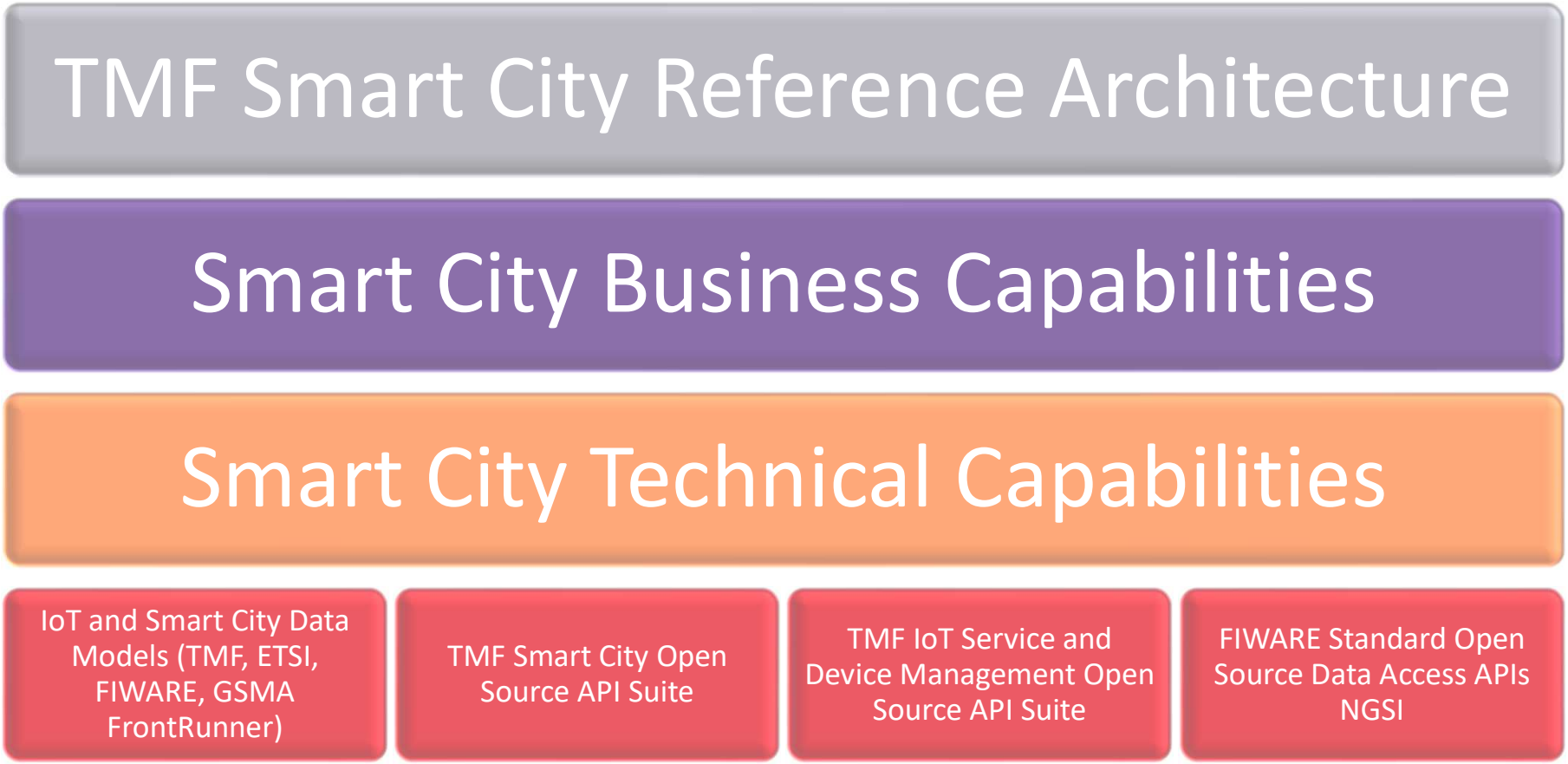
IoT Standards Trends and Convergence - Joint Workshop: Internet of Things for Smart Cities & Communities (IoT4SCC)

Pierre Gauthier
Chief API Architect TM FORUM

Reference Model



TMF Open APIs

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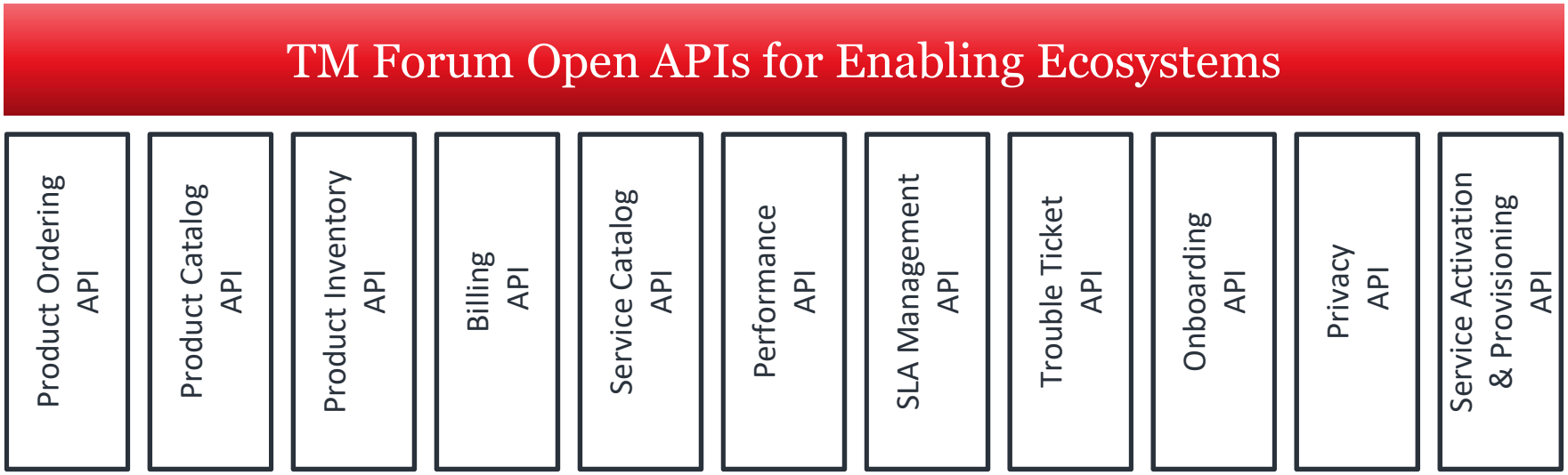
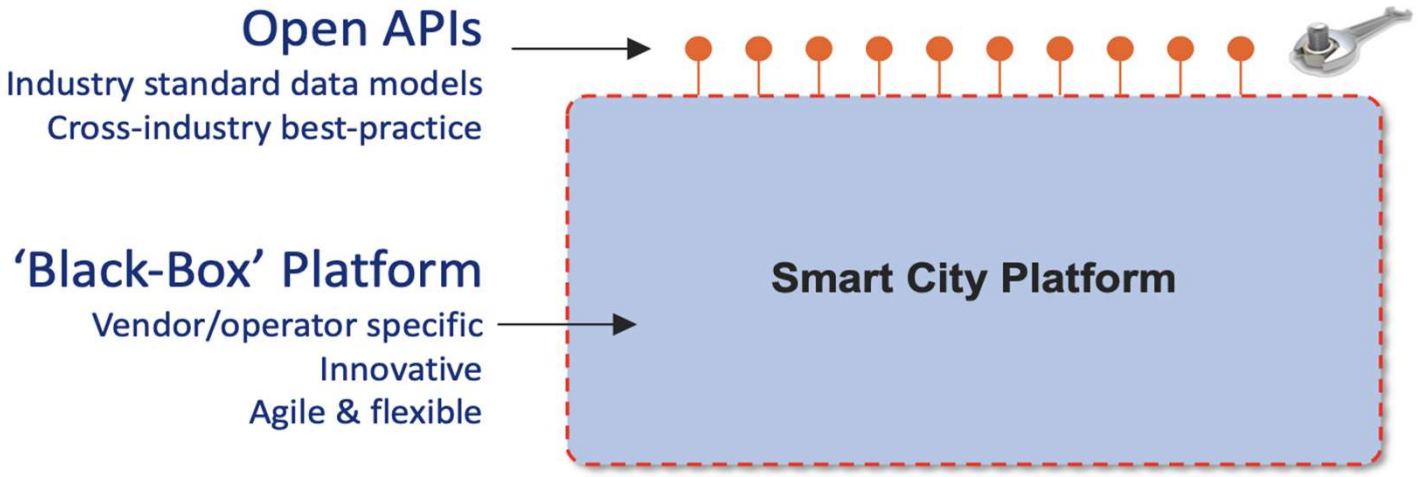


- From IoT device management to complex B2B value fabrics
- Managing partner arrangements across any business boundary
- Onboarding, SLA management, policy management and revenue sharing & settlement

Modular Platform and Open APIs



Diapositiva 4

PG4 All integration done though stanadrezides APIS

Pierre Gauthier; 03/05/2019

Open APIs

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Smart City Architecture Enabled by Open APIs

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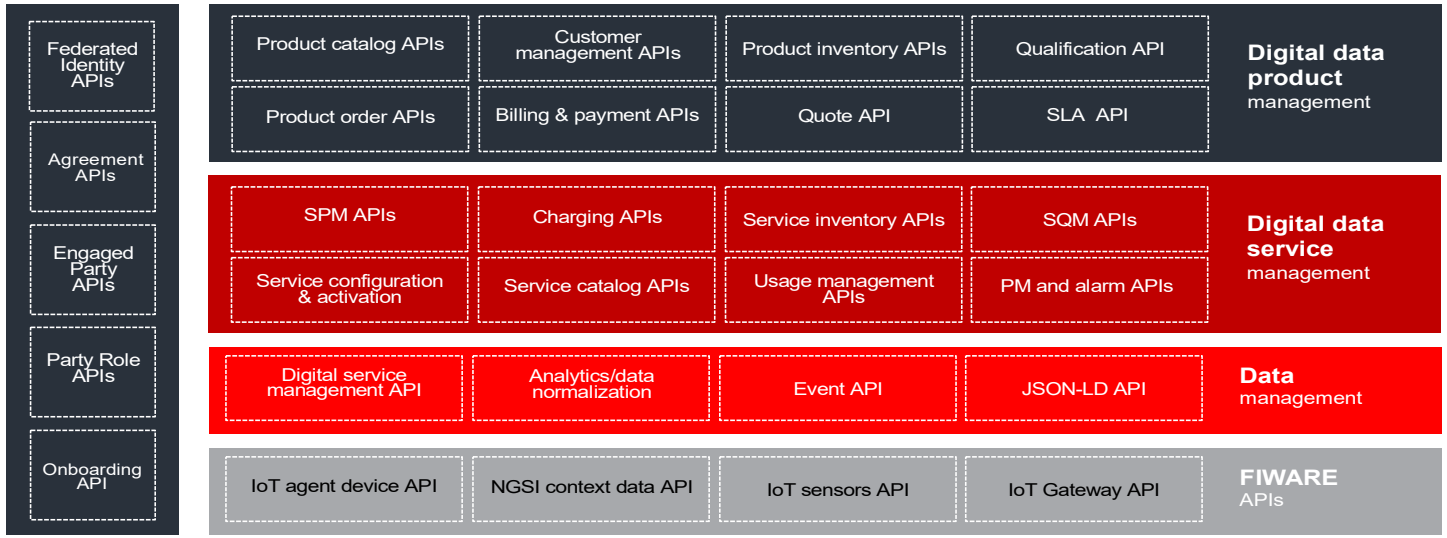

Diapositiva 5

PG3 Retirer les Apis non necessaires

Pierre Gauthier; 03/05/2019

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Component suites are highly cohesive sets of APIs that support end-to-end scenarios or execution flows across managed resources.

NaaS API Component Suite

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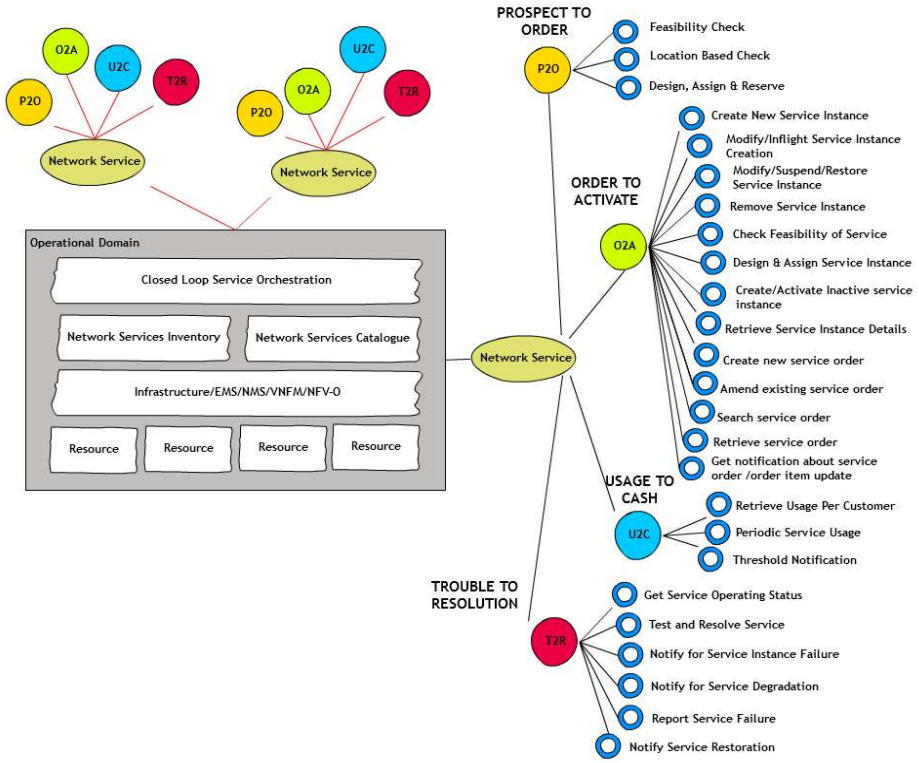
inform innovate accelerate optimize



Network as a Service (NaaS) API Component Suite

TMF 909

Version 1.3

June 2018

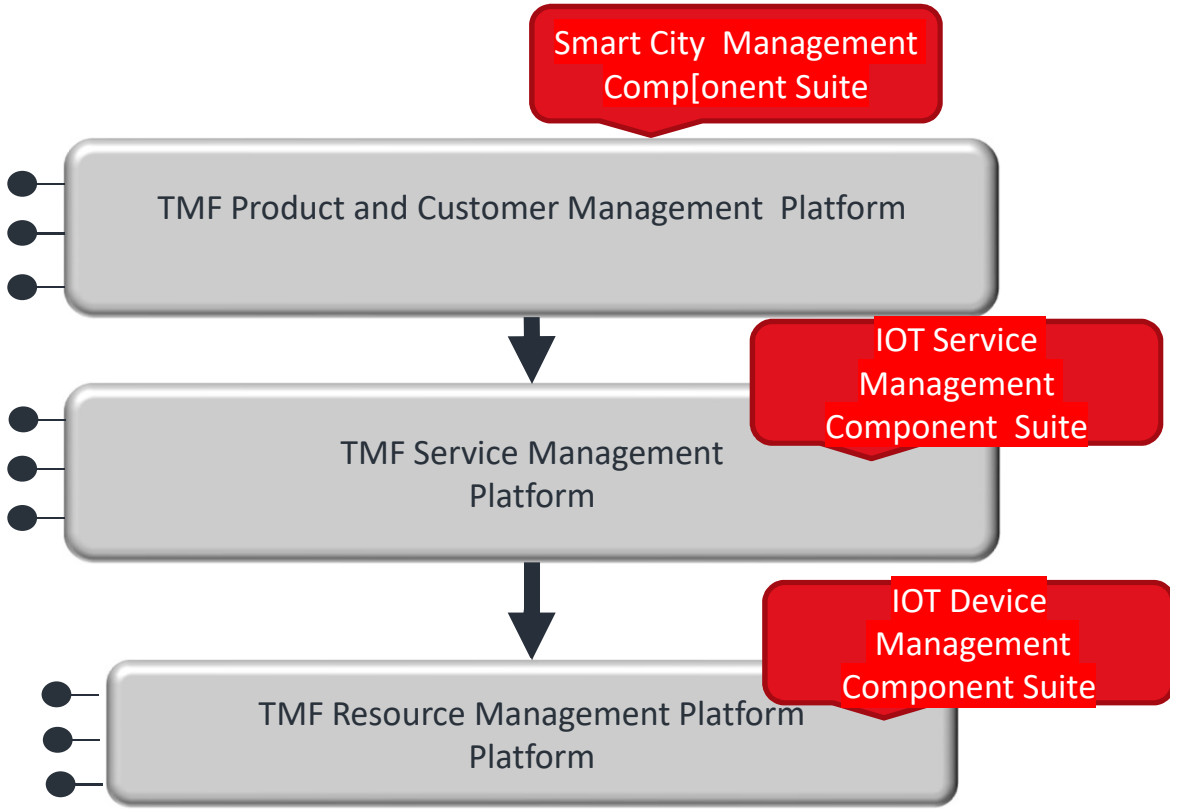
https://projects.tmforum.org/jira/browse/AP-1041

TM Forum Open APIs based Platforms

Customer Product Management Domain
A set of APIs supporting the E2E Management of Customer, Product Offerings ,Orders, Charging and Billing

Service Management Domain
A set of APIs supporting the E2E Management of Services

Resource Management Domain
A set of APIs supporting the E2E Management of Resources/Devices



TMF API Component Suite for IoT Device Management

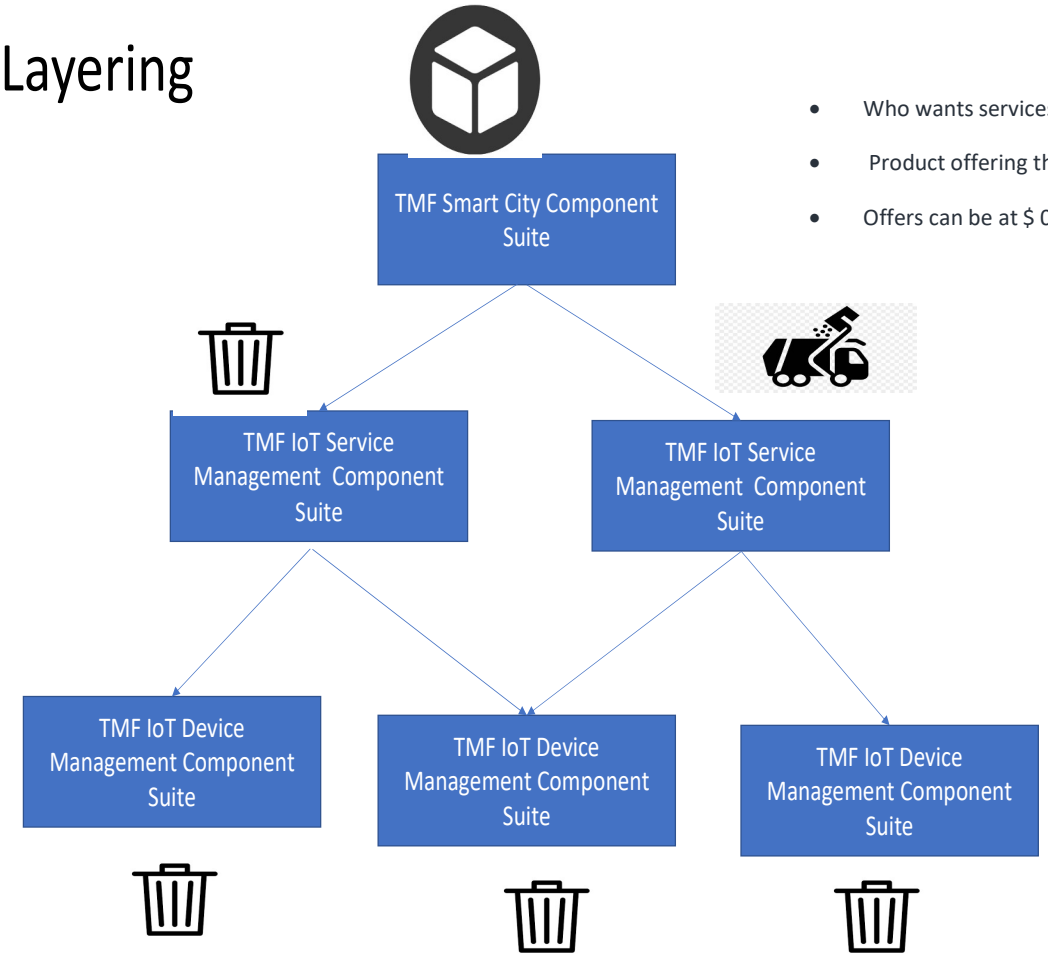
- TMF xxx
- Version xxx
- October 2018

https://projects.tmforum.org/wiki/display/IM/TMFxxx+-++API+Component+Suite+for+IoT

Latest Update: TM Forum Release 18.X.X	Draft
Version X.X.X	IPR Mode: RAND

English (United States)

Layering



- Who wants services? dedicated access offers for example.
- Product offering that depends on the services of the IOT service component suite.
- Offers can be at $ 0.

- Raw data Service that can be categorized by location, QoS, vendor, and so on
- Augmented data Service for example optimized routes in the context of garbage cans

- Management of sensors and sensor data.
- Open Source IoT and Smart City data models
- Standard Data Access API NGSI (OMA standard)

PG1 Utiliser Garbage Example

Pierre Gauthier; 03/05/2019

FIWARE TMF
BIZ-ECOSYSTEM

Search docs

DOCUMENTATION

- Installation and Administration Guide
- Docker Deployment Guide
- Configuration Guide
- User Guide
- Programmer Guide
- Plugins Guide

Read the Docs v: latest

FIWARE Data Monetization

tag fiware

This project is part of **FIWARE** and has been made in collaboration with the **TM Forum**.

The Business API Ecosystem is a joint component made up of the FIWARE Business Framework and a set of APIs (and its reference implementations) provided by the TMForum. This component allows the monetization of different kind of assets (both digital and physical) during the whole service life cycle, from offering creation to its charging, accounting and revenue settlement and sharing. The Business API Ecosystem exposes its complete functionality through TMForum standard APIs, concretely, it includes the catalog management, ordering management, inventory management, usage management, billing, customer, and party APIs.

The Business API Ecosystem is not a single software repository, but it is composed of different projects which work coordinately to provide the complete functionality.

Concretely, the Business API Ecosystem is made of the following components:

- *Reference implementations of TM Forum APIs*: Reference implementation of the catalog management, ordering management, inventory management, usage management, billing, customer, and party APIs.
- *Business Ecosystem Charging Backend*: Is the component in charge of processing the different pricing models, the accounting information, and the revenue sharing reports. With this information, the Business Ecosystem Charging Backend is able to calculate amounts to be charged, charge customers, and pay sellers.
- *Business Ecosystem RSS*: Is in charge of distributing the revenues originated by the usage of a given service among the involved stakeholders. In particular, it focuses on distributing part of the revenue generated by a service between the Business API Ecosystem instance provider and the Service Provider(s) responsible for the service. With the term “service” we refer to both final applications and backend application services (typically exposed through an API). Note that, in the case of composite services, more than one service provider may have to receive a share of the revenues.
- *Business Ecosystem Logic Proxy*: Acts as the endpoint for accessing the Business API Ecosystem. On the one

TMF Business Framework APIs Version 1.0

FIWARE TMF
BIZ-ECOSYSTEM

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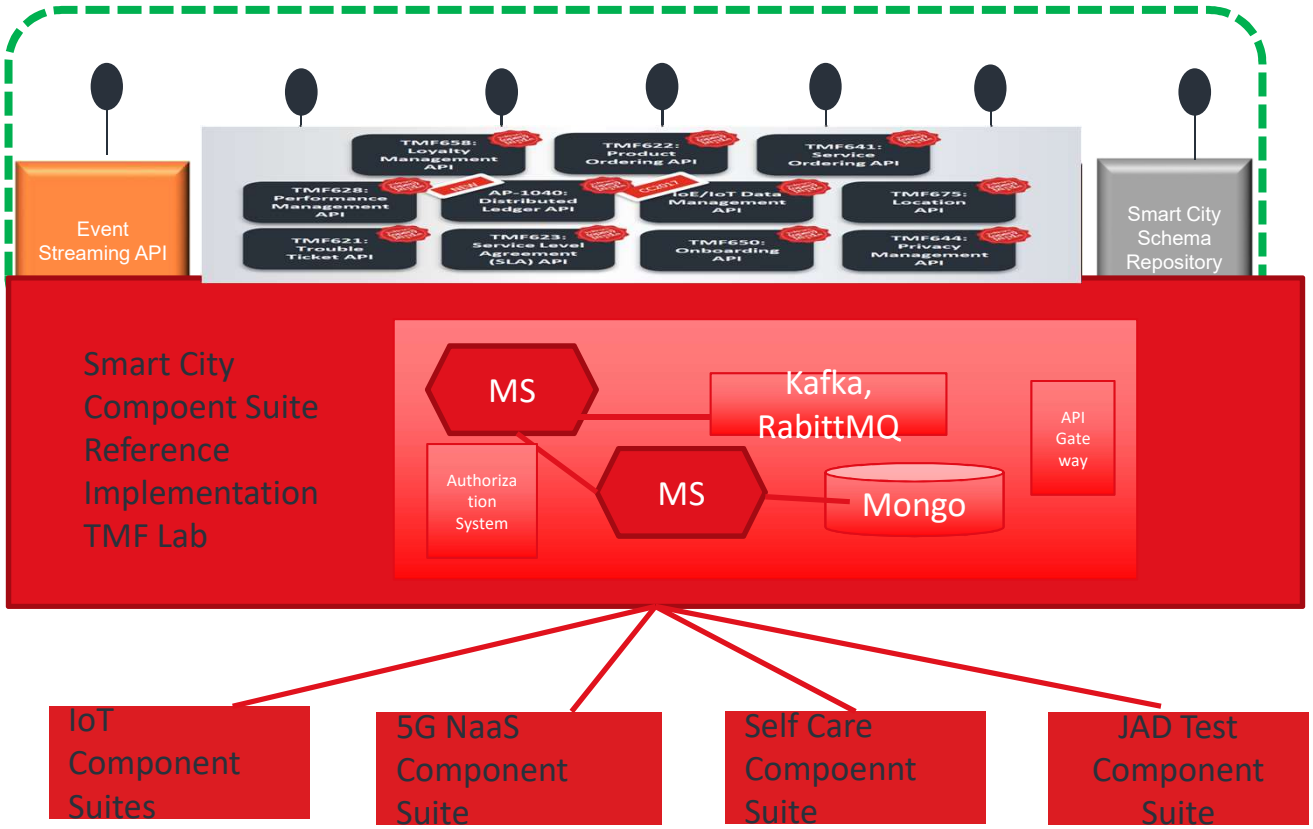
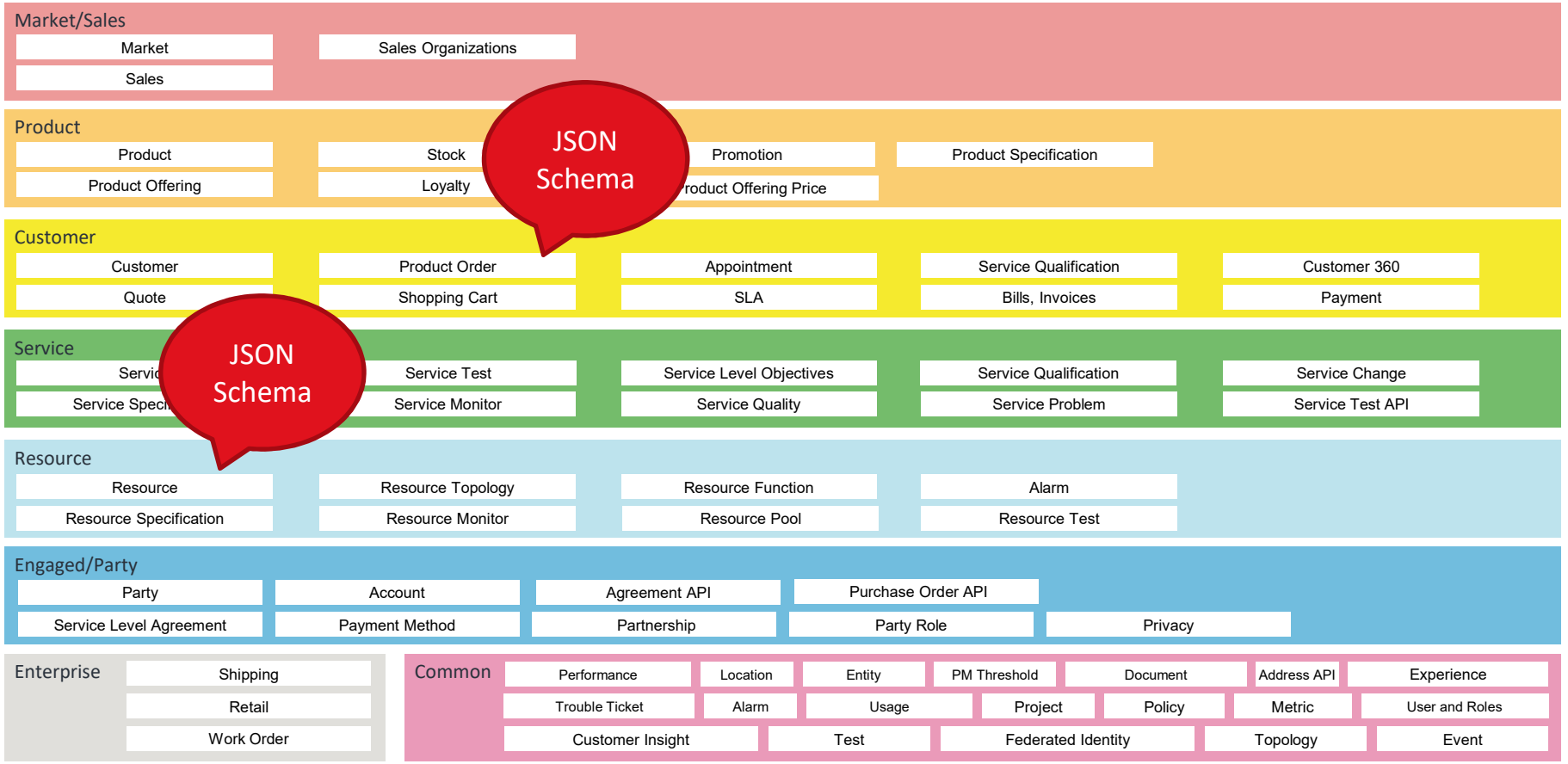
TMF Business Framework APIs Version 2.0


Event Streaming API
TMF658: Loyalty Management API
TMF622: Product Ordering API
TMF641: Service Ordering API
TMF628: Performance Management API
AP-1040: Distributed Ledger API
IoE/IoT Data Management API
TMF675: Location API
TMF621: Trouble Ticket API
TMF623: Service Level Agreement (SLA) API
TMF650: Onboarding API
TMF644: Privacy Management API
Smart City Schema Repository
Smart City Compoent Suite Reference Implementation TMF Lab
MS
Kafka, RabittMQ
API Gate way
Authoriza tion System
MS
Mongo
IoT Component Suites
5G NaaS Component Suite
Self Care Compoennt Suite
JAD Test Component Suite

TMF Data Model Entitites



214 commits | 2 branches | 0 releases | 1 environment | 4 contributors | View license

Branch: master | New pull request | Create new file | Upload files | Find file | Clone or download

knutaa Validation result [skip ci] — Latest commit 2961bc0 4 hours ago

.circleci	Validation result [skip ci]	4 hours ago
Common	Declaring name and value as required attributes	4 hours ago
Customer	Updates based on UsageConsumption review from SophieB	3 days ago
EngagedParty	Schema fix-ups: more descriptions, format: uri	7 days ago
Enterprise	Fixed broken links and typo	2 months ago
MarketingSales	Fixed broken links and typo	2 months ago
Product	Updates based on UsageConsumption review from SophieB	3 days ago
Resource	Merge branch 'master' of https://github.com/tmforum-rand/schemas	7 days ago
Service	Merge branch 'master' of https://github.com/tmforum-rand/schemas	7 days ago
.gitignore	Add .gitignore	8 days ago
LICENSE	Update LICENSE	4 months ago
README.md	Update - test	16 days ago
_config.yml	Set theme jekyll-theme-minimal	a month ago
package-lock.json	Additional reference fix	18 days ago
package.json	Missing js-yaml	21 days ago

README.md

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TMF DATA MODEL SCHEMAS = OPEN SOURCE

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Smart City and IoT Data Models

Models maintained in Open Source

Front Runner and TMF Data Model

Harmonized with FIWARE

JSON Schemas

(similar to TMF Data Models)

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