

# sector\_life

March 14, 2021

## 1 Sector Life Metrics Dashboard

### 1.1 Setting-up

```
[1]: %load_ext autotime  
  
%load_ext autoreload  
  
%autoreload 2
```

time: 8.58 ms (started: 2021-03-14 00:26:24 +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: 464 ms (started: 2021-03-14 00:26:24 +00:00)

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

time: 130 ms (started: 2021-03-14 00:26:24 +00:00)

### 1.2 Visualizations

#### 1.2.1 Expiration vs Activation Week

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

time: 5min 37s (started: 2021-03-14 00:26:24 +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 ms (started: 2021-03-14 00:32:02 +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: 374 ms (started: 2021-03-14 00:32:02 +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: 109 ms (started: 2021-03-14 00:32:03 +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: 120 ms (started: 2021-03-14 00:32:03 +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: 78.3 ms (started: 2021-03-14 00:32:03 +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: 143 ms (started: 2021-03-14 00:32:03 +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: 77.8 ms (started: 2021-03-14 00:32:03 +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: 73.4 ms (started: 2021-03-14 00:32:03 +00:00)

```
[ ]:
```