Slide 1:

NTT
Nippon Telegraph and Telephone Corporation

Beyond a Card Community - PKI based Multiple Application Smart Card Management System for Global Interoperability

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Slide 2:
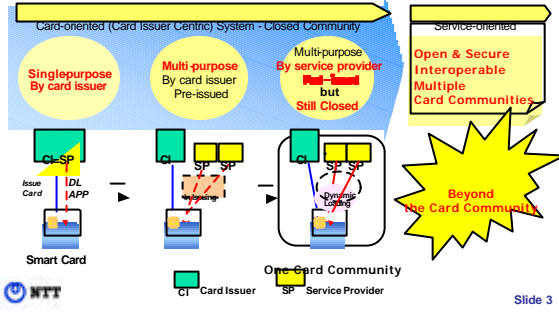
Smart Card Management System (SCMS)?

- Service and Locative Conversion via Smart Card – between public sectors and private sectors etc

Governmental Office
E-Passport
National ID Card
Citizen ID Card
Drivers License

At School/Office
Corporate ID Card
School ID Card

At Shop/Station
E-money
E-Loyalty
E-Ticket

At Airport
E-Passport/Visa
E-Ticket
E-Mileage

At Home
Card Issuing/Operation
Application Downloading
Usage
Electronic Banking
Electronic Shopping

At Hospital
Health Insurance Card
Patient Card
Medical Record
Prescription

Into ONE CARD !!   Anytime, Anywhere on Demand!!

Slide 2

Slide 3:

Existing Models and Issues to be Solved

- Still Card Issuer-oriented and Closed One

Card-oriented (Card Issuer Centric) System - Closed Community

Singlepurpose By card issuer

Multi-purpose By card issuer Pre-issued

Multi-purpose By service provider Post-Issued but Still Closed

Service-oriented
Open & Secure Interoperable Multiple Card Communities

CI=SP
Issue Card
IDL APP
Smart Card

CI   SP SP

CI   SP SP
Dynamic Loading

Beyond the Card Community

One Card Community
CI Card Issuer
SP Service Provider

Slide 3

Slide 4:

Innovation: To apply PKI-based Multi-Application Card Management

- Load Apps into any card issued by different card issuers.

Specify permit of access control strictly

Registration and Certification Authority (RC)

Authorize both "card issuer" and service provider/application

Card issuer (CI)
Request Load
Issue Load License
1. Issue Card

PKI

Internet

Service provider (SP)
Identify, authenticate Card and CI
Request loading to any card issuer dynamically

2. Download Application

Multi-Application Card (C)
Identify and authenticate SP
Check "SP's" right in license dynamically through secure channel

Slide 4

Slide 5:

Global Interoperability - From Isolated Card Community to Federated Card Communities

- Nomadic Use of Smart Card among Card Communities Globally

Global Nomadic World
- Global Nomadic Cities
- Global Nomadic Schools
- Global Nomadic Clinics
and
- Global Nomadic Networks

US
City/School/Clinic or Telecom NW B

RC: Registration and Certification Authority
CI: Card Issuer
SP: Service Provider
C: Card

Europe
City/School/Clinic or Telecom NW A

Asia
City/School/Clinic or Telecom NW B

PKI
RC

Nomadic User
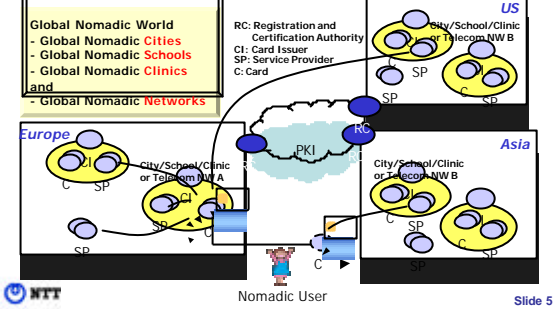
Slide 5

Slide 6:

Towards Global Convergence and Harmonization

- This framework is accepted and well-improved through global collaboration of many standardization organizations

Asia IC Card Forum (AICF)
Global Collaboration Forum (GCF)

Resident master Ledger + Smart Card Standard System (for Multi-AP)
2003.8 (by MIC)

IT City (by METI) 2002.3

Experience

Under Discussion

Results

CEN WS e-Auth
CEN/ISSS TC224 WG15 (European Citizen Card)

2005/2006 (Next Version)

*MIC: Ministry of Internal Affairs and Communications

ISO

NIST

GLOBALPLATFORM
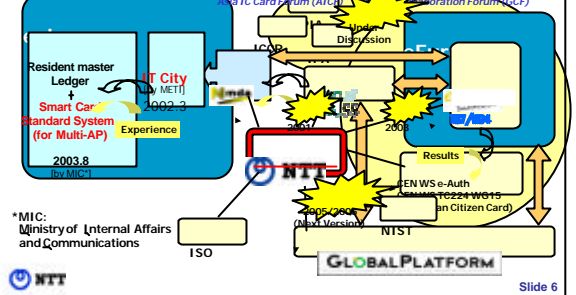
Slide 6

Conclusions and Future Works

- Multi-application smart card market, especially **National eID** and **Citizen eID** with **multi-applications** are growing rapidly. But still hard to use it **beyond a card community**

- By applying PKI, federated card communities such as cities/schools/clinics realizing **service and feature commons** can be constructed globally

- **Global collaboration** among many standardization organizations in Japan/EU/US make needs/requirements clear and finally this framework are going to be **accepted** with some improvement

- Thus international forum such as GCF (JP/EU/US) and ACF(China/KR/Singapore/JP) already started to discuss this framework as well as eID issue. Global collaboration among different regions is very important especially in case that regional issue and interoperability issue is important

- More global collaboration in R&D is required in order to find **real needs and solution for** combination of PKI-based **SCMS**, **eID** application (identity management) and other "**killer**" applications and federated communities
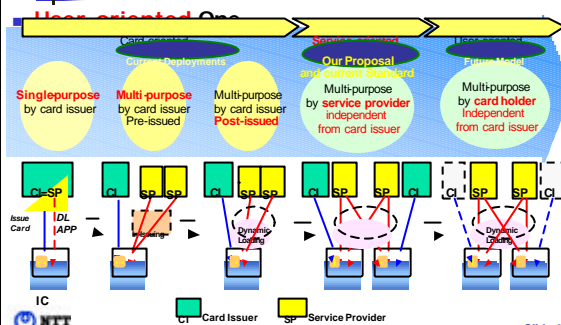

Thank you

Contact: Eikazu NIWANO

**Smart Card Platform Development Project
Smart Card Service Promotion Projects
Service Integration Laboratories
NTT Corporation**

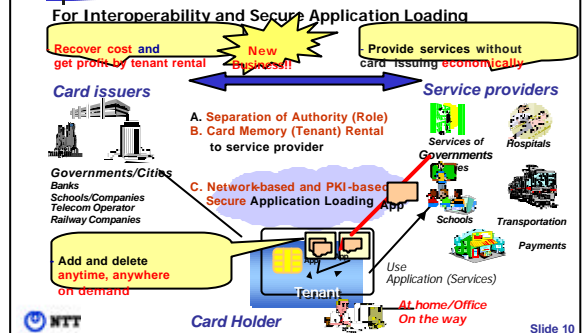**3-9-11 Midori-Cho, Musashino-Shi,
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Towards User-oriented One

PKI based Multiple Application Smart Card Management Framework

For Interoperability and Secure Application Loading

New Business Model – Cost Sharing
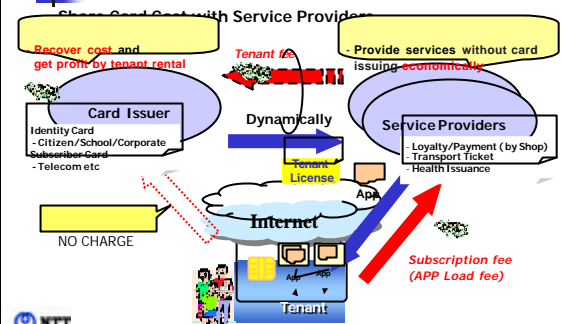
Towards Global Nomadic World

- **What kind of community and card is suitable for this model?**
  - It might have many own facilities or related entities in the same community.
  - It should exist heterogeneously **everywhere** and **are able to be cooperated with each other** without difficulty - public/neutral entity -
  - It must be **used by nomadic (mobile) user** - traveler/mobile worker –

- **So, the appropriate type of card might be**
  - **Citizen card**, **school card** and **corporate card – eID Card**
  - **Health insurance card**
  - **Telecom SIM card** in Future Potentially beyond telecom operator

- **Especially it may be reasonable to realize** **federated cities and schools** **for provision of** **universal services**
  - Global Nomadic Cities
  - Global Nomadic Schools
  - Global Nomadic Clinics