

sector_life

March 23, 2021

1 Sector Life Metrics Dashboard

1.1 Setting-up

```
[1]: %load_ext autotime
```

```
%load_ext autoreload
```

```
%autoreload 2
```

time: 9.6 ms (started: 2021-03-23 12:43:52 +00:00)

```
[2]: # External dependences
```

```
import pandas as pd
```

```
import numpy as np
```

```
import plotly.express as px
```

```
# Move path to parent folder
```

```
import sys
```

```
sys.path.insert(1, '../')
```

```
# Internal dependences
```

```
from filecoin_metrics.connection import get_connection, get_connection_string
```

```
from filecoin_metrics.metrics import *
```

time: 526 ms (started: 2021-03-23 12:43:52 +00:00)

```
[3]: conn_string = get_connection_string('../config/sentinel-conn-string.txt')
```

```
connection = get_connection(conn_string)
```

time: 135 ms (started: 2021-03-23 12:43:53 +00:00)

1.2 Visualizations

1.2.1 Expiration vs Activation Week

```
[4]: df = sector_activation_and_expiration_by_week(connection)
```

time: 7min 48s (started: 2021-03-23 12:43:53 +00:00)

```
[5]: fig_df = (df.reset_index()
            .assign(sqrt_sector_count=lambda df: df.sector_count ** (1 / 3))
            .assign(log_sector_count=lambda df: np.log(df.sector_count))
            .assign(sector_lifetime_days=lambda df: (df.expiration_week - df.
↪activation_week).dt.days)
        )
```

time: 16.2 ms (started: 2021-03-23 12:51:41 +00:00)

```
[6]: fig = px.scatter(fig_df,
                      x='activation_week',
                      y='expiration_week',
                      size='sqrt_sector_count',
                      color='sector_count',
                      title='Sector count / Expiration Week grouped by Activation_
↪Week')
fig.show()
```

time: 361 ms (started: 2021-03-23 12:51:41 +00:00)

```
[7]: s = fig_df.groupby('activation_week').apply(lambda df: df.sector_count / df.
↪sector_count.sum())
s.name = 'count_share'

z_df = fig_df.assign(count_share=s.values)

fig = px.scatter(z_df,
                 x='activation_week',
                 y='sector_lifetime_days',
                 size='count_share',
                 color='count_share',
                 title='Activated Sectors Lifetime across Time (weekly)')
fig.show()
```

time: 113 ms (started: 2021-03-23 12:51:42 +00:00)

```
[8]: s = fig_df.groupby('activation_week').apply(lambda df: df.sector_count / df.
↪sector_count.sum())
s.name = 'count_share'

z_df = fig_df.assign(count_share=s.values)

fig = px.scatter(z_df,
                 x='activation_week',
                 y='expiration_week',
                 size='count_share',
                 color='count_share',
```

```
        title='Share of Expiring Sectors grouped per Activation Week')
fig.show()
```

time: 171 ms (started: 2021-03-23 12:51:42 +00:00)

```
[9]: categories = pd.cut(fig_df.sector_lifetime_days, bins=3, labels=False)
z_df = fig_df.assign(lifetime_cat=categories)
z_df = z_df.groupby(['lifetime_cat', 'activation_week']).sector_count.sum().
    ↪reset_index()
px.scatter(z_df,
           x='activation_week',
           y='lifetime_cat',
           size='sector_count',
           color='sector_count',
           title='Count of Sectors Lifetime Category grouped by Activation_
    ↪Week')
```

time: 93.9 ms (started: 2021-03-23 12:51:42 +00:00)

```
[10]: categories = pd.cut(fig_df.sector_lifetime_days, bins=3, labels=False)
z_df = fig_df.assign(lifetime_cat=categories)
z_df = z_df.groupby(['lifetime_cat', 'activation_week']).sector_count.sum().
    ↪reset_index()
z_df = z_df.set_index('lifetime_cat').groupby(['activation_week']).apply(lambda
    ↪x: x.sector_count / x.sector_count.sum()).unstack().reset_index().
    ↪rename(columns={0: 'sector_count_share'})
fig = px.scatter(z_df,
                x='activation_week',
                y='lifetime_cat',
                size='sector_count_share',
                color='sector_count_share',
                title='Share of Sectors Lifetime Category grouped by Activation_
    ↪Week')
fig.show()
```

time: 106 ms (started: 2021-03-23 12:51:42 +00:00)

1.3 Upcoming sector expiration, monthly, network-wide

```
[11]: z_df = fig_df.groupby('expiration_week').sector_count.sum()
z_df = z_df.resample('1m').sum().reset_index()

px.bar(z_df,
       x='expiration_week',
       y='sector_count',
       title='Expiring Sectors per Month',
       log_y=True,
```

```
labels={'value': 'Sectors',  
        'time': 'Timestamp'})
```

time: 77.2 ms (started: 2021-03-23 12:51:42 +00:00)

```
[12]: z_df = fig_df.groupby('activation_week').sector_count.sum()  
z_df = z_df.resample('1m').sum().reset_index()  
  
px.bar(z_df,  
       x='activation_week',  
       y='sector_count',  
       title='Activated Sectors per Month',  
       log_y=True,  
       labels={'value': 'Sectors',  
               'time': 'Timestamp'})
```

time: 66.5 ms (started: 2021-03-23 12:51:42 +00:00)

```
[ ]:
```