第八大陸：サイバー大陸の発見とデジタル・アイデンティティ

The 8th Continent: Discovery of the Cyber Continent and Digital Identity


_nat_en


https://nat.sakimura.org


https://nat.Sakimura.org/youtube.php


https://www.linkedin.com/in/natsakimura

Nat Sakimura

Research Fellow, Nomura Research Institute

Chairman of the board, OpenID Foundation

(photo) Nat Sakimura: The courtyard of the St.Mary's School, Nairobi

(photo) Hisao Sakimura: Kenya Music Festival

(photo) Hisao Sakimura: Kenya Music Festival

(photo) Hisao Sakimura: Kenya Music Festival

Mark Ndesandjo

(photo) Hisao Sakimura: Kenya Music Festival

Mark OBAMA

もくじ

1. 第八大陸の発見と統治インフラとしてのデジタル・アイデンティティ
2. OpenID Connectはどこから来て、どこへ行くのか？
3. 第八大陸で生き残るには

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1. Discovery of the 8th Continent and the digital identity as the governance infrastructure.
2. Where OpenID Connect came from and where it is heading to.
3. How to stay relevant in the 8th Continent

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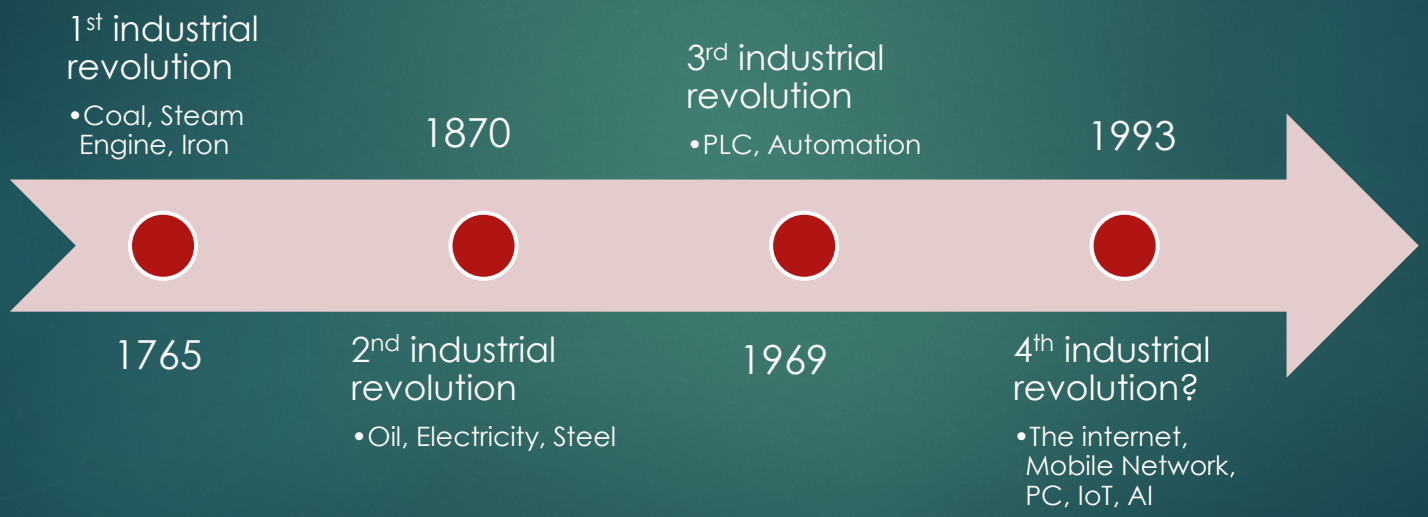
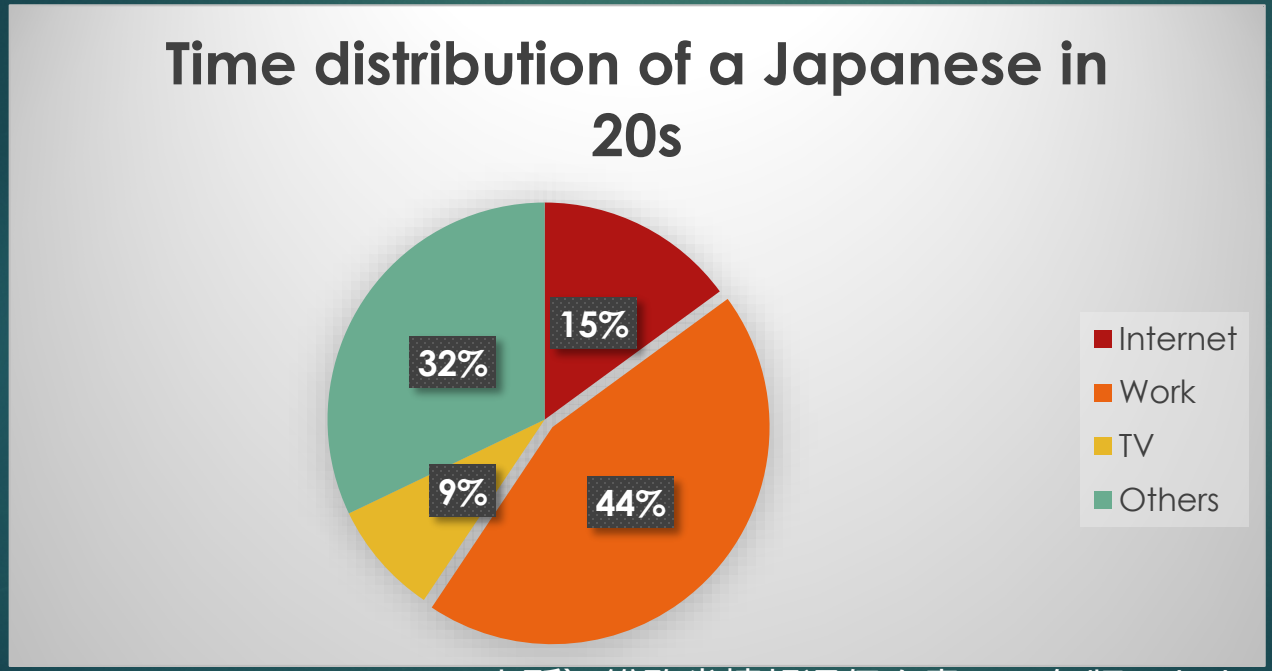
産業革命 | Industrial Revolutions



新たな「生活空間」の導入

Introduction of new “Living Space”

We spend so much time in the new ”space”



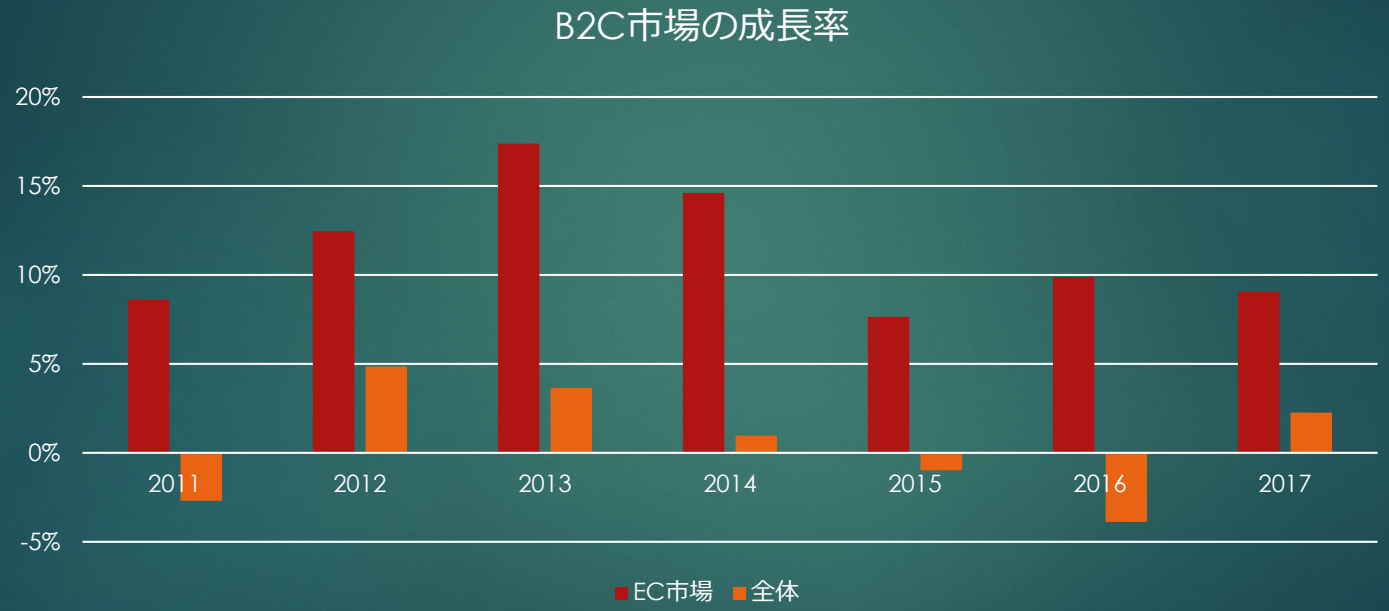
(出所）総務省情報通信白書H.30年版、およびe-Statより筆者作成

第八大陸 | The 8th Continent

(a.k.a. サイバースペース | Cyber-space)

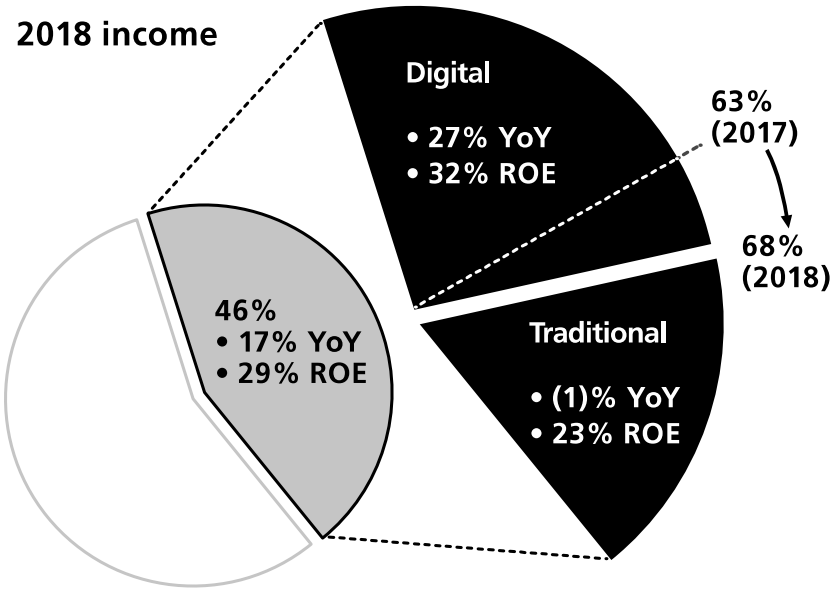
第八大陸は高成長

The growth rate of the 8th continent is high



（出所）経産省ニュースリリース(2018/4/30)「電子商取引に関する市場調査の結果を取りまとめました」をもとに筆者

DBS's income from Digitial increasing rapidly



Overall Consumer and SME (SG, HK) contribute 46% of Group income

(Source) P.23 of DBS Annual Report (2018)

第八大陸のよって立つ原則は、旧世界とそれほど変わらない

The foundational principles of the 8th continent is the same as the old world

資本主義と人権

Capitalism and Human Right

資本主義
- 所有権の絶対
- 商品生産および流通の自由

人権
- 個人の自由
- 権利の平等
- 主権在民

Capitalism
- Absolute Ownership
- Freedom of production and trade

Human Right
- Individual Freedom
- Equal Right
- Sovereignty of people

所有権の絶対&商品生産及び流通の自由

その基本には、

- 権利者が誰か、
- 対象が何か、
- 権利者および彼が許した者のみが、対象にアクセスできるよう制御できること

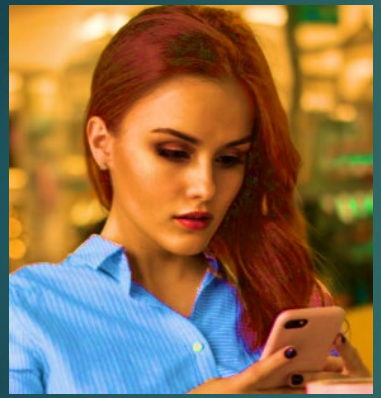
Absolute ownership & Freedom of production and trade

As the foundation, it needs to

- Identify the owner
- Identify the object
- Access control over the identified object

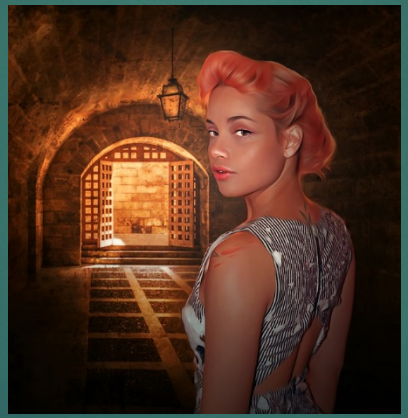
誰が

WHO



どのように

HOW



何に

WHAT

誰が
WHO

どのように
HOW

何に
WHAT

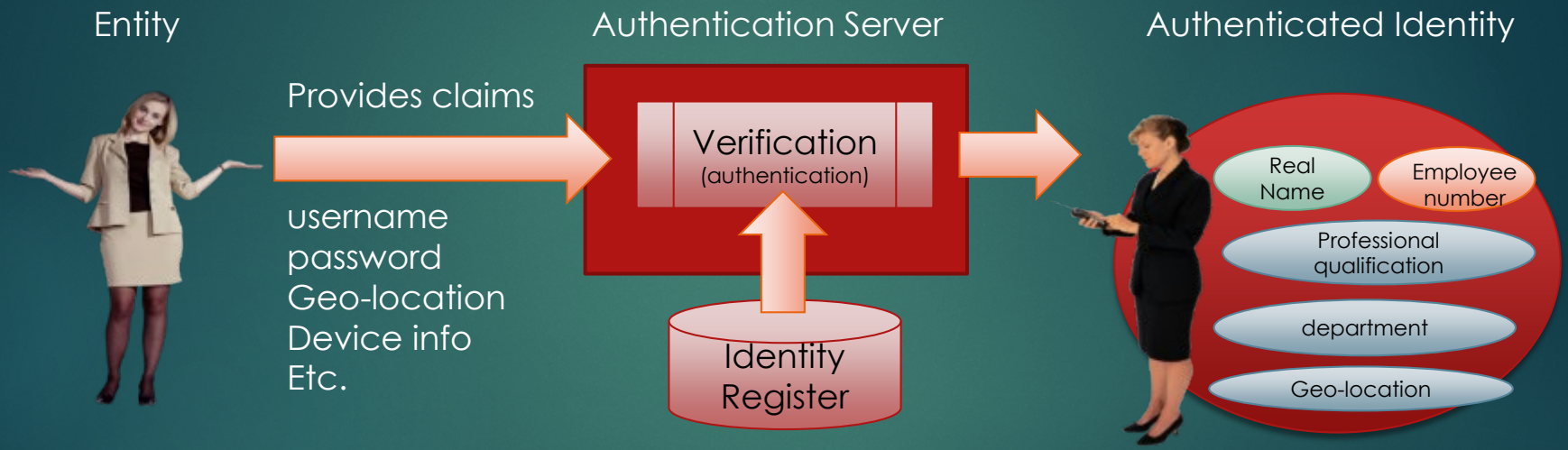
identity

IDENTITY

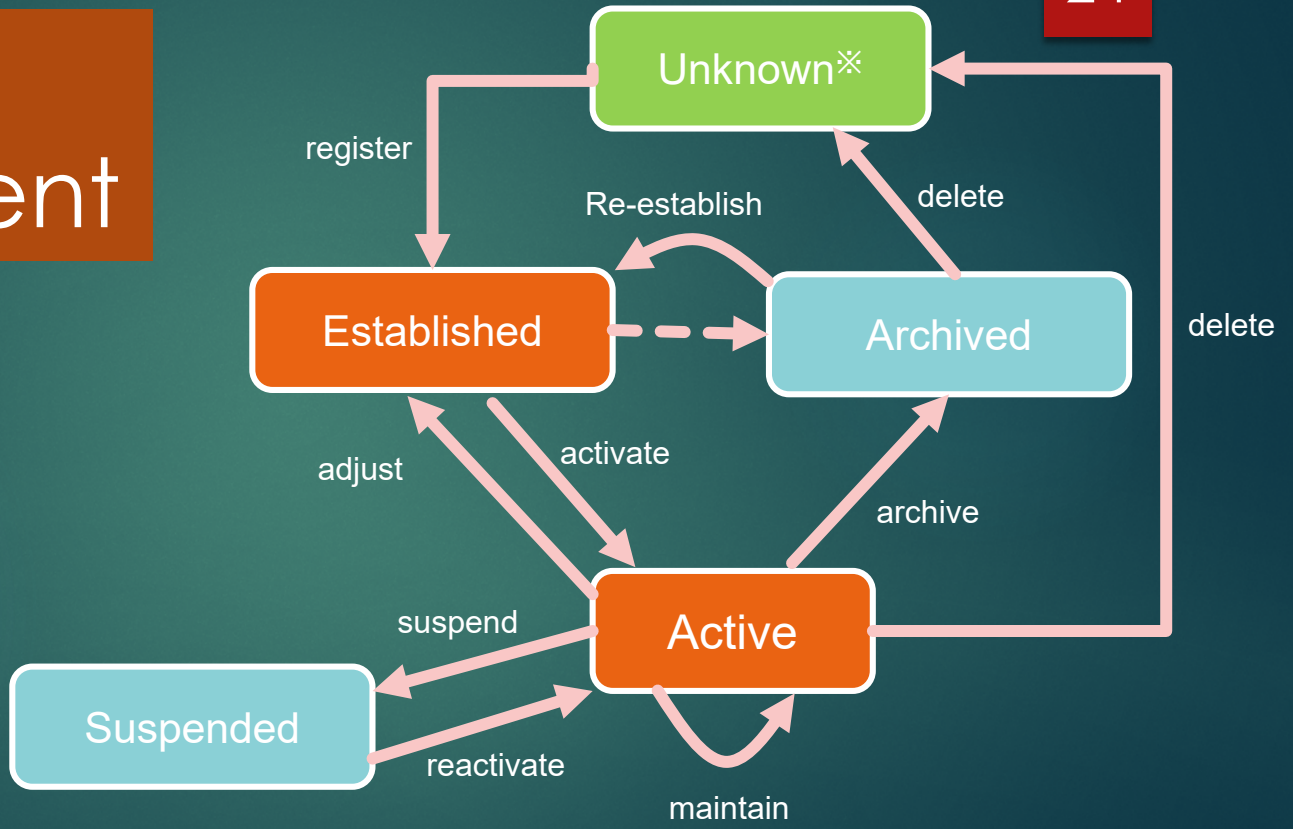
set of attributes related to an entity

Entity

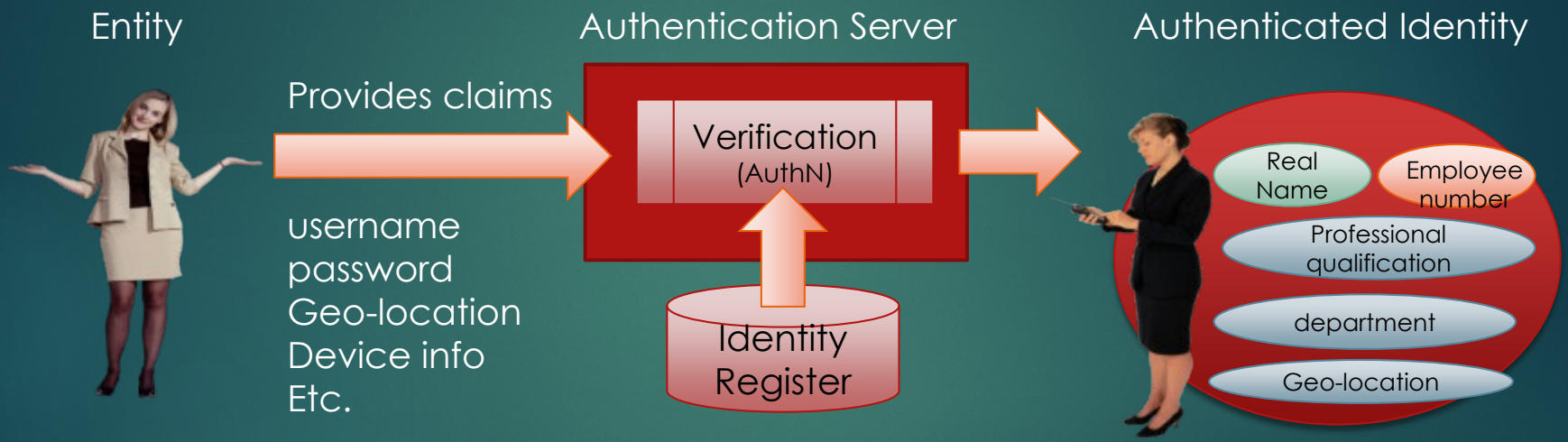
Identity


Entity
Authentication Server
Authenticated Identity
Provides claims
username
password
Geo-location
Device info
Etc.
Verification
(authentication)
Identity
Register
Real
Name
Employee
number
Professional
qualification
department
Geo-location

Identity Management

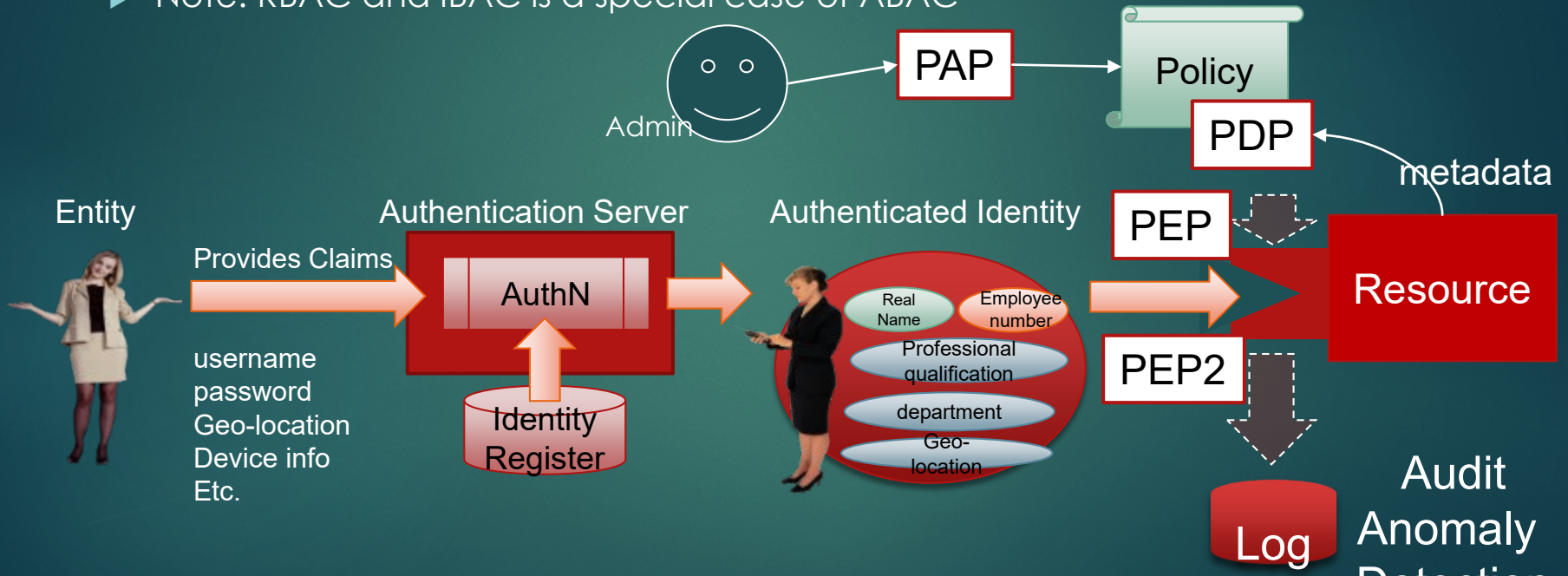


(source) Created by the author based on ISO/IEC 24760-1 Identity management framework: Part1


Entity
Authentication Server
Authenticated Identity
Provides claims
username
password
Geo-location
Device info
Etc.
Verification
(AuthN)
Identity
Register
Real
Name
Employee
number
Professional
qualification
department
Geo-location

Authenticated Identity is used for Attribute Based Access Control (ABAC)

- Note: RBAC and IBAC is a special case of ABAC



実体 – アイデンティティ・モデルは、プライバシーを考える上でも有用

Entity – identity model is useful to model the privacy as well

プライバシーの尊重の根底にあるのは人権規定であり、そこを根幹において対策をする必要がある。護るべきは人権でありデータではない。（データ保護は単なる手段。）

Foundation of privacy protection is the human right. What needs to be protected is the human right and not data. (Protection of data is a control mechanism.)

EU

- 欧州人権条約第８条 (1950)

- (1)すべての者は、その私生活、家族生活、住居および通信の尊重を受ける権利を有する。
- (2)この権利の行使に対しては、法律に基づき、かつ国の安全、公共の安全もしくは国の経済的福利のため、混乱もしくは犯罪の防止のため、健康もしくは道徳の保護のため、または他者の権利および自由の保護のため民主的社会において必要な場合以外、公的機関による干渉があってはならない。
  - （出所）総務省「プライバシー保護に関する先進諸外国の対応状況」

EU

- European Convention on Human Rights, Article 8 (1950)
- 1 Everyone has the right to respect for his private and family life, his home and his correspondence.
- 2 There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

日本

- 憲法13条：幸福追求権
- すべて国民は、個人として尊重される。生命、自由及び幸福追求に対する国民の権利については、公共の福祉に反しない限り、立法その他の国政の上で、最大の尊重を必要とする。
- → 宴の後事件(1964)：東京地裁が憲法１３条に基づくプライバシーの権利を認め、それが侵されたときは民法７０９条による損害賠償請求ができるとした。

Japan

- Article 13 of Japanese Consitution
- All of the people shall be respected as individuals. Their right to life, liberty, and the pursuit of happiness shall, to the extent that it does not interfere with the public welfare, be the supreme consideration in legislation and in other governmental affairs.
- → “Utagenoato Incident”(1964): Tokyo district court ruled that there is right for privacy based on Art. 13 of the Constitution, and that the claim to damage can be done based on the article 709 of the Civil Law.

(Robert Waldinger)

「私達を幸福に健康にするものは、良い人間関係 に尽きる。」
Good relationship keeps us happier and healthier

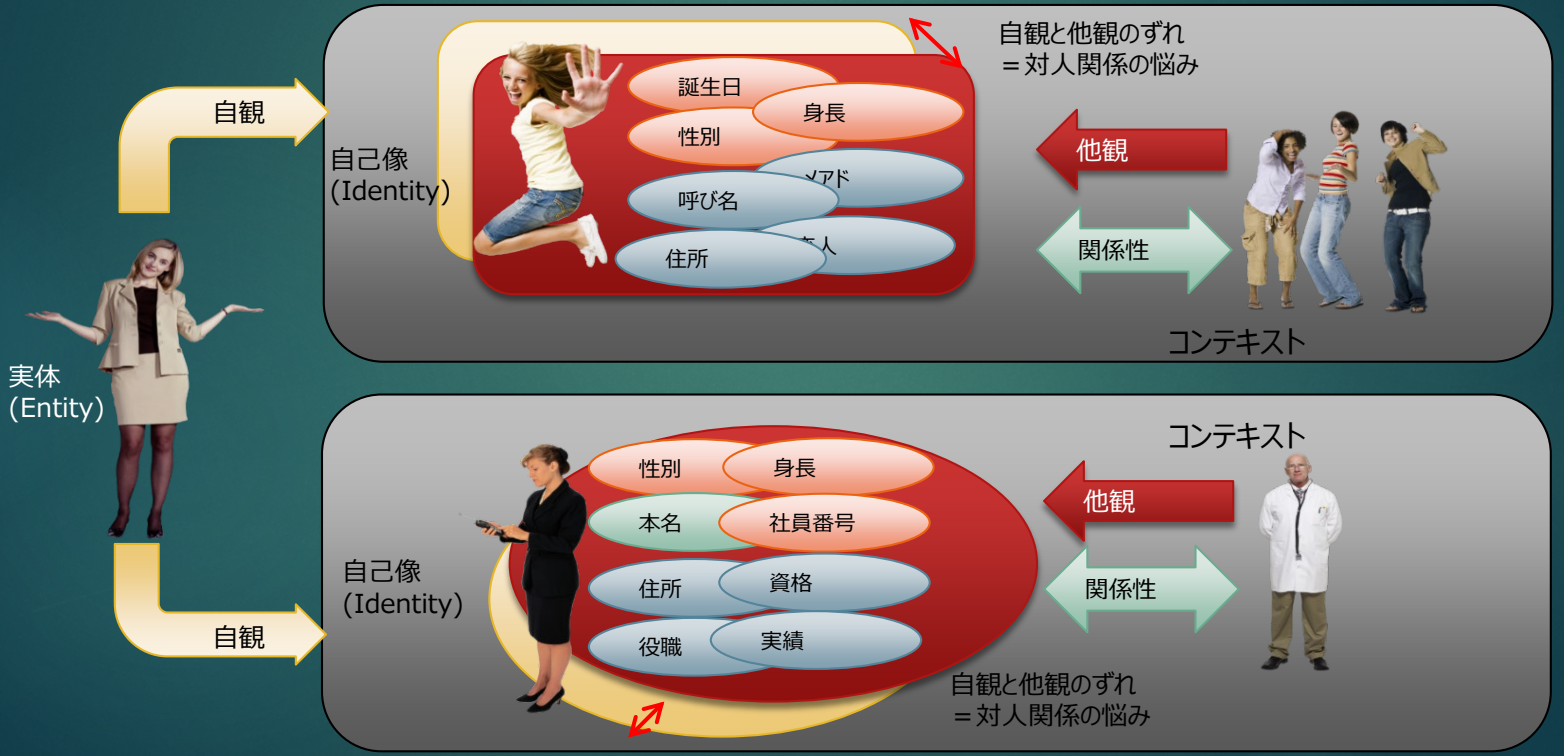
1. 社会とのつながりは非常に良い影響を与える
   social connections are really good for us, and that loneliness kills.
2. 身近な人たちとの関係の質が重要
   it's the quality of your close relationships that matters.
3. 良い関係は体だけでなく脳を守る
   good relationships don't just protect our bodies, they protect our brains

（出所）ロバート・ウォールディンガー「人生を幸せにするのは何？ 最も長期に渡る幸福の研究から」TEDxBeaconStreet
Robert Waldinger: What makes a good life? Lessons from the longest study on happiness, TEDxBeaconStreet

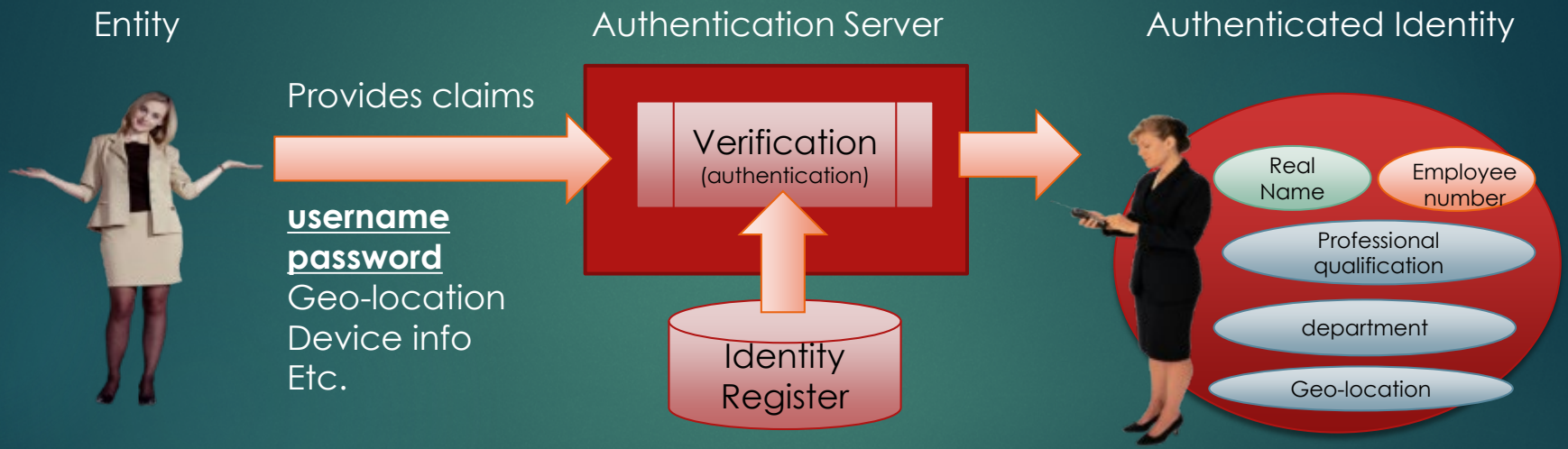
（参考）Waldinger, R.J., & Schulz, M.S. (2010). What's love got to do with it? Social functioning, perceived health, and daily happiness in married octogenerians, Psychology and Aging 25, 422-431.

属性提供によるアイデンティティの調整による関係性の改善
Provision of attributes to adjust the perceived identity to improve the relationship.

▶ ※ Entity – Identity Model



… and in the 8th Continent, we do this through authenticated identity



資本主義の観点から見ても、人権からみても、デジタル・アイデンティティが第八大陸の基盤をなすことがわかる

Digital Identity is the Foundation of the 8th Continent both from the Capitalism View and Human Right Veiw

このことに早くから気がついたひとたちがいました。

There are people who realized that early on.

Google

Apple

Facebook

Amazon

Microsoft

JWx, OAuth, OpenID Connect

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Entity

Provides claims

username
password
Geo-location
Device info
Etc.

Authentication Server

Verification
(authentication)

Identity Register

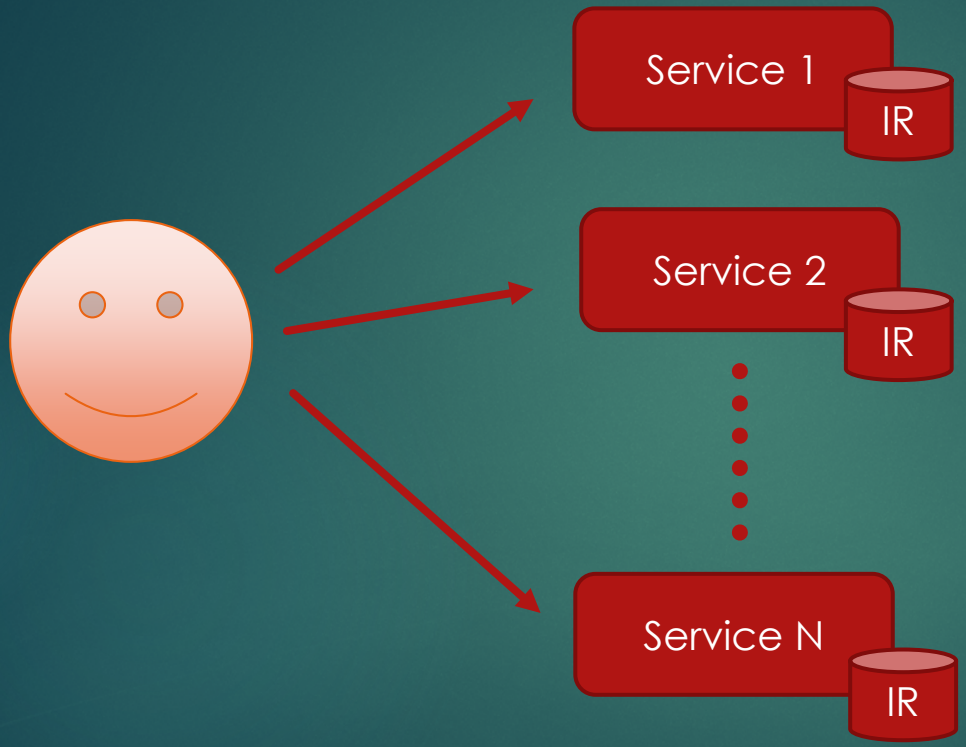
Authenticated Identity

MIT's CTSS system (1961) used LOGIN & PASSWORD –

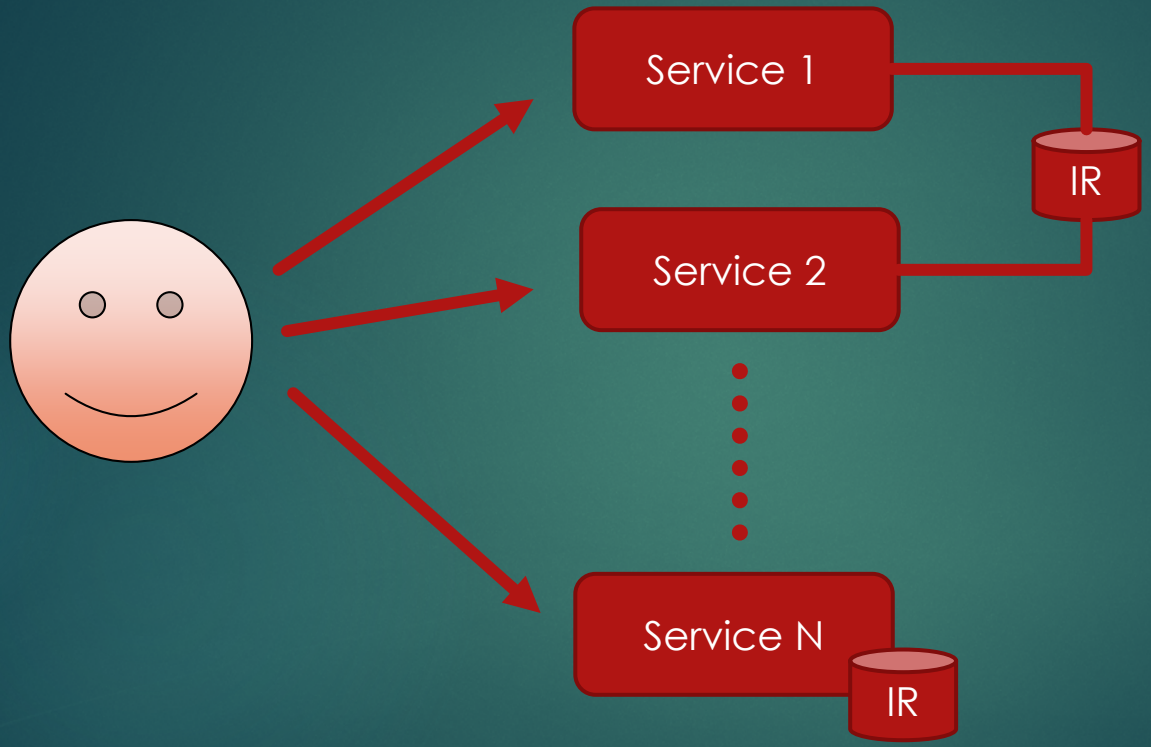
An example of individual password

(Source) http://en.wikipedia.org/wiki/IBM_7090#mediaviewer/File:IBM_7094_console2.agr.JPG

Per System identity

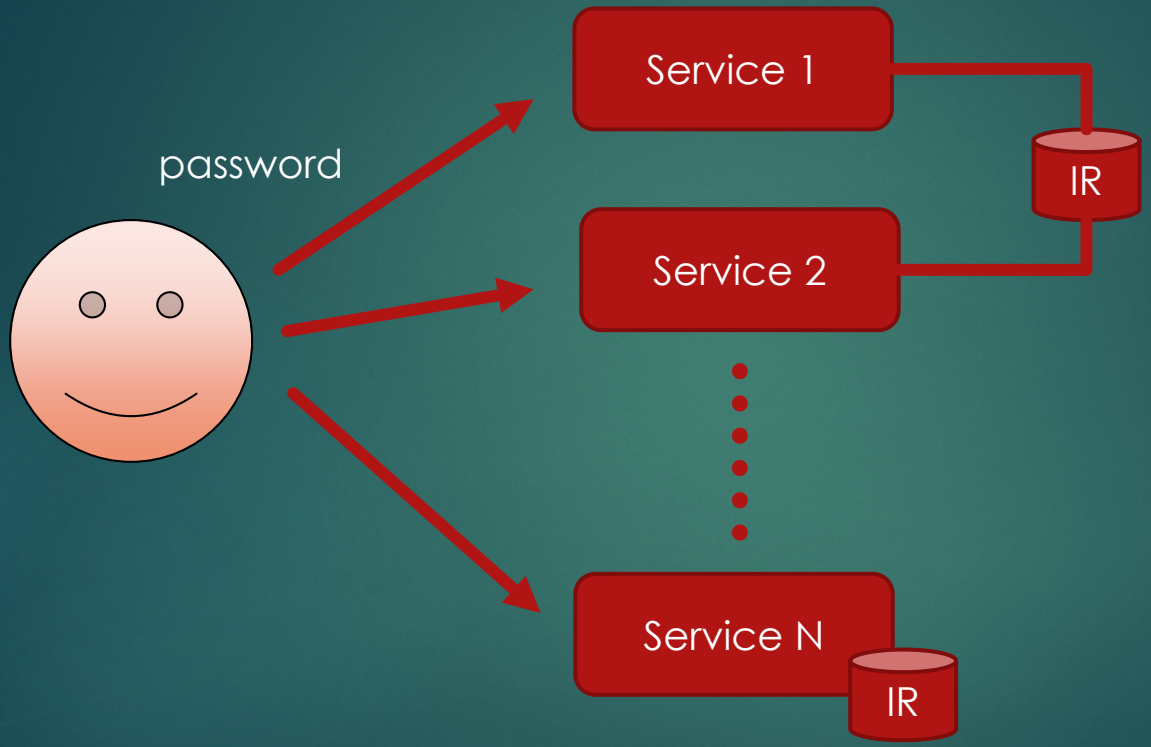


Shared identity

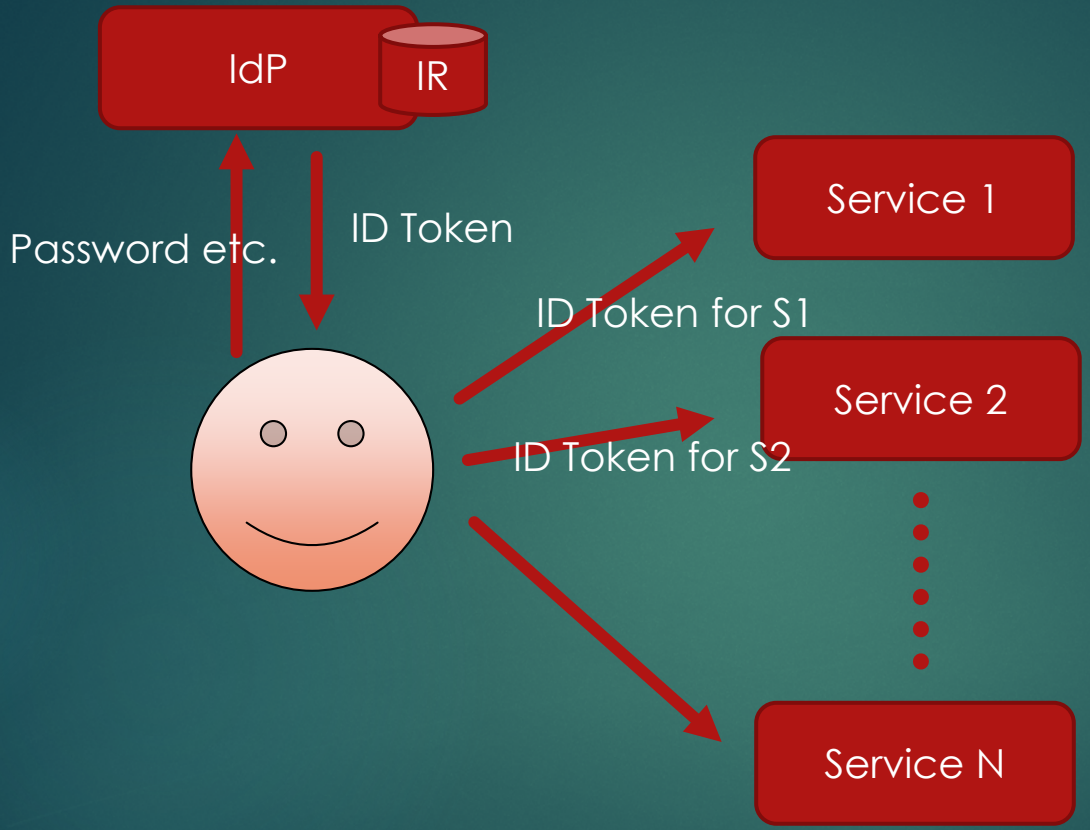


Phishing!

Shared identity



Federated identity



OpenID Authentication 2.0
(key=value)

SAML 1.0

Dave Recordon
(Facebook)

2002 2005 2007 2012 2014

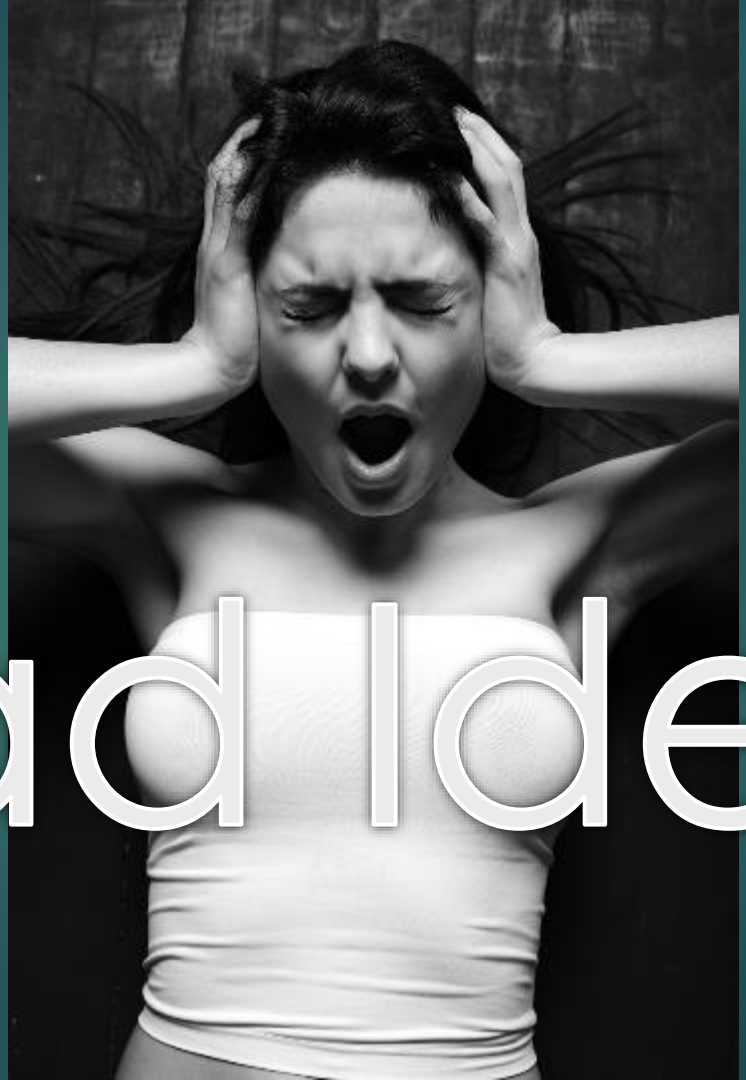
SAML 2.0
(XML, XML SIG,
SOAP)

OAuth 1.0
(Key=value)

2008

Untrusted Apps

Give passwords (full right) to all of them?



Bad Idea

Audienced identity & Minimum access authorization

ID Token
&
Access Token

Problems of SAML, OpenID Authentication 2.0, OAuth 1.0

Nat Sakimura
(NRI)

John Bradley
(Mercenary working for NRI)

Breno de Madeiros
(Google)

Early design decisions:

1. No canonicalization
2. ASCII Armoring
3. JSON
4. REST

JSON Simple Signature (JSS) & Encryption (JSE)

Then, there was a parallel work

Magic Signature & JSON Token

Dirk Balfanz

John Panzer

And there came Mike Jones

- "You guys should come together and standardize it at IETF. Don't worry. I can take care of the editing!"

JSON Simple Signature (JSS) & Encryption (JSE)

Magic Signature & JSON Tokens

JWx

JWx

- JWS: JSON Web Signature
- JWE: JSON Web Encryption
- JWT: JSON Web Token etc.

Early design decisions:

1. No canonicalization
2. ASCII Armoring
3. JSON
4. REST
5. JWx

Dick Hardt

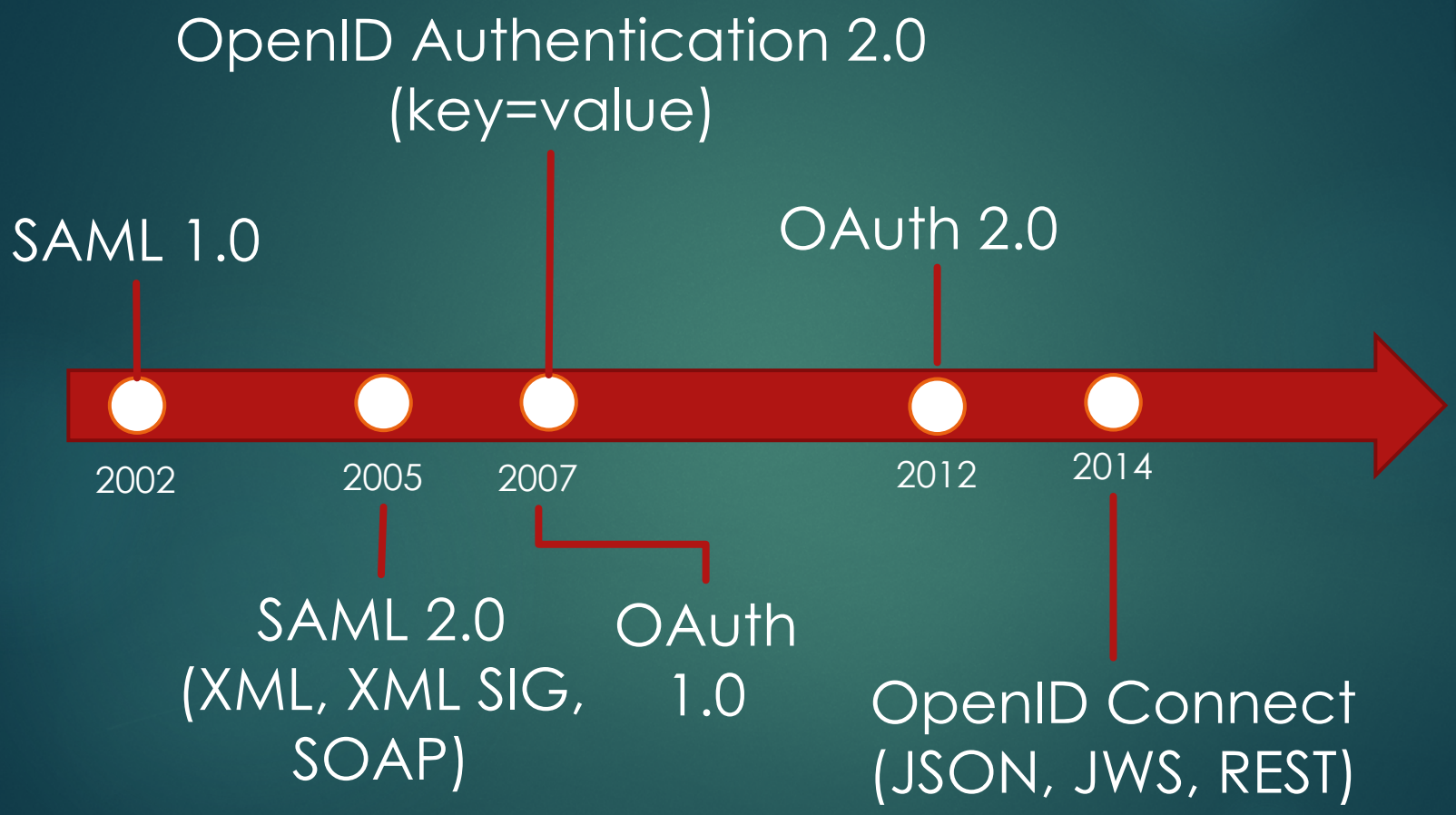
Allen Tom

Early design decisions:

1. No canonicalization
2. ASCII Armoring
3. JSON
4. REST
5. JWx
6. Base on OAuth ~~WRAP~~ 2.0

Dick Hardt

Allen Tom


OpenID Authentication 2.0
(key=value)
SAML 1.0
OAuth 2.0
2002
2005
2007
2012
2014
SAML 2.0
(XML, XML SIG,
SOAP)
OAuth
1.0
OpenID Connect
(JSON, JWS, REST)

ID Token

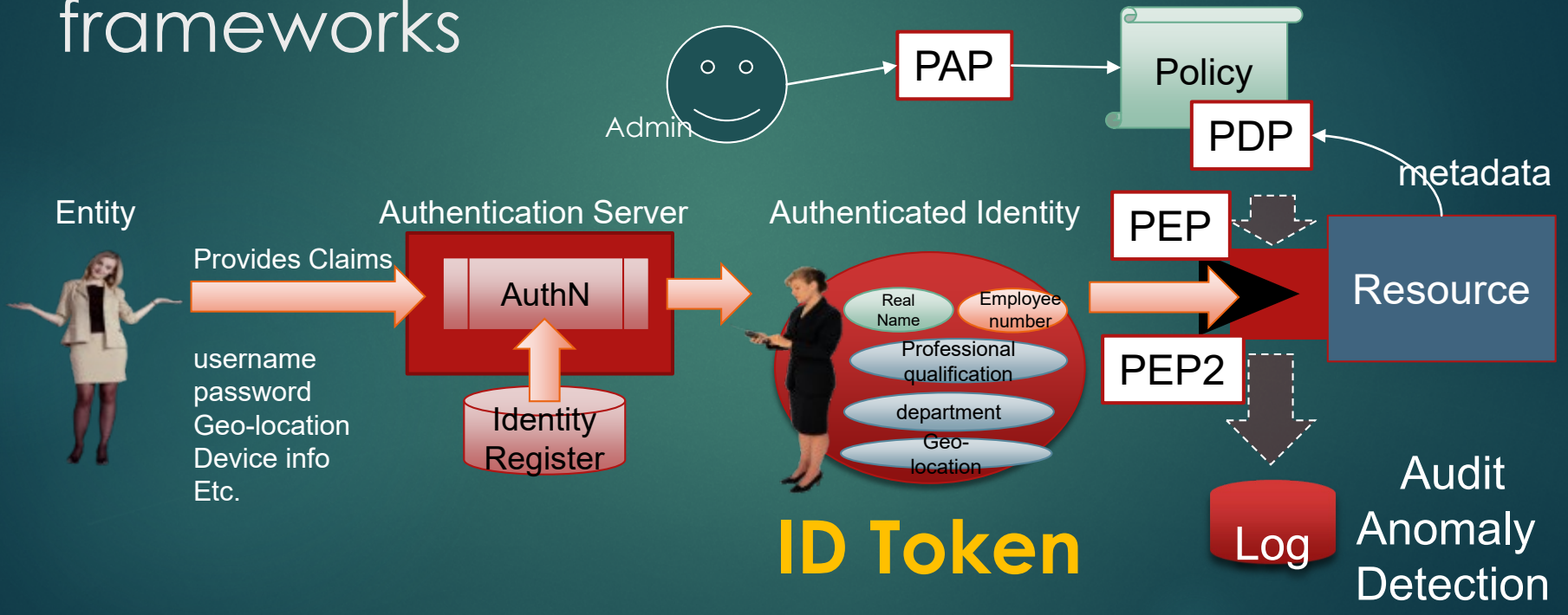
JWS/JWE/JWKS

OAuth 2.0

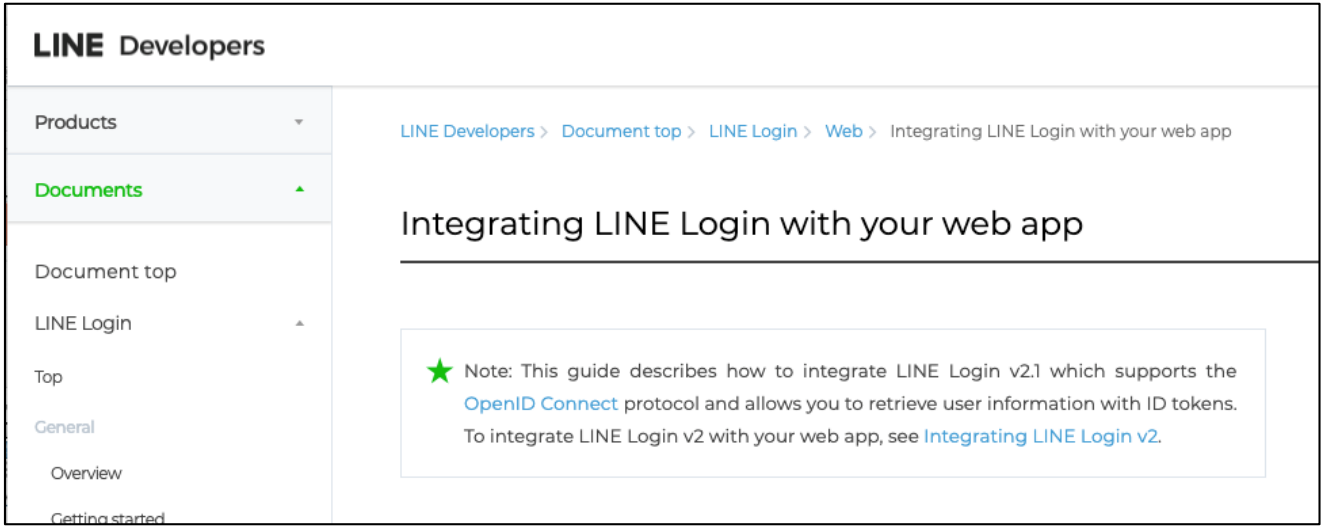
HTTPS

A protocol that defines for a client how to request and for the server to provide the ID Token

That is perfectly fit for modern identity and access control frameworks



It has a great traction.



e.g., LINE uses OpenID Connect

So does Google, Microsoft, Salesforce, Amazon, GSMA, a bunch of nations, etc.

Over 90% of Azure AD App Authentication are Over OpenID Connect as of

April 2018

Alex Simmons at EIC 2018

But this is just a beginning

6. Passing Request Parameters as JWTs

&

3.3. Authentication using the Hybrid Flow

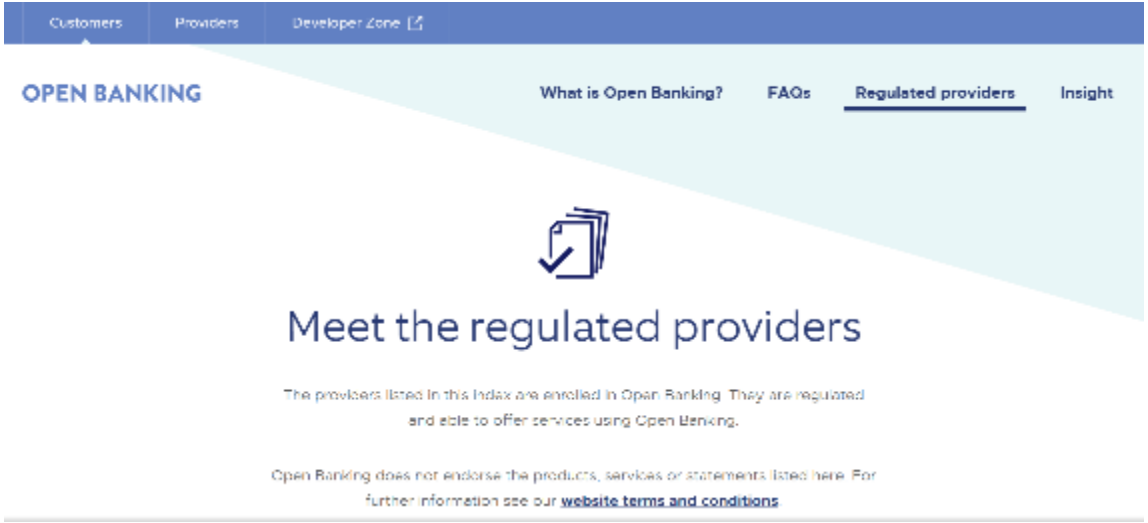
Mutual signature protocol – conceived as a mechanism to achieve “Contract Exchange (CX)”, which is the original use case for OIDC.

It was quite unpopular during the drafting.

“Too Complex. Nobody is going to use it!”

… but

what about in the case of entering a binding contractual relationship like payment?



ABN AMRO Bank NV
AIB Group (UK) plc
Bank of Cyprus UK Ltd
Bank of Ireland (UK) Plc
Bank of Scotland plc
Barclays Bank Plc
Clydesdale Bank PLC
HSBC UK Bank Plc
ICBC (London) plc
Lloyds Bank PLC
etc…

https://www.openbanking.org.uk/provider-categories/account-providers/

It is now being used as the foundation of OpenID Financial-grade API (FAPI) Security Profile

Self Sovereign Identity

7. **Self-Issued OpenID Provider**

Social & Bank Identities

Third party hosted Identity

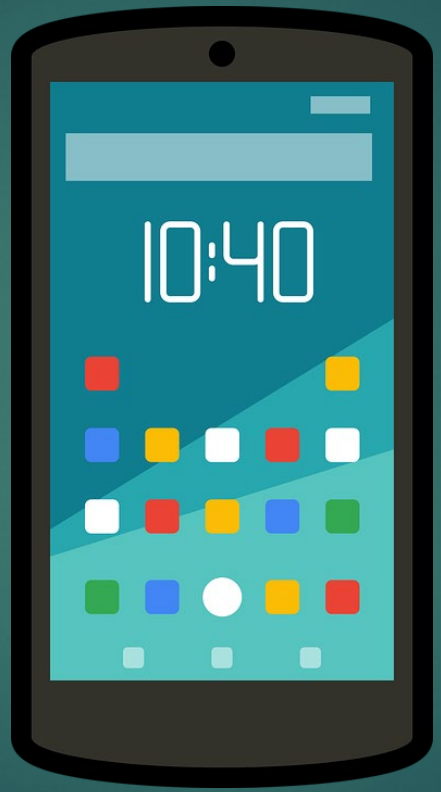
Google Cloud Platform

aws

Host your own IdP

on-premise / cloud

It can be on your local machine



Self-issued OP – Never taken away

HOSTED ON YOUR LOCAL MACHINE.

NO NEED FOR IDP DISCOVERY BECAUSE IT IS LOCAL.

USER IDENTIFIER IS THE HASH OF THE PUBLIC KEY GENERATED BY THE SOFTWARE.

Challenges that "Self Hosted" IdPs are facing

- Establishing trust in Keys used in the past.
- Key recovery (esp. for Self-Issued OP)
- RPs are not accepting it.
  - To date, my own services are pretty much the RPs that is accepting my own IdP.
  - Could I login to my PC/Mac/Phone with it?

OpenID Connect specifications:

- OpenID Connect Core – Defines the core OpenID Connect functionality: authe
  to communicate information about the End-User
- OpenID Connect Discovery – Defines how clients dynamically discover informa
- OpenID Connect Dynamic Registration – Defines how clients dynamically regis
- OAuth 2.0 Multiple Response Types – Defines several specific new OAuth 2.0
- OAuth 2.0 Form Post Response Mode – Defines how to return OAuth 2.0 Auth
  Connect Authentication Response parameters) using HTML form values that a
- OpenID 2.0 to OpenID Connect Migration 1.0 – Defines how to migrate from O

Self-Certification

- IdP登録のサポートコストを解決し、RPからの技術的信頼を得るための手段
- To solve the IdP on-boarding support cost issue and earn technical trust from the Relying Parties

OpenID CERTIFIED

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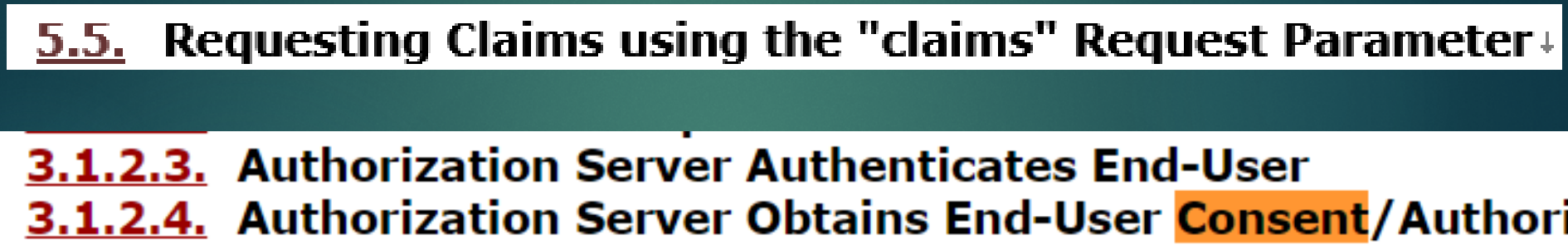
Granular Claims Request and Consent Management



"policy_uri" etc. are defined in OpenID Connect Dynamic Registration 1.0

Claims request model specified in 5.5 of OIDC

- Allows granular specification of claims for “Collection Minimization”
  - Can mark “essential”
- Forms the basis for cosent management system in conjunction with claims:
  - “usage policy (`policy_uri`)” and
  - “ToS (`tos_uri`)” registered during the client registration.

```
{
 "userinfo":
  {
   "given_name": {"essential": true},
   "nickname": null,
   "email": {"essential": true},
   "email_verified": {"essential": true
   "picture": null,
   "http://example.info/claims/groups":
  },
 "id_token":
  {
   "auth_time": {"essential": true},
   "acr": {"values": ["urn:mace:incommo
  }
}
```

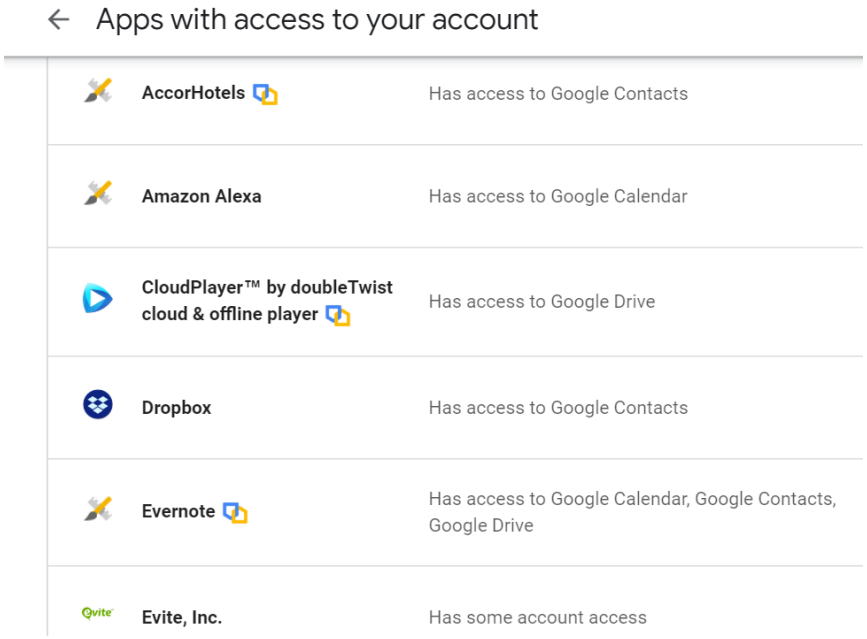
Combine this with 3.1.2 and DynReg to achieve Selective Sharing and consent management

3.1.2.3. Authorization Server Authenticates End-User

3.1.2.4. Authorization Server Obtains End-User Consent/

Note that `policy_uri` and `tos_uri` is bound to the client and not to the authorization request.

- This makes revoking of the consent easy.
  - Just revoke the authorization to the client.
    i.e. Exiting OAuth mechanism works.

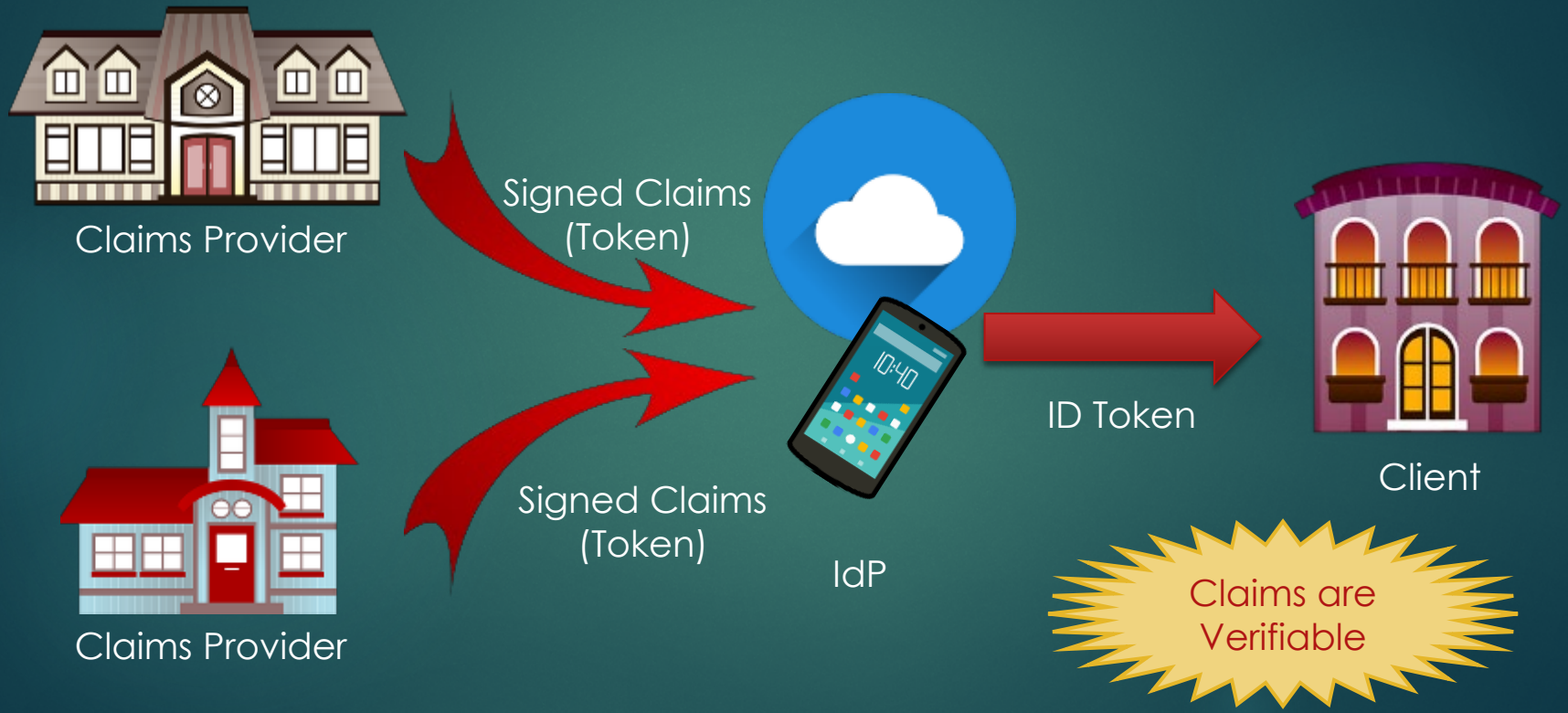


3 Claims Models

- Normal
- Aggregated
- Distributed

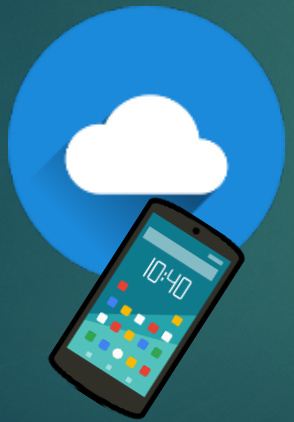
Normal (Simple) Claims

Aggregated claims



Distributed Claims

Signed Claims
(Token)



ID Token including pinters

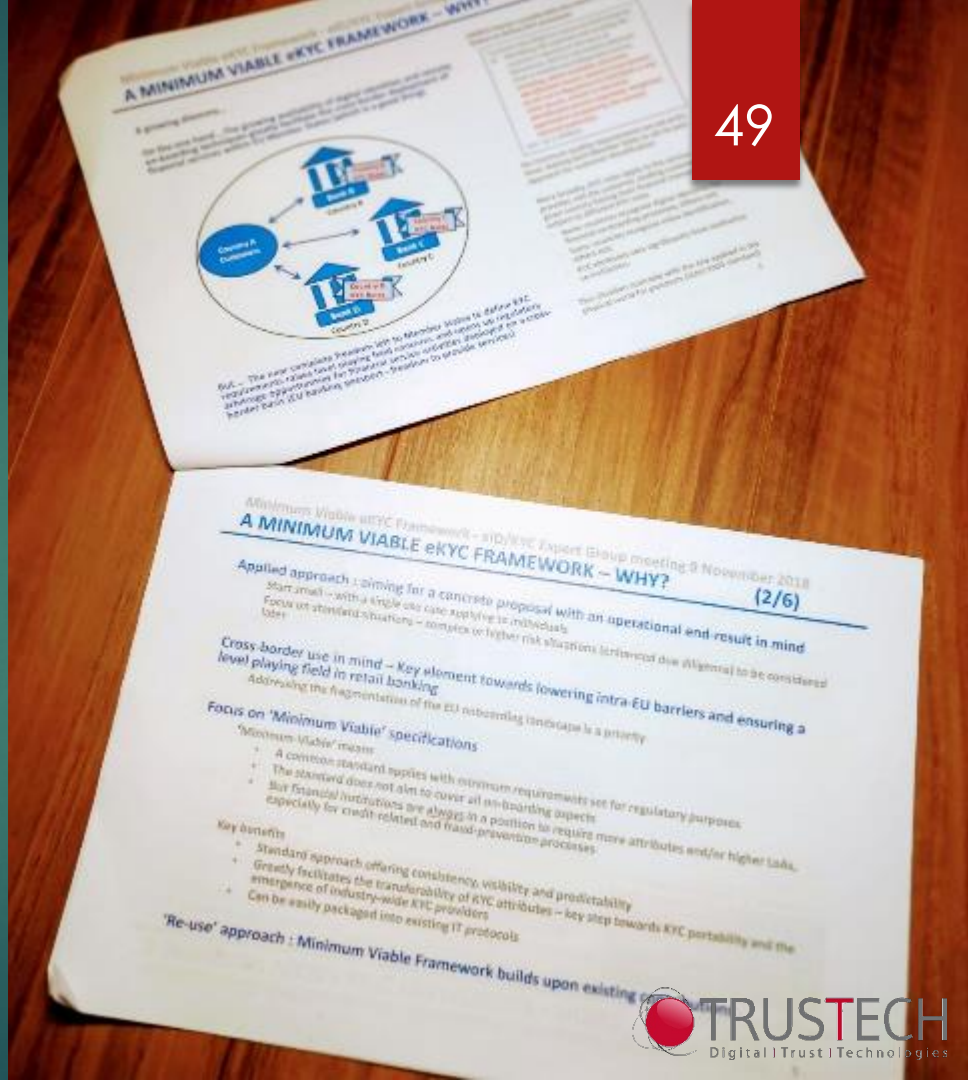
Client

Claims are
Verifiable

An example of on-going activities on the claims-set

- Minimum Viable eKYC Framework (eID/KYC Expert Group @ EC)

Trusted Attributes / Claims



O2O: Online Authentication for Offline Transaction

-- CIBA: Client Initiated Backchannel Authentication for more trustworthy user authentication

- Use-case 1: Customer authentication @ Call centers

O2O: Online Authentication for Offline Transaction

-- CIBA: Client Initiated Backchannel Authentication

- Use-case 2: IoT including Smart Speakers

O2O: Online Authentication for Offline Transaction

-- CIBA: Client Initiated Backchannel Authentication

- Use-case 3: Payment at PoS

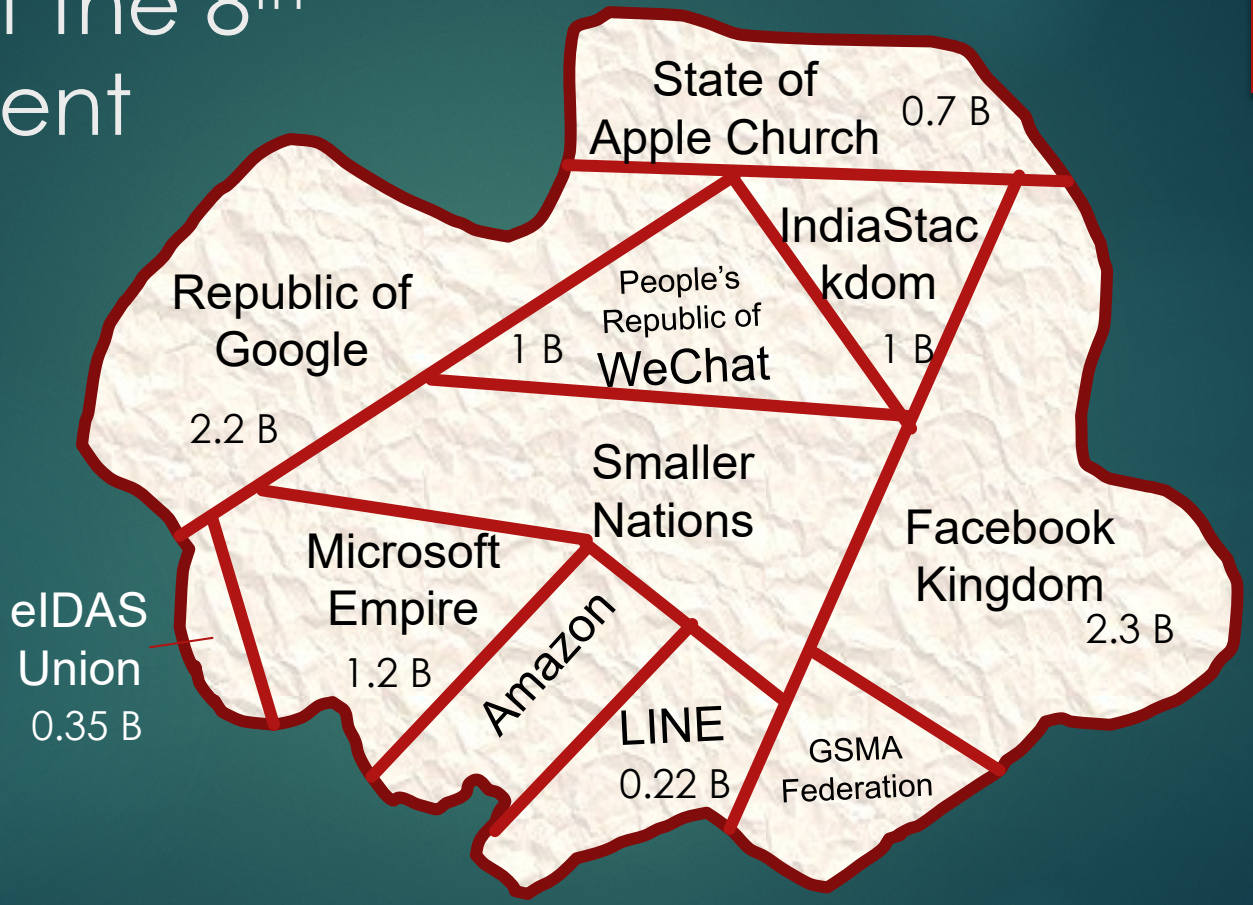
もくじ

1. 第八大陸の発見と統治インフラとしてのデジタル・アイデンティティ
2. OpenID Connectはどこから来て、どこへ行くのか？
3. 第八大陸で生き残るには

Contents

1. Discovery of the 8th Continent and the digital identity as the governance infrastructure.
2. Where OpenID Connect came from and where it is heading to.
3. How to stay relevant in the 8th Continent

Map of the 8th Continent



A Digital Single Market for Europe: the data economy

Free Flow of Data with Trust

- By 2025, Data Economy will form 5.4% of GDP.
- By just removing the regulations barring free movement of non-personal data, it is estimated that it could generate up to €8 billion in GDP a year
- 2014: 56 Laws forced data localization
- 2020: ZERO laws.

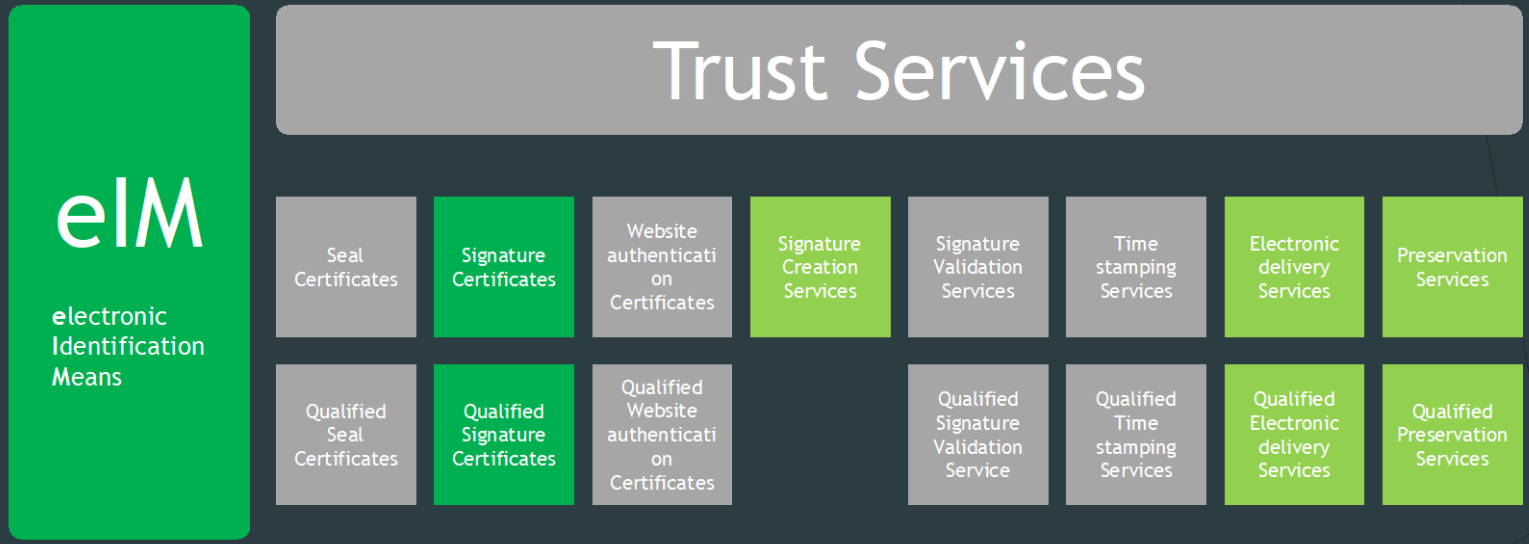
(Source) Andrus Ansip: A Digital Single Market for Europe: the data economy (2019)

> “Electronic identification (eID) and electronic Trust Services (eTS) are key enablers for secure cross-border electronic transactions and central building blocks of the Digital Single Market.”

(Source) https://ec.europa.eu/digital-single-market/en/trust-services-and-eid

Free Flow of Data with Trust

eIDAS regulation contents



(Source) Wim Coulier: Using eIDAS to drive mass adoption of identity solutions (2019)

Digitalization

デジタル化

西用 と 変法

末期清朝～洋務運動
（1861 - 1895）

日本～明治維新
（1867 - 1905年位？）

“SEIYOU”
(Apllication of Western Technologies)

(1961 – 1895)

&

“HENPOU”
(Changing the way of life / regime change)

(1961 – 1895)

洋務運動 （1861 - 1895）

- 「中学」を「体」となし「西学」を「用」となす

「中体西用」論

- 曾國藩、李鴻章 ～ 洋務派
- 西洋諸国の進んだ技術の導入に主眼

既存の体制を維持したまま、最新の技術をツールとして導入。

Westernization（1861 - 1895）

- Applying western technologies to the Chinese Life.

「Chinese-body Western-tech」

- Zēng Guófān, Lǐ Hóngzhāng
- Intro of Western Technologies

Applying the newest technologies to the existing regime.

北洋艦隊（北洋水師）

- 1888年、李鴻章により設立。
- 当時東洋一の規模、最新式の軍艦を擁す。
- 甲申政変や長崎事件での日本の敗北の背景にも。

Beiyang Fleet

- Est. 1888 by Lǐ Hóngzhāng
- Largest fleet in Asia
- Newest and the greatest.
- One of the main force behind the defeat of Japan in Gapsin Coup and Nagasaki Incident.

（画像）鎮遠　パブリックドメイン

軍事工業

- 重工業の技術を西洋から採り入れるほか積極的に技術者を登用
- 安慶内軍械所、江南製造局、他

Military industry

- Introduced Heavy Industry techniques from the West and treated engineers well.
- Anqing Arsenal was built purely by Chinese engineers.

Photo: Foochow arsenal in Mawei, public domain

教育事業

- 30ヵ所あまりの近代新式学校を建設
  - 同文館(1862)、船政学堂(1866)
- 西洋の書物を翻訳・出版し、「西学」の普及
- 毎年30名の留学生をアメリカに。
  - 多くが後に中国の政界・産業界などで活躍

Education

- 30+ modern schools were built
  - Tongwen Guan(1862), 船政学堂(1866)
- Translated Western books and spread Western knowledge.
- Sent 30 Students/year to the US.
  - Many of them became leaders in political and industrial sphere later.

（画像）総理衙門(パブリック・ドメイン)。門の京師同文館として、西側が外交活動に使われた。

当初は成果を上げた
洋務運動であったが…

Westernization Movement
achieved great in the beginning
but

失速

Stalled

（画像）鎮遠 ウィキペディア

Photo: Foochow Arsenal in Mawei, PD

（画像）総理衙門(パブリック・ドメイン)

- 総理海軍事務衙門が海軍を統括→頤和園建造に予算転用、北洋艦隊は設備更新や艦隊新規購入が出来ず老朽化、日清戦争で大敗

- 生産管理方式は清朝の官僚主義に基づく旧来型
- 官需のみなので、採算度外視、資本蓄積できず衰退

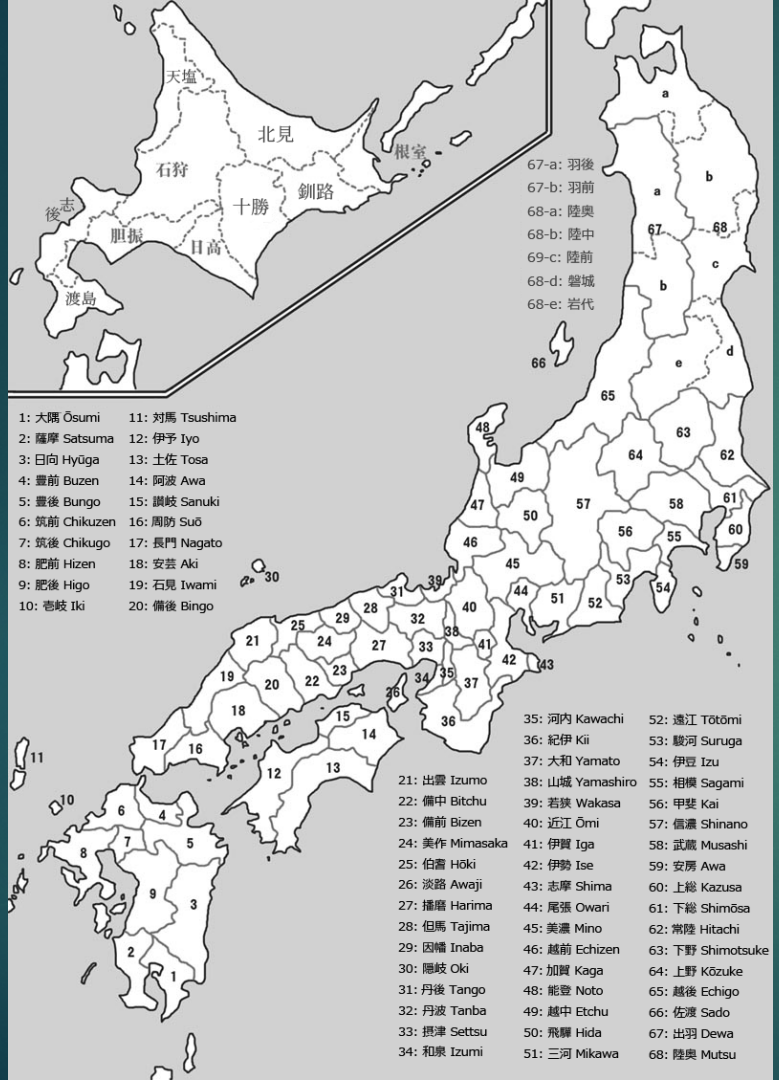
- エリート教育
- 民衆の底上げ効果は？

明治維新（1867 – 1905?）

- 西洋の進んだ技術を「用いる」のではなく、
社会のあり方を根本的に変容させた
「変法」

Meiji Restoration（1867 – 1905?）

- Instead of applying the western technology to the existing regime, transformed the way life was top to bottom based on the new technologies: **“Regime Change”**



「藩」なんて無かった。あったのは多数の「國」

Japan was composed of many small “countries” then.

（出所）Wikimediaコモンズ「Ancient Japan Provinces Map in Japanese Kanji」
https://commons.wikimedia.org/wiki/File:Ancient_Japan_provinces_map_japanese.gif
CC-BY wikiwikiyarou

國→藩→県

Country → Domain → Prefecture

統一国家

Unified Nation

国言葉　→　方言

Language → Dialect

「標準語」の義務教育による普及

Proliferation of “Standard Japanese” through compulsory education

言語統一

Standardization of Language

教育制度 | Education System

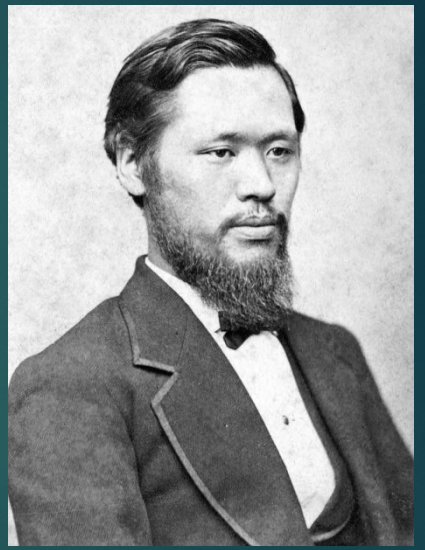
- 1871年（明治4年）：文部省設置（大学ヲ廃シ文部省ヲ置ク。）
- 1872年（明治5年）：学制公布
- 1886年（明治19年）：学校令公布　← 義務教育

一般国民にまで広く門戸を開いた、全国一律の教育制度：義務教育

Compulsory education for Everybody

女子教育の推進

Promotion of education of women



森有礼 | Arinori Mori
（出所）Wikipedia パブリック・ドメイン

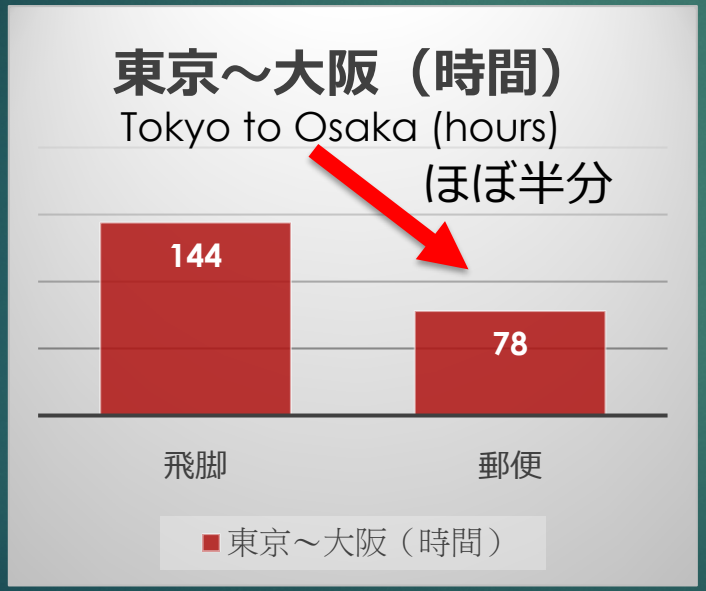
郵便制度

- 1871年に一連の太政官布告、郵便制度が開始
  - 東京～京都～大阪間62箇所の郵便役所・郵便取扱所で官吏が引き受け・管理を行い、配送時間は厳守
- 1890年には電話を開始。

Postal System

- Est. 1871
  - 62 stations between Tokyo and Osaka, operated by public servants, with strict delivery time.
- Telephone started in 1890.

Reduced the delivery time by 50%



（出所）Wikipedia『郵便』をもとに、NRI

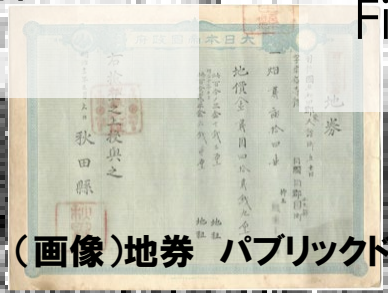
（画像）日本近代郵便の父・前島密の肖像を使った1円切手
パブリック・ドメイン

経済・金融制度

- 土地の私有化と私有財産権の確立
- 官営工場や鉱山の民間への払い下げと産業革命の進展
- 日本銀行設立と、資本主義的金融制度の整備

Economic & Financial System

- Privatization of land ownership and the establishment of private property right
- Privatization of government owned factories and mines and advancement of the industry revolution.
- Establishment of Bank of japan and Capitalism Finance System.



（画像）地券　パブリックドメイン

（画像）富岡製糸工場　パブリックドメイン

法制度

Legal system

- 刑法、民法、商法などの基本法典を整備
- 憲法の整備と立憲君主・議会制への移行

- Establishing the basic laws e.g., Criminal law, Civil law, Commercial law
- Establishing the constitution and the shift to Constitutional monarchy / parliament system.

（出所）楊洲周延『憲法発布略図』(明治22年) パブリックドメイン

明治維新は最新の技術を前提として、社会のあり方を根本的に改めた「変法」であった。

Meiji Restoration was a "Regime Change" that transformed the way society functions ground up.

西用 v.s. 変法

末期清朝～洋務運動
（1861 - 1890年代前半）

日本～明治維新
（1867 - 1905年位？）

Western Use v.s. Regime Change

As the result

1895
- 日清戦争～台湾・遼東の割譲＋２億両の賠償金

1898
- 膠州湾租借（ドイツ）
- 旅順、大連租借（ロシア）
- 九龍半島、香港、威海衛租借（

1899
- 広州湾租借（フランス）

列強による分割と亡国

1895
- Sino-Japanese war～cession of Taiwan etc.

1898
- Jiaozhou Bay (Germany)
- Lushun, Dalian (Russia)
- Hong Kong (UK) etc.

1899
- Guangzhou Bay (France)

Division by Major Powers and the fall.

なぜこんな話をしたか？

Why such a talk?

既存モデルにデジタル技術を単に当てはめるような「デジタル西用」はしていませんか？

Are you not just retrofitting digital technologies on the existing model?

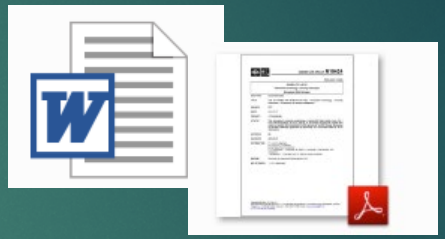
変法していますか？

Are you doing regime change?

２種類のペーパレス化

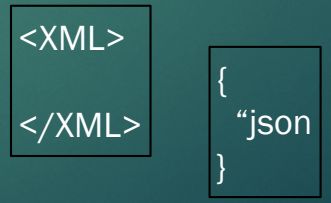
2 Types of Paperless

紙
Paper



西用
Use Tech

業務としては、紙がPDF等に変わっただけ。



変法
Regime change

自動処理を前提に、業務のやり方を変える。

Denmark: Citizen Portal

PDFワープロ
Glorified PDF Word Processor

v.s.

Digital Austria

XML化による徹底的な自動化推進
Automatic data processing using XML

“政治家は目立つから立派な駅舎を建てたがる。だが鉄道の本質は線路と列車と運行システムだ。我が国は（最初）残念ながら駅舎を立てることを選んでしまった。

デンマークの某官僚

Politicians likes to build station building as it would be apparent to people. However, railrod’s central principles are rails, trains and operations. Unfortunately, our government chosed to build a gorgeous train station.”

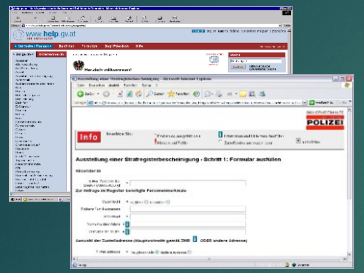
A PUBLIC SERVANT

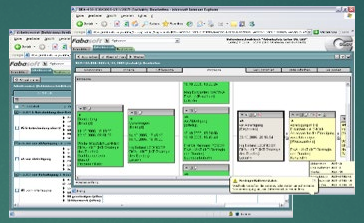
一方、デジタル・オーストリアは…

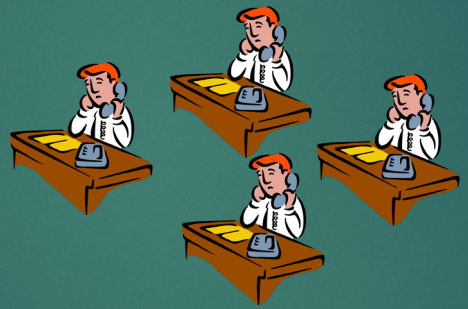
- ✓ あらゆる文書をXML化、自動処理、24時間以内の返答
  - ✓ 24時間以内に返せない場合は、理由を返す
- ✓ 国会で策定中の法案まですべてXML化、履歴管理公開、紙は廃止
- ✓ 官が発行する文書は、電子署名付きのXMLに
  - ✓ 民間でも自動処理可能に

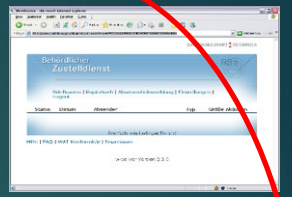
✓ OTOH, Digital Austria did

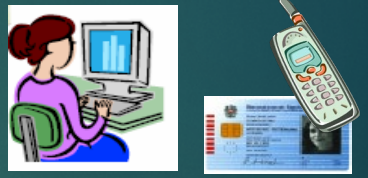
- XMLize all documents and responding within 24 hours
  - If not, reasons are returned.
- Laws being discussed in Parliaments are XMLized and edit history are openly accessible. No paper.
- All the document that the government issues are issued as signed XML
  - Thus, private sector can also process them authomatically











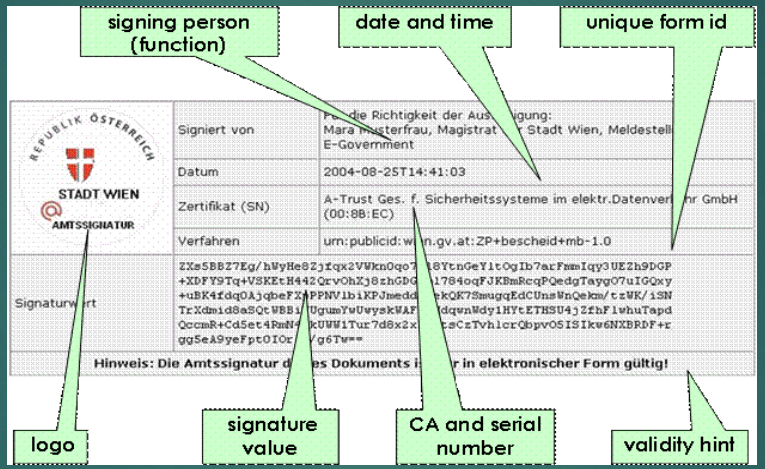
Help.gv portal

central registers and ELAK-Backoffice

electronic delivery service

(出所)Rupp, C.:E-Government in Austria (2009)

delivering documents is key for eGovernment a consistent model of electronic delivery has to complete such effort Application independent electronic delivery



electronic documents need the potential for being authentic - **even if printed on paper such documents shall keep validity**

Official signatures serve to facilitate recognition of the fact that a document originates from an authority.

（出所）Rupp, C.:E-Government in Austria (2009)

デンマークだって、負けてられない

- ✓ 全てデジタル化（構造化データ化）
- ✓ 紙の完全廃止

「デジタル・デバイド？どうして心配する必要が？紙ベースのシステムが導入されたときだって、文字の読み書きができない人はたくさんいたけど、代書屋が出てきて解決したわよね。」

✓ So did Denmark as well

- Everything digital (Structured data)
- No paper

“ Digital divide? Why do you worry? When the paper based system was introduced, many people were illiterate but private sector services took care of it.

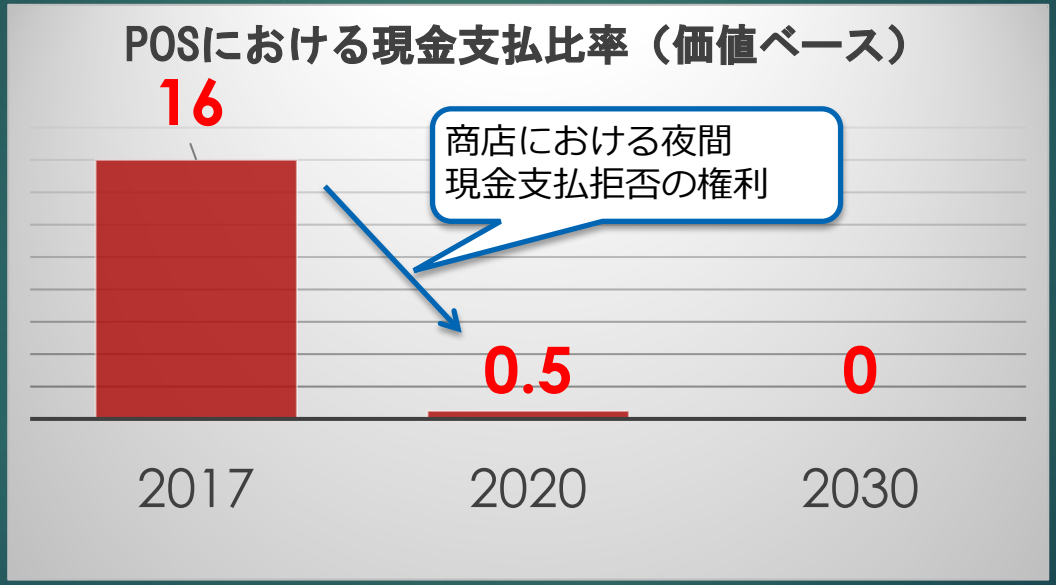
更に | Further

2014年、紙幣と硬貨の発行の外部委託決定

2014 – Decided to outsource printing and minting money

硬貨は2016年にフィンランド企業のミントに鋳造委託。
紙幣は2018年にフランス企業オバトゥール・フィドゥシワール（Oberthur Fiduciaire SAS）に委託決定。（同社によるデンマーク紙幣の発行は2020年よりの予定）
（出所）JETRO「ビジネス短信＞デンマーク中銀、硬貨に続き紙幣印刷の外注を発表」

2030年、現金の廃止 | Abolish cash by 2030



（出所）デンマーク中央銀行「Danish Households Opt-out of Cash Payment」(2017)他により筆者

２つの政府に共通すること

デジタル変法

デジタルを基本として
組織・業務の在り方から
再設計する

Common factors among them

Digital “Regime change”

Transform the organization and the operation based on the new digital reality

国レベルでなくても、
企業レベルでも同じことが言える。

It also applies to private companies.

仕事・働き方・トレンド vol. 2744

【悲報】バカンス満喫中のイタリアと日本の一人あたりのGDPがほぼ変わらない件　労働生産性に至ってはボロ負け

2016.8.17

キャリコネ編集部

GDP　バカンス　労働生産性

短かったお盆休みも終わり、はやくも次の連休を心待ちにしているという人も多いだろう。一方海外では、今がバカンスの最中という国もある。

その一つがイタリアだ。イタリアでは8月に1か月近くの長期休みを取る人が多く、特にピークの8月15日の祝日フェラゴストのあたりは街が空になる現象が起こるという。

バカンス満喫中♪

「9月までvacationです、サンキュー、あなたも良い夏を！」

（出所）キャリコネニュース https://news.careerconnection.jp/?p=26775

GDP per capita / 一人あたりGDP (2018)

Rank (World)	Country / 国	US$
1 (9)	United States / アメリカ	62,605.59
2 (11)	Australia / オーストラリア	56,351.58
3 (18)	Germany / ドイツ	48,264.01
4 (20)	Canada / カナダ	46,260.71
5 (21)	France /フランス	42,877.56
6 (22)	UK /イギリス	42,558.00
7 (26)	Japan / 日本	39,305.78
8 (27)	イタリア	34,260.34

(出所) 世界経済のネタ帳「世界の一人当たりの名目GDP(USドル)ランキング」に基づき筆者（IMF: World Economic Outlook Database <2019-06-01取得>にてクロスチェック済み）

（出所）世界経済のネタ帳(http://ecodb.net/)を元に作成

労働生産性

Productivity (2017)

2017年	
アイルランド	164,795
ルクセンブルク	143,770
米国	127,075
ノルウェー	122,902
スイス	118,155
ベルギー	117,307
オーストリア	108,405
フランス	106,998
デンマーク	105,454
オランダ	105,091
イタリア	104,179
オーストラリア	101,810
ドイツ	100,940
スウェーデン	100,207
フィンランド	100,123
スペイン	94,220
アイスランド	93,554
カナダ	93,093
英国	89,674
イスラエル	87,756
日本	84,027
ニュージーランド	76,105
トルコ	75,941

（出所）日本生産性本部「日本の生産性の動向2018年版」に筆者加筆

個々の日本人は優秀だし真面目

なのに、なぜこんなに差がひらく？

Why so much difference

despite the capable Japanese Labour?

第一次産業革命前、品質の高い綿織物はインドの労働者によって作られていた

Before the 1st Industrial Revolution, high quality cotton textile primarily came from Indian labour

インドの労働者は優秀だった

Indian labour were capable

しかし、かれらは新しい技術と、それにふさわしい社会的構造を導入できなかった。

Yet, they did not have access to the new technology and new social structure optimised for it.

その結果、多くの人が餓えに直面することになった。

As the result, many people suffered from starvation.

現代の日本は幸いにして、技術にはアクセスできます。

Japan now has access to the technology fortunately.

問題は、企業マネジメントおよび
社会構造を変えられるか。

The issue is whether we can change the corporate management and the social structure.

デジタル化したふりをしてごまかすのはやめましょう。

Let’s not fool ourselves by pretending to be Digitalized

PDFを送って、それを印刷、ハンコをついてスキャンして送り返すのはデジタル化ではありません。

Sending a PDF and have it printed and signed, then scanned and sent back is not Digitalization.

郵便をメールで、紙をPDF等で置き換えるのはデジタル化ではありません。

Replacing post with email and paper with PDF is not Digitalization.

構造化データを高度ネットワークを使って受け渡し、AIなどで自動処理するように仕事のやり方を変えるのがデジタル化です。

Digitalization is the Changing the way we work by sending and receiving structured data and automatically processing it using AI etc.

そのためには、相互接続性がある形で、送信者、受信者、データを識別・認証する必要があります。

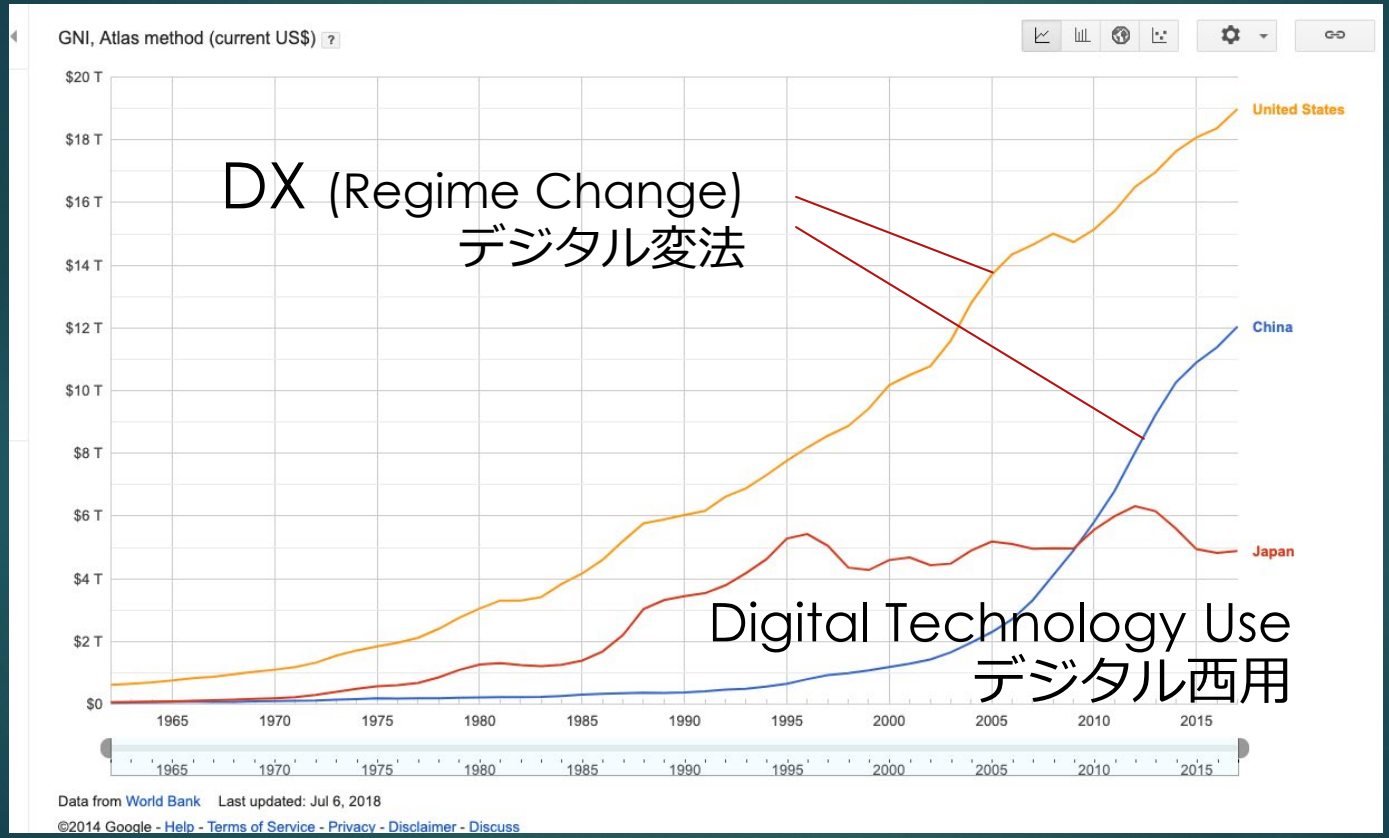
For it, we have to identify and authenticate the sender, receiver, and the data in an interoperable manner.

だから、標準ベースの
信頼できるIdentity基盤が
重要なのです。

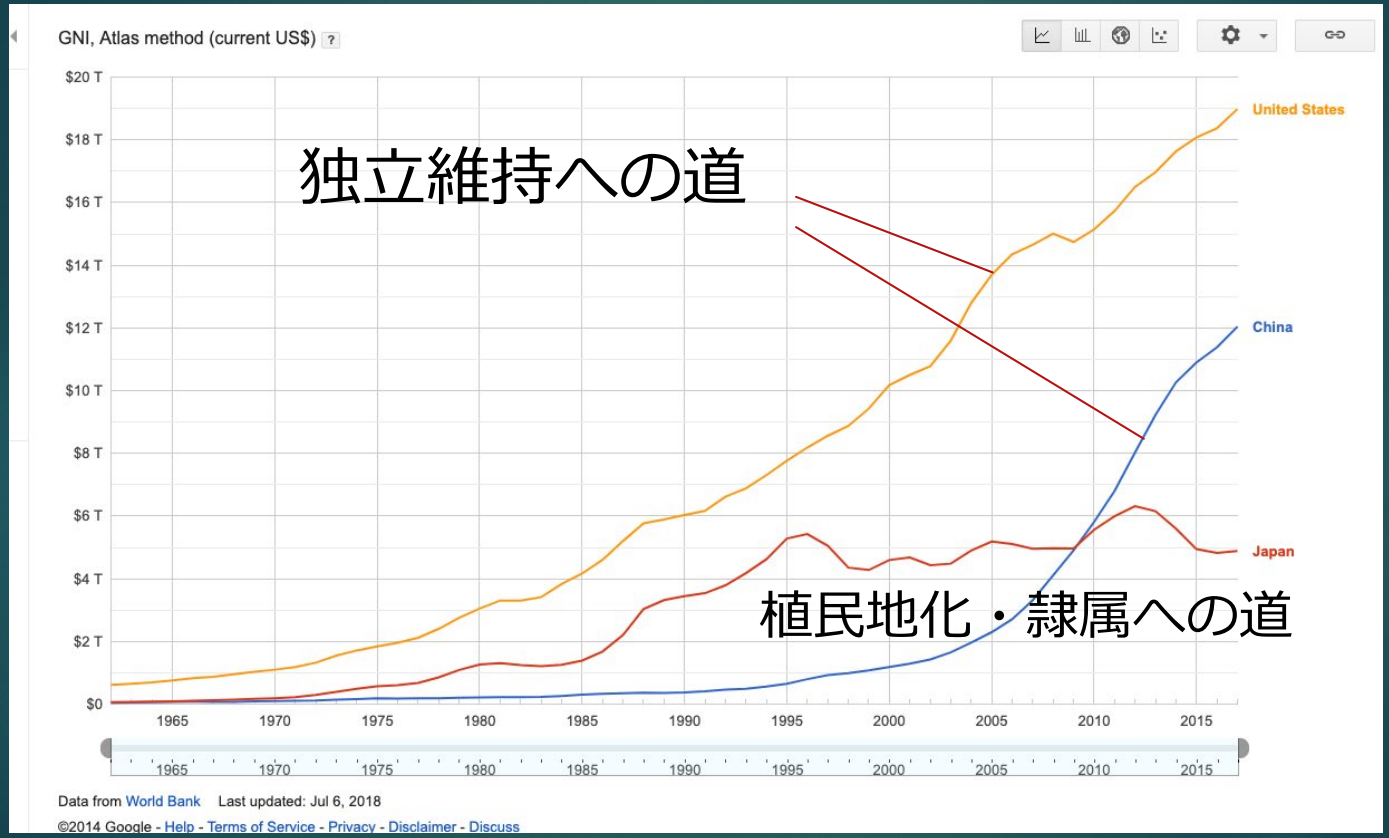
That’s why Standard based
Trusted
Identity platform is so important.

GAFAMが2000年台に気づいたとおり。

Just like GAFAM realized it in 2000s.



(出所)Google Public Data



(出所)Google Public Data

デジタル・アイデンティティに基づく「変法」

Digital identity based "regime change"

(Source) https://amzn.to/2KalUPQ

Change, Yes, We Can!