sector_life

April 4, 2021

1 Sector Life Metrics Dashboard

1.1 Setting-up

[1]:
```
%load_ext autotime

%load_ext autoreload

%autoreload 2
```

```
time: 9.04 ms (started: 2021-04-04 01:00:13 +00:00)
```

[2]:
```
# External depences
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: 593 ms (started: 2021-04-04 01:00:13 +00:00)
```

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

```
time: 1.25 s (started: 2021-04-04 01:00:14 +00:00)
```

1.2 Visualizations

1.2.1 Expiration vs Activation Week

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

```
time: 8min 32s (started: 2021-04-04 01:00:15 +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: 18.7 ms (started: 2021-04-04 01:08:47 +00:00)

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

time: 482 ms (started: 2021-04-04 01:08:47 +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: 128 ms (started: 2021-04-04 01:08:48 +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: 180 ms (started: 2021-04-04 01:08:48 +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: 86.1 ms (started: 2021-04-04 01:08:48 +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: 112 ms (started: 2021-04-04 01:08:48 +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: 87.9 ms (started: 2021-04-04 01:08:48 +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: 77.9 ms (started: 2021-04-04 01:08:49 +00:00)
```

[ ]:
```

```