

Exploring Advanced System Topics



Russ Thomas

DATA ARCHITECT

@sqljudo www.sqljudo.com



Care and Feeding



Redshift is not completely hands off

Backups and disaster recovery

Vacuum and maintaining performance

System monitoring and system views

Logging and audits

Redshift Maintains Three Copies of Your Cluster



Original cluster



Cluster node replicas



Backup on S3 storage





AWS provides an equal amount of storage for backup as your configured cluster

By default a single day backup is automatically taken and stored to S3

You can configure additional backups and backups with longer retention in AWS

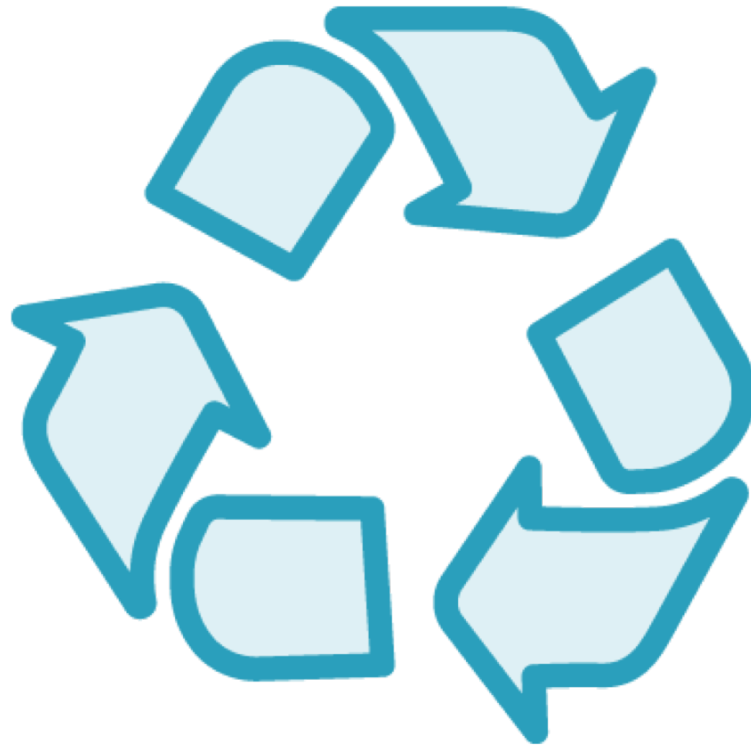




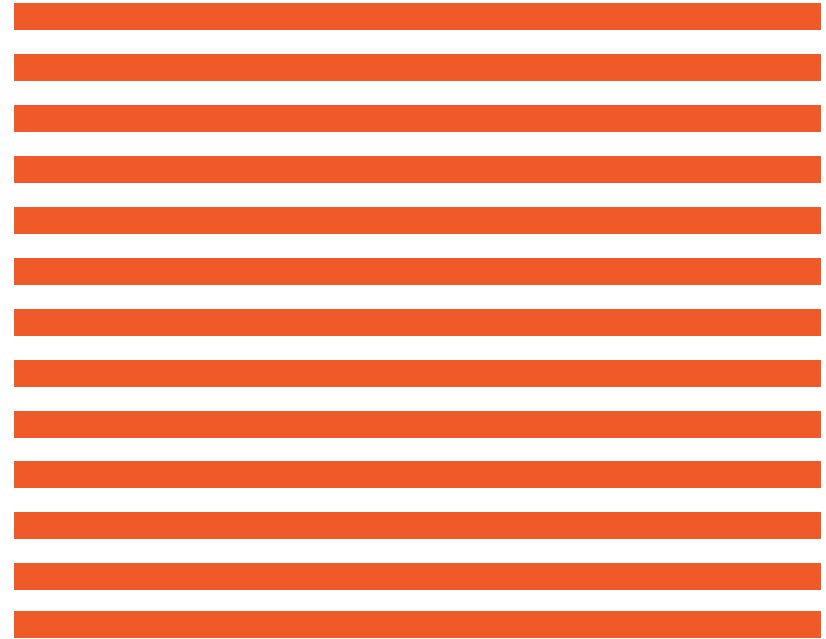
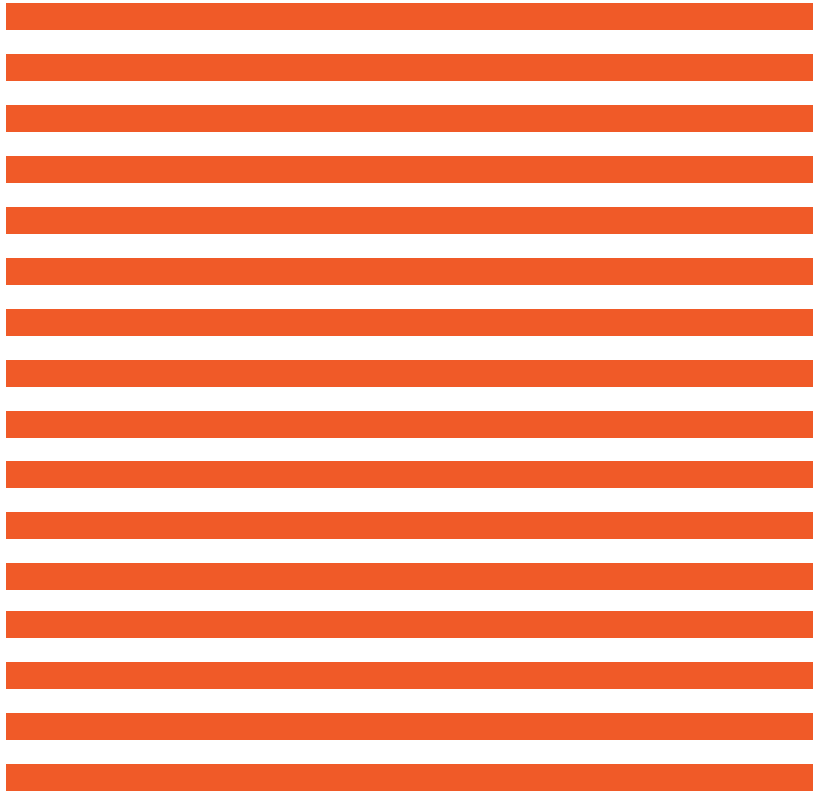
Maintaining a Healthy Redshift Cluster



Vacuum

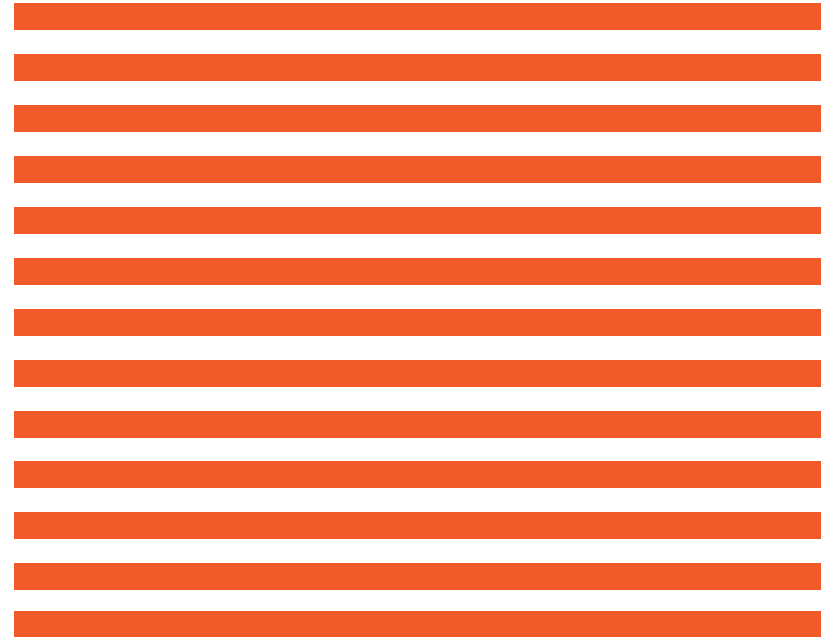


Deletes and Updates

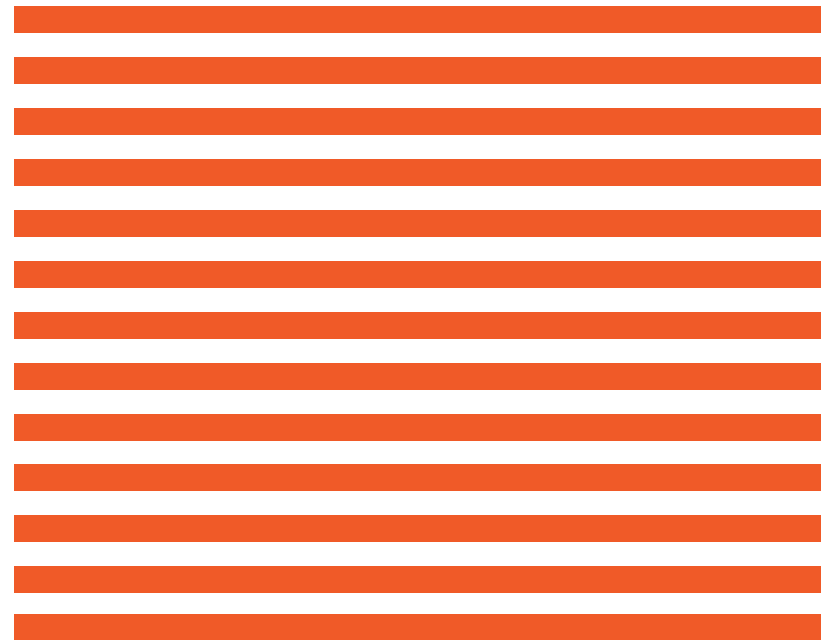
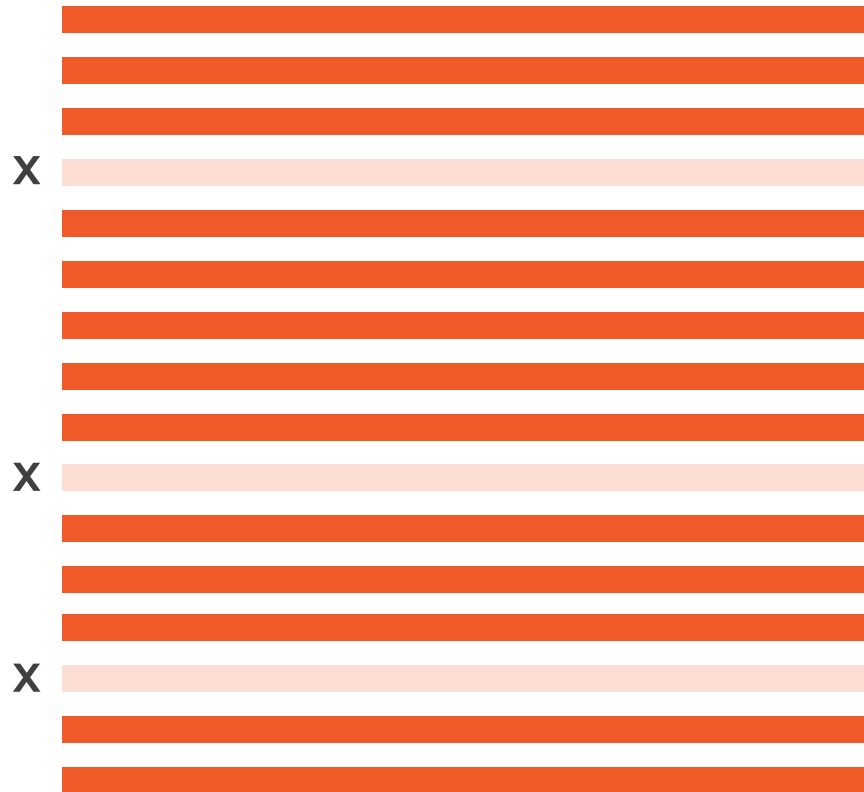


Deletes and Updates

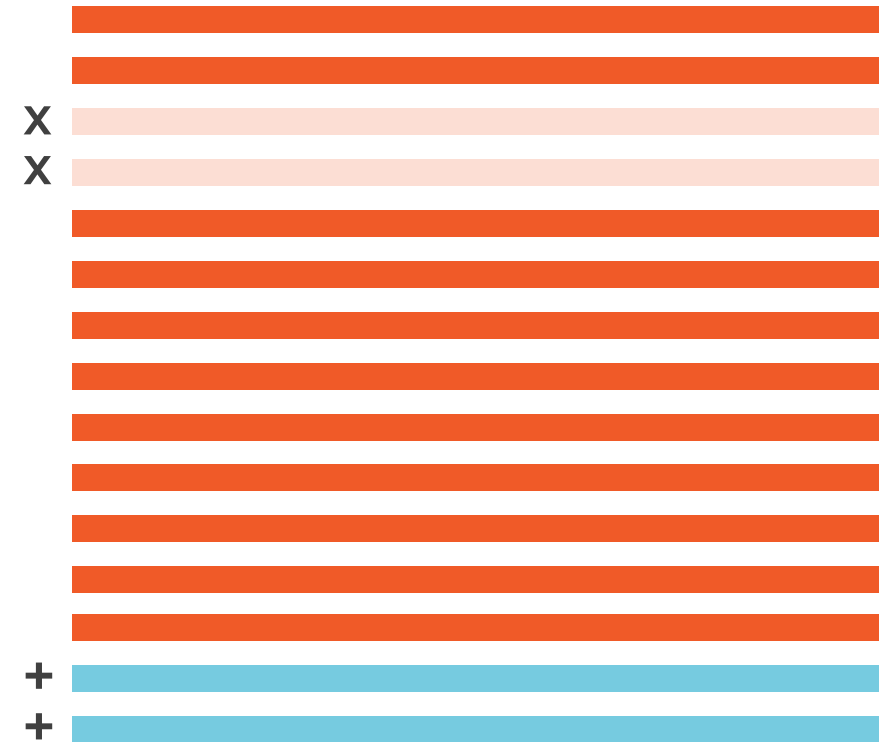
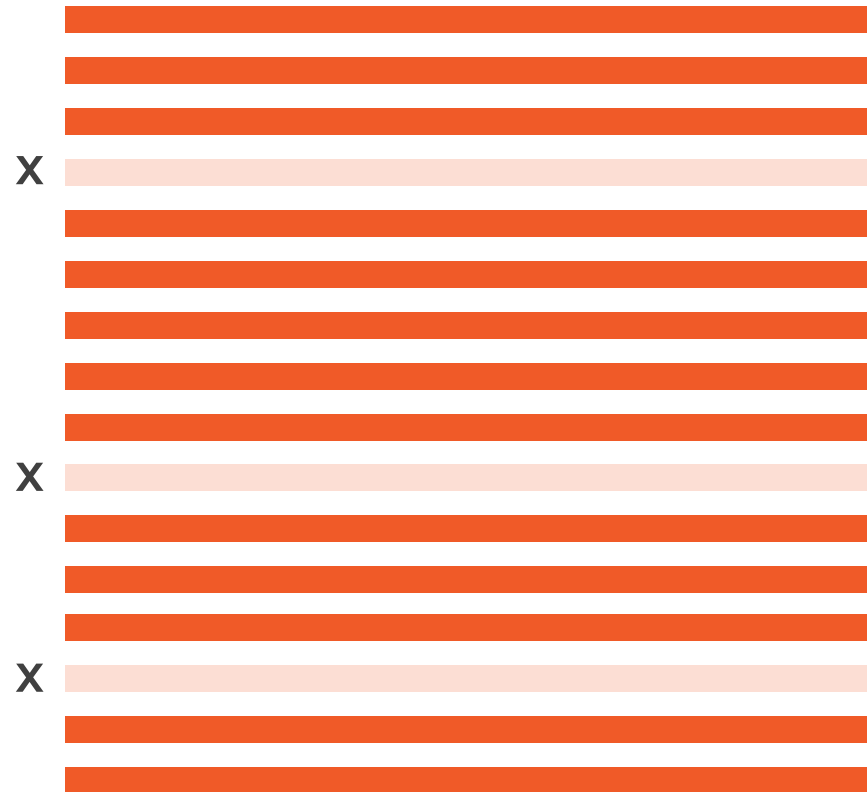
x



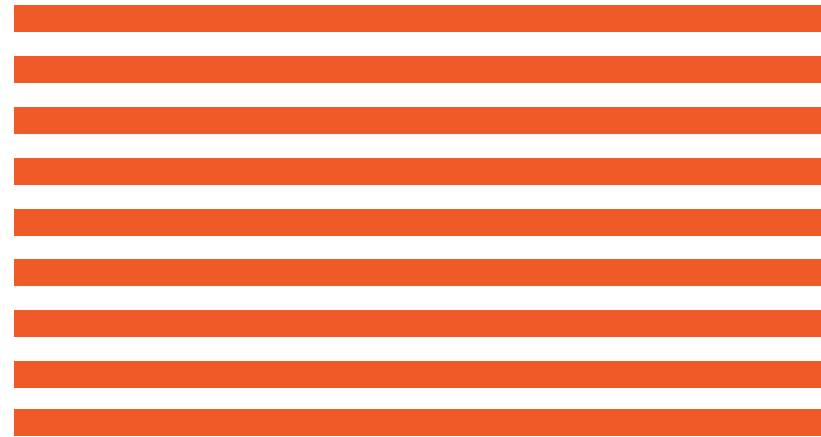
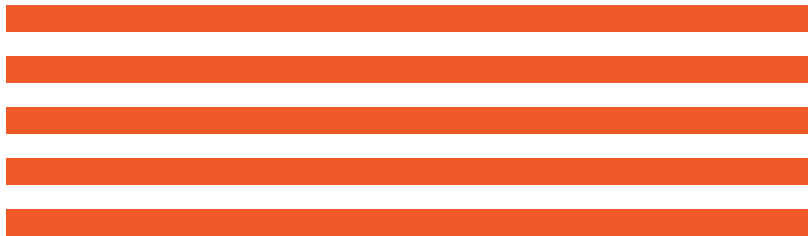
Deletes and Updates



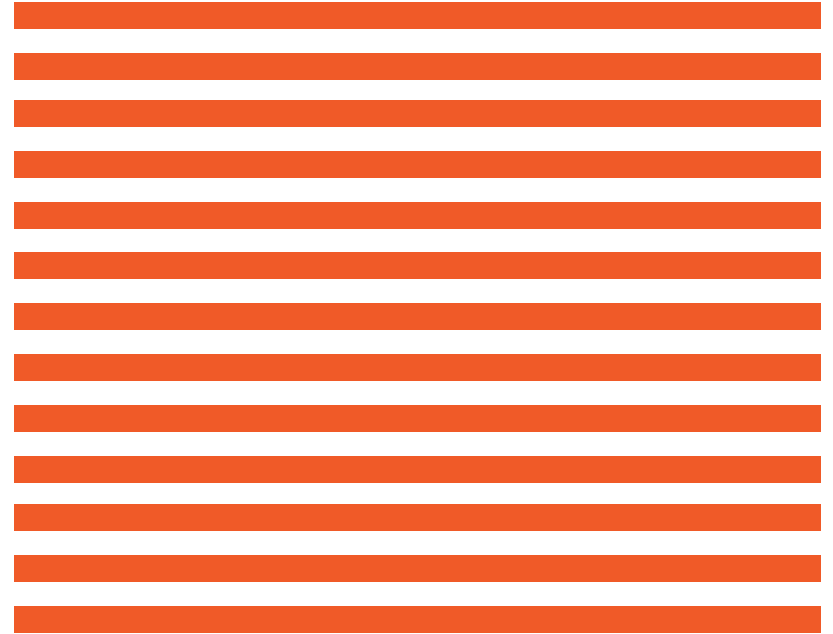
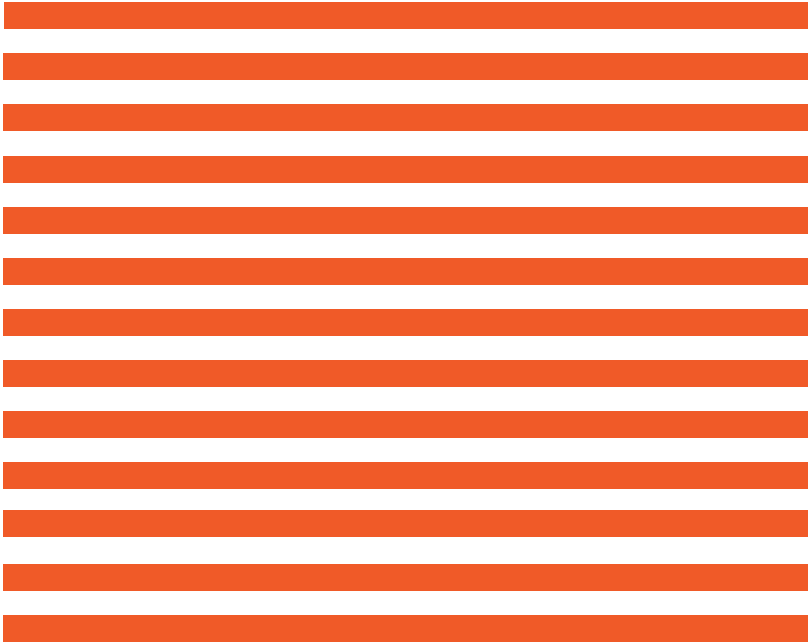
Deletes and Updates



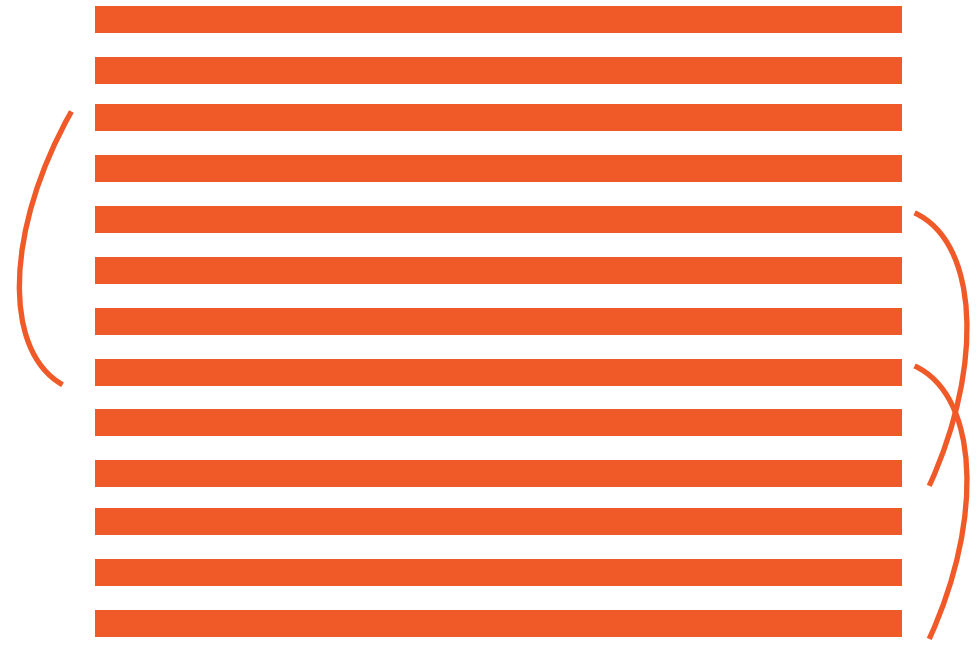
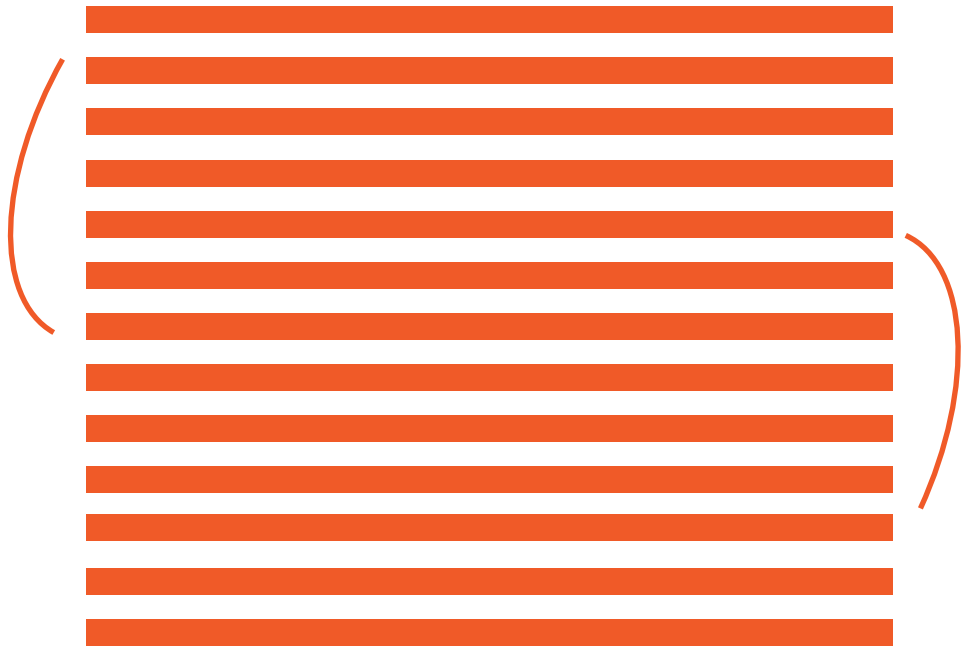
Vacuum



Vacuum



Resorting



```
VACUUM [ FULL | SORT ONLY | DELETE ONLY | REINDEX ]  
      [ [ table_name ] [ TO threshold PERCENT ] ]
```

```
VACUUM [ table_name ]
```

VACUUM complete cluster requires superuser

VACUUM table requires table owner or superuser



```
select * from svv_vacuum_progress;
```

One of several system views that show useful information pertaining to vacuum. This one specifically shows time to completion.



system views show how, why, when



svv_vacuum_progress

svl_vacuum_percentage

svv_tables

pg_user

stl_error

stl_load_error

svl_qlog

stl_query

+ many more ...

Redshift System Views, Tables, and Logs

stl = system table logs

stv = system table snapshots

pg = catalog tables

svv = system view snapshot

svl = system view log



Get All Users in Groups

```
SELECT
    pg_group.groname
    , pg_group.grosysid
    , pg_user.*
FROM pg_group, pg_user
WHERE pg_user.usesysid = ANY(pg_group.grolist)
```



Obtain many sample admin queries and functions from AWS Labs

<https://github.com/aws-labs/amazon-redshift-utils>



Demo



A final glance at system views



```
EXPLAIN < select statement to analyze >
```

EXPLAIN

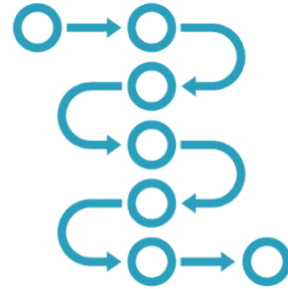
Analyze provided query and return query plan



Course Summary



Internal Architecture



History



Copy Command



Querying /
Connecting



Security



Administration /
Maintenance



Experience

Get hands on

Download the demos

Build your own proof of concept



@sqljudo

