

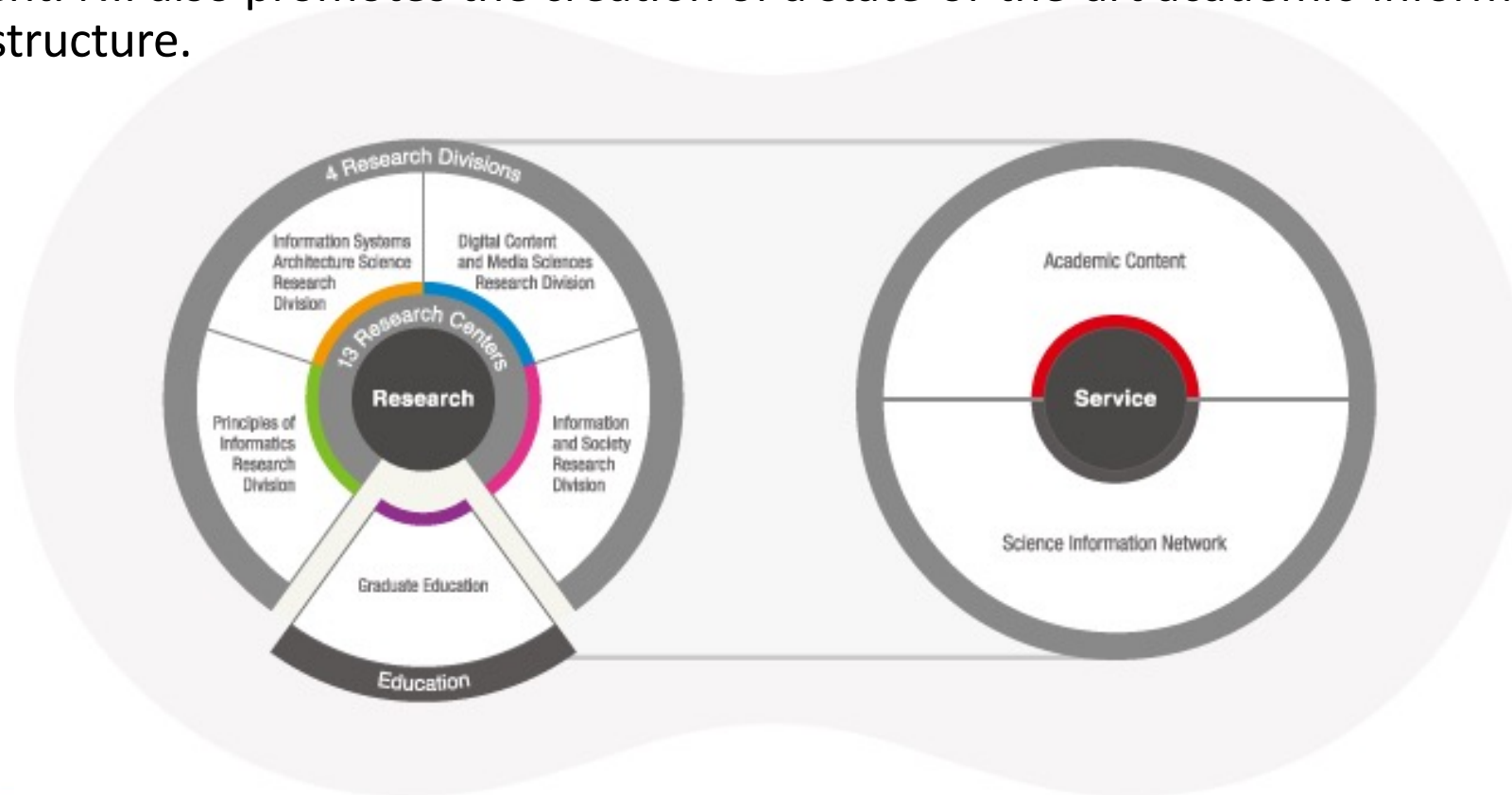
# **Cloud Service Checklist for Research and Education**

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National Institute of Informatics

# National Institute of Informatics (NII)

The National Institute of Informatics (NII) seeks to advance integrated research and development activities in information-related fields, including networking, software, and content. NII also promotes the creation of a state-of-the-art academic-information infrastructure.



# Academic IT Services by NII

## Collaboration and Promotion in Research and Education

### Contents

- ◆ Promotion of academic information circulation and open access
- ◆ Collaborative promotion of institutional repository expansion



### Federated ID management

- ◆ Collaborative enhancement of authentication between universities



### Cloud

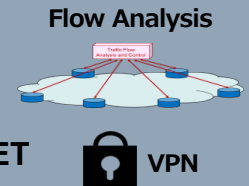
- ◆ enhancement of research and education environment by tailored cloud services
- ◆ Dramatic cost reduction



GakuNin-Cloud  
Direct Connection

### Security

- ◆ Network flow analysis and dynamic control
- ◆ Raise of security level for SINET users



### Network

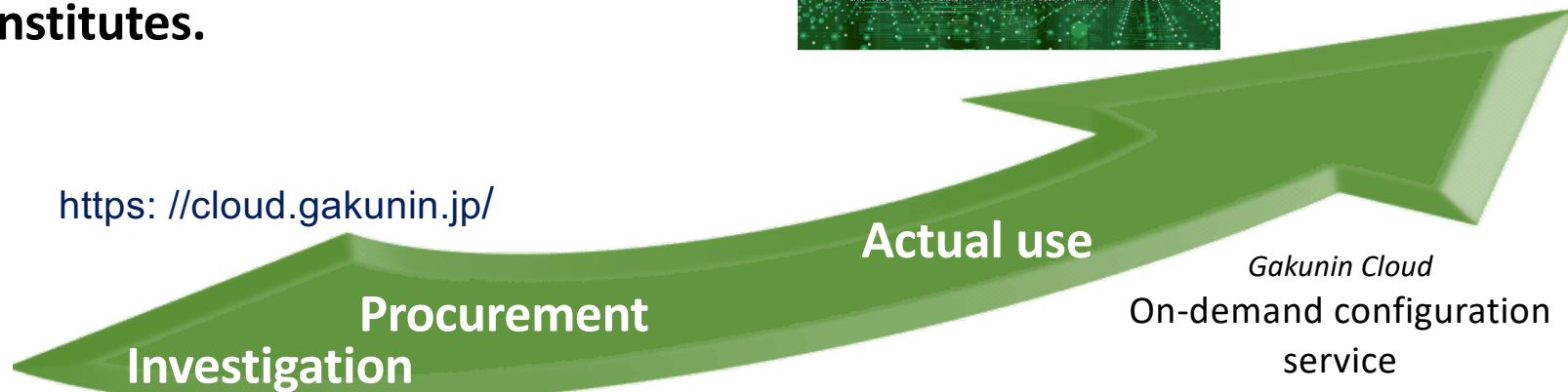
- ◆ Nationwide 100-Gbps backbone network and scalable network expansion
- ◆ High-speed direct international lines to USA, Europe, and Asia
- ◆ Introduction of new technologies such as SDN in response to user needs



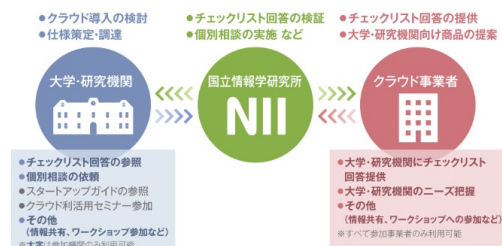
**“Gakunin Cloud” is a generic name of NII’s services supporting cloud adoption and actual use for Japanese universities and research institutes.**



<https://cloud.gakunin.jp/>



*Gakunin Cloud*  
Cloud Adoption Support Service

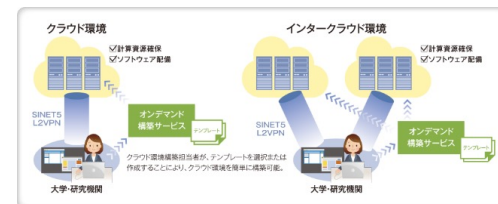


Collecting and sharing Information on selection, adoption, and use of cloud services

*Gakunin Cloud*  
Gateway Service



Portal functions to enable one-stop access to multiple cloud services



Support for configuring system environments for research and education on clouds

# Gakunin Cloud Adoption Support Service

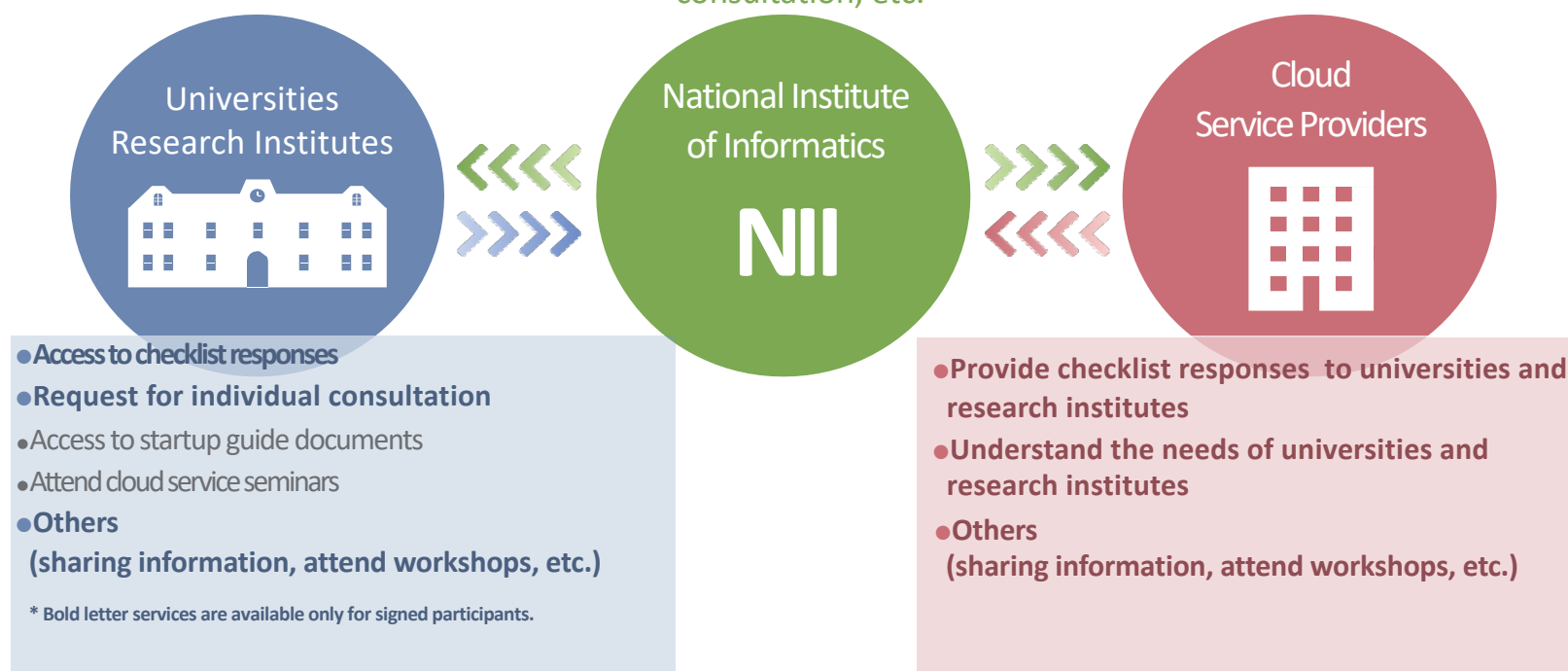


NII's activities to collect, disseminate, and share standard processes and information required when universities and institutes adopt and use cloud services.

- Consider cloud adoption
- Develop specifications, procurement

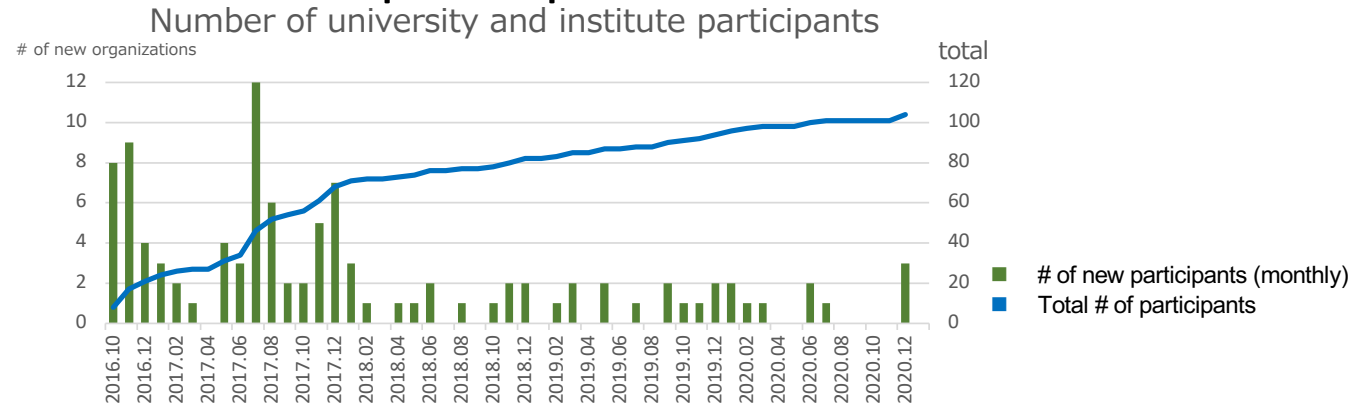
- Verify checklist responses
- Conduct individual consultation, etc.

- Provide checklist responses
- Propose products and services for universities and research institutes



# Participants (as of January 2021)

104 universities and institutes participate and use the service



■ 35 Cloud providers provide responses to the cloud checklist. (Most of leading IaaS providers participate.)

- |                                     |   |
|-------------------------------------|---|
| ■ AZPower                           | ■ NII   |
| ■ Dropbox Japan                     | ■ Sakura Internet                                   |
| ■ Fusic                             | ■ Salesforce.com                                    |
| ■ GMOInternet                       | ■ Secioss   |
| ■ GRCS                              | ■ Directcloud                                       |
| ■ Imperva Japan                     | ■ Topgate   |
| ■ Kaltura                           | ■ IBM Japan   |
| ■ KDD Web Communications            | ■ Oracle Japan                                      |
| ■ NTT Communications                | ■ Microsoft Japan                                   |
| ■ ServiceNow Japan                  | ■ Nekojarashi                                       |
| ■ Assistmicro                       | ■ Fuji Xerox  |
| ■ Amazon Web Services Japan         | ■ Fujitsu   |
| ■ Eastgate                          | ■ Fujitsu Cloud Technologies                        |
| ■ Simul and Technical Communication | ■ Hokkaido Telecommunication Network                |
| ■ Itochu Techno Solutions           | ■ Hokkaido University Information Initiative Center |
| ■ Exgen networks                    | ■ McAfee  |
| ■ CloudAce (GCP reseller)           | ■ Mirai Communication network                       |
| ■ ClassMethod                       |   |

# Cloud Checklist Ver.5.0

- Adapt to new technical requirements and service trends
  - ✓ Based on opinions from universities and experiences of developing use-case-oriented checklists
- Newly added checkpoints
  - ✓ Integration services, managed services, log analysis and threat detection, privacy policy
- Consolidation of multiple checkpoints

	Checkpoints	# of detailed checkpoints	Contents
A	Overview	4	Service name, service overview, etc.
B	Historical records	2	Number of customers, service launch date, etc.
C	Contracts	8	Payment method, license system, etc.
D	Authorization/authentication	3	Shibboleth and Gakunin support, multi-factor authentication, etc.
E	Availability/reliability	4	Service availability, planned outage, etc.
F	Customer support	5	Help desk, support turnaround time, etc.
G	Network and communication	9	SINET connection, network encryption, etc.
H	Management functions	12	Dashboards, statistics, etc.
I	Software environment	4	Supported software, software stack, proven applications, etc.
J	Scalability	5	Resource limit, limit of number of instances, etc.
K	Data center	7	Physical security, data center location, etc.
L	Security	11	Security policy, incident response, etc.
M	Data management	9	Data redundancy, log management, etc.
N	Backup	6	Backup service, restore etc.
O	Trustworthiness of provider	6	Subcontracting to third parties, personal information protection, etc.
P	Terms and conditions	6	Responsibility sharing, liability for damages, etc.
Q	Data administration	3	Rights of data usage, data sanitization, etc.
R	Data migration	4	Support for data migration, compatibility of images, etc.
S	Certification	4	Business continuity, security, etc.

# Examples of Checklist Items

## ● Reliability

SLA	✓ Is service level agreement published? • the published value
Data durability	✓ Is data durability is published? • the published value
Scheduled maintenance	✓ Is scheduled maintenance planned? • the frequency and the average down time
Notification of maintenance	✓ Is the procedure for notifying maintenance information published?

## ● Data and log management

Data redundancy	✓ Are data redundantly stored? • methods for data redundancy
Access control (file)	✓ Can the user configure access control for files? • methods of access control
Encryption	✓ Are stored data encrypted? • methods for encryption
Log	✓ Can the user access log files (e.g. a system log, a security log, an access log) ? • a list of log files



# Examples of Checklist Items (cont'd)

## ● Data center

Data center location	✓ Is a country that hosts user data published? • the name of country
Data center location	✓ Can the user designate a country or a region of datacenter to use?

## ● Terms and conditions

Governing law	✓ Is the contract governed by and interpreted in accordance with the laws of Japan? ✓ the name of country (if it is governed by a foreign law)
Jurisdiction	✓ Is a court with jurisdiction determined? • the name of the court

## ● Misc.

SINET connection	✓ Are DCs directly connected to SINET?
SAML	✓ Authentication via SAML? ✓ Gakunin ready?
Interoperability	✓ Does the service provide APIs that have interoperability to other cloud services?

- [CSVファイルダウンロード](#)

[illegible]

# Use-case-oriented Checklists

Current cloud checklist has more than 100 checkpoints.

- Comprehensive, but sometimes hard to use

Currently we are focusing on providing condensed checklists with related documents targeted to specific use cases:

- online meeting services
- BCP/DR
- genome research
- cloud procurement
- security policy
- HPC services

# Checklist for Online Meeting Services

- check items selected from the original checklist
- additional items related to functionalities of online meeting services

Category	id	Detailed checkpoints	Response type
Network and communication	G10	End-to-end encryption (E2EE)	Yes / No (with detailed description)
Software integration	OA1	LTI support	Yes / No
	OA2	Integration with LMS (including proven cases)	Yes / No (with detailed description)
	OA3	Integration of individual licenses	Yes / No
Online meeting functionality	OB1	Maximum number of concurrent participants	description
	OB2	Network bandwidth requirement	description
	OB3	Video recording	Yes / No (with detailed description)
	OB4	Attendance registration	Yes / No (with detailed description)
	OB5	Attendance restriction	Yes / No (with detailed description)

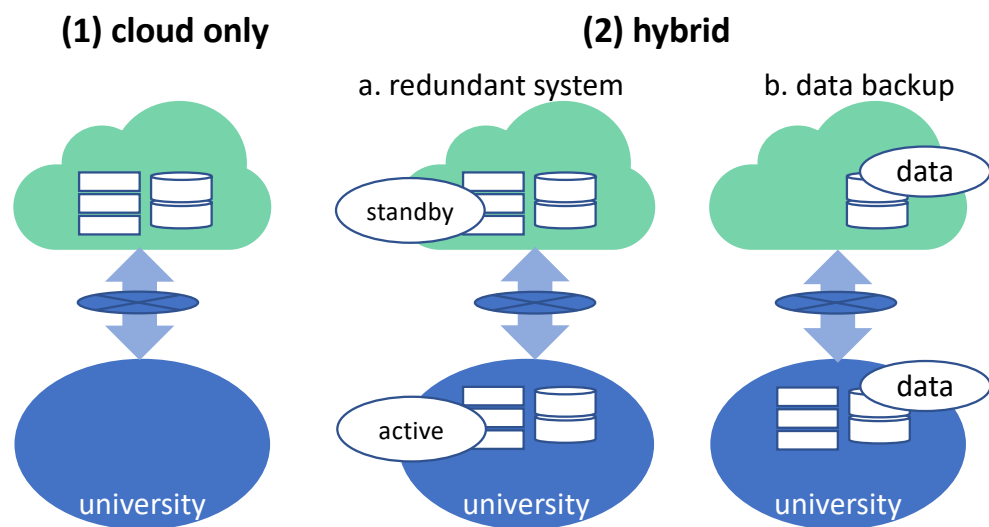
## Responded services

- Amazon Chime (published in July 2020)
- Cisco Webex Meetings (published in July 2020)
- Google Meet (published in July 2020)
- Microsoft Teams (published in July)
- NTT SMART Communication & Collaboration Cloud (published in May 2020)
- Zoom (published in August 2020)

# Checklist for BCP/DR

- check items selected from the original checklist

✓ We defined 3 cloud usage scenarios for BCP/DR and selected items for each scenario.



## (1) cloud only

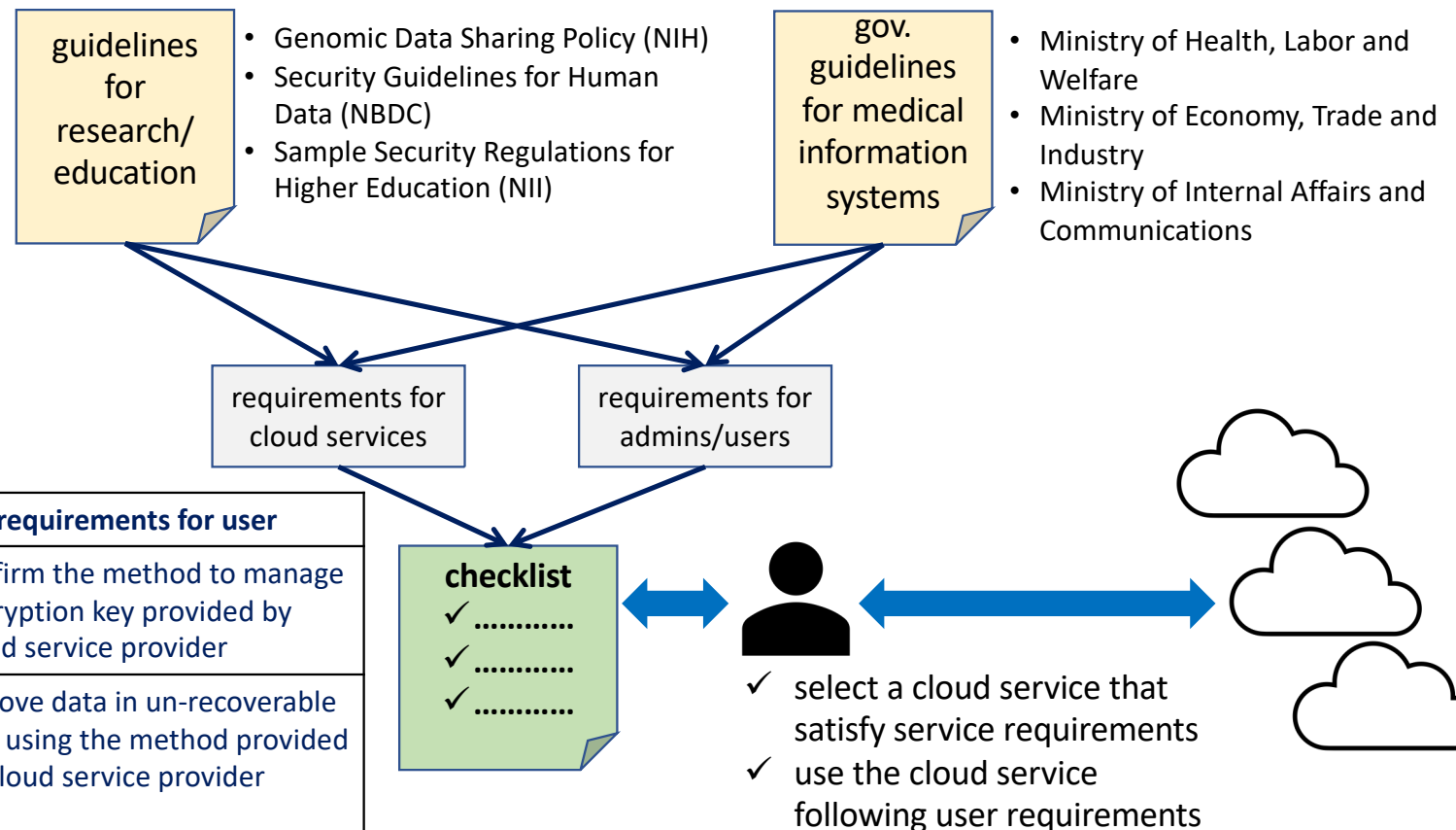
check item	No	detailed check item	answer method	correspondence [%]
server control	H-7	failover	Yes / No	64.7
backup	N-1	backup services	Yes / No	51.3
	N-2	automatic backup	Yes / No	48.7
	N-3	version management	Yes / No	48.7
	N-4	backup to multiple datacenters	Yes / No	20.5
	N-5	backup restore	Yes / No	46.2
	N-6	security level of backup data	Yes / No	46.2

## (2) hybrid

check item	No	detailed check item	answer method	correspondence [%]
network	G-1	SINET direct connection	Yes / No	38.5
datacenter	K-7	location of datacenter	Yes / No	71.8
	K-8	region/zone designation	Yes / No	46.2

# Checklist for Genome Research

- new checklist for selecting/using suitable cloud services satisfying (data management) requirements
- assuming store/analyze human genome data on cloud



requirements for cloud service providers	requirements for user
✓ show users the method to manage encryption key	✓ confirm the method to manage encryption key provided by cloud service provider
✓ show users the method to remove data in un-recoverable way	✓ remove data in un-recoverable way using the method provided by cloud service provider
✓ guarantee the removed data is un-recoverable (Issuing a certificate of data removal is preferred. )	

# Activities Related to COVID-19



Collecting and disseminating information on university support programs by cloud providers to cope with COVID-19 (April 2020)

- Dropbox Japan, Assist Micro, AWS, Sakura Internet, Salesforce.com, Direct Cloud, IBM Japan, Oracle Japan, Fujitsu

Online meeting checklist (May 2020)

Online seminars and events (July 2020-)

Collecting experiences of cloud adoption in universities to cope with COVID-19 (September 2020-) such as:

- Short-term launch of an online education or telework environment
- Absorption of sudden increase of network and system loads and storage capacity

# Cloud Services with Special Support during COVID-19 outbreak



	Remote work/remote learning	Online meeting	File sharing	DaaS	Cloud resource (IaaS)
Dropbox Japan			X		
Assist Micro	X				
Amazon Web Services Japan	X	X	X	X	X
Sakura Internet					X
Salesforce.com	X				
Direct Cloud	X				
IBM Japan	X		X	X	
Oracle					X
Fujitsu				X	

NII asked cloud service providers to provide information on special support and disseminates collected information to universities in Japan via NII web site now.



2020/04/01

## **Cisco and National Institute of Informatics support distance learning for universities, junior colleges, and colleges of technology across the country- Cisco offers a 180-day free Cisco Webex Higher Education Special Support Program-**

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Cisco Systems GK (President and CEO: Dave West, Minato-ku, Tokyo, hereinafter Cisco) is a National Institute for Information Systems, National Institute of Informatics (Director: Yu Kitsuregawa, Chiyoda-ku, Tokyo, Japan). With the cooperation of NII, Cisco Webex system, Cisco Webex, is provided free of charge for 180 days as a basis for distance learning to universities, junior colleges, and colleges of technology (hereinafter universities) We offer special support programs for higher education institutions. Reception will start from April 6th.

2020/04/24

## **NTT BizLink and National Institute of Informatics provide secure remote video conferencing services for employees of universities, research institutions, and medical institutions nationwide**

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NTT BizLink Co., Ltd. (President: Takashi Oi, Head Office: Bunkyo-ku, Tokyo, hereafter NTT BizLink) is an inter-university research institution corporation National Institute of Informatics (Director: With the cooperation of Yu Kitsuregawa, Chiyoda-ku, Tokyo, NII), a faculty meeting/examination committee of faculty/researchers of universities and research institutes nationwide, a meeting dealing with sensitive information among medical staff of medical institutions, etc. , Provides video conferencing services for conferences that require secure execution from remote environments.

# Summary



NII supports cloud adoption and use in Japanese academic community.

**Cloud Service Checklist** helps administrators to discuss cloud adoption and select suitable cloud services.

- The checklist Ver.5.0 is now available on the web site.
- Responses from 35 cloud service providers (passed reviews by NII) are available to registered administrators.
- NII developed use-case-oriented checklists: BCP/DR, online meeting, genome research ...

Actions to rapid increase of cloud adoption due to **COVID-19**

## Acknowledgements

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