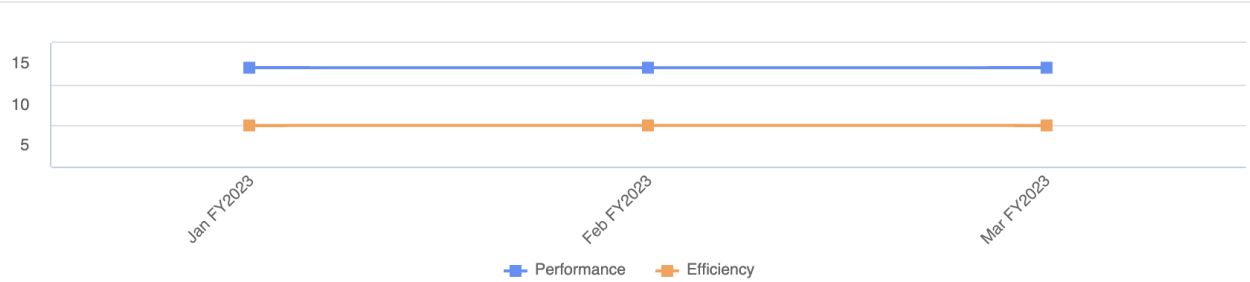
Services Details for Chatbots in Call Center

Summary | Cost Pools | Vendors | Labor | Agile Activity | Cloud | Efficiency & Performance Actions | Incidents | Observability | Sustainability | EAM | Benchmarks | On Prem / Cloud

Potential Savings by Category



Action Count by Category



Action ID	Name	Container Spec	Action Category	Risk Description	Cluster	Current Value	New Value	Potentia Savings	YTD Potential Savings
427452917…	ibm-vpc-block-csi-node	csi-driver-registrar	Performa…	VCPU Throttling Congestion in Container Spec storage-secret-sidecar; VCPU Throttling Congestion in Container Spec liveness-probe; Underutilized VMem Limit in Container Spec iks-vpc-block-node-driver; VCPU Throttling Congestion in Container Spec csi-driver-registrar	Kubernetes-Turbonomic	40	100	$1,012	$3,036
Total						**5297052**	**1054574**	**$12,680**	**$38,040**

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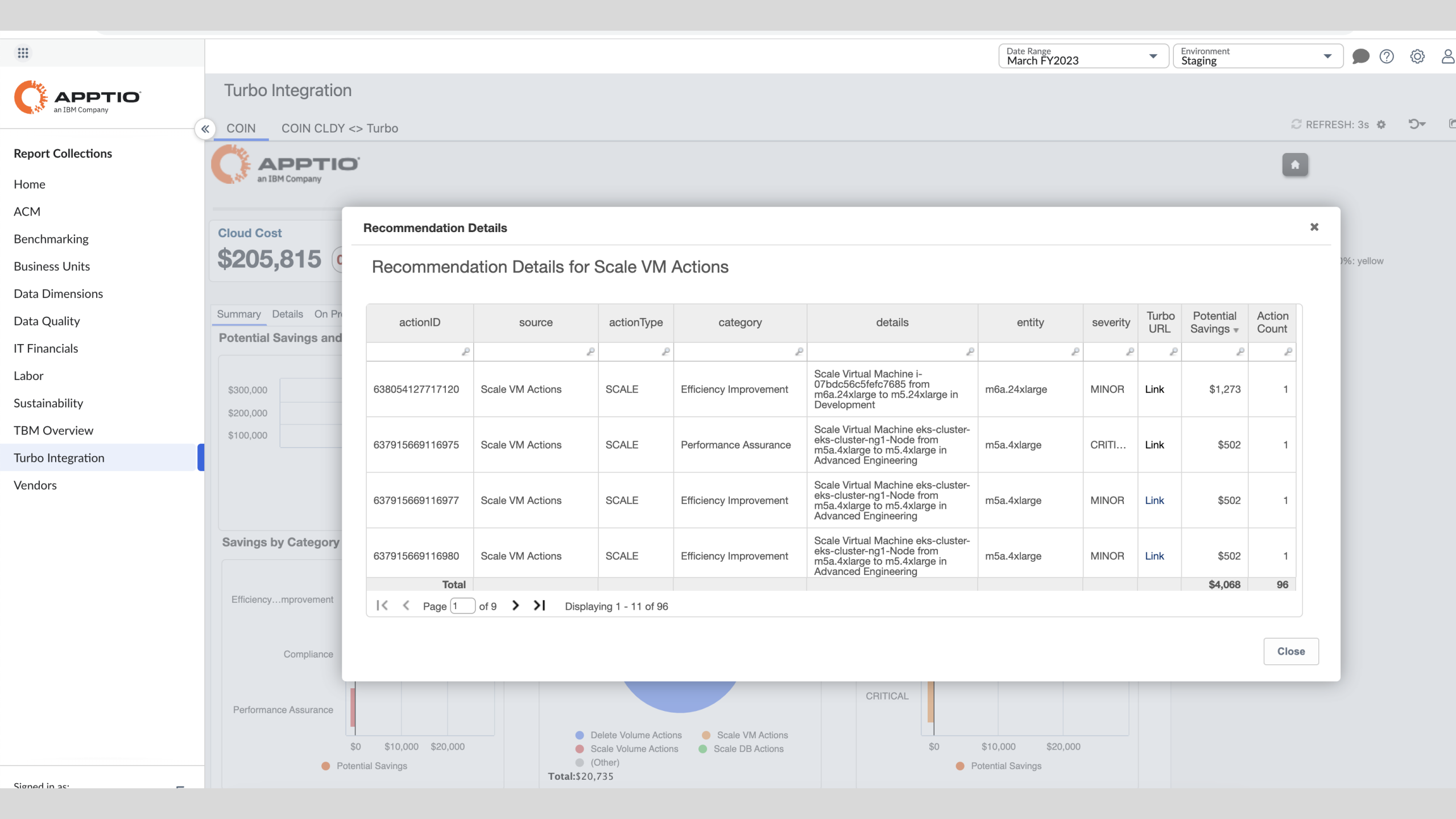
Date Range
March FY2023
Environment
Staging
Turbo Integration
COIN
COIN CLDY <> Turbo
REFRESH: 3s
Report Collections
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Cloud Cost
$205,815
Summary
Details
Potential Savings and
Savings by Category
Efficiency…mprovement
Compliance
Performance Assurance
$0
$10,000
$20,000
Potential Savings
Delete Volume Actions
Scale VM Actions
Scale Volume Actions
Scale DB Actions
(Other)
Total:$20,735
CRITICAL
Recommendation Details
Recommendation Details for Scale VM Actions
actionID
source
actionType
category
details
entity
severity
Turbo URL
Potential Savings
Action Count
638054127717120
Scale VM Actions
SCALE
Efficiency Improvement
Scale Virtual Machine i-07bdc56c5fefc7685 from m6a.24xlarge to m5.24xlarge in Development
m6a.24xlarge
MINOR
Link
$1,273
1
637915669116975
Scale VM Actions
SCALE
Performance Assurance
Scale Virtual Machine eks-cluster-eks-cluster-ng1-Node from m5a.4xlarge to m5.4xlarge in Advanced Engineering
m5a.4xlarge
CRITI…
Link
$502
1
637915669116977
Scale VM Actions
SCALE
Efficiency Improvement
Scale Virtual Machine eks-cluster-eks-cluster-ng1-Node from m5a.4xlarge to m5.4xlarge in Advanced Engineering
m5a.4xlarge
MINOR
Link
$502
1
637915669116980
Scale VM Actions
SCALE
Efficiency Improvement
Scale Virtual Machine eks-cluster-eks-cluster-ng1-Node from m5a.4xlarge to m5.4xlarge in Advanced Engineering
m5a.4xlarge
MINOR
Link
$502
1
Total
$4,068
96
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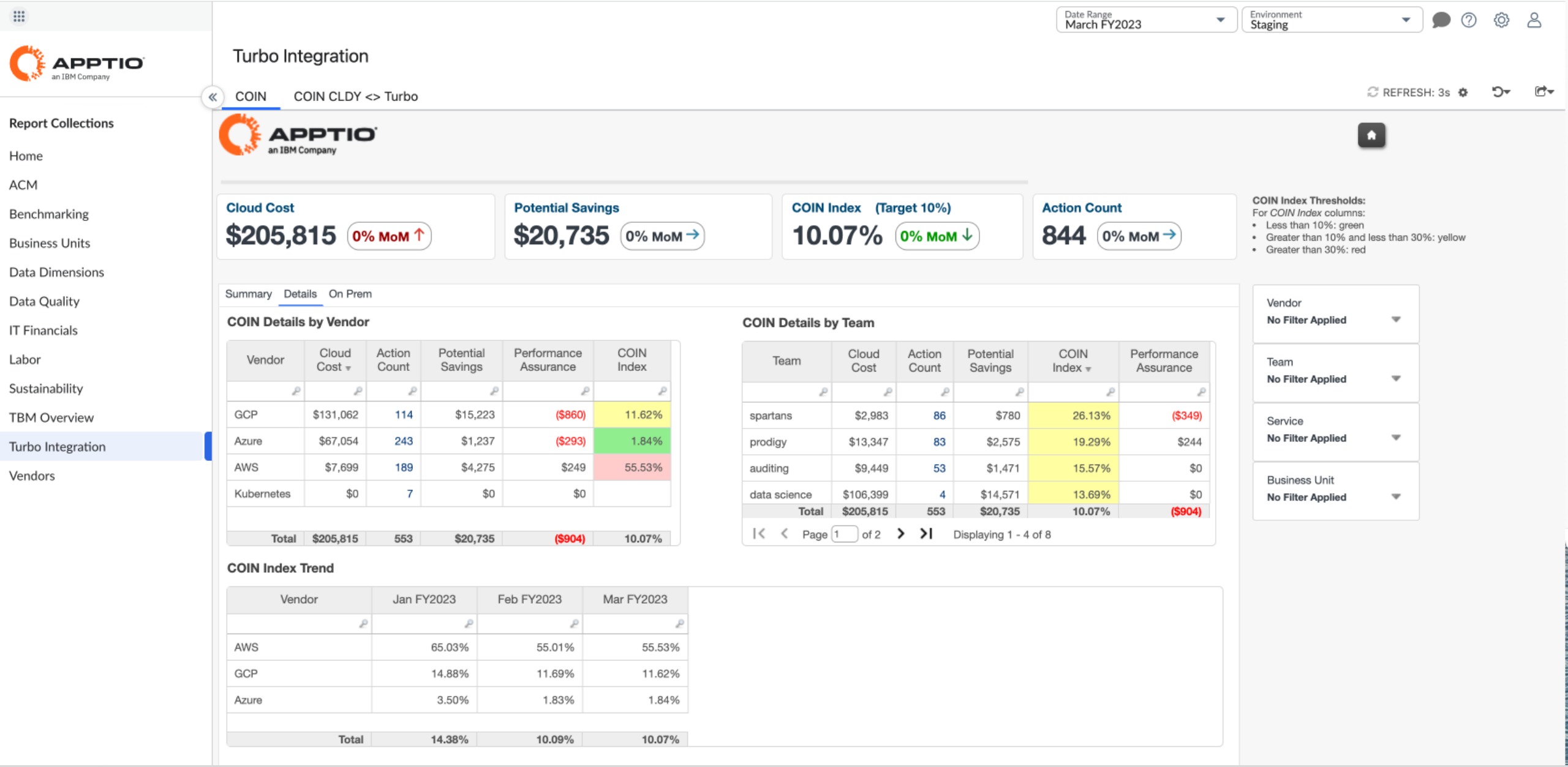
Close


Date Range
March FY2023
Environment
Staging
Turbo Integration
COIN
COIN CLDY <> Turbo
REFRESH: 3s
APPTIO
an IBM Company
Report Collections
Home
ACM
Benchmarking
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Data Dimensions
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Sustainability
TBM Overview
Turbo Integration
Vendors
Cloud Cost
$205,815
0% MoM
Potential Savings
$20,735
0% MoM
COIN Index (Target 10%)
10.07%
0% MoM
Action Count
844
0% MoM
COIN Index Thresholds:
For COIN Index columns:
Less than 10%: green
Greater than 10% and less than 30%: yellow
Greater than 30%: red
Summary
Details
On Prem
COIN Details by Vendor
Vendor | Cloud Cost | Action Count | Potential Savings | Performance Assurance | COIN Index
GCP | $131,062 | 114 | $15,223 | ($860) | 11.62%
Azure | $67,054 | 243 | $1,237 | ($293) | 1.84%
AWS | $7,699 | 189 | $4,275 | $249 | 55.53%
Kubernetes | $0 | 7 | $0 | $0
Total | $205,815 | 553 | $20,735 | ($904) | 10.07%
COIN Details by Team
Team | Cloud Cost | Action Count | Potential Savings | COIN Index | Performance Assurance
spartans | $2,983 | 86 | $780 | 26.13% | ($349)
prodigy | $13,347 | 83 | $2,575 | 19.29% | $244
auditing | $9,449 | 53 | $1,471 | 15.57% | $0
data science | $106,399 | 4 | $14,571 | 13.69% | $0
Total | $205,815 | 553 | $20,735 | 10.07% | ($904)
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COIN Index Trend
Vendor | Jan FY2023 | Feb FY2023 | Mar FY2023
AWS | 65.03% | 55.01% | 55.53%
GCP | 14.88% | 11.69% | 11.62%
Azure | 3.50% | 1.83% | 1.84%
Total | 14.38% | 10.09% | 10.07%
Vendor
No Filter Applied
Team
No Filter Applied
Service
No Filter Applied
Business Unit
No Filter Applied

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ACM

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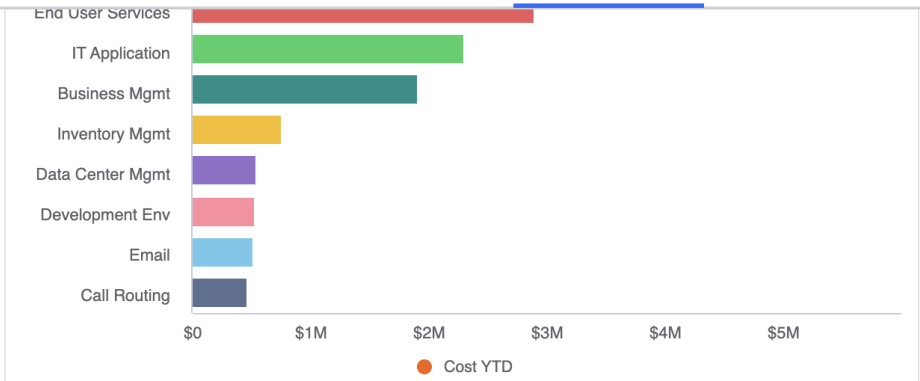

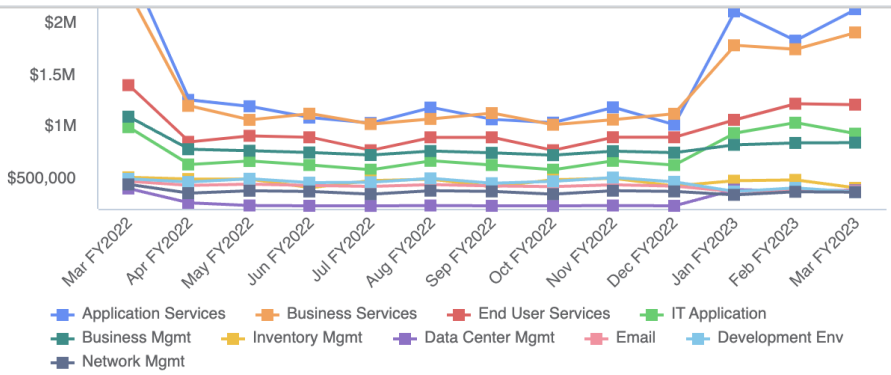

Top Services | Details | Users | Ops Summary

Service Ops Details

Service Name	Cloud Cost	Cost	Cost YTD	CO2	kWh	Power Consumption	Sustainabi Status	Ticket Count	Performance Assurance	Efficiency	Potential Savings	Action Count	Events
App Maintenance	$531,036	$788,597	$2,302,775	867	11,593,599			12	$1,000	$0	$1,000	1	12
Chatbots in Call Center	$351,462	$706,245	$2,178,775	867	778,537			18	$8,348	$4,332	$12,680	17	30
App Consulting	$480,948	$658,701	$1,767,153	867	19,322,665			18	$0	$45,298	$45,298	61	11
App Test Automation	$483,330	$493,279	$1,424,309	867	5,796,800			23	$0	$0	$0	0	10
Database Support	$369,332	$479,883	$1,398,168	37,310	55,208			20	$0	$851	$851	2	2
Virtual Desktop	$225,802	$484,844	$1,289,170	867	1,922,267			19	$0	$0	$0	0	1
Total	**$5,007,110**	**$8,532,384**	**$25,130,374**	**314,513**	**156,663,600**			**4,732**	**$9,897**	**$53,284**	**$63,181**	**87**	**94**

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