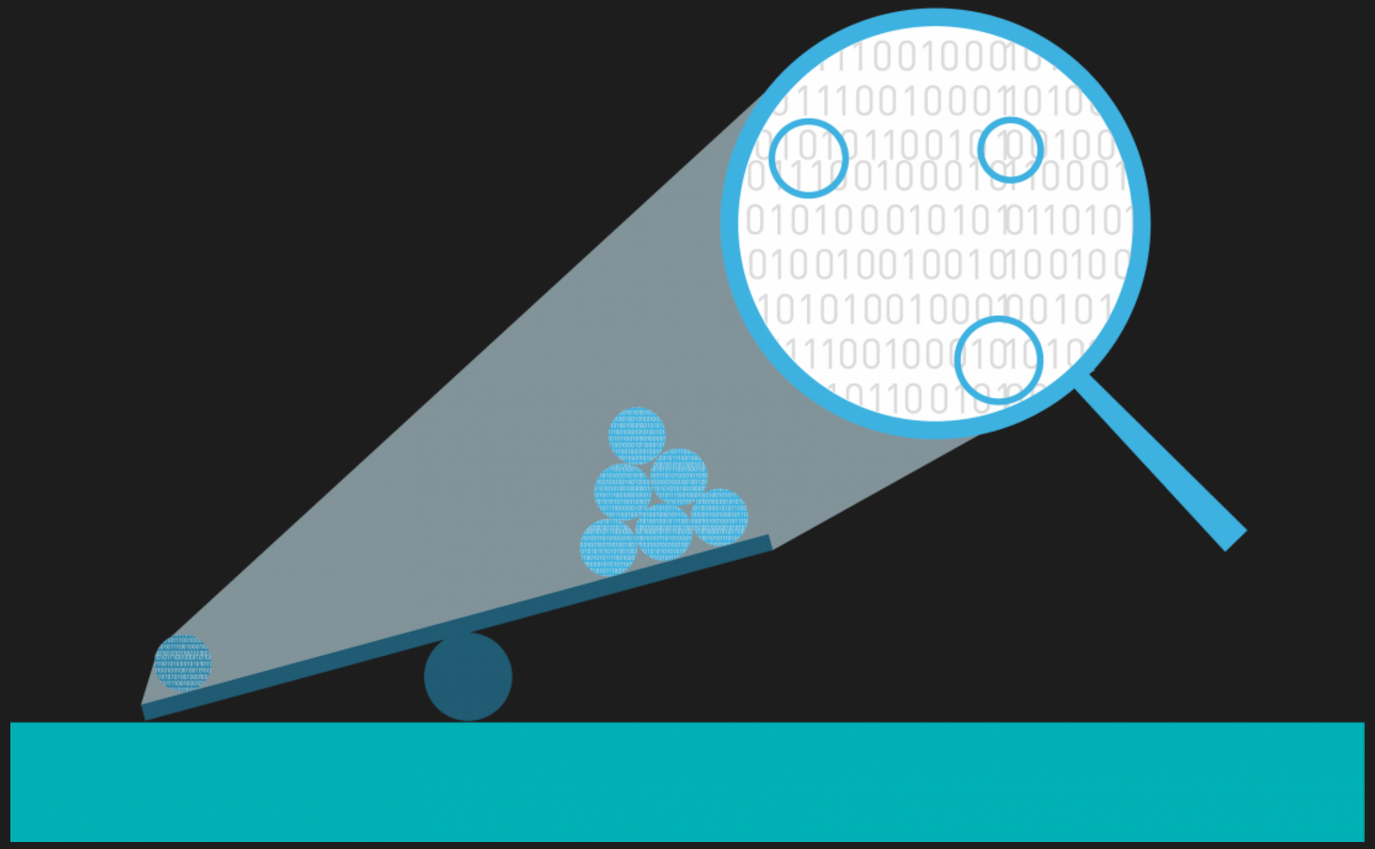
Our Mission
and Goals

# Realtime Anomaly Detection with CDN



What we aim to accomplish *by the end of the term*
*week 14-26 November*

# Table of Contents

14 features overall, after dropping and and analyzing data.

```
[6]  data.isnull().sum()
```

0s

```
timestamp         0
Status code       0
protocol          0
contentlength     0
timefirstbyte     0
timetoserv        0
osfamily          0
uamajor           0
uafamily          0
devicefamily      0
path              0
Live channel      0
devicebrand       0
method            0
dtype: int64
```

# Implementation of LSTM Autoencoder

We created a model

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 lstm (LSTM)                 (None, 128)               66560

 dropout (Dropout)           (None, 128)               0

 repeat_vector (RepeatVector  (None, 30, 128)          0
 )

 lstm_1 (LSTM)               (None, 30, 128)           131584

 dropout_1 (Dropout)         (None, 30, 128)           0

 time_distributed (TimeDistr  (None, 30, 1)            129
 ibuted)

=================================================================
Total params: 198,273
Trainable params: 198,273
Non-trainable params: 0
```

```
Epoch 1/2
1136/1136 [==============================] - 118s 104ms/step - loss: 0.2424 - val_loss: 0.2596
Epoch 2/2
1136/1136 [==============================] - 121s 107ms/step - loss: 0.2424 - val_loss: 0.2595
```

| | timestamp | devicebrand | loss | threshold | anomaly |
|---|---|---|---|---|---|
| **2779** | 2088-05-17 19:47:00 | 0.022983 | 1.638934 | 1.493251 | True |
| **2781** | 2088-05-16 02:43:00 | 0.022983 | 1.638935 | 1.493251 | True |
| **2782** | 2088-05-16 18:01:00 | 0.022983 | 1.638918 | 1.493251 | True |
| **2790** | 2088-05-17 22:57:00 | 0.022983 | 1.638906 | 1.493251 | True |
| **2791** | 2088-05-16 03:39:00 | 0.022983 | 1.638898 | 1.493251 | True |

| | timestamp | devicebrand | loss | threshold | anomaly |
|---|---|---|---|---|---|
| **90058** | 2088-05-17 08:02:00 | 0.022983 | 0.619139 | 1.493251 | False |
| **90059** | 2088-05-18 19:36:00 | 0.022983 | 0.619139 | 1.493251 | False |
| **90060** | 2088-05-18 13:17:00 | 0.022983 | 0.619139 | 1.493251 | False |
| **90061** | 2088-05-16 20:20:00 | 0.022983 | 0.619139 | 1.493251 | False |
| **90063** | 2088-05-17 22:41:00 | 0.022983 | 0.619139 | 1.493251 | False |