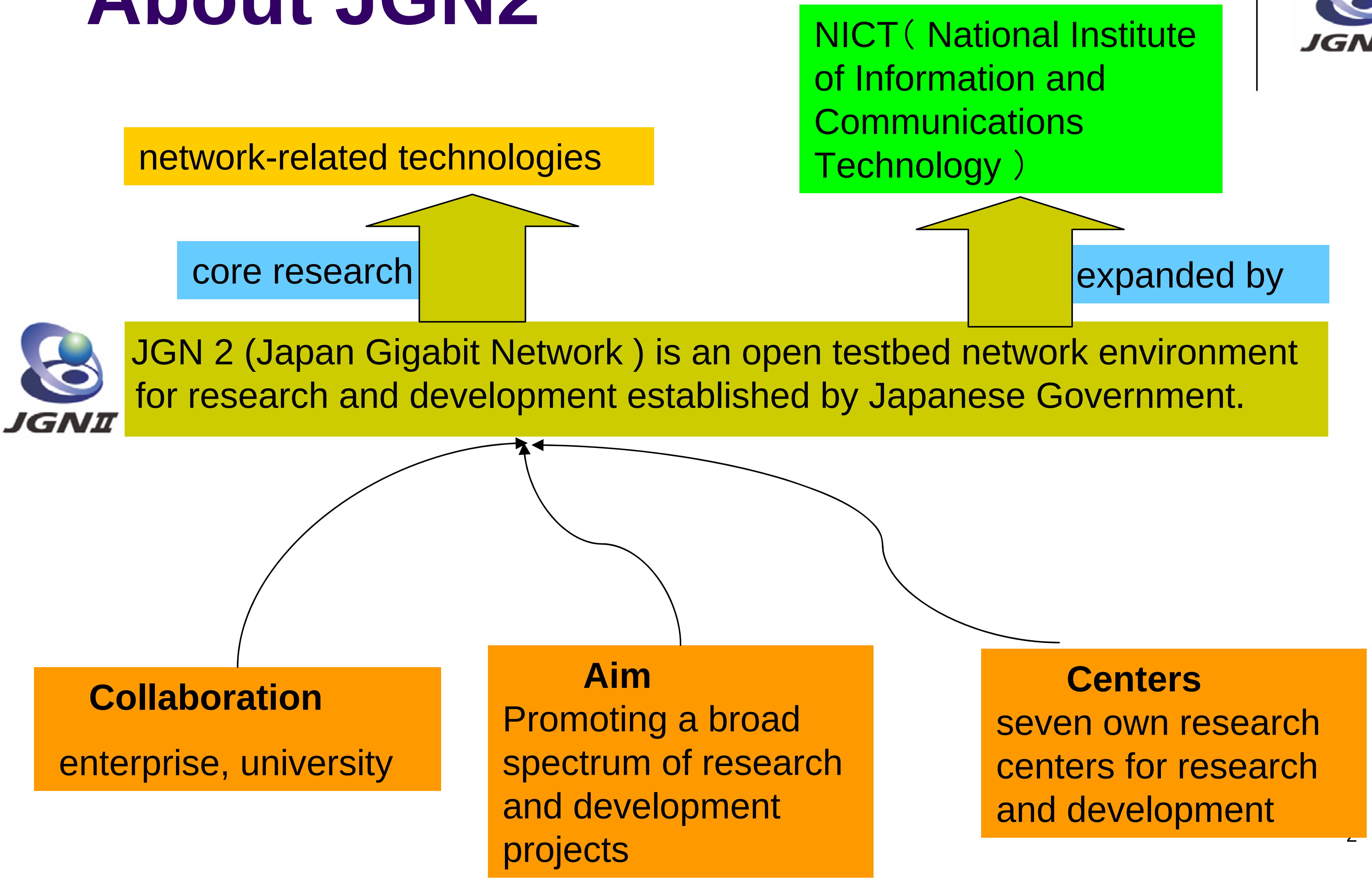
Tiled Display Activity Report in JGN2 Osaka Research Center

JGN2 research center , Osaka
YANG SHUO

About JGN2



network-related technologies

core research

NICT（ National Institute of Information and Communications Technology ）

expanded by

JGN 2 (Japan Gigabit Network) is an open testbed network environment for research and development established by Japanese Government.

Collaboration

enterprise, university

Aim

Promoting a broad spectrum of research and development projects

Centers

seven own research centers for research and development

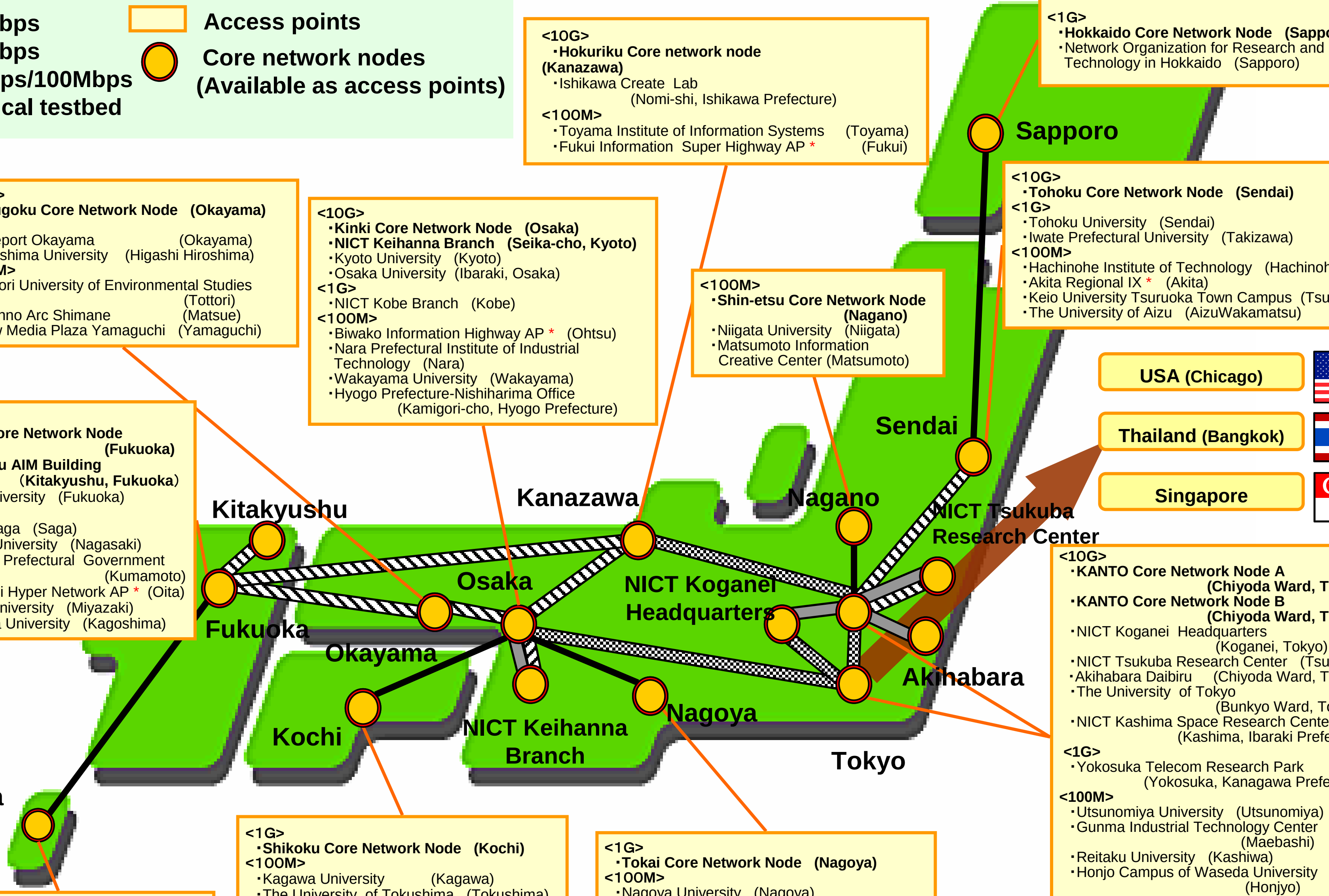
Outline of JGN2 Network

Aug. 31, 2006

[Legends]

▦ 20Gbps
▨ 10Gbps
━ 1Gbps/100Mbps
▬ Optical testbed

▭ Access points
● Core network nodes
(Available as access points)



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・**Hokuriku Core network node (Kanazawa)**
・Ishikawa Create Lab (Nomi-shi, Ishikawa Prefecture)
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・Toyama Institute of Information Systems (Toyama)
・Fukui Information Super Highway AP * (Fukui)

<1G>
・**Hokkaido Core Network Node (Sapporo)**
・Network Organization for Research and Technology in Hokkaido (Sapporo)

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・**Chugoku Core Network Node (Okayama)**
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・Teleport Okayama (Okayama)
・Hiroshima University (Higashi Hiroshima)
<100M>
・Tottori University of Environmental Studies (Tottori)
・Techno Arc Shimane (Matsue)
・New Media Plaza Yamaguchi (Yamaguchi)

<10G>
・**Kinki Core Network Node (Osaka)**
・**NICT Keihanna Branch (Seika-cho, Kyoto)**
・Kyoto University (Kyoto)
・Osaka University (Ibaraki, Osaka)
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・NICT Kobe Branch (Kobe)
<100M>
・Biwako Information Highway AP * (Ohtsu)
・Nara Prefectural Institute of Industrial Technology (Nara)
・Wakayama University (Wakayama)
・Hyogo Prefecture-Nishiharima Office (Kamigori-cho, Hyogo Prefecture)

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・**Shin-etsu Core Network Node (Nagano)**
・Niigata University (Niigata)
・Matsumoto Information Creative Center (Matsumoto)

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・**Tohoku Core Network Node (Sendai)**
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・Tohoku University (Sendai)
・Iwate Prefectural University (Takizawa)
<100M>
・Hachinohe Institute of Technology (Hachinohe)
・Akita Regional IX * (Akita)
・Keio University Tsuruoka Town Campus (Tsuruoka)
・The University of Aizu (AizuWakamatsu)

USA (Chicago)

Thailand (Bangkok)

Singapore

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・**Kyushu Core Network Node (Fukuoka)**
・**Kitakyushu AIM Building (Kitakyushu, Fukuoka)**
・Kyushu University (Fukuoka)
<100M>
・NetCom Saga (Saga)
・Nagasaki University (Nagasaki)
・Kumamoto Prefectural Government (Kumamoto)
・Toyonokuni Hyper Network AP * (Oita)
・Miyazaki University (Miyazaki)
・Kagoshima University (Kagoshima)

<10G>
・**KANTO Core Network Node A (Chiyoda Ward, Tokyo)**
・**KANTO Core Network Node B (Chiyoda Ward, Tokyo)**
・NICT Koganei Headquarters (Koganei, Tokyo)
・NICT Tsukuba Research Center (Tsukuba)
・Akihabara Daibiru (Chiyoda Ward, Tokyo)
・The University of Tokyo (Bunkyo Ward, Tokyo)
・NICT Kashima Space Research Center (Kashima, Ibaraki Prefecture)
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・Yokosuka Telecom Research Park (Yokosuka, Kanagawa Prefecture)
<100M>
・Utsunomiya University (Utsunomiya)
・Gunma Industrial Technology Center (Maebashi)
・Reitaku University (Kashiwa)
・Honjo Campus of Waseda University (Honjyo)
・Yamanashi Prefectural Open Center for R&D (Chuo)

<1G>
・**Okinawa Core Network Node (Naha)**

<1G>
・**Shikoku Core Network Node (Kochi)**
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・Kagawa University (Kagawa)
・The University of Tokushima (Tokushima)
・Ehime University (Matsuyama)
・Kochi University of Technology (Kami, Kochi Prefecture)

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・**Tokai Core Network Node (Nagoya)**
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・Nagoya University (Nagoya)
・University of Shizuoka (Shizuoka)
・Softopia Japan (Ogaki)
・Mie Prefectural College of Nursing (Tsu)

*IX: Internet eXchange AP: Access Point

demonstration at PRAGMA 11 (Osaka)

by Applying the research and development technology in Osaka RC, and cooperating with (NICT,Osaka U.,NECTEC,NEC,Fujitsu,KDDI,etc) ,we delivered the speech of the president of Miyahara Osaka University from Osaka University Thai center to Osaka University graduate school information department of scientific research conference room in the high-definition television quality.

PRAGMA

PACIFIC RIM APPLICATIONS & GRID MIDDLEWARE ASSEMBLY

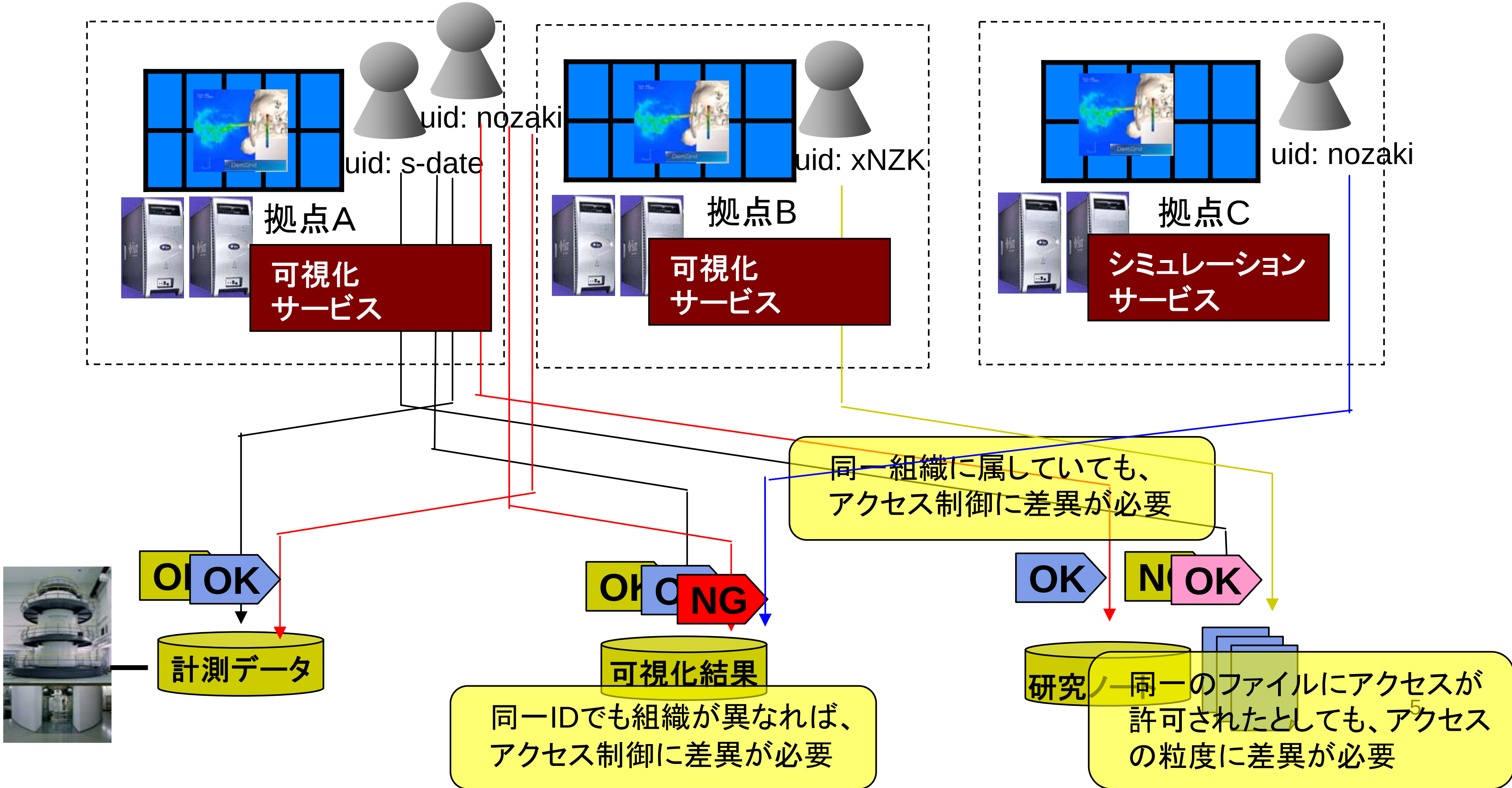
COLLABORATION OVERVIE

PRAGMA SPONSORS

国際研究コミュニティPRAGMAが発行する活動報告集

Necessity of a security source management

- for offering the distributed calculation resource and the data resource to the user in two or more location, The access control and security technology is important. TDW operation is difficult by command.
- The prior technology(acl) is insufficient because of the scale and diversity.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拠点A
可視化
サービス
uid: xNZK
拠点B
可視化
サービス
uid: nozaki
拠点C
シミュレーション
サービス
OI
OK
計測データ
OK
O
NG
可視化結果
OK
N
OK
研究ノート

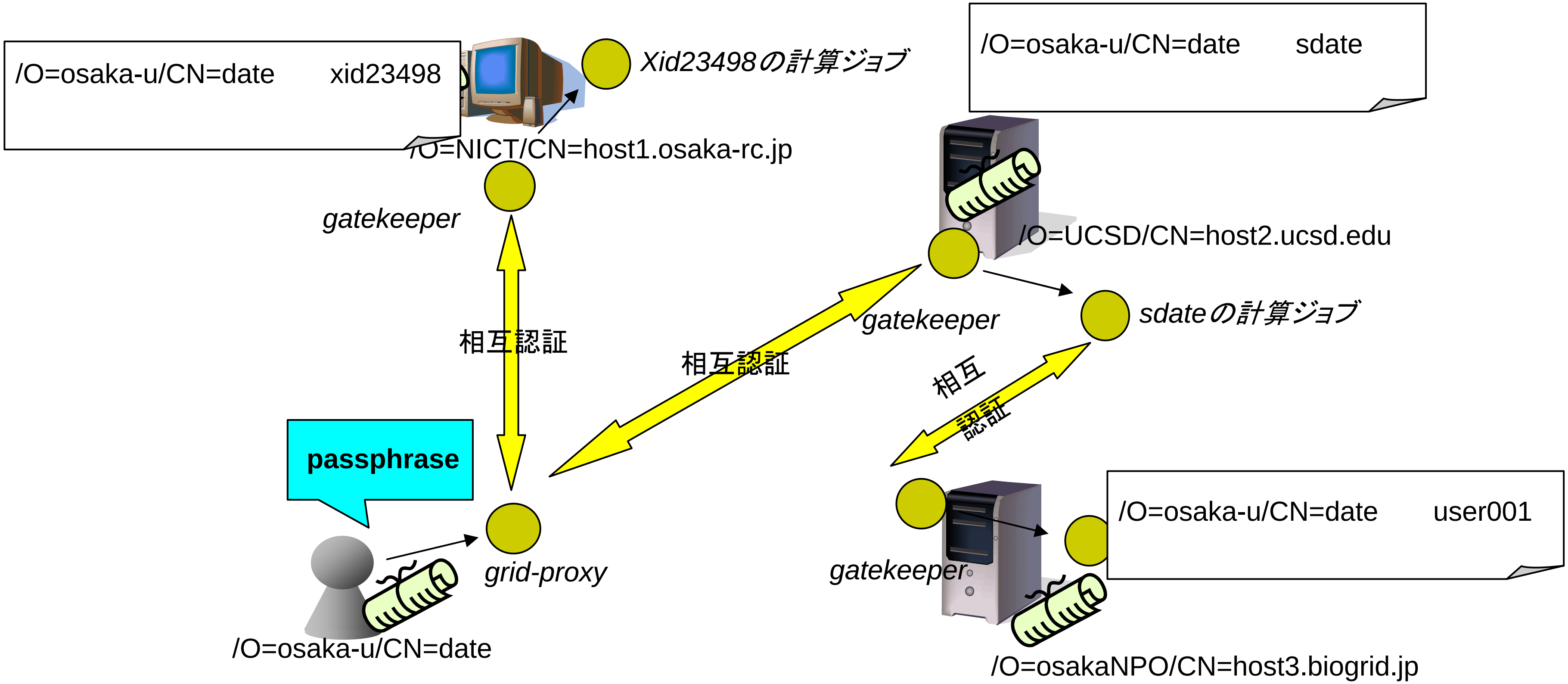
同一組織に属していても、
アクセス制御に差異が必要

同一IDでも組織が異なれば、
アクセス制御に差異が必要

同一のファイルにアクセスが
許可されたとしても、アクセス
の粒度に差異が必要

GSI (Grid Security Infrastructure)

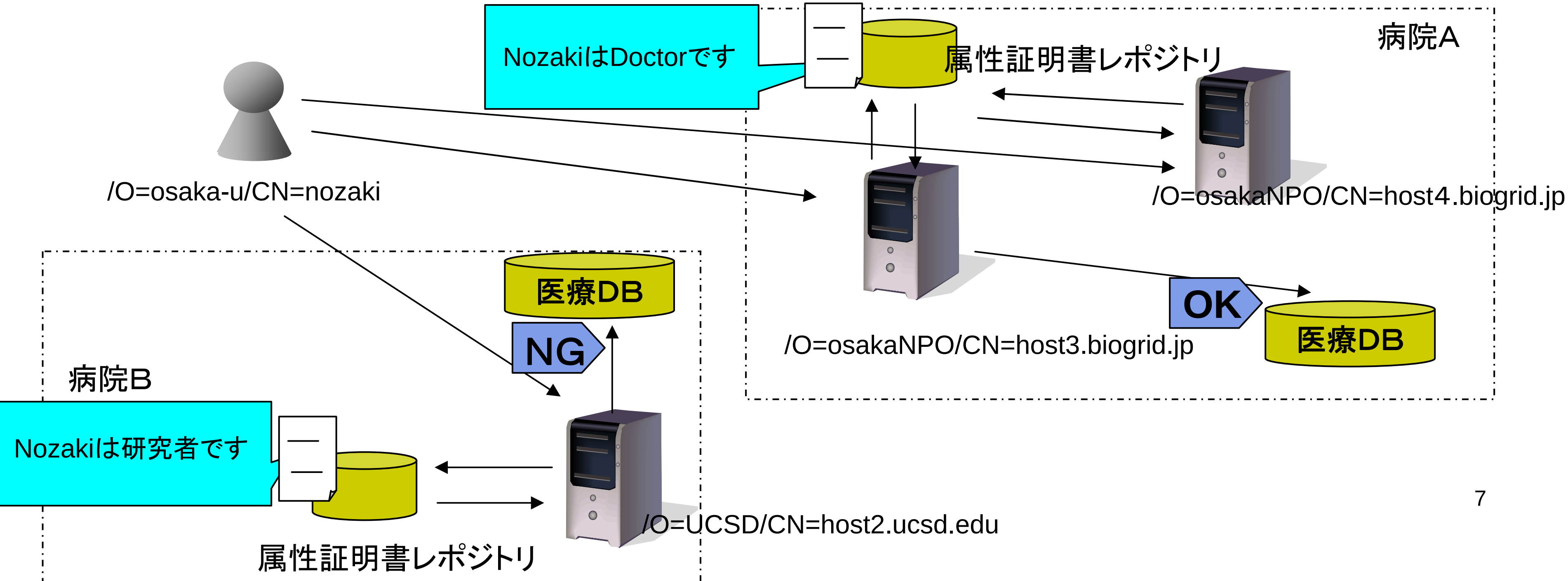
- **Public key encryption system foundation that has single sign-on function (Public Key Infrastructure)**
  - The user and the computer have X509 electronic certificate that show the identity.
  - Authentication each other using by X509 electronic certificate
  - delegation using mechanism of electronic signature


/O=osaka-u/CN=date xid23498
Xid23498の計算ジョブ
/O=NICT/CN=host1.osaka-rc.jp
gatekeeper
/O=osaka-u/CN=date sdate
/O=UCSD/CN=host2.ucsd.edu
gatekeeper
sdateの計算ジョブ
相互認証
相互認証
相互認証
passphrase
grid-proxy
/O=osaka-u/CN=date
gatekeeper
/O=osaka-u/CN=date user001
/O=osakaNPO/CN=host3.biogrid.jp

ローカルユーザに単にマッピングされる認可手法では、
大規模拠点連携時に発生する多様なセキュリティ要件に対応できない

PERMIS (Privilege and Role Management Infrastructure Standards Validation)

- **Authority management infrastructure based on PMI(Privilege Management Infrastructure)**
  - Authorization that uses X509 attribute certificate
- **RBAC (Role-based Access Control)**Authorization based on Role allocated by user


NozakiはDoctorです
属性証明書レポジトリ
病院A
/O=osaka-u/CN=nozaki
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医療DB
NG
OK
医療DB
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病院B
Nozakiは研究者です
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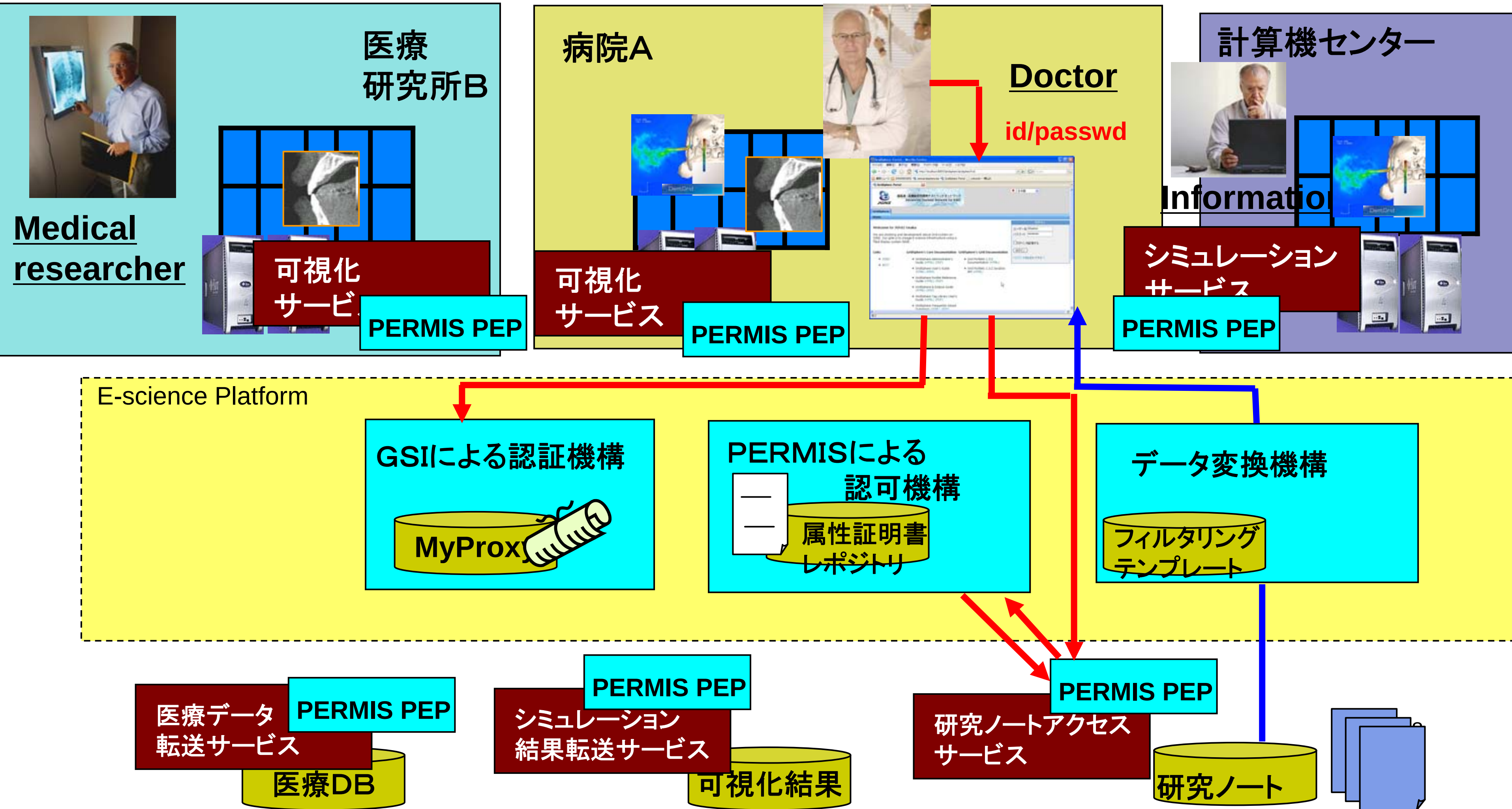
属性証明書レポジトリ

Access control module that is researching and developing in Osaka RC

- access control mechanism for large-scale base date and calculation resource, by cooperating with GSI and PERM seamlessly



医療
研究所B

Medical researcher

可視化
サービ

PERMIS PEP

病院A

Doctor

id/passwd

可視化
サービス

PERMIS PEP

計算機センター

Informatio

シミュレーション
サービス

PERMIS PEP

E-science Platform

GSIによる認証機構

MyProxy

PERMISによる
認可機構

属性証明書
レポジトリ

データ変換機構

フィルタリング
テンプレート

医療データ
転送サービス

PERMIS PEP

医療DB

シミュレーション
結果転送サービス

PERMIS PEP

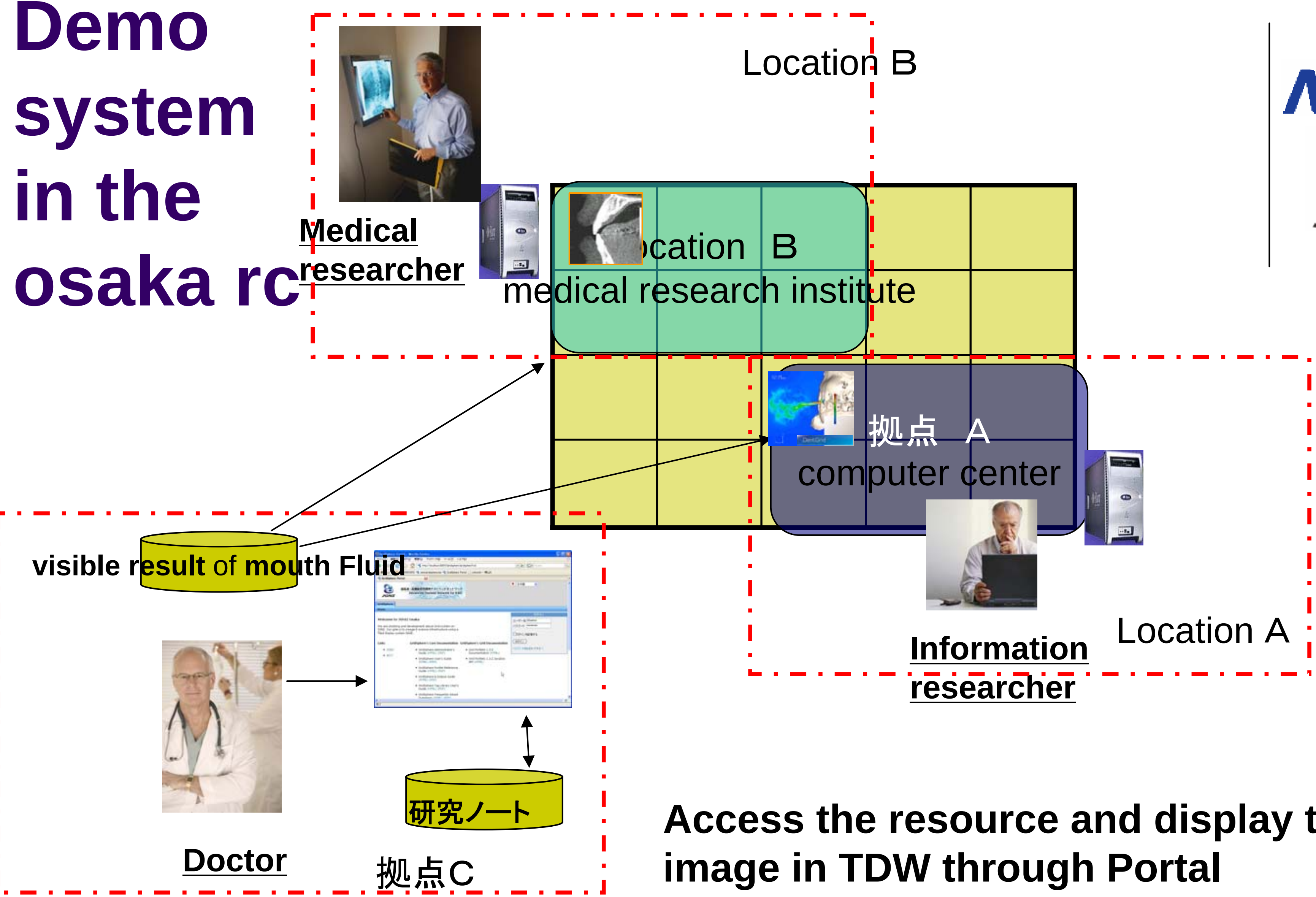
可視化結果

研究ノートアクセス
サービス

PERMIS PEP

研究ノート

Demo system in the osaka rc



Location B

Medical researcher

Location B

medical research institute

拠点 A

computer center

Location A

Information researcher

visible result of mouth Fluid

研究ノート

Doctor

拠点C

hospital

Access the resource and display the image in TDW through Portal

*computer center、medical research institute、hospital

Plan in the next year

- verify The practicality and safety from the viewpoint of the E-science application, and constructs a general visible,decentralized,cooperation middleware module.

- Result report and result use promotion