AIST GRID CA Updates

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Outline

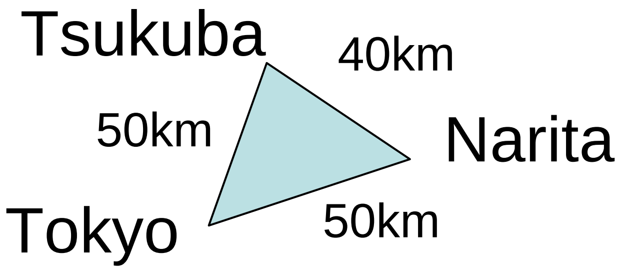
- **Introduction of AIST and AIST GRID CA**
- **Current status of AIST GRID CA**
  - Number of issued certificates
  - Subscribers
- **Details of CA operation**
  - staffs
  - hardware / equipments / facilities / physical access
  - events recorded and archives
- **detailed flow for issuing certificates**
- **Other issues (if you have)**

AIST: National Institute of Advanced Industrial Science and Technology

- **One of the largest Nat'l Labs in Japan**
- **Research topics include**
  - Environment
  - Material
  - Bio/Life science
  - Standards (JIS/OSI)
  - Geographical survey
  - Semiconductor device
  - Computer Science
  - etc.
- **3,500 employee + 3,000 staff**
- **roughly $1,400M USD/FY2002**

AIST Tsukuba Main Campus

7 other campuses across Japan



Grid Technology Research Center

- **Establishment**
  - Since Jan. 1, 2002
  - 7 years term
  - 24th Research Center of AIST
- **Location**
  - Tsukuba Central
    Umezono 1-1, Tsukuba
  - Tokyo Office
    - Akihabara cross field
    - 30 people for software development
- Engaged in developing grid middleware, applications and system technologies
- Research $$ approx. 1000M JPY

		2002/1	2003/1	2004/1
Researchers				
	Full time	14	19	20
	Fellowship	1	9	12
Collaborators		7	32	33
	Sub total	22	60	65
Staff				
	Administration	2	1	1
	Support	5	9	8

One of the world's foremost GRID Research Center, the largest in Japan

Grid Tech. Research Center

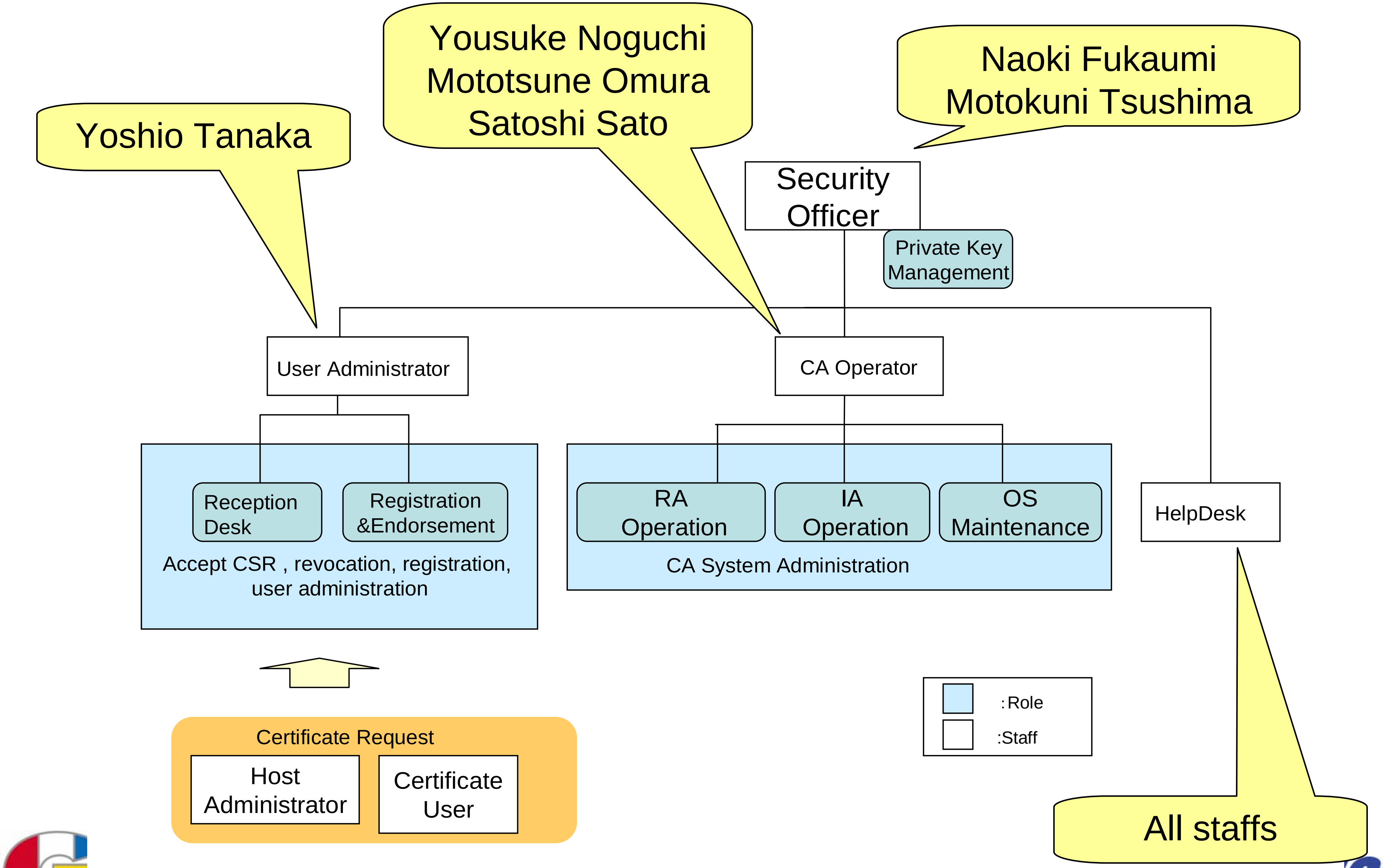
Director: Satoshi Sekiguchi

Grid Diversification Team	**(Leader: Satoshi Itoh)**
R&D of Middleware and Applications for Business on Grid. Grid PSE Builder	
Data-Intensive Computing Team	**(Leader: Isao Kojima)**
Data Grid / Database and Grid (OGSA-DAIS, etc.)	
E-Science Team	**(Leader: Mitsuo Yokokawa)**
E-Science	
Grid Infraware Team	**(Leader: Yoshio Tanaka)**
Programming Middleware, Testbed Development, Grid Security. Ninf-G, ApGrid	
Cluster Technology Team	**(Leader: Tomohiro Kudoh)**
Interconnection, GFarm	

Current status of AIST GRID CA

- **Number of issued certificates**
  - Globus User
    - valid: 39 revoked: 12
  - Globus Host
    - valid: 582 revoked/expired: 20
  - Globus LDAP
    - valid: 103 revoked: 16
  - UNICORE User
    - revoked: 1
  - UNICORE Gateway
    - revoked: 1
  - UNICORE NJS
    - revoked: 1
- **Subscribers**
  - GTRC/AIST researchers
  - University students and graduates in Japan
  - Two foreign researchers
    - 1 is in Vietnam and the other is in Singapore

Details of CA operation – staffs –



Yoshio Tanaka

Yousuke Noguchi
Mototsune Omura
Satoshi Sato

Naoki Fukaumi
Motokuni Tsushima

Security Officer

Private Key Management

User Administrator

CA Operator

Reception Desk

Registration &Endorsement

Accept CSR , revocation, registration, user administration

RA Operation

IA Operation

OS Maintenance

CA System Administration

HelpDesk

Certificate Request

Host Administrator

Certificate User

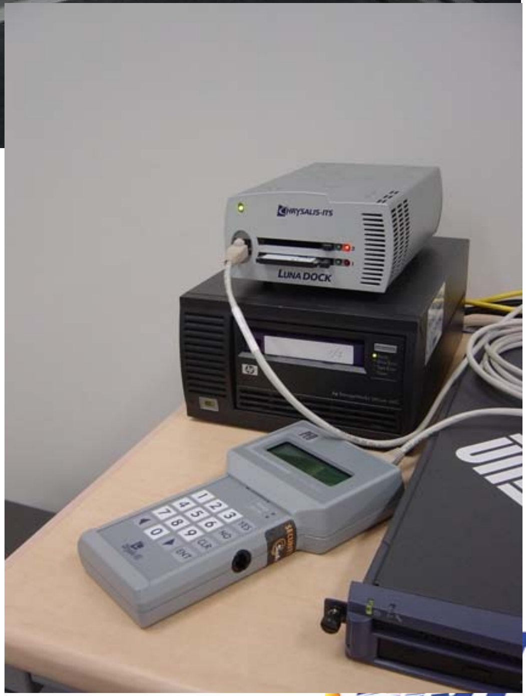
🟦	:Role
□	:Staff

All staffs

Details of CA operation – hardware / equipments / facilities / physical access –

- **RA server**
  - Sun Fire V120, Solaris 9
  - connected to the Internet
    - Only the necessary ports for RA operation are opened. The other ports are filtered by the firewall.
  - UPS is supplied

- **CA server**
  - Sun Fire V120, Solaris 9
  - Only a connection to the RA server is allowed
  - UPS is supplied
  - HSM for private key protection
    - Chrysalis-ITS LunaCA3 (CHR-LUNACA3)
      - FIPS 140-1 Level 3 compliant
  - Tape drive with auto loader for daily backup
    - Used for daily backup of CA and RA servers



Details of CA operation – hardware / equipments / facilities physical access – (cont'd)

- **Web server (repository)**
  - Sun Fire V100, Solaris 9
  - connected to the Internet
    - Reasonable port filtering.
  - UPS is supplied
  - NAS storage for daily backup
- **CA room**
  - Dedicated to the CA operation.
  - Limited person can enter.
    - Security Officer
    - CA Operators
    - Three staffs in General Administration Department of AIST.
  - Two doors protected by electric key.

Details of CA operation – hardware / equipments / facilities physical access – (cont'd)

- **Physical access**
  - A CA operator is not allowed to enter the room alone and need to enter the room with the other CA operator.
  - If a CA operator needs to enter the room alone, he must notify the fact to the user administrator by Emails before and after entering the room.
  - All events about the access to the room must be recorded in the paper sheets prepared in the room. The events include the names of CA operators, date and time of entering/leaving the room, and the purpose of the access to the room.
  - The filled sheets will be kept in a safe box.

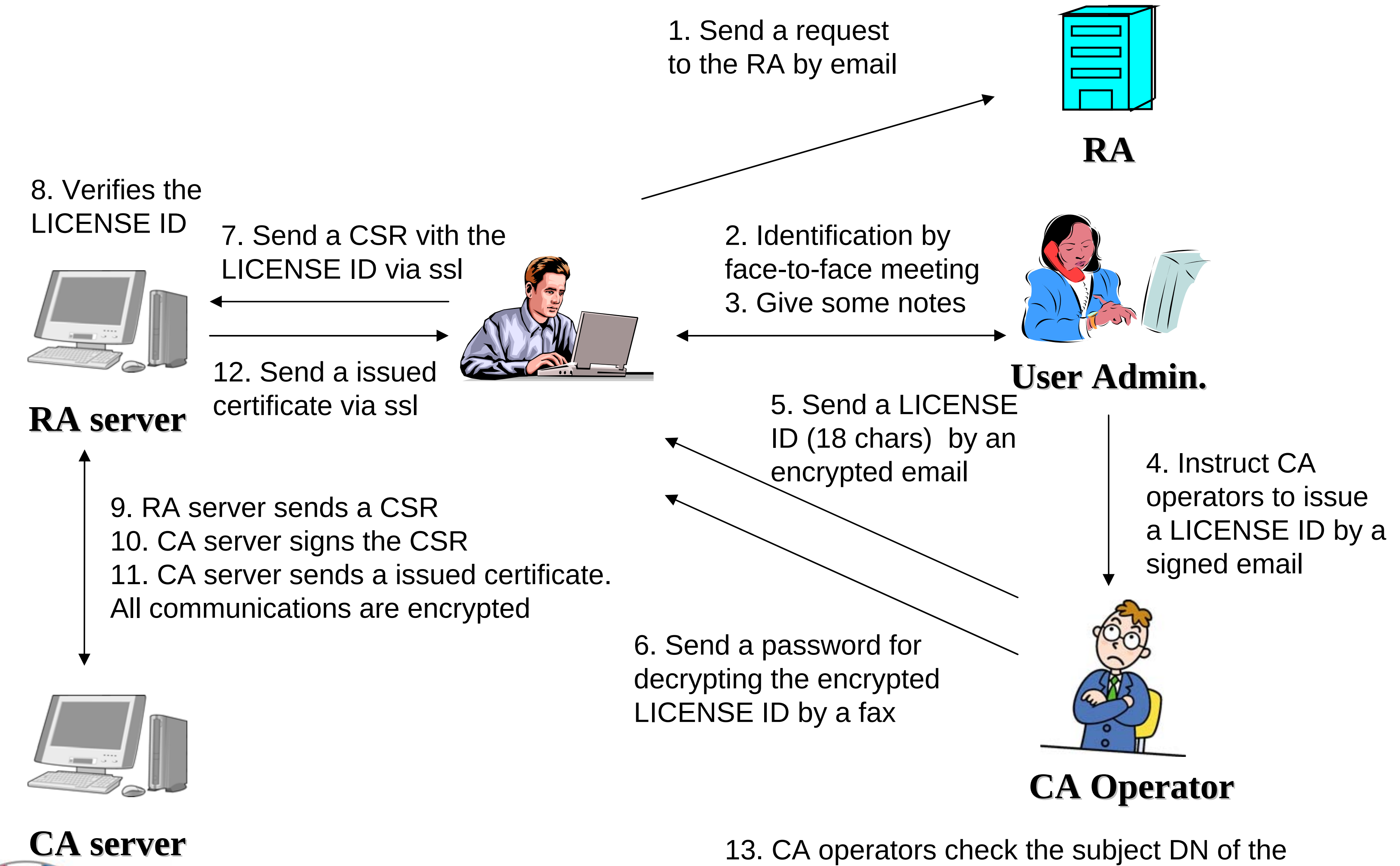
Details of CA operation – events recorded and archives –

- **CA system logs**
  - Access and operation logs to the CA daemon process
  - Error logs for accesses and operations to the CA daemon process
  - Operation logs of the CA daemon process
- **RA system logs**
  - Access and operation logs to the RA daemon process
  - Error logs for accesses and operations to the RA daemon process
  - Logs of issued certificates
  - All issued CRLs
  - The date of issuance of CRLs
- **Unix system logs**
  - shutdown/boot/reboot logs of the CA server and the RA server
  - login/logout/sudo logs of the CA and the RA server
  - other logs archived by UNIX operating of the CA and the RA server
    - authlog, cronlog, daemonslog, errorlog, log, logrotate.status, maillog, messages, sulog, syslog, tripwire/report
    - dumplog and rsynclog are archived only for the CA server

Details of CA operation – events recorded and archives – (cont'd)

- **Logs of physical access to the CA room**
  - Paper sheets which record all events about the access to the CA room.
  - Access logs to the CA room those are recorded by the General Administration Department of AIST.
- **Emails**
  - All emails received by the AIST GRID CA
  - All emails received by the AIST GRID RA
  - All emails of system-logs sent from the CA and the RA servers
- **Other documents**
  - A list of email addresses of end entities
  - All issued certificates
  - for each approved request, how the request was approved
  - for each rejected request, how the request was rejected
  - official documents if they are used for identification of entities
  - All versions of the CP/CPS
  - All versions of the Certificate and CRL Profile
  - Internal documents for the operation of AIST GRID PKI Service
  - All Audit reports

detailed flow for issuing certificates



1. Send a request to the RA by email

RA

8. Verifies the LICENSE ID

7. Send a CSR vith the LICENSE ID via ssl

2. Identification by face-to-face meeting
3. Give some notes

User Admin.

12. Send a issued certificate via ssl

RA server

5. Send a LICENSE ID (18 chars) by an encrypted email

4. Instruct CA operators to issue a LICENSE ID by a signed email

9. RA server sends a CSR
10. CA server signs the CSR
11. CA server sends a issued certificate.
All communications are encrypted

6. Send a password for decrypting the encrypted LICENSE ID by a fax

CA Operator

CA server

13. CA operators check the subject DN of the issued certificate (compare with the username/hostname in the application form.