

Nick Murray - Data Product Design at Salesforce

The following screenshots showcase my work at Salesforce from 2019-2021. For any questions or other materials, please don't hesitate to contact me directly:

nicholasdmurray@gmail.com

(917)-386-3609

<http://nickm.io>

Horizon Analytics - My Team at Salesforce

Our team delivers internal data products to thousands of infrastructure planners, executives, and engineers to ensure that Salesforce, its acquisitions, and any customer-developed apps function seamlessly in the cloud.

The infographic is titled "HorizonAnalytics" and features a central diagram illustrating the "Horizon Platform" as a hub connecting various data products. Above the platform, a cloud icon contains the text "Enabling data insights across our cloud infrastructure". Below the platform, five vertical bar charts represent different products: "Iterative forecasting" (green), "Granular data exploration" (green), "Cost optimization" (green), "Scenario assessment" (yellow), "Risk analysis" (orange), and "Customer insights" (red). Each bar chart has a small icon above it. A horizontal line with circles connects the base of each bar chart to the "Horizon Platform".

Predictive intelligence at scale

"Horizon provides capacity planning the critical insights required to support our customers as we continue to scale."

– Dan Harrington, Capacity Planning

"Timely insights from Horizon's capacity forecasts help Salesforce avoid related incidents and preserve trust."

– Steve Bobrowski, CRM Systems Infrastructure

"We leverage Horizon to ingest, aggregate, and persist metrics that are relevant to org migration."

– Xiaodan Wang, Org Migration Scale

On the Horizon

- Enhanced Core predictive capabilities & planning tools
- Commerce & Marketing Cloud capacity management
- LRP, Cost, and Org-Level insights

Experience the advantage

of enhanced speed, data integration, reliability, and retention

Horizon UI	Dora	Infra CTS
1,000+ forecasts at 89.5% accuracy	Exploration & forecasting for our top 1,000 orgs	Visibility on infra costs & revenue

Alation Data Catalog
Ready-made, documented big data queries

{ Horizon : Api }
10+ integrated data sources at your fingertips

Last updated Feb 2020

Team showcase infographic by Nick Murray, Feb 2020

Falcon Cost Explorer - Actively Managing Cloud Infrastructure Costs, Jan 2021

Purpose: Enable engineers in partnership with finance professionals to proactively grow the cost-efficiency of our cloud infrastructure fleet.

Navigation: [Cost Explorer](#) | [Cost Intel](#) | [Falcon Data Hub](#) | [BT Auth](#) | [FAQ](#) | [Chatter](#) | [Monthly Dashboard](#) | [User Guide](#)

Search: Search apps

Filter: Breakdown by Functional Domain (Last 30 Days) | Date Selection (Optional) | Start Date: Jan 1, 2021 | End Date: Jan 31, 2021 | Apply Dates

Display: Most Costly | Top Cost Movers | View Util % as: EC2 Compute (%) | EC2 Memory (%) | EBS - PIOPs (%) | EBS - Storage (%)

Note: Cost for the current month and latest 30 days includes an estimation of our corporate discount. The actual discount arrives in the beginning of the following month.

Cost in View: **\$7.77M** | Total Cost in Time Frame: **\$7.77M** | % of Total Cost in Time Frame: **100%**

Most Costly Func. Domains, Jan 1 - Jan 31, 2021

Functional Domain	Total Cost (USD)	Avg. EC2 Utilization (%)	% Change over date window
core4	~80K	~80%	+9.0%
core1	~75K	~75%	+4.6%
core3	~70K	~70%	+15.4%
monitoring	~65K	~65%	+1.2%
core002	~60K	~60%	+31.1%
crypto	~55K	~55%	+28.8%
commerce.com	~50K	~50%	+3.2%
foundation.com	~45K	~45%	-11.6%
useast2.deploy	~40K	~40%	+14.1%
sfcdmodel	~35K	~35%	+12.3%

Daily Cost Growth, Most Costly Func. Domains, Jan 1 - Jan 31, 2021

Daily EC2 Util. (%), Most Costly Func. Domains, Jan 1 - Jan 31, 2021

Cost & Utilization - All Func. Domains, Jan 1 - Jan 31, 2021

AWS Service	Total Cost (USD)	% Change	Avg. Util. (%)	% Change
EC2 Compute	67.1K	+16.5	67.1	-12.1
EBS - Storage	55.7K	+21.2	89.2	-28.8
Cloud HSM	50.1K	-43.3	43.3	+16.5
CloudWatch	49.8K	-12.1	61.2	+51.2
RDS Compute	11.2K	+11.9	91.6	-52.9
Virtual Private Cloud	9.9K	+64.4	81.2	2.2M
EKS - ClusterHours	8.1K	-23.6	42.1	+37.4
Route 53	7.4K	-14.1	24.6	+53.4
EC2 NAT Gateway Transfer	5.9K	+41.3	63.3	-42.6
Amazon GuardDuty	4.3K	-31.2	41.5	-14.5
AWS Key Management Service	2.1K	+15.6	18.5	-16.1
Lambda - Compute	1.8K	-14.1	73.1	+34.8

Cost Explorer
Cost Intel
Falcon Data Hub
BT Auth
FAQ
Chatter
Monthly Dashboard
User Guide

Breakdown by

Functional Domain ▾ Last 30 Days

Date Selection (Optional)

Start Date Jan 1, 2021

End Date Jan 31, 2021

Apply Dates

Display Most Costly Top Cost Movers View Util % as EC2 Compute (%) EC2 Memory (%) EBS - PIOPs (%) EBS - Storage (%)

Filter by Reset

Service Group ▾

Account ID ▾

Region ▾

Environment Type ▾

Falcon Instance ▾

Functional Domain ▾

EBS Volume Type ▾

EKS Namespace ▾

EKS Cluster Name ▾

EKS Pod Service Name ▾

Note: Cost for the current month and latest 30 days includes an estimation of our corporate discount. The actual discount arrives in the beginning of the following month.

Cost in View: **\$7.77M** Total Cost in Time Frame: **\$7.77M** % of Total Cost in Time Frame: **100%**

Most Costly Func. Domains, Jan 1 - Jan 31, 2021

● Total Cost (\$USD)

Legend: Bars (B), Scatter (S), Tree (T)

Daily Cost Growth, Most Costly Func. Domains, Jan 1 - Jan 31, 2021

Legend: core3 (Dark Blue), core002 (Teal), commercecomm (Green), core4 (Light Green), core1 (Yellow)

AWS Service Cost (USD)

Total by Func. Domain [Download data \(.csv\)](#)

Daily EC2 Util. (%), Most Costly Func. Domains, Jan 1 - Jan 31, 2021

Legend: core3 (Dark Blue), core002 (Teal), commercecomm (Green), core4 (Light Green), core1 (Yellow)

Utilization (%)

Total by Func. Domain [Download data \(.csv\)](#)

Cost & Utilization - All Func. Domains, Jan 1 - Jan 31, 2021

[Download table \(.csv\)](#)

AWS Service	Total Cost (USD)	% Change	Avg. Util. (%)	% Change
EC2 Compute	67.1K	+16.5	67.1	-12.1
EBS - Storage	55.7K	+21.2	89.2	-28.8
Cloud HSM	50.1K	-43.3	43.3	+16.5
CloudWatch	49.8K	-12.1	61.2	+51.2
RDS Compute	11.2K	+11.9	91.6	-52.9
Virtual Private Cloud	9.9K	+64.4	81.2	2.2M
EKS - ClusterHours	8.1K	-23.6	42.1	+37.4
Route 53	7.4K	-14.1	24.6	+53.4
EC2 NAT Gateway Transfer	5.9K	+41.3	63.3	-42.6

Cost Explorer

Cost Intel

Falcon Data Hub

BT Auth

FAQ

Chatter

Monthly Dashboard

User Guide

Breakdown by

Date Selection (Optional)

Start Date

End Date

Functional Domain

Last 30 Days

Jan 1, 2021

Jan 31, 2021

Apply Dates

Display Most Costly Top Cost Movers

View Util % as EC2 Compute (%) EC2 Memory (%) EBS - PIOPs (%) EBS - Storage (%)

Note: Cost for the current month and latest 30 days includes an estimation of our corporate discount. The actual discount arrives in the beginning of the following month.

Cost in View: **\$7.77M** Total Cost in Time Frame: **\$7.77M** % of Total Cost in Time Frame: **100%**

Filter by

Reset

Service Group

Bars Scatter Tree

Account ID

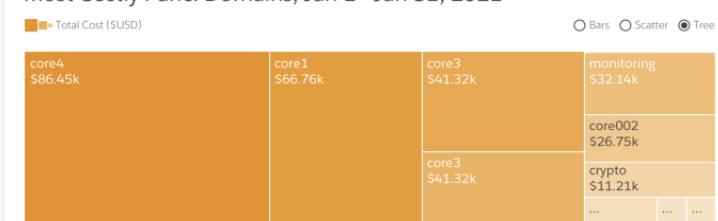
Region

Environment Type

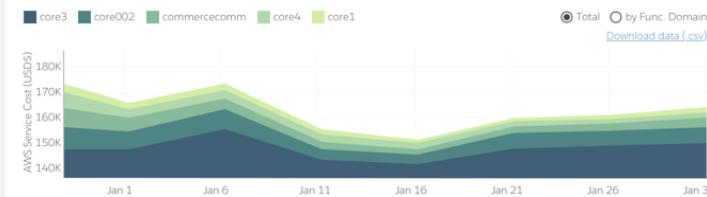
Falcon Instance

Functional Domain

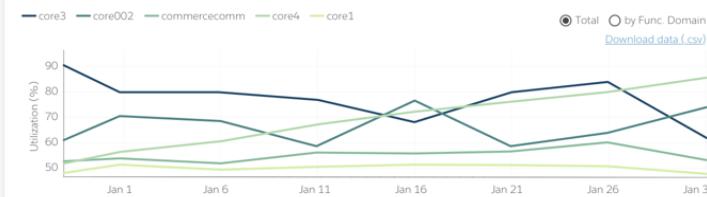
Total Cost (USD)



Daily Cost Growth, Most Costly Func. Domains, Jan 1 - Jan 31, 2021



Daily EC2 Util. (%), Most Costly Func. Domains, Jan 1 - Jan 31, 2021



Cost & Utilization - All Func. Domains, Jan 1 - Jan 31, 2021

Download table (.csv)

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RDS Compute	11.2K	+11.9	91.6	-52.9
Virtual Private Cloud	9.9K	+64.4	81.2	2.2M
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Lambda - Compute	1.8K	-14.1	73.1	+34.8

Cost Intel - Anomaly Detection within Falcon Cost Explorer, Feb 2021

Falcon Cost Explorer (Beta)

Cost Explorer Cost Intel Falcon Data Hub BT Auth FAQ Chatter Monthly Dashboard User Guide

Date Selection (Optional) Start Date End Date Apply Dates

Last 30 Days Feb 1, 2021 Feb 28, 2021

Filter by Service Group Account ID Region Environment Type Falcon Instance Functional Domain

Aggregate Cost Spikes by Summarize Cost Spikes by Min. Cost Δ

Total Cost Δ +/- \$3,000

Cost Spikes - Feb 1 - Feb 28, 2021 Download table (.csv)

FI	FD	Service Group	Env.	AWS Service	Cell Count	Event Date	\$Δ in Cost	Status	
AWS-prod1-us..	core1	sdb	prod1	EC2 Compute	8	02.07.21	+16.1k	New	
Total Cost				Total Cost Δ: +\$16,125 %Δ in Cost: +256% Status: Triaged Edit					
				Notes: Last updated 2.9.21, 2:26PM PST Edit Looks to be a result of onboarding our new FD, largely activity driven. SDB team is currently investigating for more detail.					
Cost Explorer AWS Console									
▼	AWS-prod1-us..	core2	ciac	perf1	EBS PIOPS	9	02.18.21	+12.0k	New
▼	AWS-prod1-us..	core2	ciac	perf1	AWS Lambda	4	02.01.21	+11.7k	New
▼	AWS-prod1-us..	core2	ciac	perf1	AWS CloudHSM	6	02.03.21	-3.2k	Irrelevant
▼	AWS-prod1-us..	core2	Hbase	perf1	EC2 Compute	8	02.14.21	-3.6k	New
▼	AWS-prod1-us..	core2	Hbase	perf1	EBS PIOPS	10	02.11.21	-4.1k	Triaged
▼	AWS-prod1-us..	core2	Hbase	test1	EBS Storage	6	02.04.21	-4.4k	Irrelevant
▼	AWS-prod1-us..	core2	Hbase	test1	EC2 Transfer	6	02.05.21	-4.6k	Irrelevant

Cost Alerting Wireframe v1

Purpose: Interface to communicate relevant cost anomalies, & their impact on FD-level budgets. 'User Driven' and 'Software Driven' metrics designed to support decisions on how to respond to any observed anomalies

Horizon Navbar

This is a tab in our existing Daily Cost Dashboard



Minimum \$ amount of alerts in view. Includes pre-canned values such as 25%, 50%, and 100% of daily total cost.

 Alert Severity Date range start to Date range end

Filters match daily cost dashboard. They apply to anomalies table

Filter by

- Service Group
- Account ID
- Region
- Environment Type
- Falcon Instance
- Functional Domain
- AWS Service

Based on rankings we generate. Assists users who may not yet know what \$ amounts or % changes in cost they're interested in yet.

Breakdown defaults to FD & Service, speaking to the budget tracking use case. Ideally this can ultimately include 'PID Leader' as an option. (Finance) Region, and role will also be commonly used breakdown dimensions (EF, KW).

Click any row in the anomalies table to filter all charts

Cost Anomalies

Click a table row to filter all charts.

Breakdown by Functional Domain Secondary Dimension Service Group

FD	Service Group	\$ Amt.	%Δ	Event Date	Details
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console
Foundation	Hbase	+\$56.1k	+102	12.21.20	AWS Console

User-Driven Metrics: Foundation

Software-Driven Metrics: Foundation

Anomaly Details

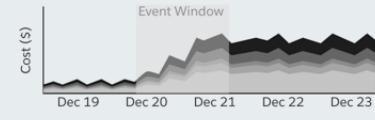
Was this useful?

View by Total cost Growth rate (%)

Foundation Cost, Daily Total: 12/19 - 12/23



Cost By Service, Daily Total, Foundation



K. Wakim's suggestion, a quick feedback mechanism to hone our alerting system

Breakdown defaults to FD, as this is the level at which budgets are set.

Secondary dimension defaults to Service Group, as Service Owners will be curious of their contribution to overall FD budget (Finance)

Expand to view contextual data. Purpose is to aid root cause analysis and inform next steps. (EF, KW) (e.g. Snoopy)

LRP Builder - Long Term Infrastructure Build Planning, Jul 2020

Purpose: Enable executives and capacity planners to run infrastructure build scenarios, to support the development of our infrastructure long range plan (LRP).

LRP Builder (Beta)
[Save LRP](#)
[Open LRP](#)
[Methods](#)
[Details \(.twbx\)](#)

"Plan of Record" - Last updated 2.28.20, 4:10PM PST
[Download Underlying Data \(.csv\)](#)
[Download Charts \(.png\)](#)

Supply & Demand
Infra Cost
NA
EMEA
APAC
GS
UM
All

LRP Setup
[Run](#)

Model
Component

Demand
[Run](#)

Operating Buffer
Currently 10%

Lightning Adoption
90.3% by Jan 1, 2025

Date
Change
Cuml. Total

Jan 1, 2020
+6.0%
18.3%

Jul 1, 2020
+6.0%
24.3%

Jan 1, 2021
+6.0%
30.3%

Jul 1, 2021
+6.0%
36.3%

Jan 1, 2022
+6.0%
42.3%

Jul 1, 2022
+6.0%
48.3%

[Save](#)
[Load](#)
 Confirm

Lightning Coefficient
4.5% as of July 1, 2021, currently 6.4%

Regression Impact
10.0% as of Jan 1, 2020

Supply
[Run](#)

Operating Buffer
Currently 10%

Substrate Distribution
90.3% PC adoption by Jan 1, 2025

Hardware Efficiency Gain
4.9% as of Jan 1 2020

App CPU Util.
DB CPU Util.
FFX
DB Storage

Business
 Core
 CC
 MC
Substrate
 1st Party
 Falcon
Type
 Prod
 SBX/test

Unit
 App CPU Time
 Cores
Show
 Total
 by Region

Supply (Baseline)*
Demand (Baseline)

*Based on operating threshold of 40% App CPU Util.

App CPU Time (Supply)
App CPU Time (Demand, All Regions)

2020
2021
2022
2023
2024

Pod Build Outlook
New Pod Builds
IRs (Decoms)

2020
2021
2022
2023
2024

Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4

Builds
45
44
51
77
64

IRs
21
23
19
45
33

LRP Builder (Beta)

"Plan of Record" - Last updated 2.28.20, 4:10PM PST

[Save LRP](#)

[Open LRP](#)

[Methods](#)

[Details \(.twbx\)](#)

[Download Underlying Data \(.csv\)](#) [Download Charts \(.png\)](#)

Supply & Demand

Infra Cost

NA

EMEA

APAC

GS

UM

All

LRP Setup

[Run](#)

Model Component

Demand

[Run](#)

Operating Buffer

Currently 10%

Lightning Adoption

90.3% by Jan 1, 2025

Lightning Coefficient

4.5% as of July 1, 2021, currently 6.4%

Regression Impact

4.1% as of Feb 1, 2022, currently 10.0%

Supply

[Run](#)

Operating Buffer

Currently 10%

Substrate Distribution

90.3% PC adoption by Jan 1, 2025

Hardware Efficiency Gain

4.9% as of Jan 1 2020

Date

Value

Jan 1, 2020

4.9%

+ -

[Save](#)

[Load](#)

[Confirm](#)

[App CPU Util.](#)

[DB CPU Util.](#)

[FFX](#)

[DB Storage](#)

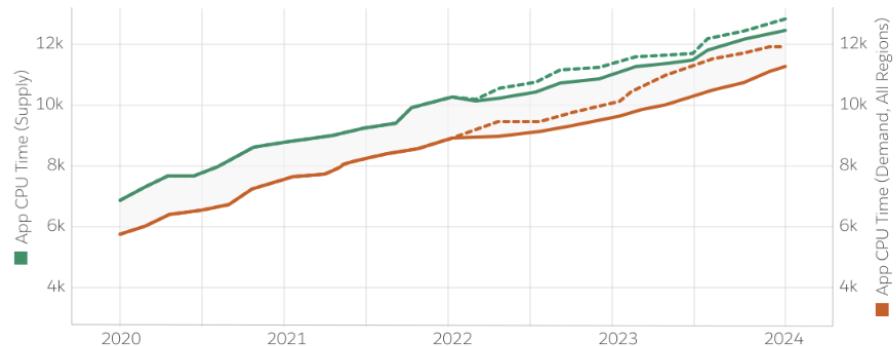
Supply/Demand Outlook

Business Core CC MC Substrate 1st Party Falcon Type Prod SBX/test

Unit App CPU Time Cores Show Total by Region

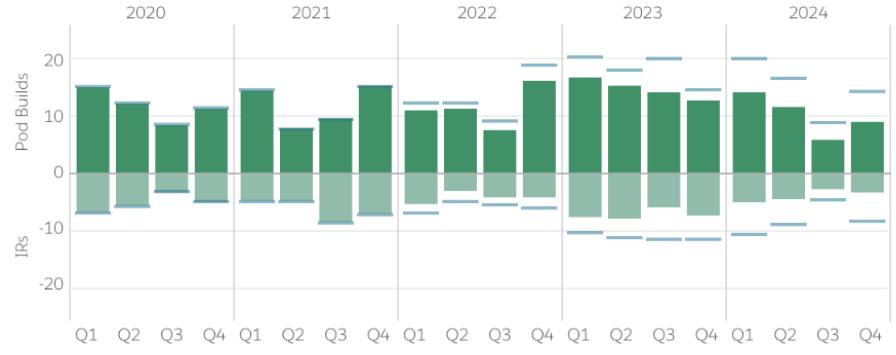
— Supply (Baseline)* — Supply (Scenario)* - - - Demand (Baseline) — Demand (Scenario)

*Based on operating threshold of 40% App CPU Util.



Pod Build Outlook

New Pod Builds IRs (Decoms) Baseline



Builds

45

IRs

21

Builds

44

IRs

23

Builds

46 (51)

IRs

15 (19)

Builds

58 (77)

IRs

32 (45)

Builds

45 (64)

IRs

25 (33)

Automated Release Regression Analysis, Feb-March, 2020

Purpose: Enable performance engineers at Salesforce to monitor the impact of new software releases on our infrastructure fleet, informing real-time performance tuning efforts.

Capacity Impact of Major Releases (Beta)

Release Impact

Dynamic Modelling

About Code

View impact on:

Avg. App CPU Util. ▾

Normalize impact by:

Trust Transactions (Excl. J) ▾

Release group:

All ▾

R224 % Relative Impact by Pod (Feb 5, 2020) ⓘ

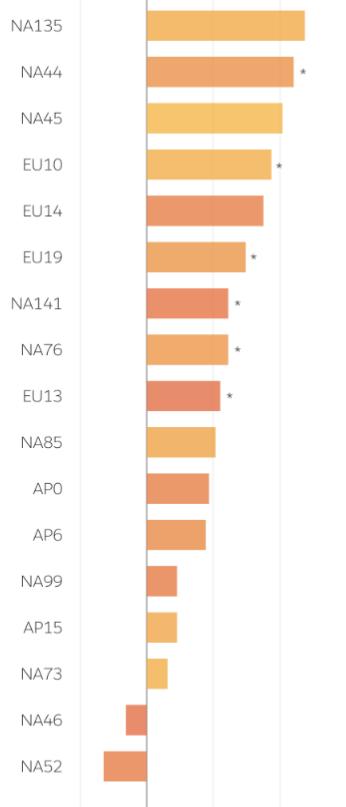
Click any bar to filter on the given pod.

Current App CPU %



* = low model fit

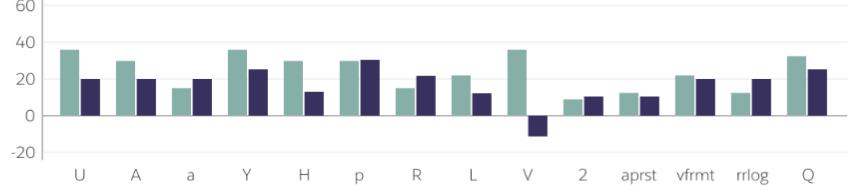
-20 0 20 40 60



R224 % Relative Impact by Logtype, Fleetwide (Feb 5, 2020)

Sorted descending by txn volume. Click a logtype to filter the scatter plot below.

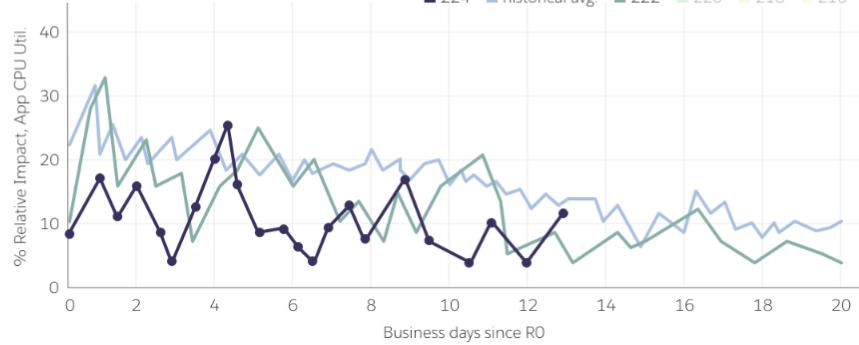
■ 224 ■ 222



Fleetwide impact by day: R224 and Previous Releases

Click any point on RR 224 to filter on the given business day.

■ 224 ■ historical avg ■ 222 ■ 220 ■ 218 ■ 216



App CPU Util. vs Trust Transactions, NA135 (Feb 5, 2020)

Each point represents one host hour. ⚡

● 224 ● 222



Dynamic Modelling across Date Windows

[Release Impact](#)
[Dynamic Modelling](#)
[About](#) [Code](#)

View impact on:

Avg. App CPU Util. ▾

Normalize impact by:

Trust Transactions (Excl. J) ▾

Date Window A*:

2/10/19 - 2/24/19 ▾

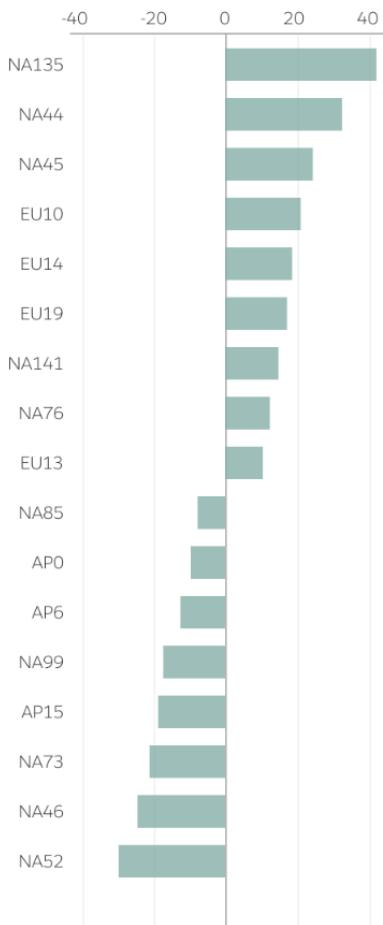
Date Window B*:

11/2/19 - 11/16/19 ▾

*Business hours only

% Diff in Avg. App CPU Util. per Txn, all Logtypes

Click any bar to filter on the given pod.

 High model fit only


% Diff in App CPU Time per Txn, by Logtype, R0

App CPU Time sourced from app logs. Click any logtype to filter the charts below.



App CPU Util. vs Trust Txns, R0

Drag shaded areas to adjust date windows.



App CPU Util. vs Trust Txns, R0

Each point represents one host hour.



Sherlock - Anomaly Detection and Triage, Dec-Jan, 2020

Purpose: Enable capacity planners to detect, triage, and take action on any customer and/or software driven anomalies occurring across our fleet of infrastructure.



App CPU Time Anomalies

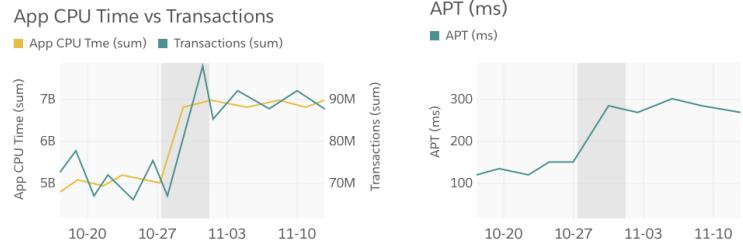
View Sandbox **Prod** Business Hours Only Filter rows

Severity	Pod	Type	Relationship	Start	End
High	NA7	Level shift	Transactions	10-28-19	10-30-19
High	EU15	Slope Δ	Org count	10-21-19	10-24-19
Med	EU10	Level shift	Release	11-09-19	11-10-19
Med	APO	Spike	Release	09-30-19	10-02-19
Med	NA44	Slope Δ	Transactions	10-14-19	10-17-19

NA7 - Anomaly Details

App CPU time on NA7 experienced a **level shift upwards** between Oct 28th and Oct 30th. Transactions on the Pod also saw a level shift in this time period.

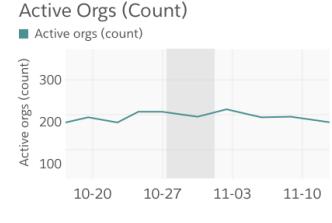
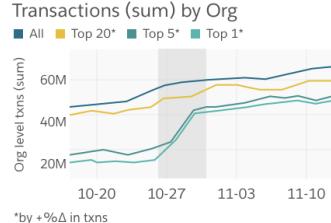
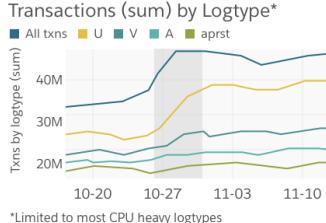
NA7 - Observed Level Shift & APT Impact



NA7 - Load Driving Metrics

Fastest growing orgs on NA7 (of top 20), by transactions

CANON MARKETING SERVICES	97.0%
Sirius Computing	74.0%
Younique	91.0%
Drift	73.0%
Chase Metals	46.0%

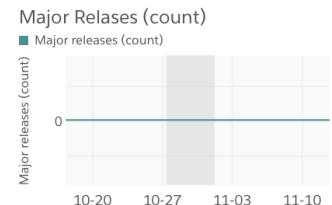
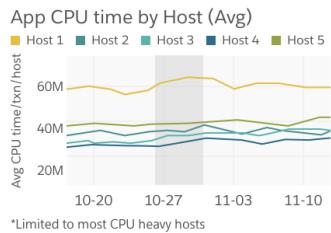
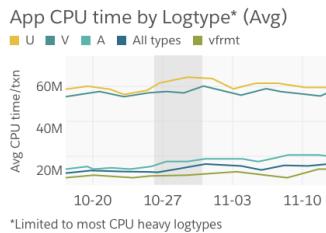


NA7 - Software Driving Metrics

Transacting Hosts

Transacting hosts: 30

DELL - POWEREDGE... 17.1 SSKUC: 27
DELL - POWEREDGE... 17.2 SSKUC: 3



Falcon Migration Explorer - Scenario Forecasting for Effective Customer Migration, Jun 2020

Purpose: Enable executives and capacity planners to effectively tweak, run, and review forecasted customer migration scenarios, to support the smooth transition of our users to more efficient, reliable cloud environments.

Falcon Migration Explorer (Beta)

Display Start
Dec 1, 2020
Display End
Aug 1, 2022
[Load Rollout Plan](#)
[User Guide](#)

Wave Config ▼

Cell Config ▼

Cell Thresholds ^

Oracle (DB CPU%)
Migration Cutoff 30%
Perf. Threshold 55%
SDB (DB CPU %)
Migration Cutoff 30%
Perf. Threshold 55%
App CPU %
Migration Cutoff 30%
Perf. Threshold 55%
Storage Limits (TB)
Oracle 85
SDB 60

Apply

Capacity Modifiers ▼

Sign Ups Config ▼

Inputted Org List for Migration

Migration Summary Destination Cells: 10 Show Cell: Australia ▼ Include Lightning Adoption ○

Wave	Cell	DB Type	#Orgs	Cuml. # Orgs	DB CPU Time (sum daily P95)			App CPU Time (sum daily P95)			DB Storage (sum, TB)		
					Total DBCPU Time	Cuml. DBCPU	% of DBCPU Op. Threshold	Total AppCPU Time	Cuml. AppCPU	% of AppCPU Op. Threshold	Total DBStor (TB)	Cuml. DBStor (TB)	% of AppCPU Op. Threshold
1	Australia	Oracle	70	70	659M	659M	50%	348M	348M	46%	0.34	0.34	36%
2	Australia	Oracle	110	180	151M	810M	80%	429M	777M	62%	0.27	0.61	51%
3	Australia	Oracle	240	520	456M	1.27B	95%	376M	1.15B	81%	0.81	1.42	64%
4	Australia	Oracle	210	730	354M	1.62B	96%	566M	1.72B	86%	0.42	1.82	73%
5	Australia	SDB	320	1,050	786M	2.41B	99%	433M	2.15B	89%	0.11	1.95	79%

Forecast Additional Cells Required 1 2 Select Metric: DB CPU Time View as Falcon Cell ○

Metric	# Orgs Breaching Op. Threshold 1	Performance Overflow % 1
DB CPU Time	5	42.1%
App CPU Time	2	21.3%
DB Storage	1	11.6%

DB CPU Time Forecast: Australia ▼

90M
60M
30M
P95 Hwy DB CPU T

Operational Threshold: 55% db CPU
Migration Threshold: 30% db CPU

Dec 2020 May 2021 Oct 2021 Mar 2022 Aug 2022

■ Wave 1 ■ Wave 2 ■ Wave 3 ■ Wave 4 ■ Wave 5

Org Level Forecasts: DB CPU Time Search by OrgID Export (.csv)

Wave	Cell	Account	OrgID	Org Edition	AOV Band	P95 Historical AppCPU Time	P95 Historical DBCPU Time	Current Falcon P95 DBCPUT (7 day max)	Latest Lightning Adoption % (w/ Lightning)	P95 1Yr Falcon Forecasted DB CPU Time	P95 1Yr Falcon Forecasted DB CPU Time (w/o Lightning)	Forecast % of DBCPU Op. Threshold (in view)	
1	Australia	VIVINT INC	00D3..	Professional	\$1-10k	348M	659M	632M	551M	44%	622M	598M	51%
1	Australia	Doordash	00D3..	Professional	\$1-10k	429M	151M	342M	322M	61%	458M	423M	84%
1	Australia	United Cont.	00D3..	Professional	\$600k-1M	376M	456M	871M	759M	72%	781M	745M	124%
2	Australia	State Farm	00D3..	Professional	\$200k-600k	566M	354M	465M	428M	83%	501M	488M	73%
2	Australia	Allstate	00D3..	Professional	\$200k-600k	433M	786M	223M	243M	79%	348M	322M	79%
2	Australia	T-Mobile	00D3..	Professional	\$200k-600k	261M	367M	498M	472M	59%	568M	524M	112%
2	Australia	Spotify	00D3..	Enterprise	\$600k-1M	581M	290M	341M	367M	41%	402M	391M	34%
2	Australia	AWS	00D3..	Enterprise	\$100k-200k	782M	554M	433M	450M	32%	552M	512M	56%

Falcon Migration Explorer (Beta)

Forecast Start

Aug 1, 2020

Forecast End

Apr 1, 2022

In view: Version A. Last Updated 08.12.2020 - 05:30:01 GMT

Save Scenario

Load Scenario

Wave Config

AWS-southap1 AWS-useast1

Falcon Cell Config

Not slated for MVP

Cell Template 1

AWS Region Mumbai

DB InstanceType R5.24XL

Not slated for MVP

Cells/FD

FDs/FI

App Hosts/Cell

#Oracle Cells (Prod)

#SDB Cells (Prod)

#SDB Cells (SBX)

Gear Ratio: SDB - Oracle

Save Load Apply

Cell Thresholds

Org List for Migration - 235 Total Orgs

Migration Summary Click a cell in the chart to filter the charts below.

Destination Cells: 1

Orgs Breaching Capacity: 0

Additional Cells Required: 0

Oracle SDB

1 2 3 4 5

M1.Or M1.Or M1.Or M1.Or M1.Or

Complete In progress Pending Pending

\$2.7M \$7.8M \$11.3M \$21.5M \$36.4M

10 25 43 65 92

0.25M 2.0M 3.8M 8.2M 9.3M

4.3% 12.7% 36.2% 61.5% 91.2%

50% 80% 95% 96% 93%

Total Pk Hr DBCPU Time % of DB CPU Threshold % of DB Stor Threshold

Cell count

Prod SBX

Click a cell in the chart to filter the charts below.

Migration Summary

Destinat

Cell count

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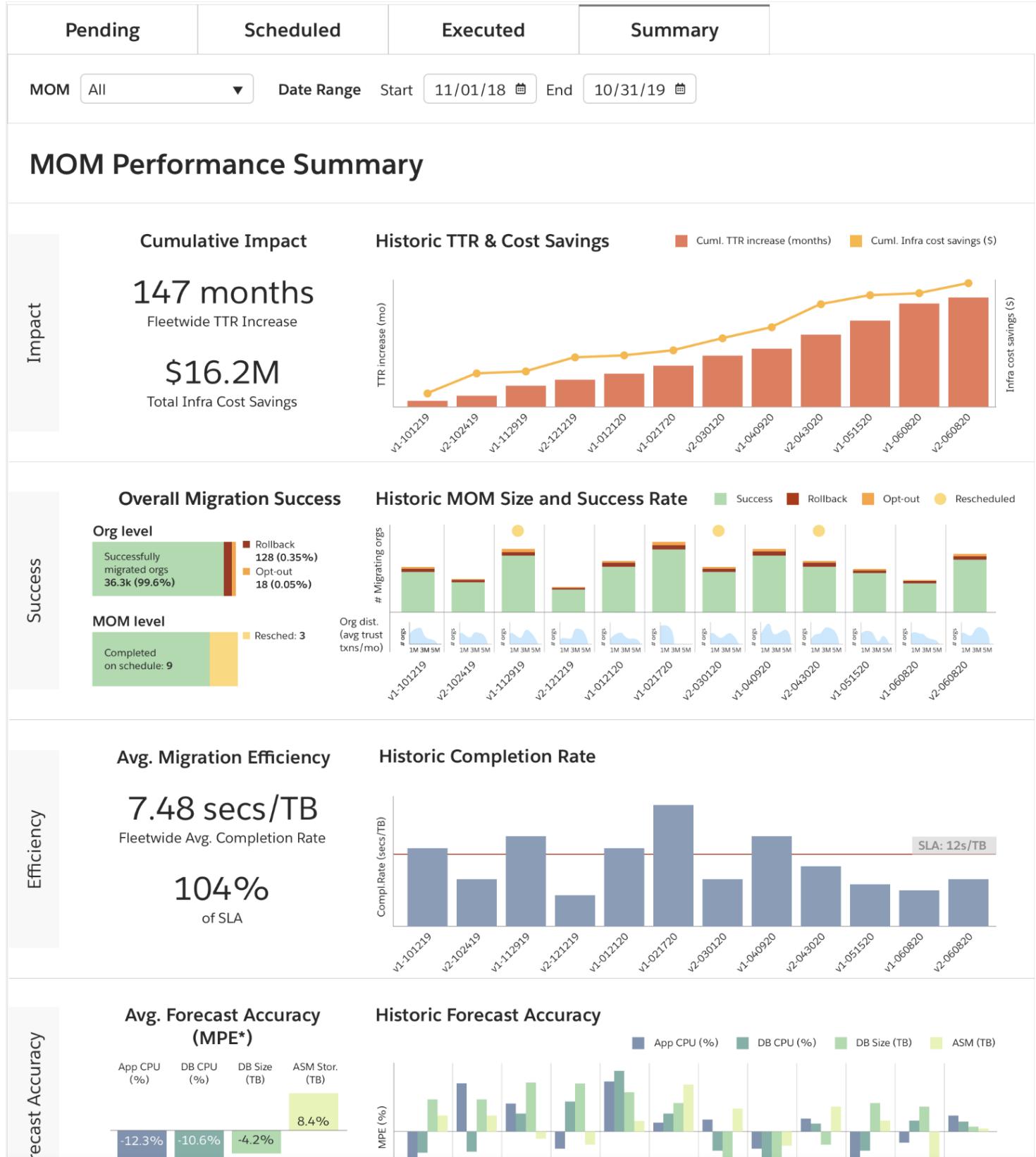
Prod SBX

Voyager - Managing Customer Cloud Migration, Nov 2019

Purpose: Enable customer-centric engineers to effectively manage the migration of Salesforce customers to new cloud infrastructure of ever increasing performance, security, and reliability.

≡ **horizon** Voyager - The Org Migration Intelligence Platform Search apps  

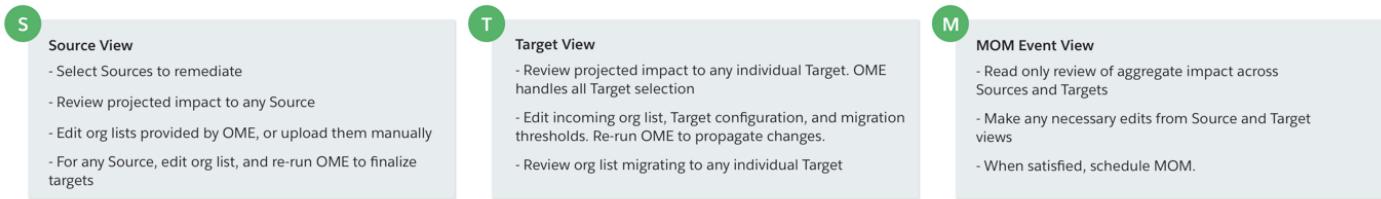
Prospective	Scheduled	Executed	Summary
Substrate All ▼ MOM All ▼ Date Range Start 08/01/20  End 12/01/20 			
v1-101219 - 1P to Falcon. Scheduled for 1/24/21 - 42 opt outs Remove from Schedule 			
DB Size to Transfer: 123 TB Migrating Orgs: 15,432 Sources: 40, Max DB size: 3.0TB Min. Source TTR : <1 mo Est. Completion Time: 2.5 hrs "Large" Orgs: 21 Targets: 60, Max DB size: 0.35TB Total AOV: \$4.6M			
Show Org List Last Updated: 12/10/2020 - 1:00PM GMT			
Sources Search  Sort by 	Targets Search  Sort by 		
Post MOM TTR - All Sources Click a Pod/Cell to filter the source list below.		Post MOM TTR - All Targets Click a Pod/Cell to filter the target list below.	
EU30 14 opt outs Current Post MOM estimate Error margin Migration Targets Total Transfer: 201 TB Planned: 2,687 Orgs Scheduled: 3,435 Orgs		southap1 AWS x2 - SDB Current Post MOM estimate Error margin Migration Sources Total Transfer: 222 TB Planned: 5,654 Orgs Scheduled: 4,436 Orgs	
AppCPU (%) 20 ► 5 +/- 15% DB CPU (%) 40 ► 20 +/- 15% DB Size (TB) 87 ► 84 +/- 15% ASM Stor. (TB) 105 ► 63 +/- 15% TTR (mo) 4 ► 9 +/- 15%		southap1 132 TB 116 TB EU21 62 TB 61 TB EU17 30 TB 24 TB EU11 24 TB 20 TB	
Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.		Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.	
EU14 7 opt outs Current Post MOM estimate Error margin Migration Targets Total Transfer: 559 TB Planned: 5,644 Orgs Scheduled: 4,221 Orgs		EU21 40 app 12 DB Current Post MOM estimate Error margin Migration Sources Total Transfer: 181 TB Planned: 15,687 Orgs Scheduled: 12,435 Orgs	
AppCPU (%) 20 ► 5 +/- 15% DB CPU (%) 40 ► 20 +/- 15% DB Size (TB) 87 ► 84 +/- 15% ASM Stor. (TB) 105 ► 63 +/- 15% TTR (mo) 4 ► 9 +/- 15%		EU21 102 TB 92 TB EU14 86 TB 45 TB EU10 45 TB 44 TB	
Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.		Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.	
EU10 21 opt outs Current Post MOM estimate Error margin Migration Targets Total Transfer: 336 TB Planned: 6,644 Orgs Scheduled: 4,221 Orgs		EU17 40 app 12 DB Current Post MOM estimate Error margin Migration Sources Total Transfer: 181 TB Planned: 15,687 Orgs Scheduled: 12,435 Orgs	
AppCPU (%) 20 ► 5 +/- 15% DB CPU (%) 40 ► 20 +/- 15% DB Size (TB) 87 ► 84 +/- 15% ASM Stor. (TB) 105 ► 63 +/- 15% TTR (mo) 4 ► 9 +/- 15%		EU17 102 TB 92 TB EU14 86 TB 45 TB EU10 45 TB 44 TB	
Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.		Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.	
EU11 40 app 12 DB Current Post MOM estimate Error margin Migration Sources Total Transfer: 181 TB Planned: 15,687 Orgs Scheduled: 12,435 Orgs		EU11 102 TB 92 TB EU14 86 TB 45 TB EU10 45 TB 44 TB	
Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.		Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.	



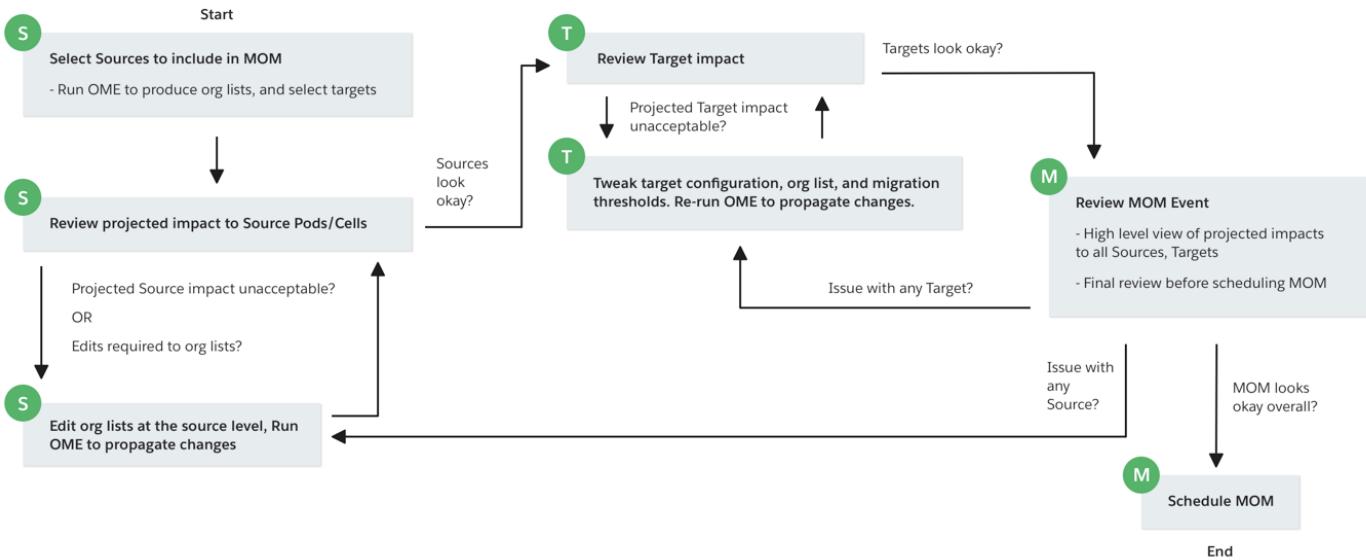
'MOM App' for planning and scheduling MOMs

Click any  to view the associated wireframe.

Three Views



User Journey



←
Back to
Flow

S Source View

Purpose: Define MOM Sources, run OME to select Targets. Edit org lists based on OME output. User can: Edit org list migrating from each source, edit forecast date range, add a source, and re-run OME. Thresholds only editable from the 'Target' view

Horizon Navbar

View by MOM Event Target Source Date Range Substrate MOM ID

+ Add Source Run OME for all Sources

EU15
Total Migrating Orgs: 11,231
Total AOV: \$2.45M
TTR: 1 mo
Next MOM Date: 12/24/20

User generated, though ultimately will be automated in OME. Includes OrgIDs, and migration dates. OME generates target for each org. Replace by uploading new list and re-running OME.

Determines forecast date range in time series to the right

Generated automatically based on org list (org list includes migration dates)

Org List

Forecast end date

Pending MOMs

# Orgs	MOM Date	Target
2,342	12/24/20	southap1
1,465	01/19/20	southap1
4,561	03/02/21	southap1

Binding TTR Metric: App CPU %

Last Updated: 11/10/2020 - 1:00PM GMT

Download Org List (.csv)

Run OME for all Sources

New Org List (.csv)

Re-run OME

Remove Source

Expand to view full org list

App CPU %: <Forecast Date Start> - <Forecast Date End>

DB CPU %: <Forecast Date Start> - <Forecast Date End>

DB Size: <Forecast Date Start> - <Forecast Date End>

Starting with binding TTR metric, more detailed charts, additional details TBD. X axes update based on user inputs to forecast date range

in Made in InVision



←
Back to
Flow

T Target View

Purpose: Review targets according to binding TTR metrics, edit target configuration, migration thresholds, and incoming org list. User can: Edit migration thresholds, edit cell/pod configuration, edit incoming org list, edit forecast date range, and re-run OME.

Horizon Navbar

View by MOM Event Target Source

Date Range Substrate MOM ID

Set config parameters for all Targets

southap-1

Total Migrating Orgs: 9,432

Total AOV: \$1.86M

TTR: 6 mo

Next MOM Date: 12/24/20

Org list edits can take place here, as well as in the Source view

Resembles FME's 'Cell Config' and 'Threshold config' menus. Any targets with unique configurations relative to the rest of the target list will be flagged (in the target list).

Generated automatically based on migration dates included in org list.

Org List

Forecast end date

End date

Target Config ▾

Threshold Config ▾

Pending MOMs

# Orgs	MOM Date	Source
2,342	12/24/20	EU30
1,465	01/19/21	EU15
4,561	03/02/21	EU11

Run OME for all Targets

New Org List (.csv)

Re-run OME

FME

Last Updated: 11/10/2020 - 1:00PM GMT

Download Org List (.csv)

Static chart, unaffected by user input to forecast date range. Becomes multiple charts (scrollable) in cases with more than one binding metric

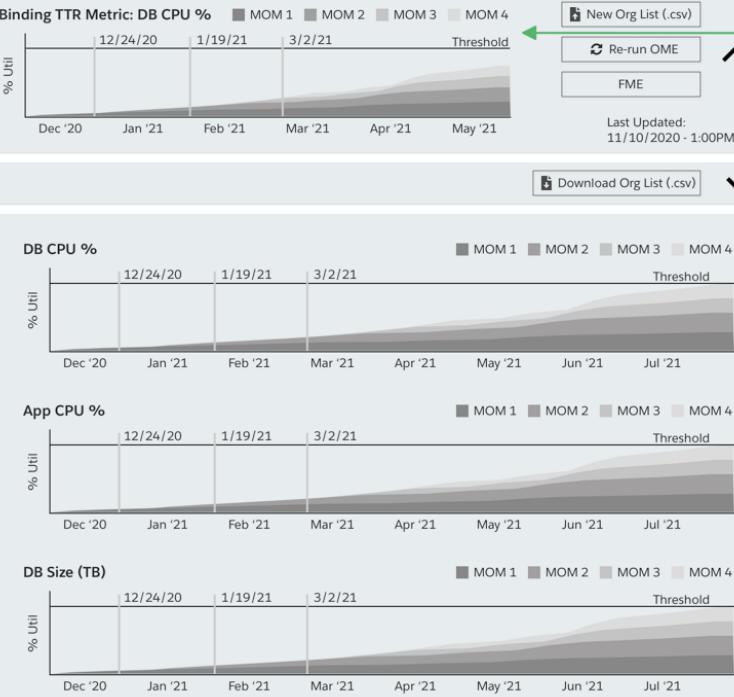
Expand to view/edit full org list

Starting with binding TTR metric, more detailed charts, additional details TBD. X axes update based on user inputs to forecast date range

DB CPU %

App CPU %

DB Size (TB)





MOM Event View

Purpose: High Level 'Cattle View' for review before scheduling MOM. Read Only. User can only edit forecast date range, and schedule MOM. All other edits happen on source or target views

Horizon Navbar

View by MOM Event Target Source

Date Range
Substrate
MOM ID

v1-101219 - 1P to Falcon

Migrating Orgs: 14,322
Total AOV: \$3.58M
Min (source) TTR: 1 mo

Pre-MOM: Sources (black), Targets (light gray). Post-MOM (Forecast): Sources (black), Targets (light gray).

Last Updated: 11/10/2020 - 1:00PM GMT

Schedule MOM

Affects the post MOM TTR Summary, and the forecasts provided at the source/target level below it. View is almost entirely read only. No ability to edit org lists (this happens from the Source view). No ability to edit thresholds/cell config (this happens from the Target view)

Org List

Forecast end date

End date

Post MOM TTR Summary (Forecast)

Source-Level TTR
Click to Pod/Cell to filter the source list below.

Pods	Cells
[grid]	[grid]

Target-Level TTR
Click to a Pod/Cell to filter the target list below.

Cells	
[grid]	[grid]

Sources

Search Sort by

EU10	21 opt outs	Current	Post MOM estimate	Error margin
AppCPU (%)	20	▶	5	+/- 15%
DB CPU (%)	40	▶	20	+/- 15%
DB Size (TB)	87	▶	84	+/- 15%
ASM Stor. (TB)	105	▶	63	+/- 15%
TTR (mo)	4	▶	9	+/- 15%

Targets

Search Sort by

southap1	AWS x2 - SDB	Current	By forecast end date	Error margin
AppCPU (%)	10	▶	25	+/- 15%
DB CPU (%)	15	▶	20	+/- 15%
DB Size (TB)	10	▶	65	+/- 15%
ASM Stor. (TB)	10	▶	82	+/- 15%
TTR (mo)	16	▶	11	+/- 15%

Click to link to source in app's Source view

Click to link to target in app's Target view