Flux training Agenda

AM

Slot 1 (45 mins)

- Motivation (15 mins)

  - Data-driven decision making
  - Inspiring examples
  - paradigmatic shift from historical analysis to reactive decision making

- Time series (15 mins)

  - example of time series
  - primary use cases
  - three real world examples from Factry
  - What is a time-series database (tsdb)?

- Influxdb 2.0 (15 mins)

  - What is InfluxDB/InfluxData?
  - Improvements from the past
  - Demo Factry + Cloud 2.0 UI presentation

BREAK (10 mins)

Slot 2 (45 mins)

- Data Ingestion (40 mins)
  - Generic data analytics pipeline
  - Conceptual View (Data Models)
    - Time series semantics
    - Bucket semantics

  - Logical View (Implementations)
  - Physical View (Syntaxes)
    - Line Protocol
    - ...

  - Use Case: Continuous Linear Pizza Oven

- Pictorial presentation of the case
- Demo: modelling of the temperature for both the sensors
- Exercise: modelling the temperature and humidity measurements of the two sensors
- Solution presentation & discussion
- Loading data in InfluxDB 2.0

- Run your first query (5 mins)

BREAK (10 mins)

Slot 3 (45 mins)

- Data Analysis
  - Flux query model basics and syntax
    - Table (th + demo)
    - Row processing (th + hands-on + demo)
      - Window (th + hands-on + demo)
        - Landmark
          - range()

    - Filter by tag
    - Filter by value
    - Functions (th + hands-on + demo)
      - Built-in
        - mean()
        - last()

    - Window (th + hands-on + demo)
      - Sliding
        - Aggregate Window

LUNCH BREAK

PM

Slot 4 (45 mins)

- Set up Telegraf agent for system's metrics
- Data Analysis (cont.)
  - Advanced Functions
    - map

- Custom functions (th + hands-on + demo)
- Join (th + hands-on + demo)
  - On time assuming synchronised data
  - On time approximating assuming a fixed delta (timeShift)
  - On time approximating assuming a maximum error (trucateTimeColumn)
  - On time exploiting windows

BREAK (15 mins)

Slot 5 (60 mins)

- Hands-on: implement the City Water Tank dashboard using Factry data
  - Case briefing
  - Work individually on dashboard creation a cell at a time
  - Individual discussion with instructors
  - Group discussion and feedback from the instructors

BREAK (15 mins)

Slot 6 (60 mins)

- Simple Alerts (th + demo + hands-on)
  - What is an alert?
  - How to set up an alert
  - Demo: CPU user usage above a threshold
  - Hands-on: Free Memory below a threshold

- Tasks (th + demo)
  - What is a Task?
  - Tasks common use cases
    - Downsampling data
    - Cleaning data
    - Enriching Data

  - Anomaly detection
    - Short intro on anomaly detection
    - A simple technique to find Anomalies (comparing long-term mean vs short-term mean) *

- Combining a Task with an Alert for anomaly detection (DEMO)

BREAK (15 mins)

Slot 7 (30 mins)

Everything you've always wanted to know about Flux

SQL Connection

Pivoting

Histogram

Holt-Winters