sector_life

March 1, 2021

1 Sector Life Metrics Dashboard

1.1 Setting-up

```
[1]: %load_ext autotime

     %load_ext autoreload

     %autoreload 2
```

time: 9.35 ms (started: 2021-03-01 14:39:31 +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: 499 ms (started: 2021-03-01 14:39:31 +00:00)

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

time: 132 ms (started: 2021-03-01 14:39:32 +00:00)

1.2 Visualizations

1.2.1 Expiration vs Activation Week

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

time: 5min 47s (started: 2021-03-01 14:39:32 +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: 17.6 ms (started: 2021-03-01 14:45:19 +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: 410 ms (started: 2021-03-01 14:45:19 +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: 2021-03-01 14:45:20 +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: 130 ms (started: 2021-03-01 14:45:20 +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: 83.1 ms (started: 2021-03-01 14:45:20 +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: 159 ms (started: 2021-03-01 14:45:20 +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: 80.8 ms (started: 2021-03-01 14:45:20 +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: 76.2 ms (started: 2021-03-01 14:45:21 +00:00)

[ ]: