THE OPEN GROUP OPEN FOOTPRINT™ FORUM

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Open Footprint™ Forum

Global Event

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Open Footprint™ Strategy

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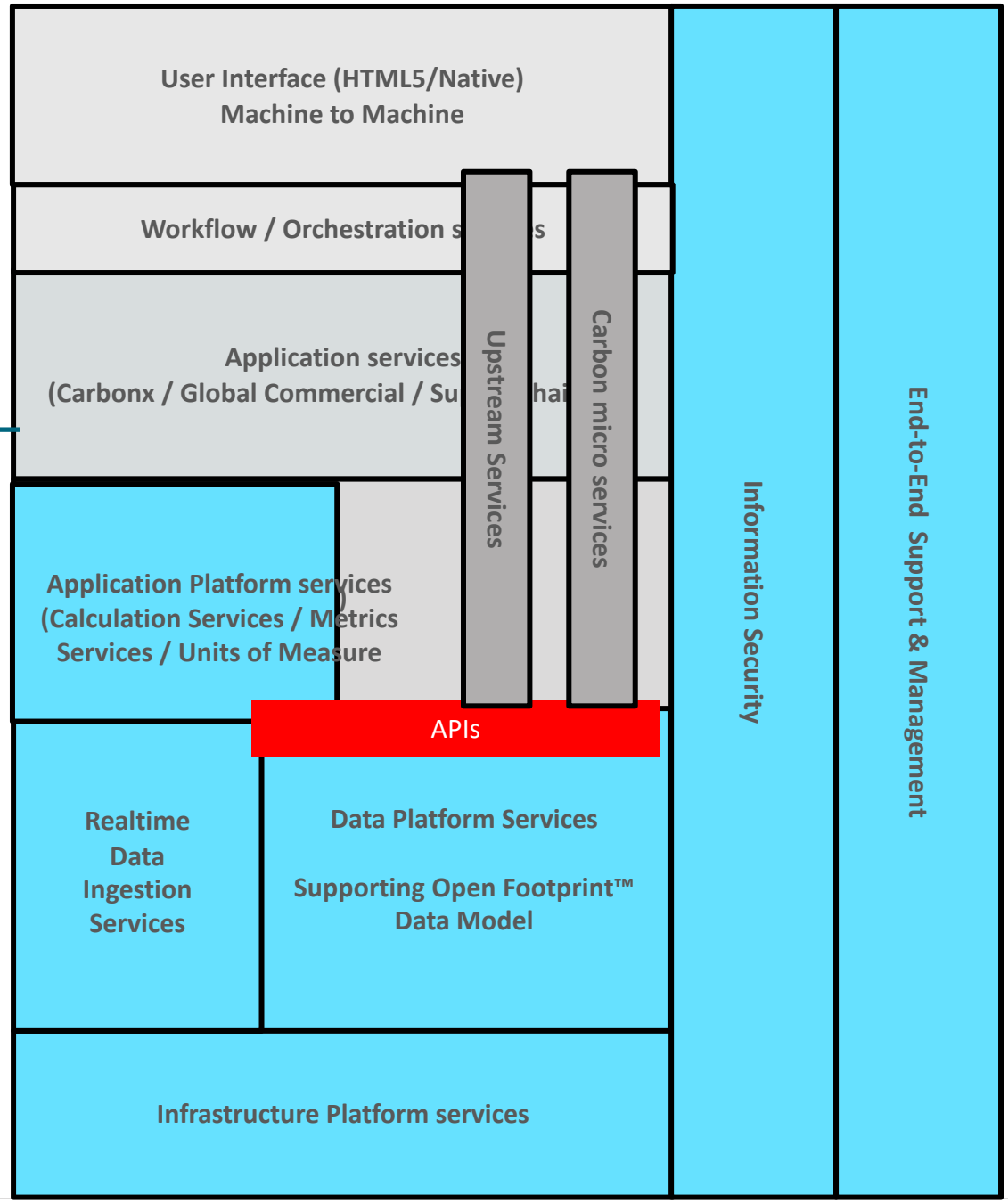
Technical scope and high-level Architecture



1. We do not compete in this space but all work together. Focus on Infrastructure, Data Platform and some Common Apps services.
2. We do compete in this space: We all will be developing / selecting our own applications.
3. (Commercial) Business services (examples)

- Can be deployed as **Private, Community /Shared or Public** (Default data sharing is NONE)
- Can be deployed using **ANY TECHNOLOGY** to suit use case as long as compliant with standards
- Can be deployed by **ANY VENDOR**

Open Footprint™ main characteristics:

1. Data access using public APIs.
2. (Near) Realtime focus.
3. Large user numbers connecting using own apps → OpenID Connect based.
4. Machine to machine focus.
5. Micro Services based.
6. Orchestration services focus.
7. Third party apps via Marketplace.
8. Open Source Driven

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Target

- Covering (complete) World Economic Forum (WEF) and Greenhouse Gas (GHG) Protocol Emissions Scope 1, Scope 2 and Scope 3
- Covering non-WEF scope such as Land fill; Water; etc
- Actively supporting ‘’Open Footprint inside’’ scenarios
- Actively supporting (native) interfaces between Open Footprint™ Forum (OFP) and reporting standards from (Sustainability Accounting Standards Board (SASB), World Business Council Sustainability Development (WBCSD), etc
- Given the immaturity of this market we need to be flexible for the future

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Emission scopes 1, 2 & 3 defined by the GHG Protocol

- Businesses must reduce their environmental impact. One of the most significant ways to do this is by reducing their carbon footprint, and this starts with monitoring carbon emissions
- According to the leading Greenhouse Gas (GHG) Protocol corporate standard, a company's greenhouse gas emissions are classified in three 'scopes':
- **Scope 1** emissions are direct emissions from company-owned and controlled resources
- **Scope 2** emissions are indirect emissions from the generation of purchased energy
- **Scope 3** emissions are all indirect emissions – not included in scope 2 – that occur in the value chain of the reporting company, including both upstream and downstream emissions

Source: https://ghgprotocol.org/

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OFP Point C (1) - General

Point (C) =
Target as we predict it today

» **Open Source based under Apache License 2.0:**
  – Available to everybody for any means to be distributed and, very important, since we expect that some suppliers will imbed OFP inside their own tooling → ***''OFP Inside"***

» **Complete support for GHG scope such as:**
  – https://ghgprotocol.org/
  – There should be no limitations
  – Calculated and Measured data: Including relevant User and Admin UIs (as an application)
  – Company and Product data
  – Raw and calculated data
  – System of record for raw data
  – (as an application) Simple reporting tooling
  – Data lineage in place: As well across calculations

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OFP Point C (2) - General

- **Next to the WEF GHG Scope as well complete support for other scope such as:**
  - Water pollution; Landfill; etc.
  - We proactively will support all upcoming relevant developments
- **Full support for common elements:**
  - Test suite to make sure that every implementation has the same results
  - OpenID Connect as the std for User Authentication
  - Audit logs are enabled and kept
  - Public (Restful) APIs are the norm
  - Software release mgt for Patch / Minor / Major updates:
    - Move towards continuous deployment
  - As part of the data ingestion Meta data extraction will be happening
  - It will be possible that Data Platform changes can be implemented swiftly
  - In addition to the actual data Open Footprint also supports the storing of calculations, (micro) services, AI and applications (non differentiating)

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OFP Point C (3)

- Maximize the usage of the Open Footprint standards and Open Source reference implementations inside third party products, whereby the Open Footprint Forum has to ensure that these various implementations can be easily kept in sync; The latter needs to get maximum attention. In addition we can expect that the OFP data model and APIs will be added to existing services such as to the OSDU Data Platform
- Open Footprint fully supports the (near) real time loading of GHG data, whereby real time streaming is supported as we'll; Standard protocol to be supported still to be agreed (OPC-UA?) and getting ready for IOT support since it can be expected that GHG (product) data will be collected using sensors and send across using IOT networking
- Open Footprint supports real time links to other reference systems: Should be transparent for calculations inside the OFP

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OFP Point C (4) – Scope 3 (etc.)

- An Open Footprint implementation can consist of multiple implementations ie Cloud and Edge based but jointly are one logical (virtual) OFP implementation.
- Maximum support for Industry WEF GHG implementations and thereby already storing all critical Industry standards and values
- Think extensively how we make the support for WEF Scope 3 much easier:
  - Loading the Scope 3 information from many supply chain partners: Direct or via integration partner
  - Imbedding the role of OFP Data Ingestion Services: Be aware that all new data is loaded (validated / QA / etc.) via the service → Operator driven capabilities
- Support for Proof Of Origin in cases where that is requested: We still need to decide whether this will be Blockchain based
- Clear hooks to Collaboration services → making it much easier to implement business workflows

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OFP Point C (5) – Calculation Services

- Calculation Services to be available for each element of OFP
- Calculation Services to be offered in different scenarios: From fully inside OFP to fully external to OFP: Different variations in between
- Calculation services ideally to be Open Source based & (public) API driven such that it is easy to integrate these Calculation Services in different scenarios
- Calculation services to be imbedded inside Business Rules Engine Services so we can support E2E flow here → Therefore always consider the E2E story
- In addition to the actual data Open Footprint also supports the storing of calculations, (micro) services, AI and applications (non differentiating)
- Calculations will be re done automatically (background) when one or more factors have changed → Metadata to be updated

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OFP Point C (6) – Other bodies

- Close working with various bodies such as WBCSD, SASB, WEF, etc. to make sure the proposed new standard reporting and OFP are aligned much more so than today:
  - We must realize very well that being open for any form of cooperation is vital
  - Ideally have an seamless interface between OFP and any of these reporting tools and therefore we need to agree an ‘’Consumption layer’’ on top of the OFP API standards
  - Have an seamless interface with WBCSD:
    - For WBCSD to get data from OFP Data Platforms
    - For WBCSD to easily store data into OFP Data Platforms
    - In both cases it requires flexibility from both ends to some an successful implementation
- We need to give (far) more focus to the way we will get OFP considered by the various Bodies; Governments; R&D; etc.

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OFP Point C (7) – Reference implementation

- Every OFP (MVP) release will as well be issued as an reference implementation:
  - Such that it can be used as an operational capability just offering the OFP services
  - Open Source based
  - It will be one of the potential implementations → We are keen to get to a broad spectrum of OFP implementations
  - Installable by an typical company without the need for highly specialized staff
  - Patches / Minor updates can be applied
- Our aim is to stick to an single root between OSDU and OFP
- Being part of an end to end story where multiple applications provide the total solution
- Accounting / Auditing / Logging & key operational procedures are essential parts as well

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Roadmap

draft

Roadmap (1)

- Q1 – 2021) MVP1:
  - Support for GHG Scope 1 and 2: Multiple industry support
  - Support for Company and Product GHG emission numbers
  - Support for Calculated and measured data
  - Open Source Reference Implementation
- (Q2 – 2021) MVP2:
  - More or less complete support for GHG Scope 1 and 2; Across all known Industries
  - Initial support for GHG Scope 3
  - Support for all calculations and associated lineage
  - Open Source Reference Implementation suitable for operational deployment

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Roadmap

draft

Roadmap (2)

- MVP3:
  - Complete support for GHG Scope 3
  - Initial support for Non-GHG scope
  - Edge implementations available
- MVP4:
  - Virtual OFP implementation across OFP and Edge deployments
  - Increased support for Non-GHG scope
  - Initial support for Proof Of Concept
- Released product:
  - Still agile deployments

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Thanks

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