

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:

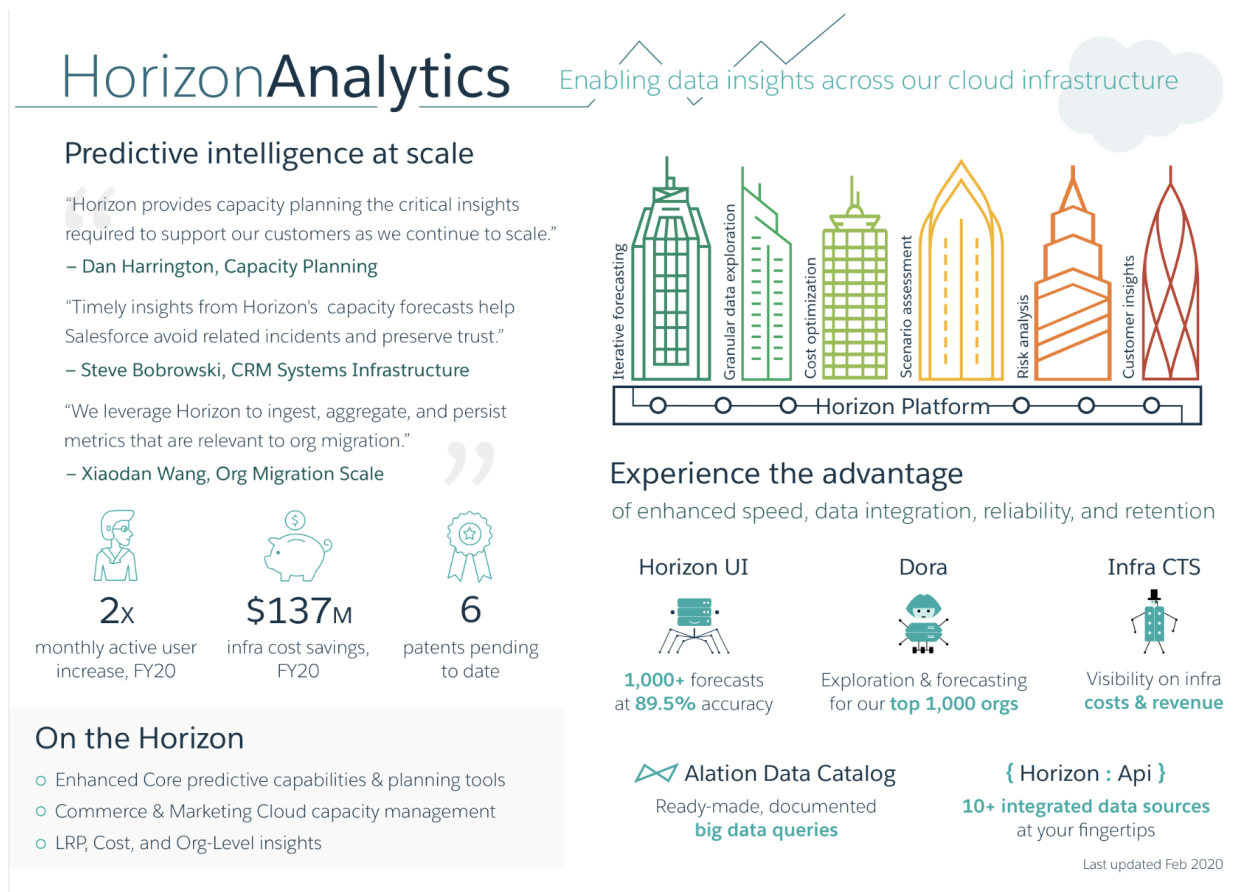
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(917)-386-3609

<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.



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.

Falcon Cost Explorer (Beta)

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

Breakdown by
Date Selection (Optional)
Start Date
End Date
Apply Dates

Functional Domain
Last 30 Days
Jan 1, 2021
Jan 31, 2021

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

Legend: Total Cost (USD), Avg. EC2 Utilization (%), % Change over date window

Domain	Total Cost (USD)	Avg. EC2 Utilization (%)	% Change
core4	90K	90	+9.0
core1	85K	85	+21.3
core3	80K	80	-4.6
monitoring	75K	75	+15.4
core002	70K	70	-31.1
crypto	65K	65	+3.2
commerce.com	60K	60	-11.6
foundation	55K	55	-5.4
useast2.deploy	50K	50	-14.1
sfdcmodel	45K	45	-12.9
core002	40K	40	+12.3
commerce.com	35K	35	-56.1
foundation	30K	30	+14.7
useast2.deploy	25K	25	-31.2
sfdcmodel	20K	20	-71.5
core4	15K	15	+63.8
core1	10K	10	-41.3
core3	5K	5	+81.2

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

Breakdown by: Functional Domain | Date Selection (Optional): Last 30 Days | 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:

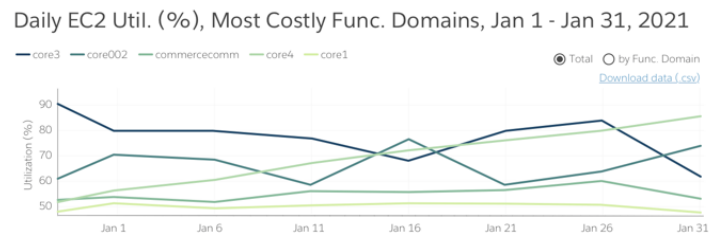
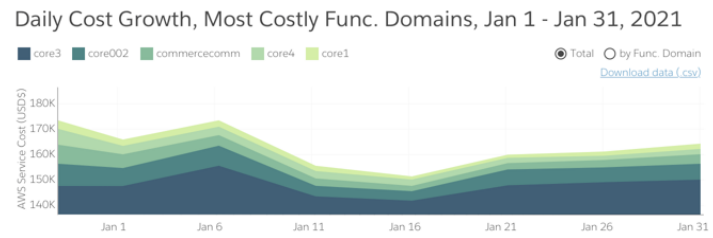
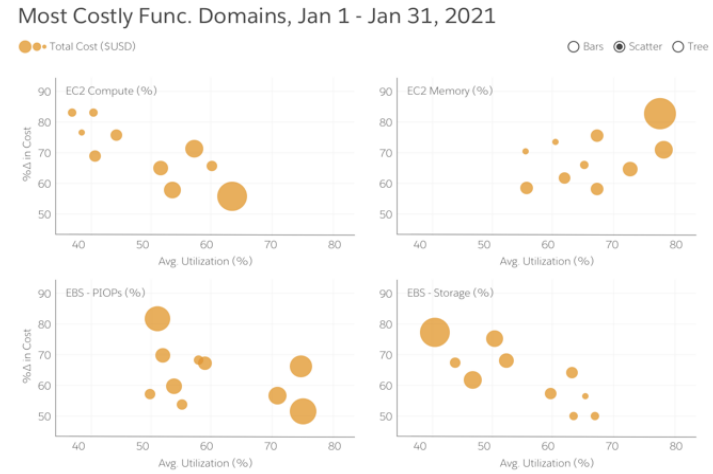
EKS Namespace:

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.

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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
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Filter by [Reset](#)

Service Group

Account ID

Region

Environment Type

Falcon Instance

Functional Domain

EBS Volume Type

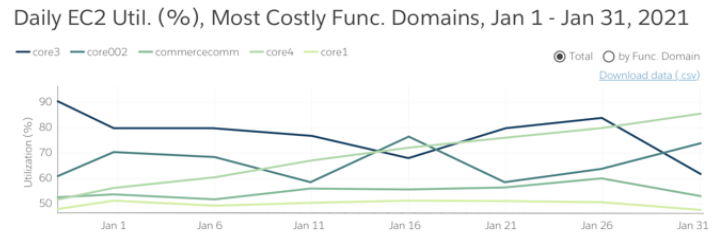
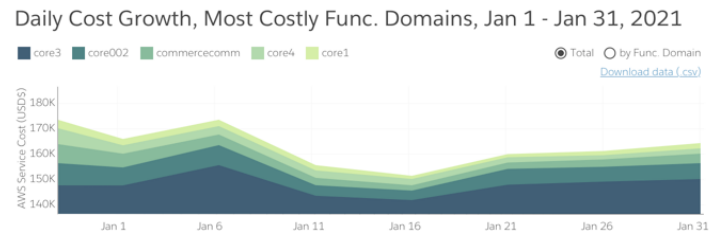
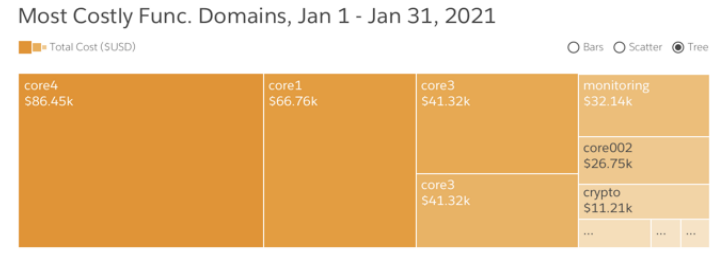
EKS Namespace

EKS Cluster Name

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

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

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

Date Selection (Optional)

Last 30 Days ▼

Start Date

Feb 1, 2021 ▼

End Date

Feb 28, 2021 ▼

Apply Dates

Filter by ↻ Reset

Service Group ▼

Account ID ▼

Region ▼

Environment Type ▼

Falcon Instance ▼

Functional Domain ▼

Aggregate Cost Spikes by

██████████ ▼

Summarize Cost Spikes by

Total Cost Δ ▼

Min. 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 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

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

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

to

Filter by

Service Group

Account ID

Region

Environment Type

Falcon Instance

Functional Domain

AWS Service

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

Filters match daily cost dashboard. They apply to anomalies table

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

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

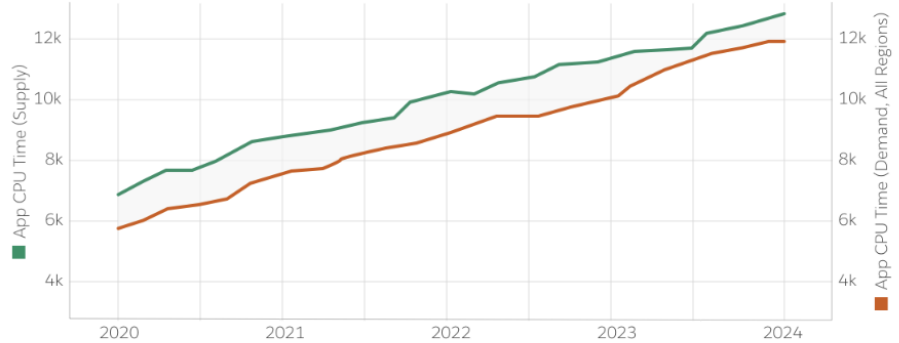
Supply/Demand Outlook

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

Unit App CPU Time Cores Show Total by Region

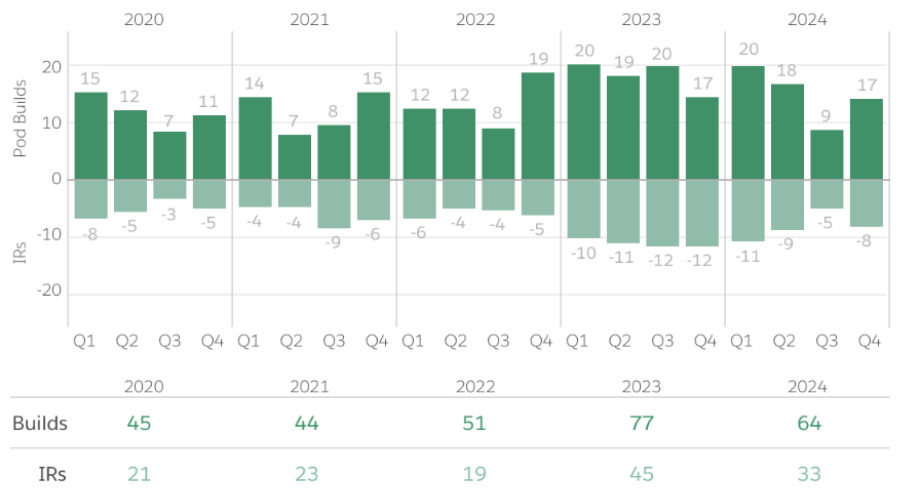
Supply (Baseline)* Demand (Baseline)

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



Pod Build Outlook

New Pod Builds IRs (Decoms)



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

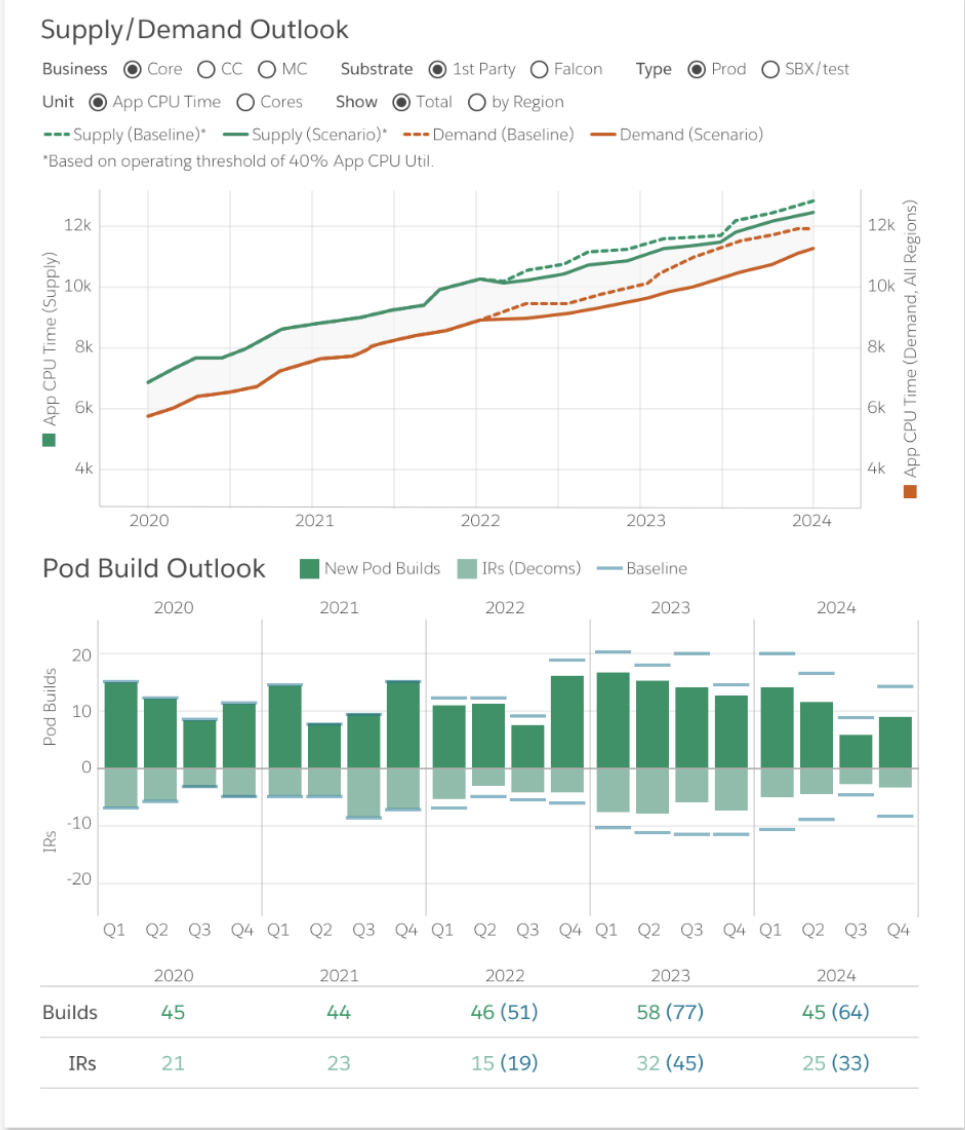
Demand Run

- Operating Buffer
Currently 10%
- Lightning Adoption
90.3% by Jan 1, 2025
- 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: Jan 1, 2020 Value: 4.9%
- Save Load Confirm

- App CPU Util.
- DB CPU Util.
- FFX
- DB Storage



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

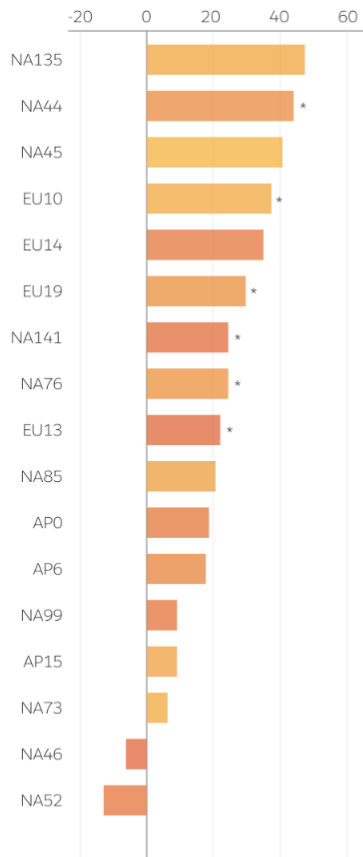
R224 % Relative Impact by Pod (Feb 5, 2020)

Click any bar to filter on the given pod.

Current App CPU %

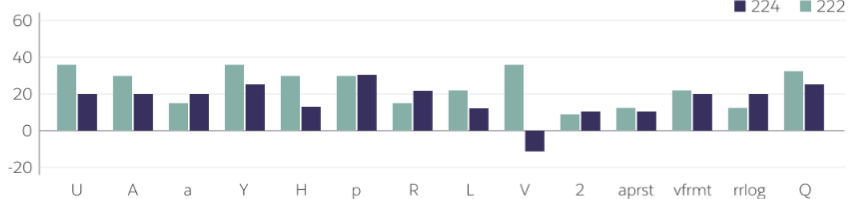
10  80 High model fit only

* = low model fit



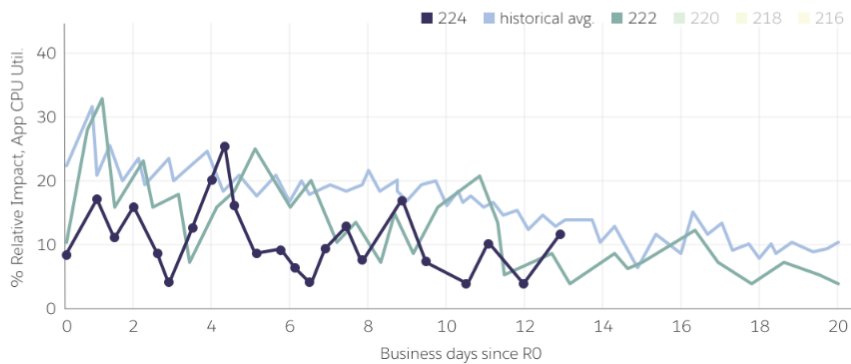
R224 % Relative Impact by Logtype, Fleetwide (Feb 5, 2020)

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



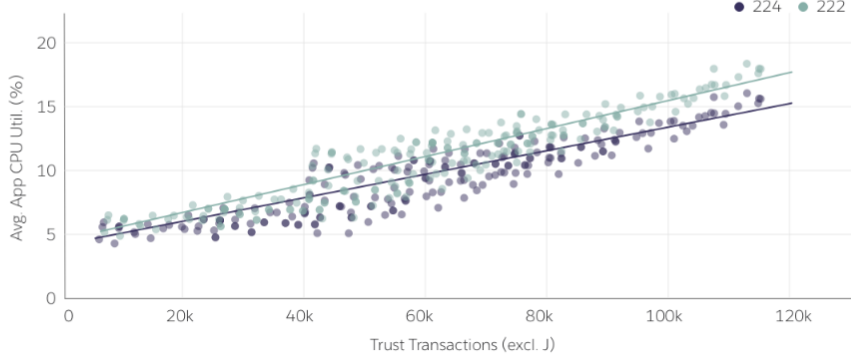
Fleetwide impact by day: R224 and Previous Releases

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



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

Each point represents one host hour. ▲



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 ▼

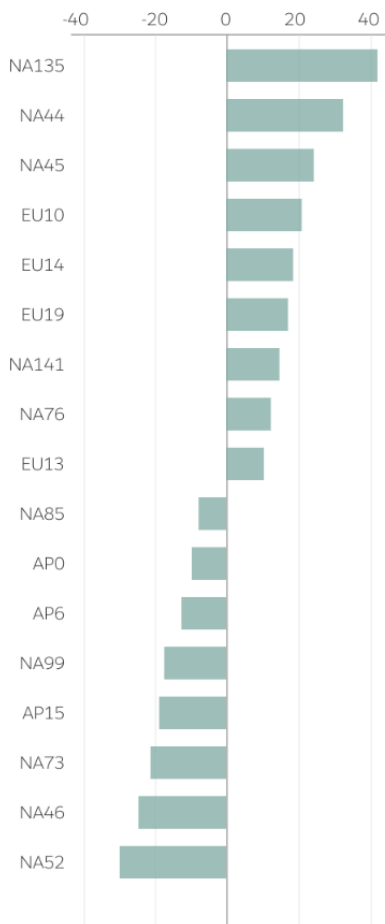
*Business hours only

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

Click any bar to filter on the given pod.

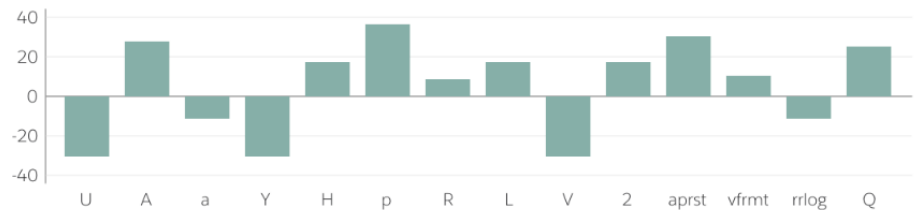


High model fit only



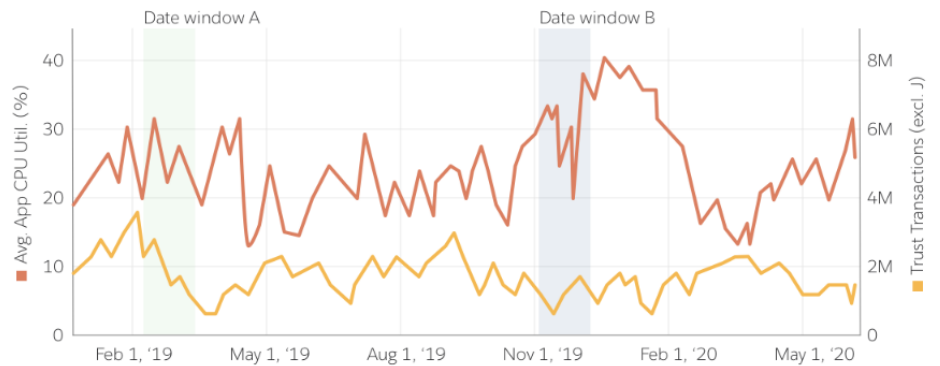
% Diff in App CPU Time per Txn, by Logtype, R0

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



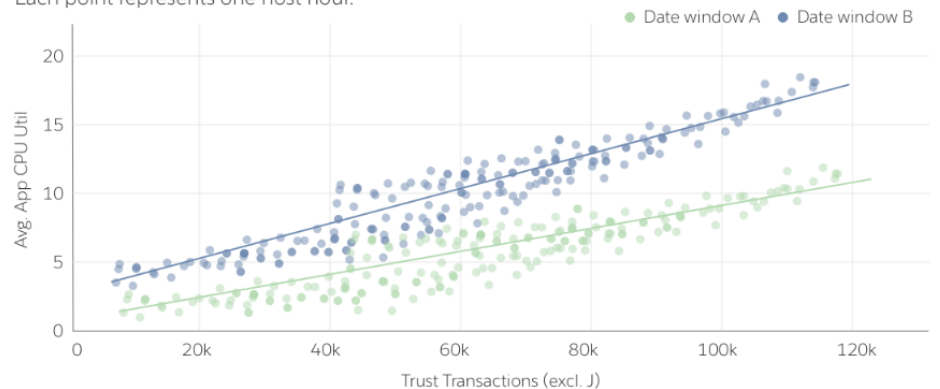
App CPU Util. vs Trust Txns, R0

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

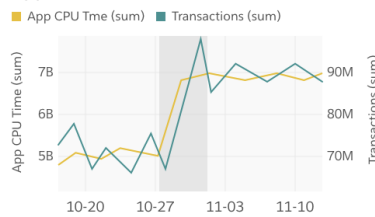
Severity	Pod	Type	Relationship	Start	End
High	NA7	Level shift	Transactions	10-28-19	10-30-19
High	EU15	Slope Δ	Org count	10-21-19	10-24-19
Med	EU10	Level shift	Release	11-09-19	11-10-19
Med	AP0	Spike	Release	09-30-19	10-02-19
Med	NA44	Slope Δ	Transactions	10-14-19	10-17-19

NA7 - Anomaly Details

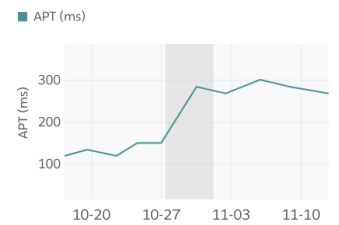
App CPU time on NA7 experienced a **level shift upwards** between **Oct 28th and Oct 30th**. **Transactions** on the Pod also saw a level shift in this time period.

NA7 - Observed Level Shift & APT Impact

App CPU Time vs Transactions



APT (ms)

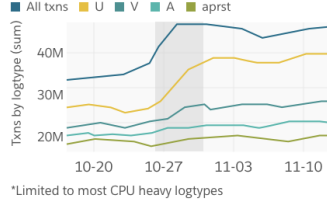


NA7 - Load Driving Metrics

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

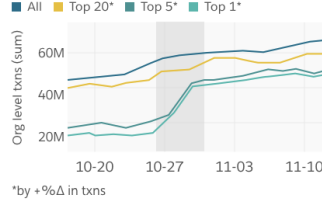
CANON MARKETING SERVICES	97.0%
Sirius Computing	74.0%
Younique	91.0%
Drift	73.0%
Chase Metals	46.0%

Transactions (sum) by Logtype*



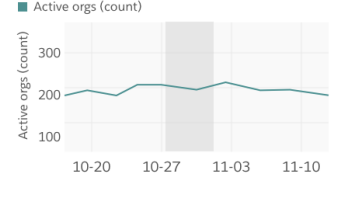
*Limited to most CPU heavy logtypes

Transactions (sum) by Org



*by +%Δ in txns

Active Orgs (Count)

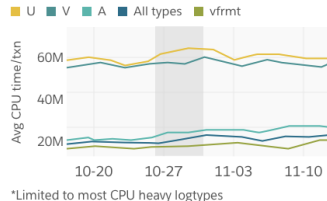


NA7 - Software Driving Metrics

Transacting Hosts

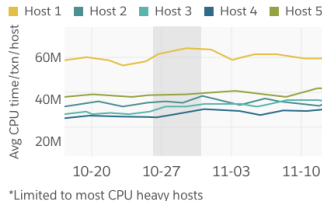
Transacting hosts: 30	
DELL - POWEREDGE... 17.1 SSKUC:	27
DELL - POWEREDGE... 17.2 SSKUC:	3

App CPU time by Logtype* (Avg)



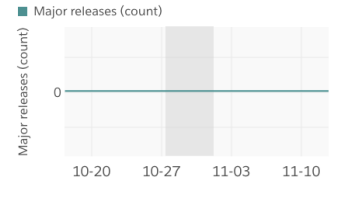
*Limited to most CPU heavy logtypes

App CPU time by Host (Avg)



*Limited to most CPU heavy hosts

Major Releases (count)



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

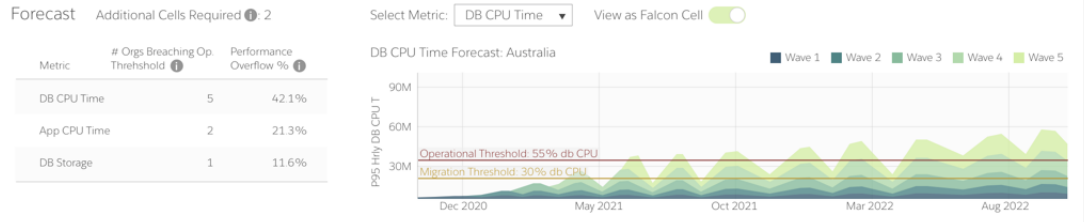
Capacity Modifiers

Sign Ups Config

Inpusted 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 Time	% of DBCPU Op. Threshold	Total AppCPU Time	Cuml. AppCPU Time	% 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	34%
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%



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

Wave	Cell	Account Name	OrgID	Org Edition	AOV Band	P95 Historical AppCPU Time	P95 Historical DBCPU Time	Current 1P P95 DBCPU Time	Current Falcon P95 DBCPU T (7 day max)	Latest Lightning Adoption %	P95 1Yr Falcon Forecasted DB CPU Time (w/ Lightning)	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 stated for MVP

Cell Template 1 + -

AWS Region: Mumbai

DB InstanceType: RS.24XL

Not stated for MVP

Cells/FD: 7

FDs/FI: 12

App Hosts/Cell: 12

#Oracle Cells (Prod): 1

#SDB Cells (Prod): 0

#SDB Cells (SBX): 2

Gear Ratio: SDB - Oracle: 2.5

Save Load Apply

Cell Thresholds

Org List for Migration - 235 Total Orgs

Migration Summary

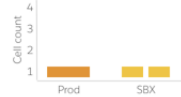
Click a cell in the chart to filter the charts below.

Destination Cells: 1

Orgs Breaching Capacity: 0

Additional Cells Required: 0

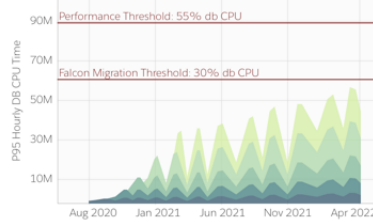
Legend: Oracle (orange), SDB (yellow)



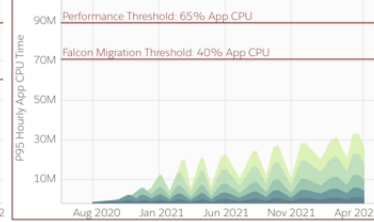
Wave	Cell ID	Status	AOV	#Orgs	Total Pk Hr DBCPU Time	% of DB CPU Threshold	% of DB Stor Threshold
1	M1.Or	Complete	\$2.7M	10	0.25M	4.3%	50%
2	M1.Or	Complete	\$7.8M	25	2.0M	12.7%	80%
3	M1.Or	In progress	\$11.3M	43	3.8M	36.2%	95%
4	M1.Or	Pending	\$21.5M	65	8.2M	61.5%	96%
5	M1.Or	Pending	\$36.4M	92	9.3M	91.2%	93%

Cell Utilization Forecast: Aug 1, 2020 - Apr 1, 2022

DB CPU Time: Cell M1.Or



App CPU Time: Cell M1.Or



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

Post MOM TTR - All Sources
Click a Pod/Cell to filter the source list below.

Pods: 4 - Max DB Size: 3TB | Cells: 36 - Max DB Size: 0.4TB

Targets

Post MOM TTR - All Targets
Click to a Pod/Cell to filter the target list below.

Cells: 60 - Max DB Size: 0.35TB

EU30
14 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%

Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.

southap1
AWS x2 - SDB

	Current	Post MOM estimate	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%

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
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%

Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.

EU21
40 app | 12 DB

	Current	Post MOM estimate	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%

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
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%

Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.

EU17
40 app | 12 DB

	Current	Post MOM estimate	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%

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
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%

Maintenance window: 10/12/20 - 5:00AM - 8:00AM GMT. Data updated 10/06/20.

InVision

MOM Performance Summary

Cumulative Impact

147 months
Fleetwide TTR Increase

\$16.2M
Total Infra Cost Savings

Historic TTR & Cost Savings

Overall Migration Success

Org level

- Successfully migrated orgs: 36.3k (99.6%)
- Rollback: 128 (0.35%)
- Opt-out: 18 (0.05%)

MOM level

- Completed on schedule: 9
- Resched: 3

Historic MOM Size and Success Rate

Avg. Migration Efficiency

7.48 secs/TB
Fleetwide Avg. Completion Rate

104%
of SLA

Historic Completion Rate

Avg. Forecast Accuracy (MPE*)

App CPU (%)	DB CPU (%)	DB Size (TB)	ASM Stor. (TB)
-12.3%	-10.6%	-4.2%	8.4%

Historic Forecast Accuracy

'MOM App' for planning and scheduling MOMs

Click any ● to view the associated wireframe.

Three Views

S Source View

- Select Sources to remediate
- Review projected impact to any Source
- Edit org lists provided by OME, or upload them manually
- For any Source, edit org list, and re-run OME to finalize targets

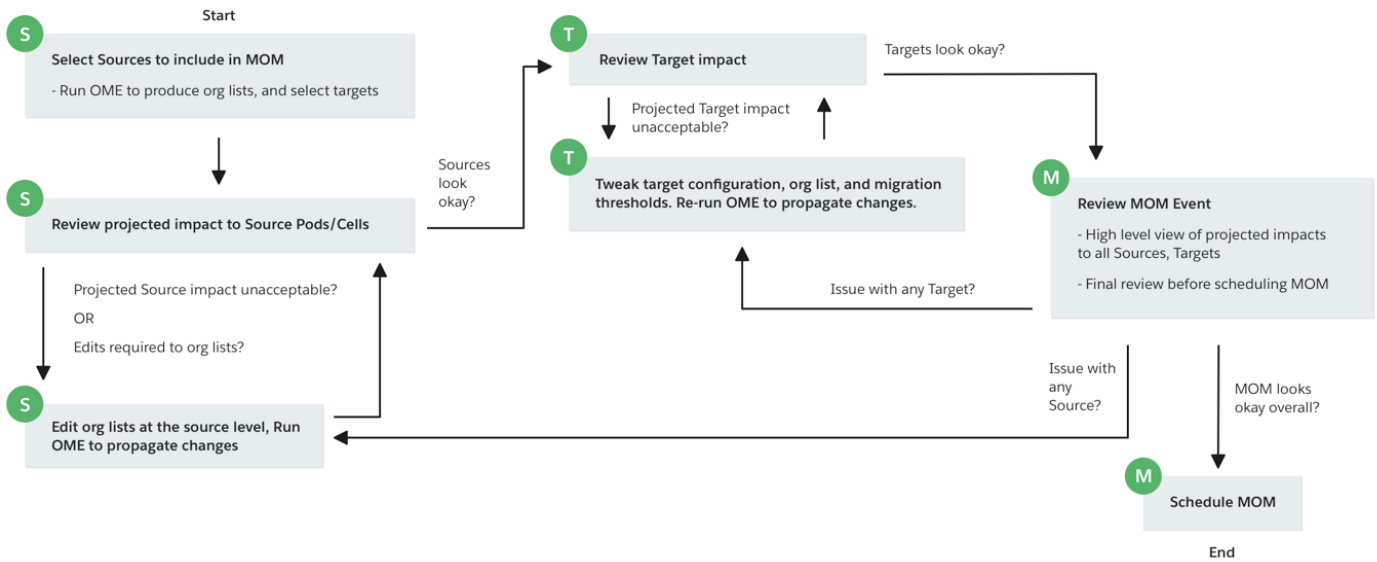
T Target View

- Review projected impact to any individual Target. OME handles all Target selection
- Edit incoming org list, Target configuration, and migration thresholds. Re-run OME to propagate changes.
- Review org list migrating to any individual Target

M MOM Event View

- Read only review of aggregate impact across Sources and Targets
- Make any necessary edits from Source and Target views
- When satisfied, schedule MOM.

User Journey



Horizon Navbar

View by MOM Event Target Source

+ Add Source

Run OME for all Sources

EU15

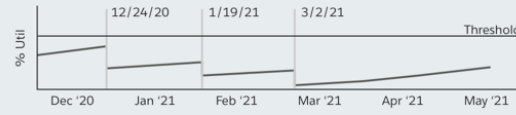
Total Migrating Orgs: 11,231

Total AOV: \$2.45M

TTR: 1 mo

Next MOM Date: 12/24/20

Binding TTR Metric: App CPU %



New Org List (.csv)

Re-run OME

Remove Source

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

Static chart, unaffected by user input to forecast date range. Becomes multi-line chart in cases with more than one binding metric

Org List

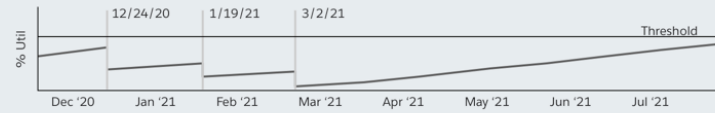
Download Org List (.csv)

Expand to view full org list

Forecast end date

End date

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

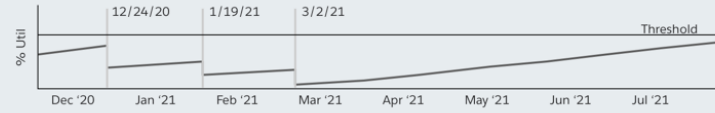


Starting with binding TTR metric, more detailed charts, additional details TBD. X axes update based on user inputs to forecast date range

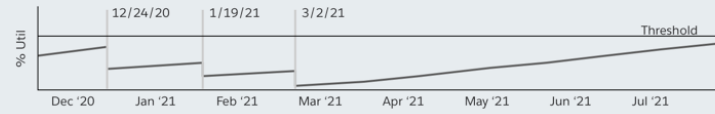
Pending MOMs

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

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



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



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)

Horizon Navbar

View by MOM Event Target Source

Set config parameters for all Targets

Run OME for all Targets

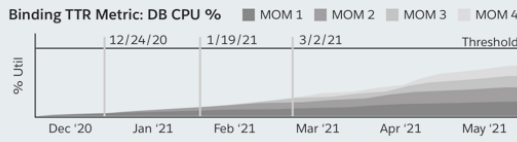
southap-1

Total Migrating Orgs: 9,432

Total AOV: \$1.86M

TTR: 6 mo

Next MOM Date: 12/24/20



New Org List (.csv)

Re-run OME

FME

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

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

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

Org List

Download Org List (.csv)

Expand to view/edit full org list

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).

Forecast end date

End date

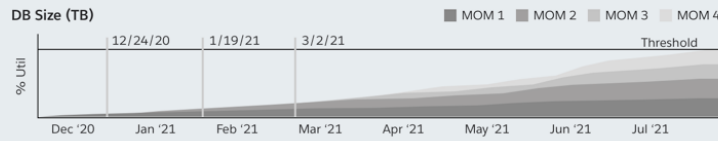
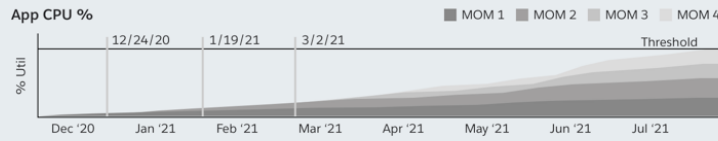
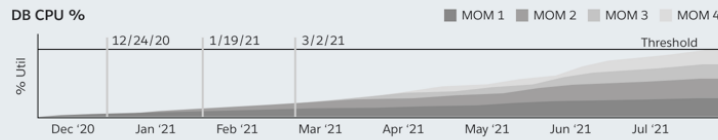
Target Config

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

Generated automatically based on migration dates included in org list.



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

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 Targets

Post-MOM (Forecast)

Schedule MOM

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

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

Expand to view full org list. Read only. Edit via Source view

Forecast end date

Post MOM TTR Summary (Forecast)

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

Pods: Cells:

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

Cells:

A herd of cattle. Click any pod/cell to filter the Target list below

Same for the source list, click any Pod/Cell to filter the list below

Sources

Search: Sort by:

	Current	Post MOM estimate	Error margin
EU10 21 opt outs			
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%

Click to link to source in app's Source view

Targets

Search: Sort by:

	Current	By forecast end date	Error margin
southap1 AWS x2 - SDB			
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 target in app's Target view