Towards the Realization of the Internet Trust

July 4, 2017

JIPDEC
Toru Yamauchi, Managing Director
Self-Introduction

Toru Yamauchi
JIPDEC
Managing Director/Director of the Internet Trust Center

【Background】
▪ Engaged in planning of and preparation for the IT strategy, and the standards and conformance policies at the IT Office of the Cabinet Secretariat and the Ministry of Economy, Trade and Industry. Served as a Chief Researcher of JPCERT Coordination Center. Assumed the current positions after engaging in these positions.

▪ Also serve as a part-time lecturer at Waseda University to teach the “IT and Society in Singapore/Asia” course.
Outline of JIPDEC

- Name  JIPDEC

  【Corporate Number 1 0104 0500 9403】

- Address  Roppongi First Building, 9-9 Roppongi 1-chome, Minato-ku Tokyo, 106-0032 Japan

- Establishment  December 20, 1967

50th Anniversary
Main Business of JIPDEC

- Operation of PrivacyMark System

- Accreditation of certification bodies in the Information Management System Conformity Assessment Scheme (ISMS, etc.)

- Investigation of the specified certification business based on the e-Signature Act. (to check conformity of private CAs to the implementing rules and guidelines of the e-Signature Act, etc.)

- Research studies on the utilization of digital information

- Realization of the Internet Trust
Internet Trust Center

Mission/Purpose
To improve the trustworthiness of information on the Internet by proving the existence and the attribute information of individuals, information, things, etc.

Primary Business
(1) Ensuring Trust on the Internet
- Promotion of JCAN Certificate in electronic contract services, etc.
- Promotion of “Spam-Free Mark” as countermeasures on spoofed e-Mail
- Development of the framework of Trusted Service registration

(2) Development of Information (such as that held by legal persons) Utilization
- Collaboration with Labor Management Assessment Information
- Collaboration with METI Corporate Information Database, etc.
**Internet Trust Study Group**

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<td>Internet Trust Center, JIPDEC</td>
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(February, 2017)
Cloud Signature Consortium

Members: Cloud Electronic Signature Providers, Trust Service Providers, Academic Organizations, Standardization Organizations and Security related Organizations in EU ➔ to promote the eIDAS compliant Electronic Signatures

xDTM Standard Association

The members are mainly industrial or academic entities in the USA
Members: Microsoft, Purdue University, FedEx, Intel, NAR, DocuSign, Dow Jones and NBCUniversal, etc.
Outline of the eIDAS regulation in Europe

Creation of a List of Trust Services by each EU member state

The following information is described in PDF and XML format on the Trust List:
- Rules for Trust Service
- Service Providers providing services in accordance with the rules
- Trust Services provided by the providers and their status

eIDAS: Electronic identification and trust services
Efforts of Web browsers and OS Vendors

To ensure trust of Certification Authority based on CA Browser Forum

How to make a certificate trustworthy on Web browser and OS, etc.

CA/Browser Forum Guideline
  • EV Guideline
  • Baseline Requirements

Audit corporation/Audit criteria setting body

1. Establish audit criteria in accordance with the Guidelines

2. Check the conformance to the audit criteria

3. Apply for registration as a trustworthy certificate

Web browsers and OS Venders

CA (Certification Authority)
Concept of Internet Trust

Define “Internet Trust” as a keyword to ensure the trustworthiness of the Internet society.

- Fostering expectation based on the assumption of uncertainties (risks)
- Presentation of information about the trustworthiness of cloud Service Provider
- Implementation of comprehensive security measures
Rapid Spreading of e-Contract Services

e-Contract Service by cloud expands not only to business to business contracts but also to personal contracts.

- **Electronic business transactions**
  - Logistics and retail Industry (Basic Sales Transaction Agreement, sales agreement, franchise agreement, etc.)
  - Construction Industry (Construction contract, etc.) and so on…

- **Expansion to personal contracts**
  - Finance Industry (Housing Loan)
  - Real Estate Industry (Leasing Contract)
  - Cram schools, music classes, publications, etc. (Contracts with sole proprietors)

Utilization of JCAN Certificates
e-Contracting Service of Financial Institution

Scope of Assessment / Registration

Certification Authority (CA)

Issuing Authority (IA)
- Certificate issuance
- Revocation information publication etc.

Registration Authority (RA)
- Identification
- Certificate request etc.

Assessment/Registration

JIPDEC
JCAN Trusted service Registration (Certification Authority)
- Check CA’s facilities and operations etc.
- Check annually

Financial institution (LRA)

Borrowers
(Corporations, individuals)

Financing contract
(Electronic contract)

A Bank verifies the identities of borrowers
(Examples of identification documents)
- Copy of the residence certificate
- Seal registration certificate
- Etc., other public certificate
Security of Cloud services

Information Security Management System (ISMS) for cloud services

➡ ISMS cloud security certification
(ISO/IEC 27001 and ISO/IEC 27017)

Security measures are all on their own.
➡ ISMS certification

A large part of security measures depend on the cloud services.
➡ ISMS cloud security certification
Fully electronized Transaction Documents

TTX (Trusted Transaction eXchange) Consortium

Electronic contract service vendors and vendors of mission-critical systems for such as sales, accounting, salary, and purchasing work together to realize the fully electronized transaction documents.

Identify corporation by corporate number

Corporate information DB

Department, office information, data for trader registration, transaction data etc.

Sales side (乙)

Purchasing side (甲)

①Transaction document exchange API

②ID Federation API

③Corporate Information API

Sales

Accounting

Sales side (乙)

Purchasing side (甲)

①Transaction document exchange API

①Transaction document exchange API

②ID Federation API

②ID Federation API

Document exchange (DTM) / Electronic contract / Online storage

IdP

Identify a corporation as an attribute of an employee by a corporate number
Countermeasures on Spoofed e-mail (Sending Side)

Outline of the countermeasures on spoofed e-mail on sender side

1. **Use of Sender Domain Authentication**
   
   DKIM (DomainKeys Identified Mail)
   
   Display “Spam Free Mark” to prove that the sender of the email is genuine.

   From: ●●●-▲▲▲@jipdec.or.jp

2. **Use of S/MIME**
   
   S/MIME (Secure / Multipurpose Internet Mail Extensions)
   
   Use the electronic certificate to prove that the sender of the mail is genuine.

   From: ●●●-▲▲▲@jipdec.or.jp
“Spam-Free Mark” Promotion Forum

Promote the countermeasures on spoofed e-mail centered on “Spam Free mark” by combining stakeholders’ expertise and knowledge on e-mail. (established on January 2017, with 24 companies / associations)

Board

- Sending users subcommittee
- Sending agents / system operators subcommittee
- Receiving service providers subcommittee
- Solution providers subcommittee

Secretariat

Registration screening board
Criteria for Trusted Services

Evaluation of trusted services

Trusted Services Criteria

- Legal compatibility
  - Privacy protection standards
  - Information protection policy

- Operational structure
  - Management standards
  - Facility standards
  - BCP standards

- Technical Base (Trust base)
  - Confidentiality standards
  - Integrity standards
  - Availability standards
  - Access control standards
  - Personal identification criteria

- Operating organization
  - Existence confirmation information
  - Credit information (reputation?)
  - Organization attribute information

Authentication, time stamp, electronic signature, user authentication (ID management)

Efforts as development of "corporate information infrastructure" (ROBINS)
JCAN Trusted Service Registration

The reliability of the services using the JCAN certificate, etc. are examined, and they are registered and made public by ROBINS – the Cyber Business Registry.

JCAN trusted service registration (Certification Authority)
Approval / registration of certification authority issuing electronic certificates necessary for electronic signatures of electronic contract services such as those of financial institutions

JCAN trusted service registration (Electronic contract)
Examine and register electronic contract services themselves such as those of financial institutions (See the acquisition of ISMS cloud security certifications etc.)

JCAN trusted service registration (××××××)
Examination, registration of a variety of cloud services
ROBINS - The Cyber Business Registry

A private corporate portal which allows the reliable information of small and medium-sized enterprises to be easily obtained via the Internet.

The Cyber Business Registry

https://robins.jipdec.or.jp/

National Tax Agency

Corporate Number Information

Provide information combining information held by the country and that held by the private sector.

Private DB service

Company code, industry type, current address

The Cyber Business Registry

Sole proprietors’ information

Management labor information

Subsidies, bid participation qualification

Corporate information held by the country

※ROBINS: Reference Of Business Identity for Networked Society
Trustworthy ROBINS Corporate Registration (image)

JCAN Trusted Service Registration

Information of Privacy Mark Granted company

ISMS certification body (under consideration for the future)

IPA SECURITY ACTION Self-declaration

Company Information provision service
Establishment of a Collaborative System with Related Organizations

- Consortium on overseas trust services, etc.
- International Federation
- Community building (per service field)
- Trusted services
  Review of evaluation criteria
- Ensuring the existence
- Development of corporate information infrastructure (ROBINS – the Cyber Business Registry)
- Federation
- Certification/auditing bodies on IT services, etc.
- Federation

Cyber security related organizations

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Future activities

- Dissemination and enlightenment of the Internet Trust
- Fully electronic transaction documents
  - Expansion of the electronic contract service market
  - Cooperation of service vendors and others (TTX Consortium)
- Construction of the framework of the trusted service registration
  - Creation of evaluation criteria for electronic contract service, etc.
    (Collaboration with international standardization activities)
  - Collaboration with cloud services evaluation
    (ISMS cloud security certification)
  - Staff training for the trusted service registration