Mydata2016 8/31-9/2 Helsinki, Finland

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A challenge towards social implementation of PDS with public sector using open source software “personium”

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Terminology

In this presentation, we use the term “PDS (personal data store)” as a social infrastructure which enables human centric data circulation.

Outline

- Part 1: PDS Social Implementation Project by K. Ishigaki
  - Technical, Social, Business aspects
  - Our approach, Configuration, Use case, Business Model
    - Open source PDS personium
    - Sustainable Healthcare Project
    - Living Lab” with PDS platform

- Part 2: Open source PDS: personium by A. Shimono
  - Vision of personium
  - Architecture
  - Track records and next step
  - Application to Social Implementation Project

PDS Social Implementation Project

- Kazushi Ishigaki
- Fujitsu Laboratories LTD.

Important aspects on social implementation of PDS

- Technical, social and business aspects are important
- Technical
  - Comprehensible policy description, hassle-free and secure authentication, risk estimation for each disclosures, practical self information control mechanism for low IT literacy users, etc…
- Social
  - Need to change “public consciousness about personal data from “privacy to protect” to “assets to be utilized” for ones benefit or social merits
- Business
  - Self-sustainable business model for PDS platformer during the period when data is small.

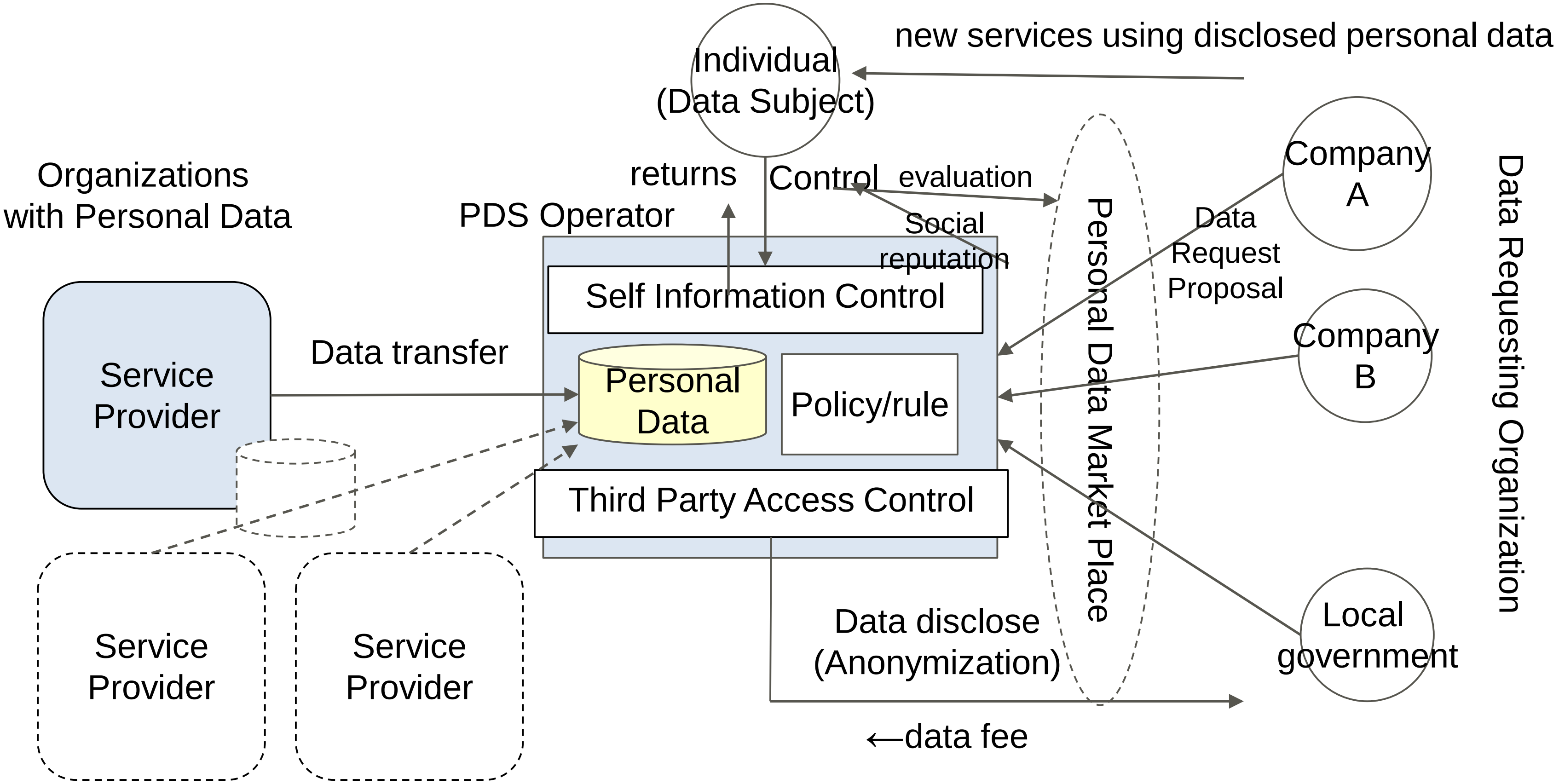
Overview of our Project

- PDS
  - Extension of open source PDS personium
- Use case
  - Sustainable Healthcare Project in a Tokyo suburb
- Business model
  - Living Lab with PDS platform.
- Cooperation
  - Industry-municipality partnership project members including local government
  - "Social Implementation Task Force" in COCN[*1] project

＊1： COCN(Council on Competitiveness-Nippon) PDS Project on "Achieving Privacy and Innovation in the age of IoT"

PDS Model

- Each data requests from third party data requesting organizations appear in individual's "personal data market place" and approved/refused by each individuals based on the offering condition and its benefit.

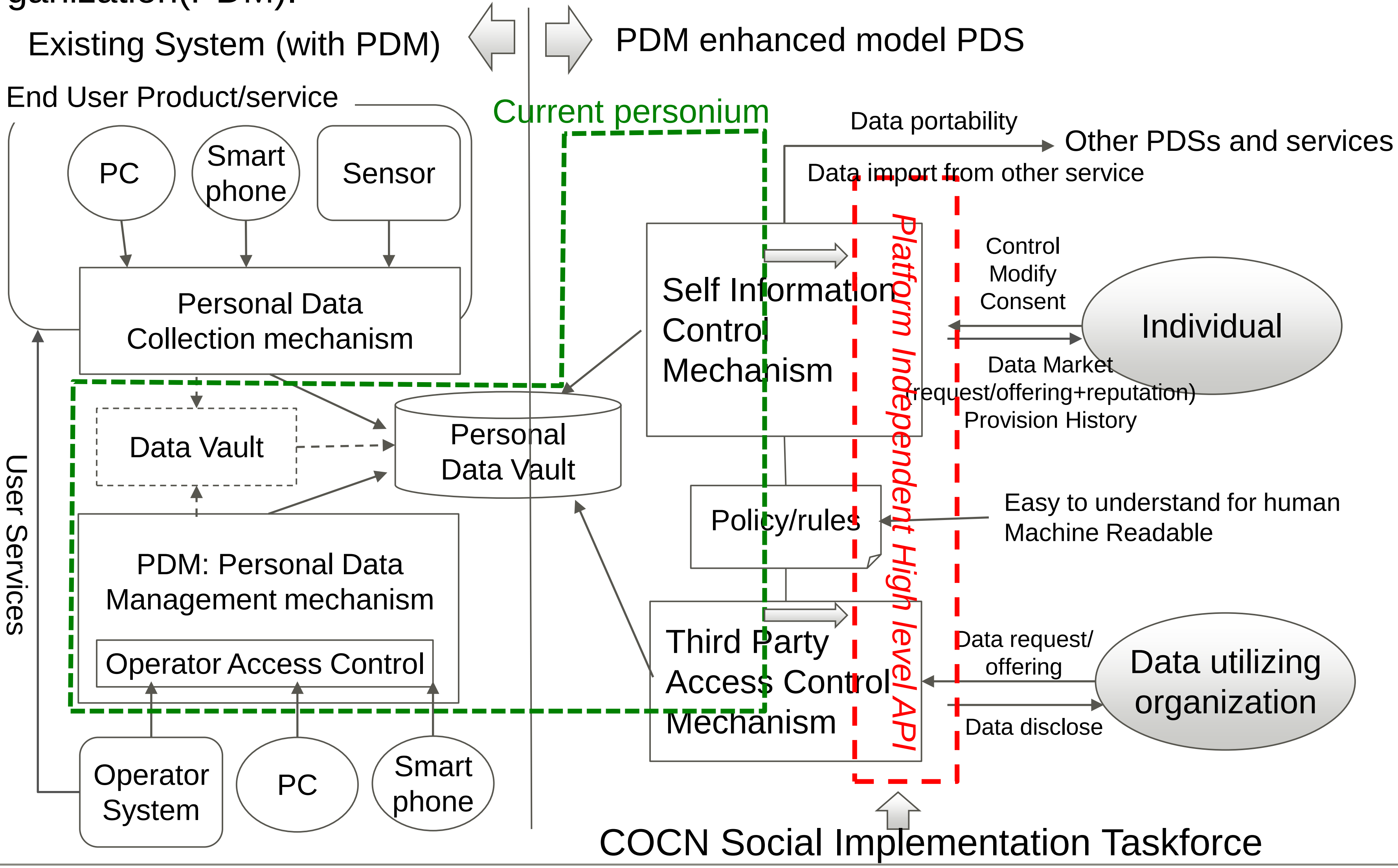


Basic Requirements of PDS to be implemented

1. Secure and safe data store (*Vault*)
2. Visualization of data contents and usage history（*Passbook*）
3. Consent based data disclosure
   - Social reputation mechanism for requesting organization and each data requests in market place
   - Diversion mechanism of decisions to each request made by individual’s trusted people and groups
4. Data import and export
5. Others functions
   - Data compression, disposal of old data, management of organization added information, etc.

Configuration of PDS

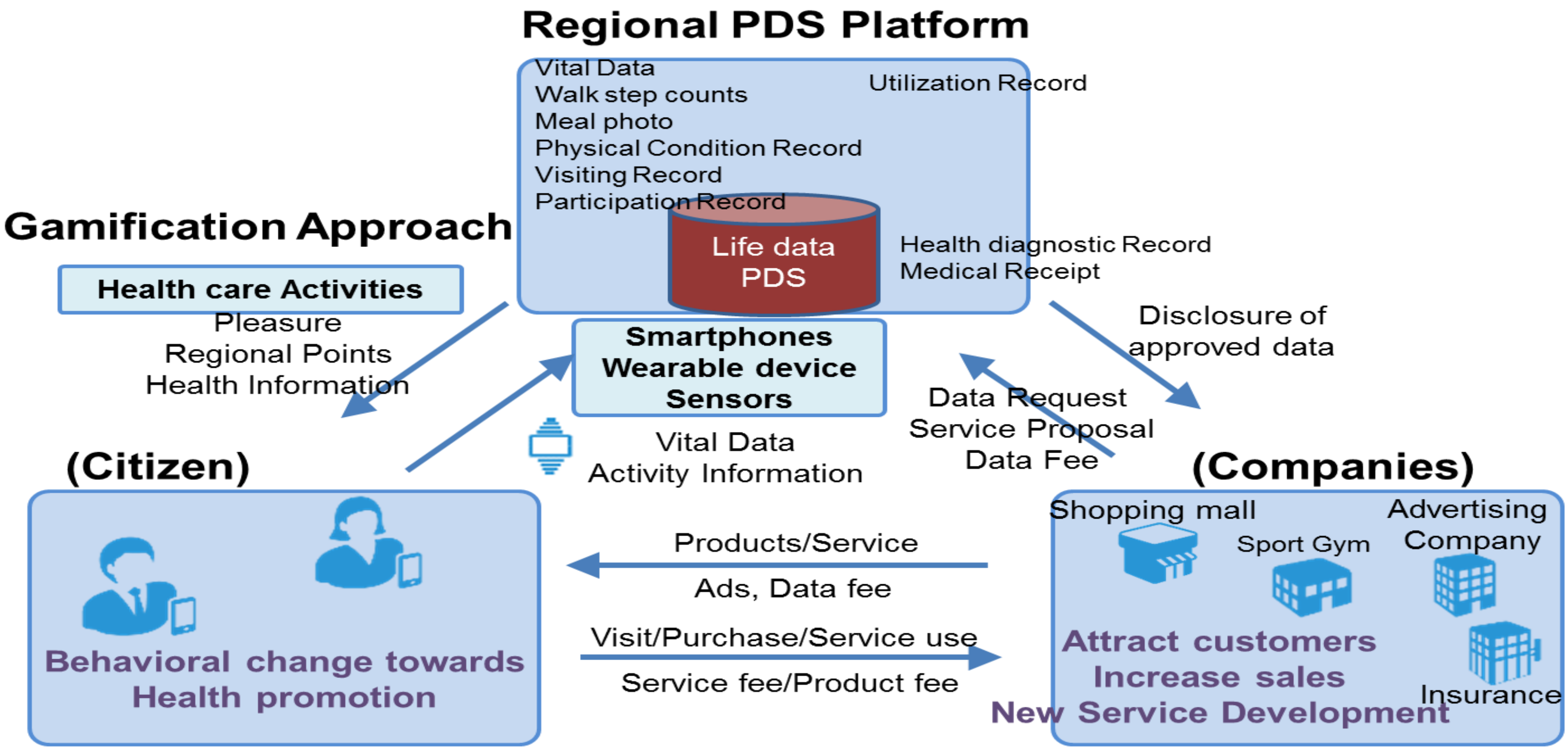
- PDS implemented by adding “self information control abilities” and “third party access control abilities” to existing Personal Data Management system for organization(PDM).



Existing System (with PDM)
PDM enhanced model PDS
End User Product/service
PC
Smart phone
Sensor
Personal Data Collection mechanism
User Services
Data Vault
Personal Data Vault
PDM: Personal Data Management mechanism
Operator Access Control
Operator System
PC
Smart phone
Current personium
Data portability
Other PDSs and services
Data import from other service
Self Information Control Mechanism
Platform Independent High level API
Control
Modify
Consent
Individual
Data Market
(request/offering+reputation)
Provision History
Policy/rules
Easy to understand for human
Machine Readable
Third Party Access Control Mechanism
Data request/ offering
Data utilizing organization
Data disclose
COCN Social Implementation Taskforce

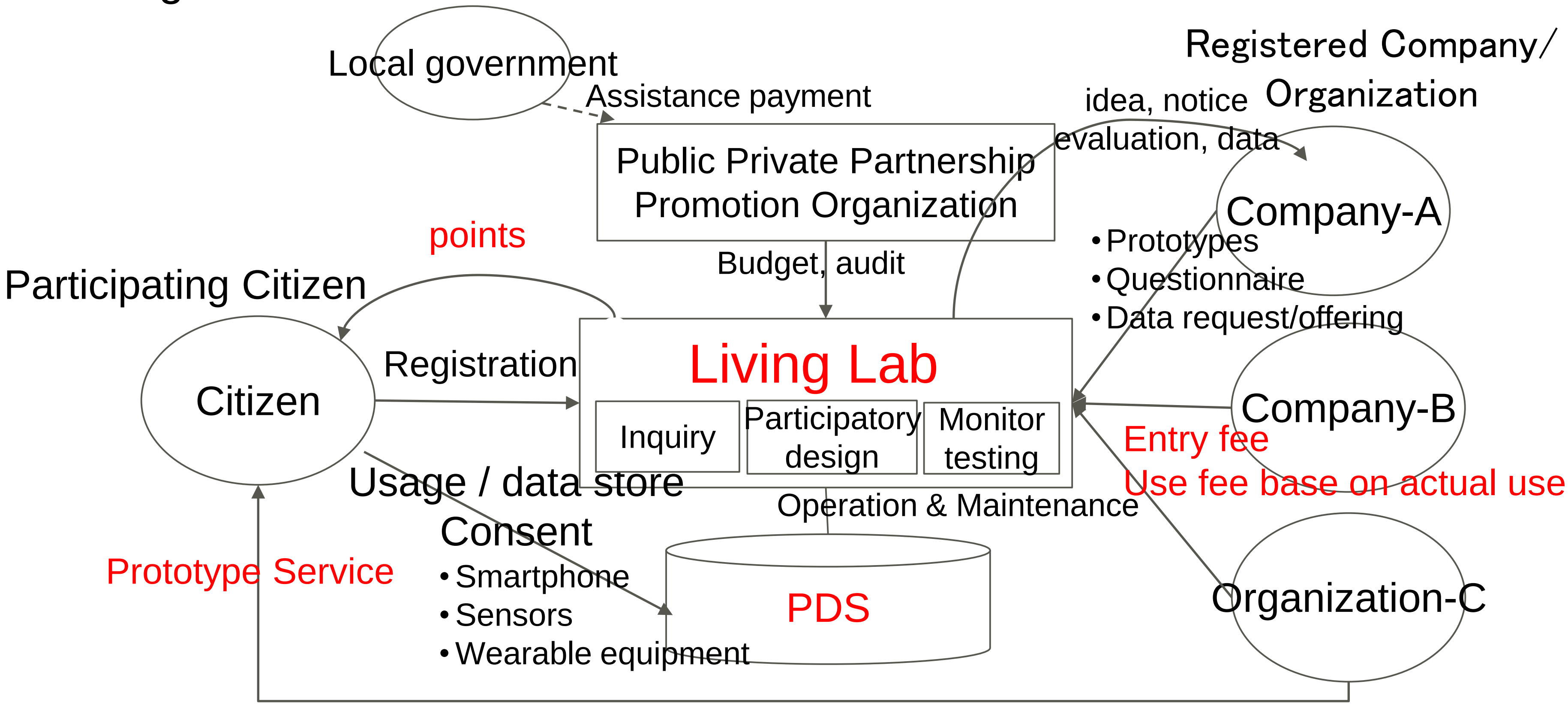
Use case：Sustainable Healthcare Project

- Aim: Promoting citizens in healthcare activities using gamification approach and developing local Industries using collected data under permission.
- Our Goal: Familiarize the concept of PDS to citizens and raise consciousness about personal data.



Business Model(assumption) : Living Lab

- Living Lab for verification of prototype services uses PDS
- Operational costs of PDS is covered by company's entry fees and use fees of Living Lab
- Citizens participating in the Living Lab will serve as a good 'role model' and influence other citizens, by contributing their data and receiving rewards in exchange.

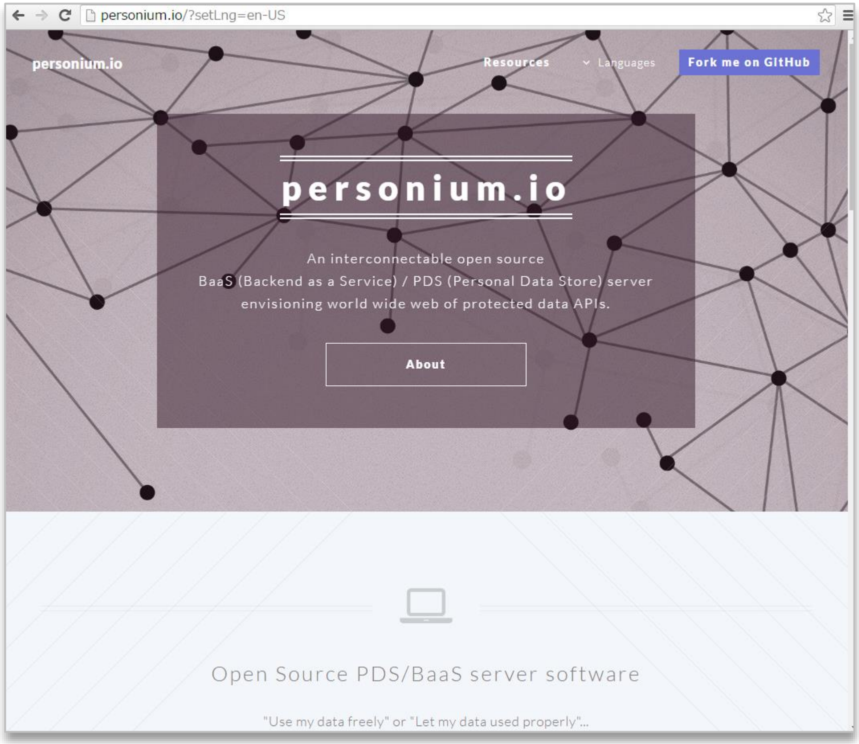


Open source PDS “personium”

- Akio Shimono
- Fujitsu LTD.

personium: Open-source PDS

An open-source PDS (Personal Data Store) server software.



personium.io/?setLng=en-US

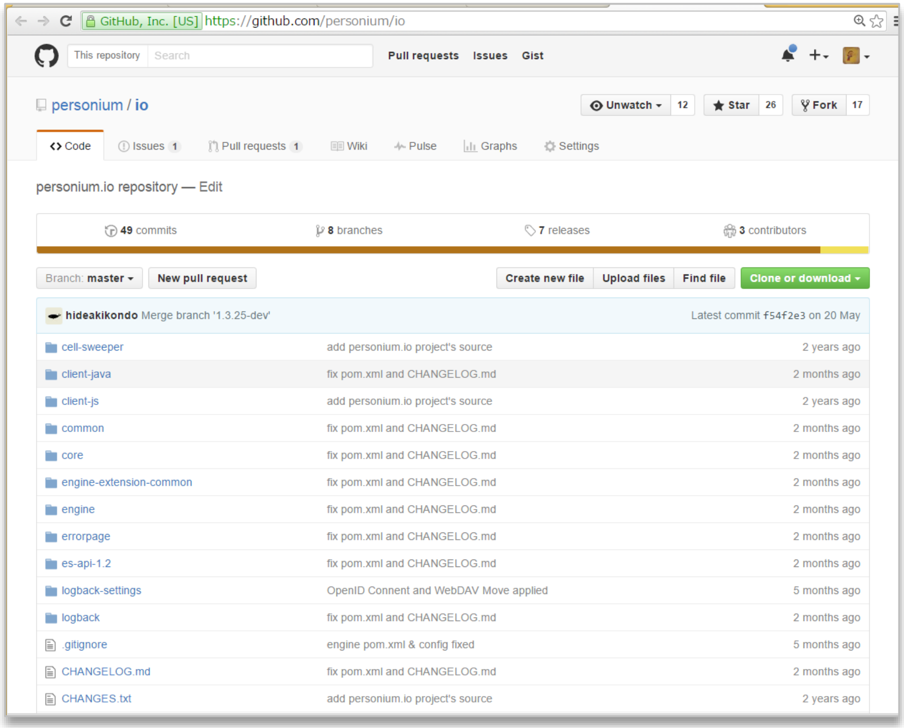
personium.io

An interconnectable open source BaaS (Backend as a Service) / PDS (Personal Data Store) server envisioning world wide web of protected data APIs.

Open Source PDS/BaaS server software

"Use my data freely" or "Let my data used properly"...

http://personium.io/



GitHub, Inc. [US] https://github.com/personium/io

This repository Search
Pull requests Issues Gist

personium / io

Unwatch 12 Star 26 Fork 17
<> Code Issues 1 Pull requests 1 Wiki Pulse Graphs Settings

personium.io repository — Edit

49 commits · 8 branches · 7 releases · 3 contributors

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

hideakikondo Merge branch '1.3.25-dev' — Latest commit f54f2e3 on 20 May

cell-sweeper	add personium.io project's source	2 years ago
client-java	fix pom.xml and CHANGELOG.md	2 months ago
client-js	add personium.io project's source	2 years ago
common	fix pom.xml and CHANGELOG.md	2 months ago
core	fix pom.xml and CHANGELOG.md	2 months ago
engine-extension-common	fix pom.xml and CHANGELOG.md	2 months ago
engine	fix pom.xml and CHANGELOG.md	2 months ago
errorpage	fix pom.xml and CHANGELOG.md	2 months ago
es-api-1.2	fix pom.xml and CHANGELOG.md	2 months ago
logback-settings	OpenID Connent and WebDAV Move applied	5 months ago
logback	fix pom.xml and CHANGELOG.md	2 months ago
.gitignore	engine pom.xml & config fixed	5 months ago
CHANGELOG.md	fix pom.xml and CHANGELOG.md	2 months ago
CHANGES.txt	add personium.io project's source	2 years ago

https://github.com/personium/io

Currently developed by our team in Fujitsu.
Aiming for open and neutral project management

- ✓ Available on github
- ✓ Apache License version 2.0.
- ✓ Tools such as Client Libraries, GUI. etc. are also available.

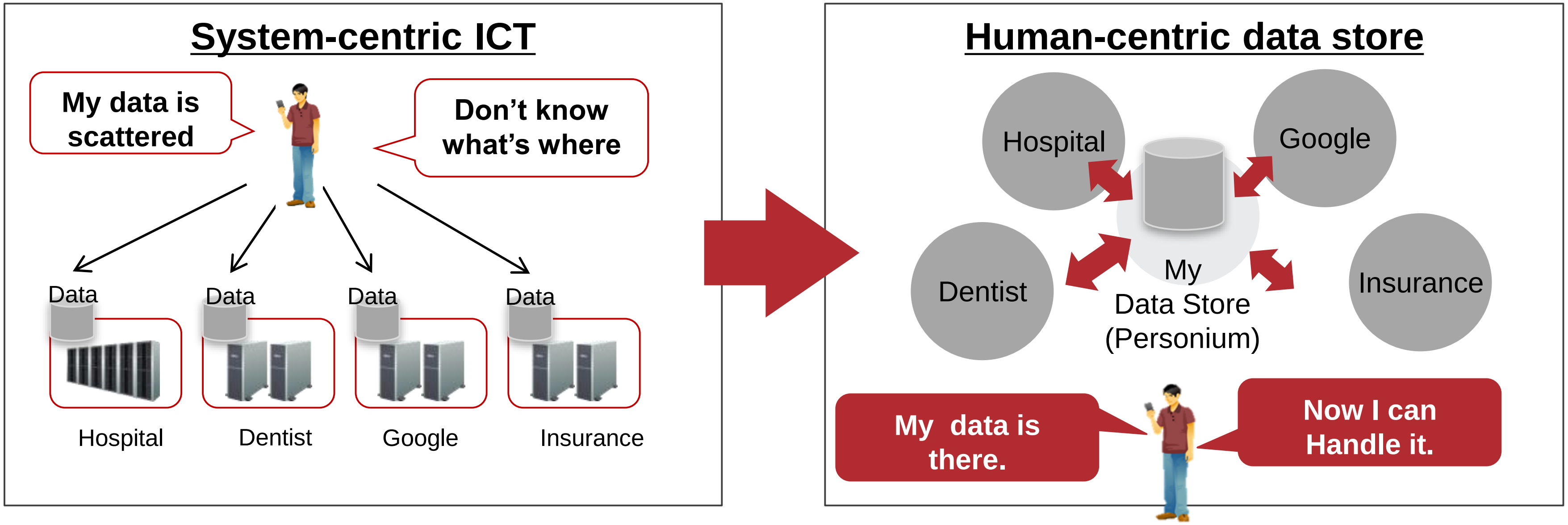
personium = persona + -ium :

Envisioning network of interconnected PDSs
Like creating complex polymer by bonding atoms

personium Vision:

“My Data Store” for Everyone / Everything

- Data store for every **data subject** on earth



Data subject … not limited to people with ICT literacy.

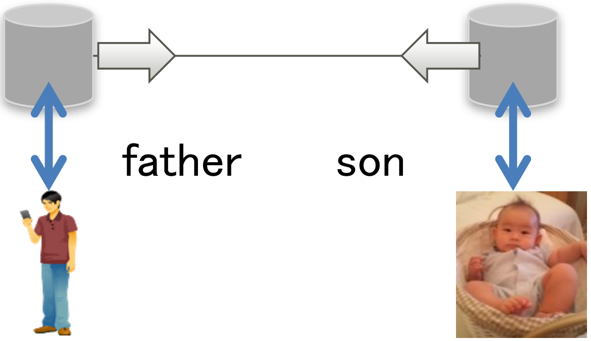
Active
Passive

personium Vision:

Decentralized Network

Linking for data sharing

- Any two stores can be **Linked** to each other. with labels of social relationship
- Access **privilege** can be **granted to peer**.
  - read only / read & write
  - partial data / Full data
- The peer can be on a **different server**.
  - digital signature enables it.



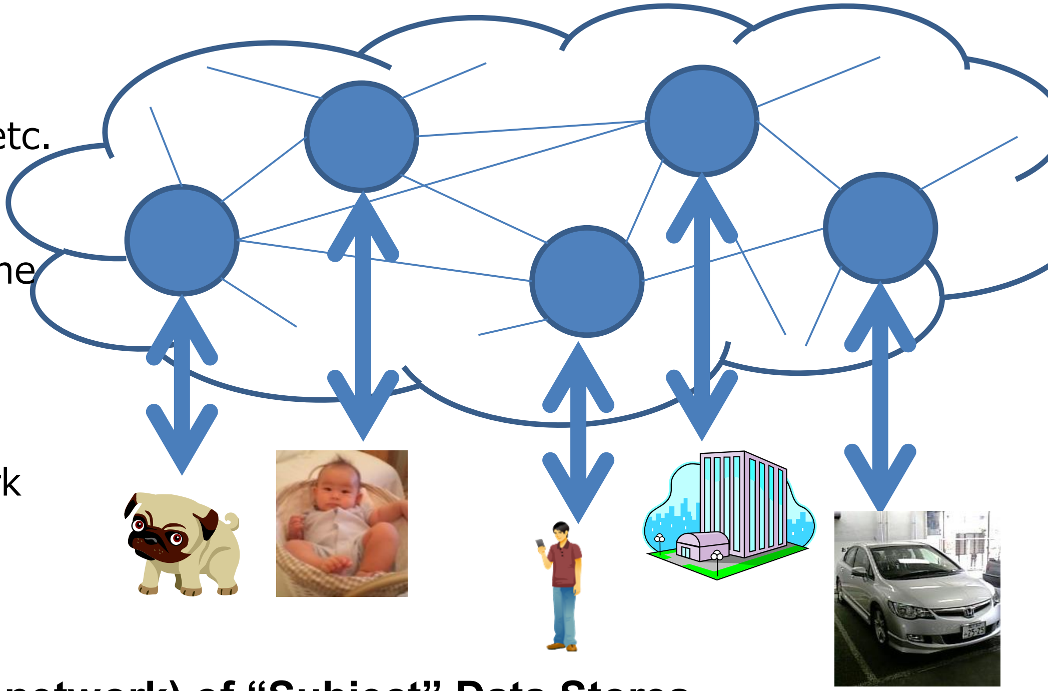
This enables:

- **Passive data subject**:
  infants, animals, machines, communities, etc.

The data subjects of their activity log are themselves.

But the **control should be delegated** to some active subject.

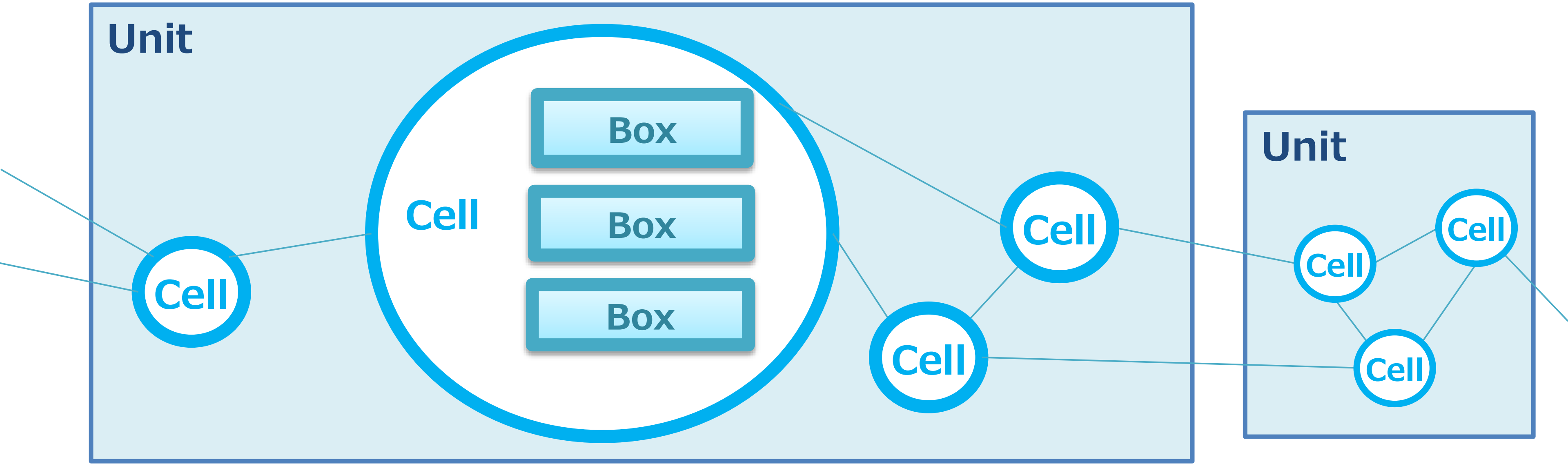
- **<u>Decentralized</u> Network**
  can be Open / Closed.
  We also believe the power of **open** network



<u>Web (open decentralized network) of “Subject” Data Stores,</u>
<u>Supporting the whole society.</u>

Personium Architecture:
Web of 3-layer structure over HTTPs (REST APIs)

Name	Description	Typical URL
Unit	The server to host Cells. What you get by installation.	https://pds.example/
Cell	“Personium” Data Store for “everything”	https://pds.example/akio.shimono/
Box	Per- App space inside a cell.	https://pds.example/akio.shimono/schedule/



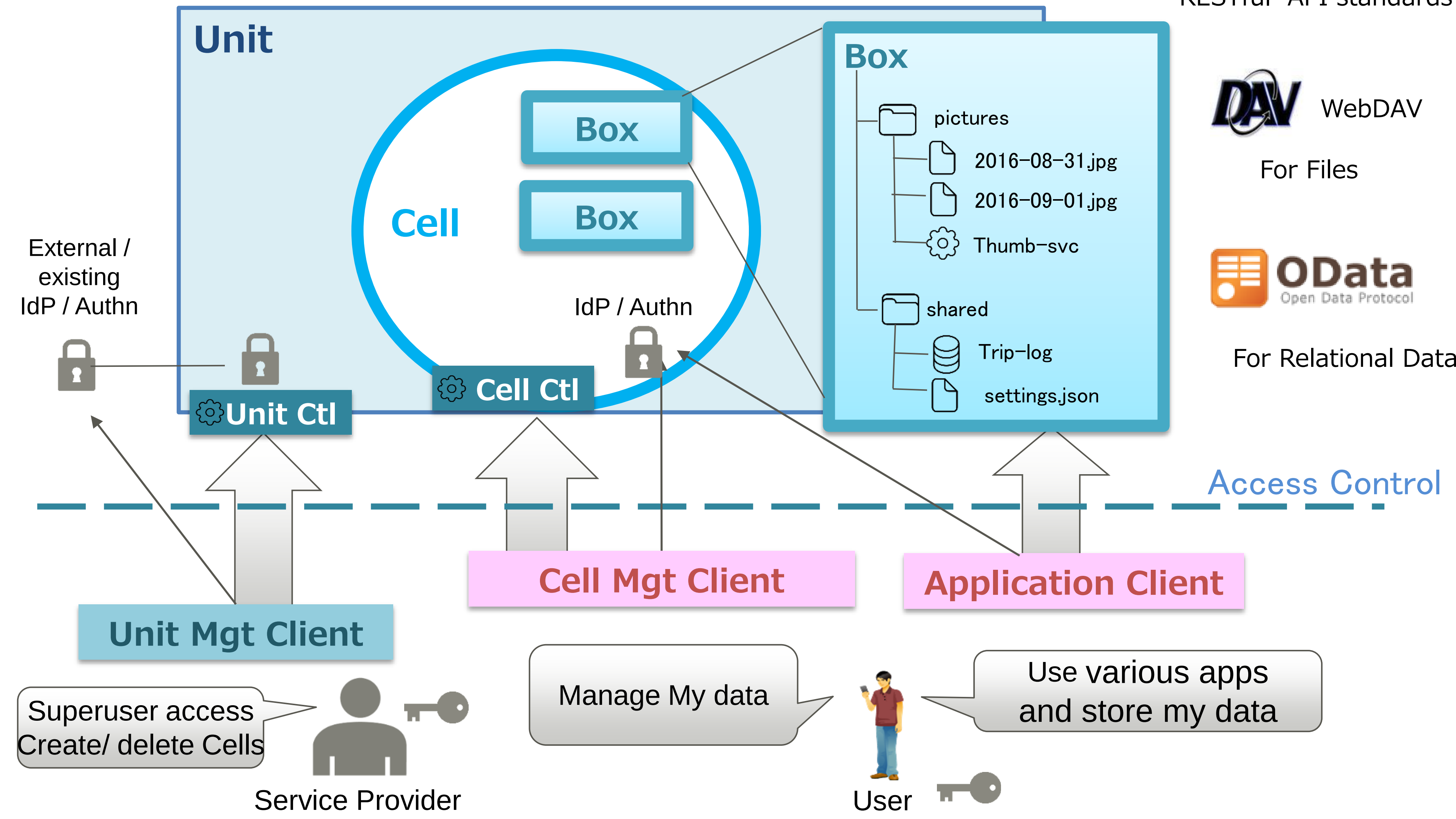
Any Platform speaking HTTP(S)

Java Ruby A Programmer's Best Friend Microsoft .NET iOS

- Everything is provided in the form of REST API
- **Cell**s can be networked **beyond units**.
- A **Box** provides a **separate space** dedicated to each application.

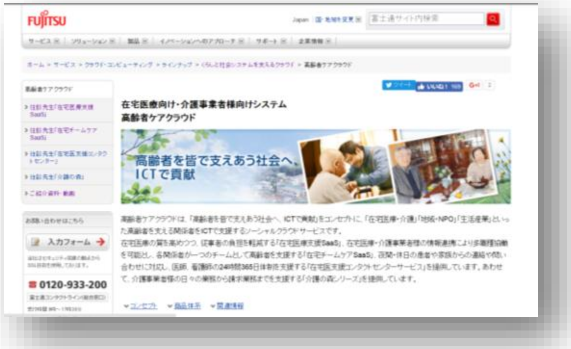
Personium Architecture:
Closer Look

- Security : All SSL, Authn/ Authz, Access Control
- 3 types of clients call corresponding level of APIs



“Track records” of personium

- SaaS product running 24/365, used by hundreds of hospital / clinics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高齢者ケアクラウド
- 往診先生「在宅医療支援SaaS」
- 往診先生「在宅チームケアSaaS」
- 往診先生「在宅医支援コンタクトセンター」
- 往診先生「介護の森」
- ご紹介資料・動画

在宅医療向け・介護事業者様向けシステム
高齢者ケアクラウド

高齢者を皆で支えあう社会へ、ICTで貢献

高齢者ケアクラウドは、「高齢者を皆で支えあう社会へ、ICTで貢献」をコンセプトに、「在宅医療・介護」「地域・NPO」「生活産業」といった高齢者を支える関係者をICTで支援するソーシャルクラウドサービスです。
在宅医療の質を高めつつ、従事者の負担を軽減する「在宅医療支援SaaS」、在宅医療・介護事業者様の情報連携により多職種協働を可能とし、各関係者が一つのチームとして高齢者を支援する「在宅チームケアSaaS」、夜間・休日の患者や家族からの連絡や問い合わせに対応し、医師、看護師の24時間365日体制を支援する「在宅医支援コンタクトセンターサービス」を提供しています。あわせて、介護事業者様の日々の業務から請求業務までを支援する「介護の森シリーズ」を提供しています。

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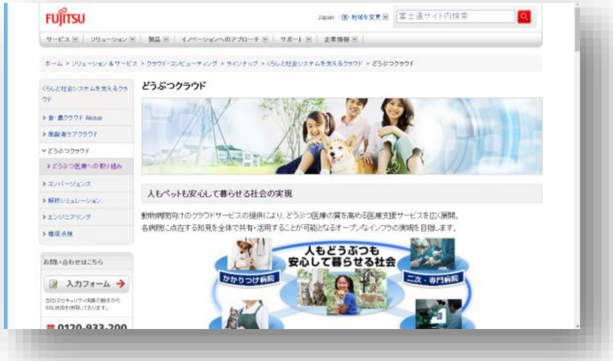
コンセプト 商品体系 関連情報

Fujitsu SaaS for Home medical care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くらしと社会システムを支えるクラウド
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- 高齢者ケアクラウド
- どうぶつクラウド
- どうぶつ医療への取り組み
- コンバージェンス
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当社はセキュリティ保護の観点からSSL技術を使用しております。
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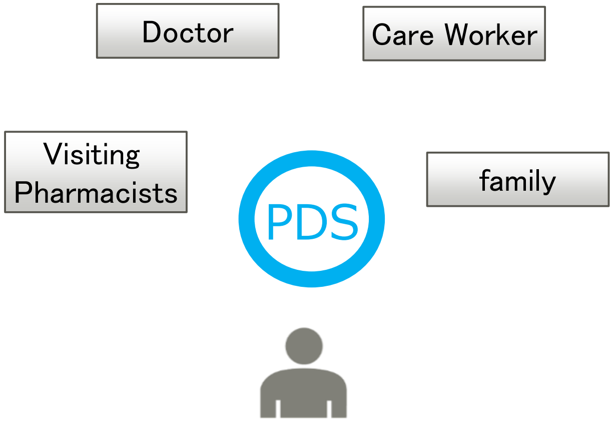
どうぶつクラウド

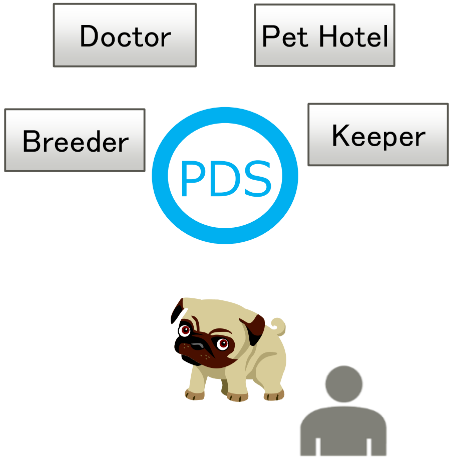
人もペットも安心して暮らせる社会の実現

動物病院向けのクラウドサービスの提供により、どうぶつ医療の質を高める医療支援サービスを広く展開。
各病院に点在する知見を全体で共有・活用することが可能となるオープンなインフラの実現を目指します。

Fujitsu SaaS for Animal Clinics

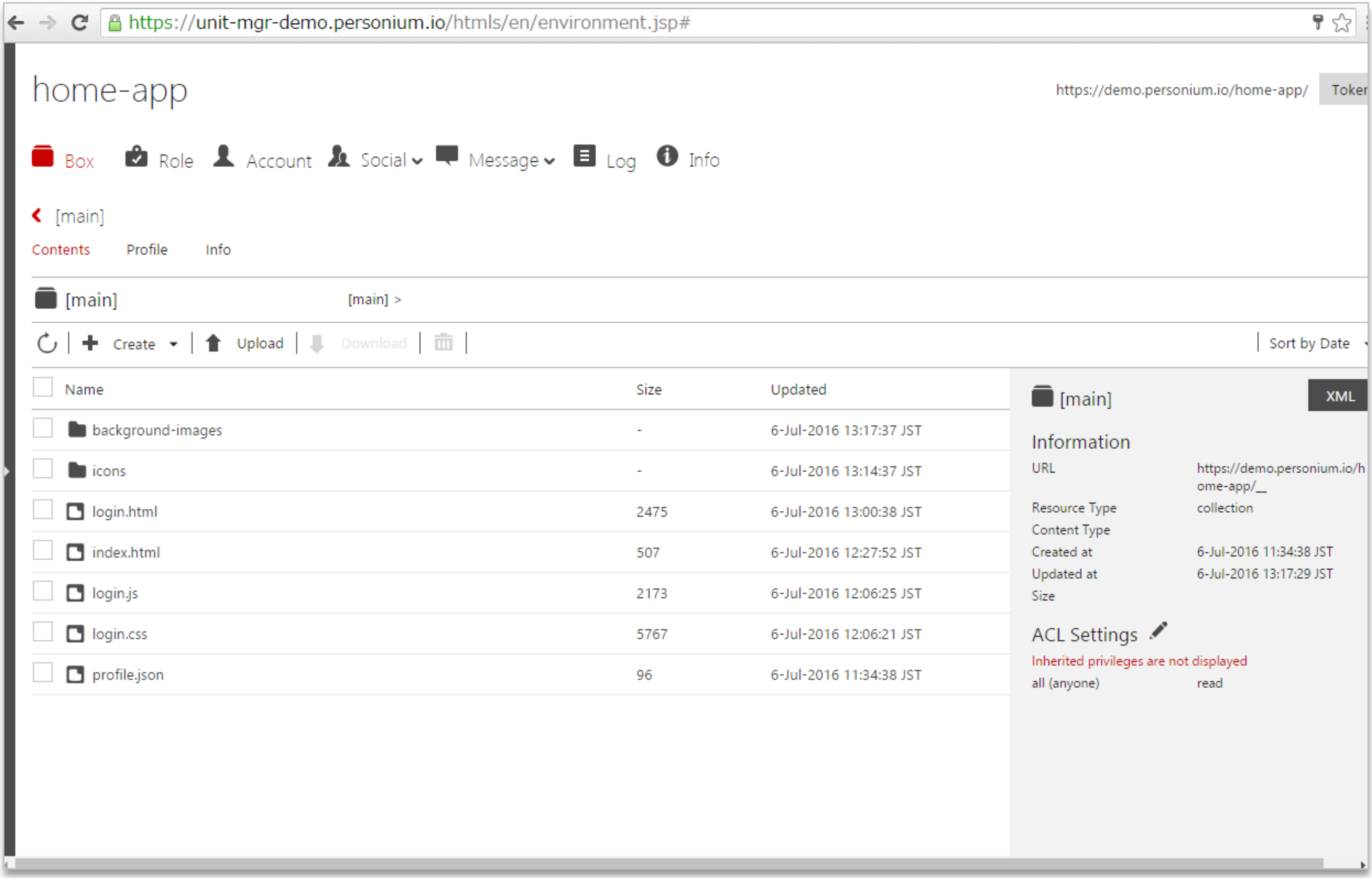
・・・ 10+ projects in Japan





Tools

- Unit Manager: A GUI tool to manage personium server as an server admin



home-app

https://demo.personium.io/home-app/ Toker

[main]

[main] [main] >

□	Name	Size	Updated
□	background-images	-	6-Jul-2016 13:17:37 JST
□	icons	-	6-Jul-2016 13:14:37 JST
□	login.html	2475	6-Jul-2016 13:00:38 JST
□	index.html	507	6-Jul-2016 12:27:52 JST
□	login.js	2173	6-Jul-2016 12:06:25 JST
□	login.css	5767	6-Jul-2016 12:06:21 JST
□	profile.json	96	6-Jul-2016 11:34:38 JST

[main]

Information

URL	https://demo.personium.io/home-app/__
Resource Type	collection
Content Type	
Created at	6-Jul-2016 11:34:38 JST
Updated at	6-Jul-2016 13:17:29 JST
Size	

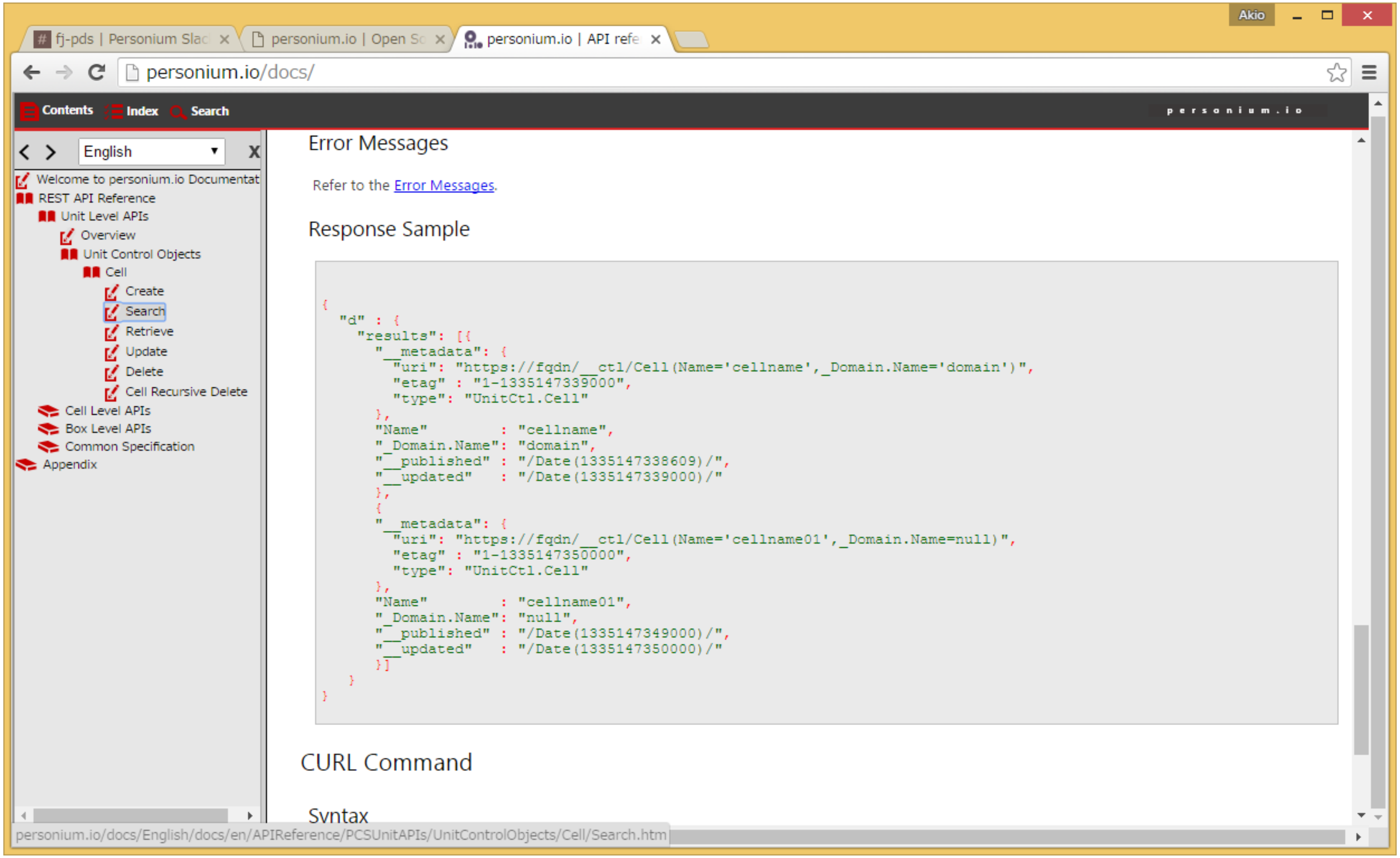
ACL Settings

Inherited privileges are not displayed

all (anyone)	read

Documents

API Reference (en/ja)



Error Messages

Refer to the Error Messages.

Response Sample

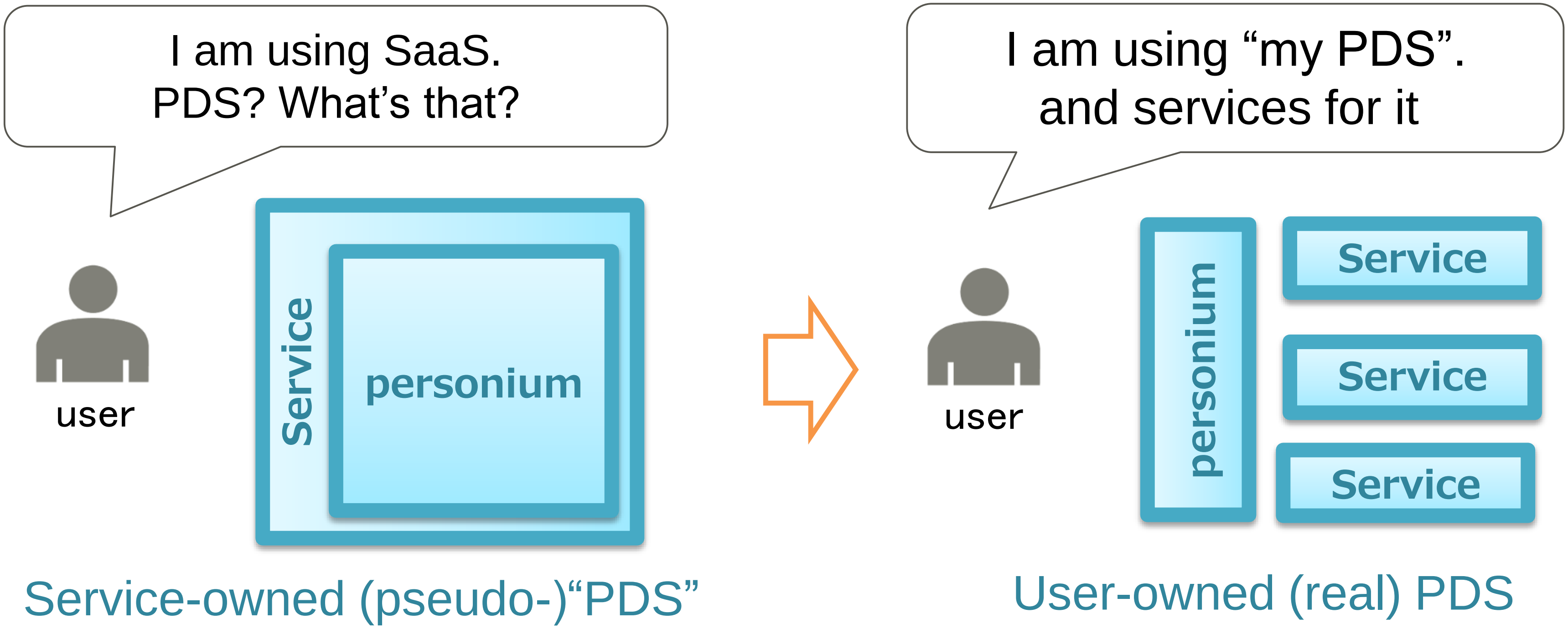
```
{
  "d" : {
    "results": [{
      "__metadata": {
        "uri": "https://fqdn/__ctl/Cell(Name='cellname',_Domain.Name='domain')",
        "etag" : "1-1335147339000",
        "type": "UnitCtl.Cell"
      },
      "Name"          : "cellname",
      "_Domain.Name": "domain",
      "__published" : "/Date(1335147338609)/",
      "__updated"   : "/Date(1335147339000)/"
      },
      {
      "__metadata": {
        "uri": "https://fqdn/__ctl/Cell(Name='cellname01',_Domain.Name=null)",
        "etag" : "1-1335147350000",
        "type": "UnitCtl.Cell"
      },
      "Name"          : "cellname01",
      "_Domain.Name": "null",
      "__published" : "/Date(1335147349000)/",
      "__updated"   : "/Date(1335147350000)/"
      }]
   }
}
```

CURL Command

Syntax

What's done, not done yet

- Designed to be used in Open ecosystem
- But Closed use in each service only, so far…



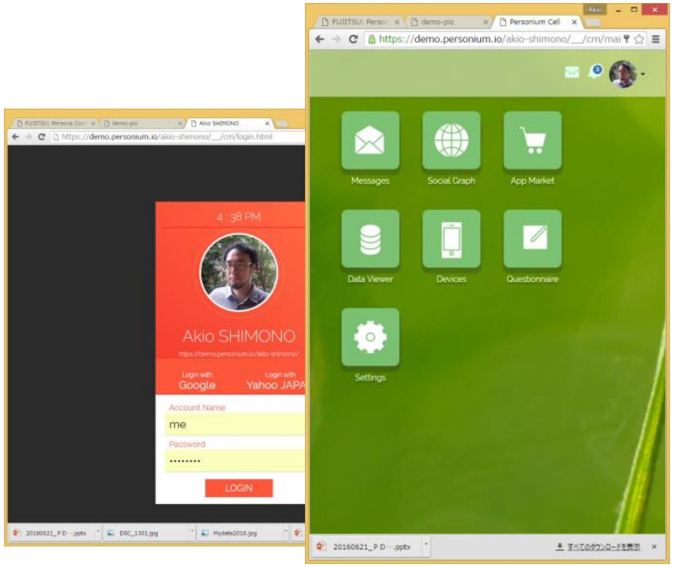
Service-owned (pseudo-)"PDS"

User-owned (real) PDS

Current challenge is to small-start "real" use of PDS through social implementation project

Personium Roadmap

- "Sustainable Health" project
  - **Sophistication of API**'s from discussion in COCN
  - Implement Feedback from Social Implementation
- Pluggable Architecture
  - Reduce the implementation complexity
  - Make easier for new people to participate in the project
- GUIs
  - Browser version of Home Screen
  - Basic Applications
    - Daily memo
    - Photo stream
    - etc.



Account Name

me

Password

****

Let us make it happen !

- Please !
  - Watch us sometimes.
  - Try using it
  - Participate in development
    - Apps
    - Server
    - Tools
    - Documents.
- Let us
  - “Inform” & Inspire each other
  - build better world together

Let us
make it happen
Together !

Thank you for your attention.

FUJITSU

shaping tomorrow with you

References) Standards used in personium

OData

- OASIS standard for handling relational data RESTfully.

WebDAV

- IETF Standard for manipulating filesystems with directory structure over HTTP
- RFC4918(HTTP Extensions for WebDAV) and 3744(WebDAV ACL)

OAuth2.0

- IETF standard for dynamic authorization process to enable access to protected Web APIs from various forms of applications(Web , Browser, OS Native)

SAML2 Assertion

- OASIS Standard of XML to convey the authentication result or attribute information beyond servers with the use of digital signature.