Introduction to INFED (INFLIBNET Access Management Federation)

-Anywhere Anytime Access of e-Resources

INFLIBNET Centre

E-Resources access issue

Access is restricted within the confine of a given university campus.

Although, usage of e-resources is satisfactory, access to e-resources are restricted to university campuses due to lack of proper authentication mechanism

Ideally authorised user should be to access e-resources from his / her campus, home or even while travelling

Solution requires setting-up of proper user authentication and access control mechanism ensuring trust relationship between publisher, identity providing agency and the user institution
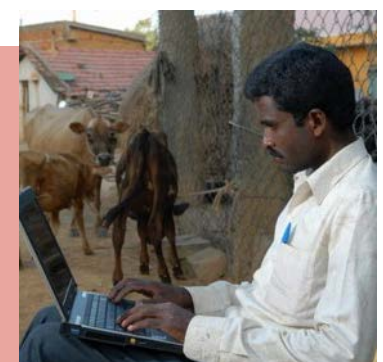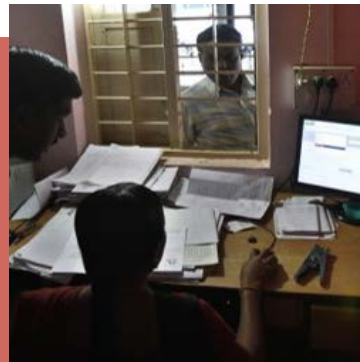
Attempted to solve with Federated Access Management
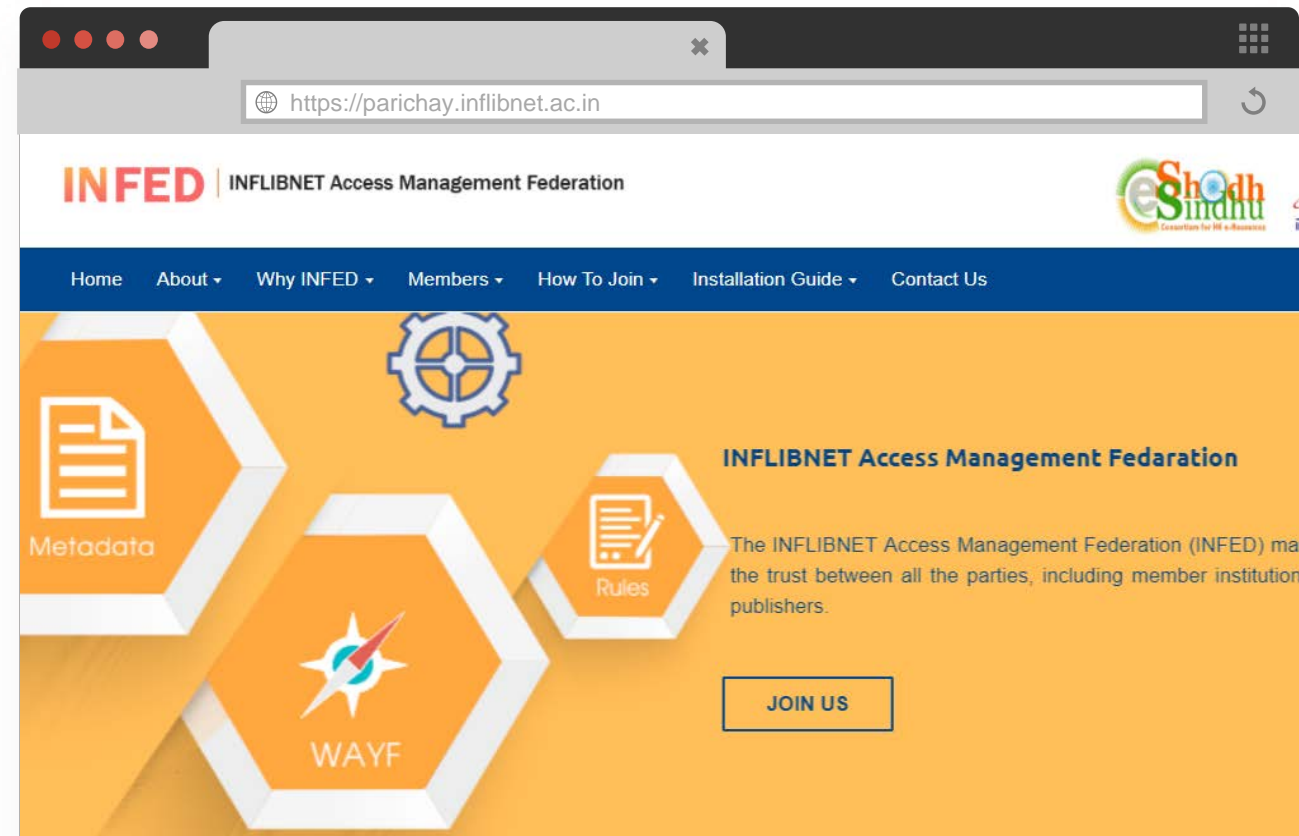
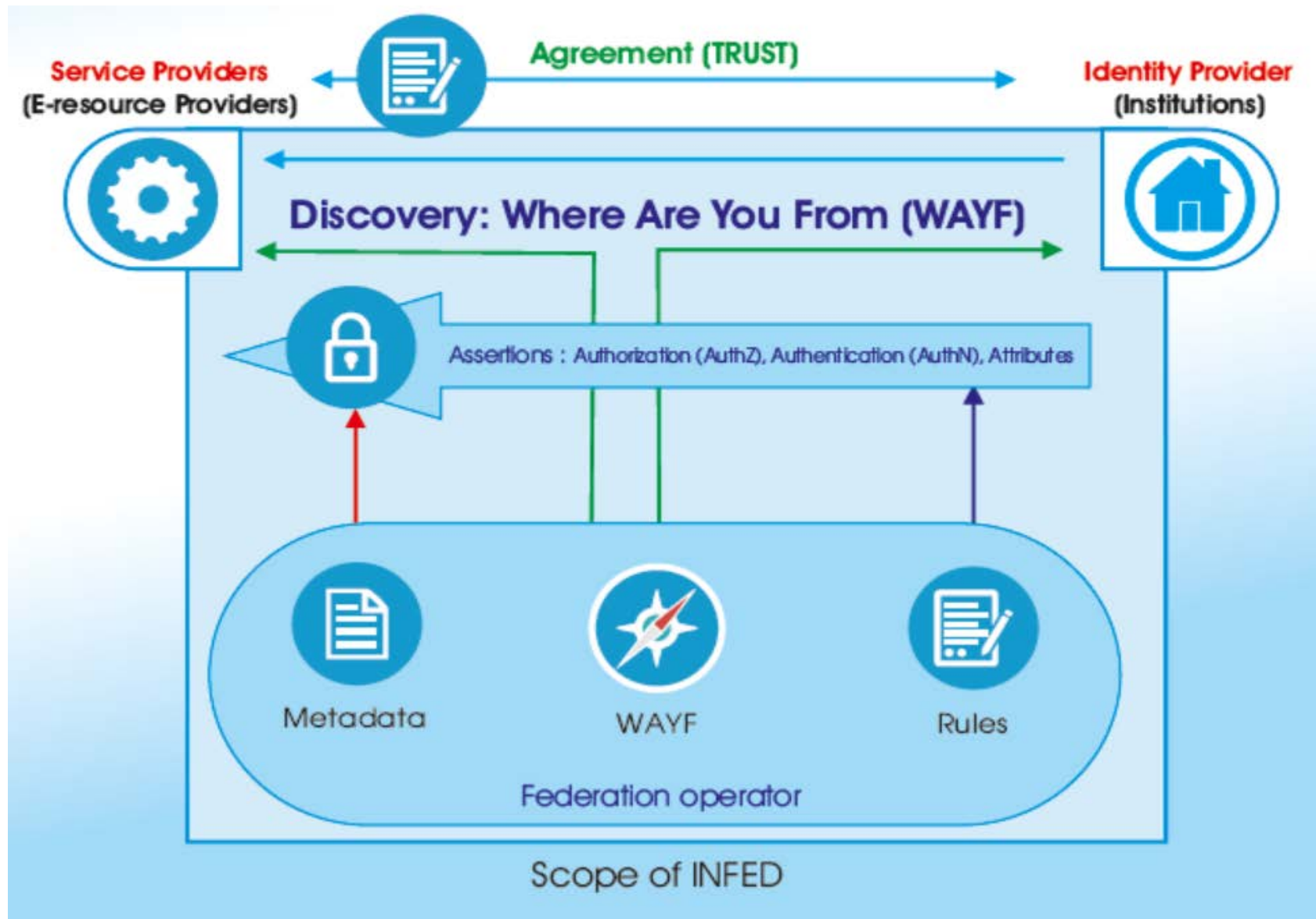INFED (INFLIBNET Access Management Federation)

About Us

INFLIBNET Access Management Federation (INFED), the **first and only Federation in India,** that has adopted Shibboleth (a SAML based) open source software, for authenticating authorized users from colleges and universities and provide them seamless access to e-resources from anywhere, anytime. The INFLIBNET Centre, as one of its core mandates, provides access to scholarly e-resource to universities and colleges in India under e-ShodhSindhu initiative of the Ministry of Human Resource Development (MHRD).

The INFED has been set-up as a centralized entity to coordinate with member institutions in the process of implementation of user authentication and access control mechanism distributed across participating institutions using standardized rules and metadata for exchange of attributes.
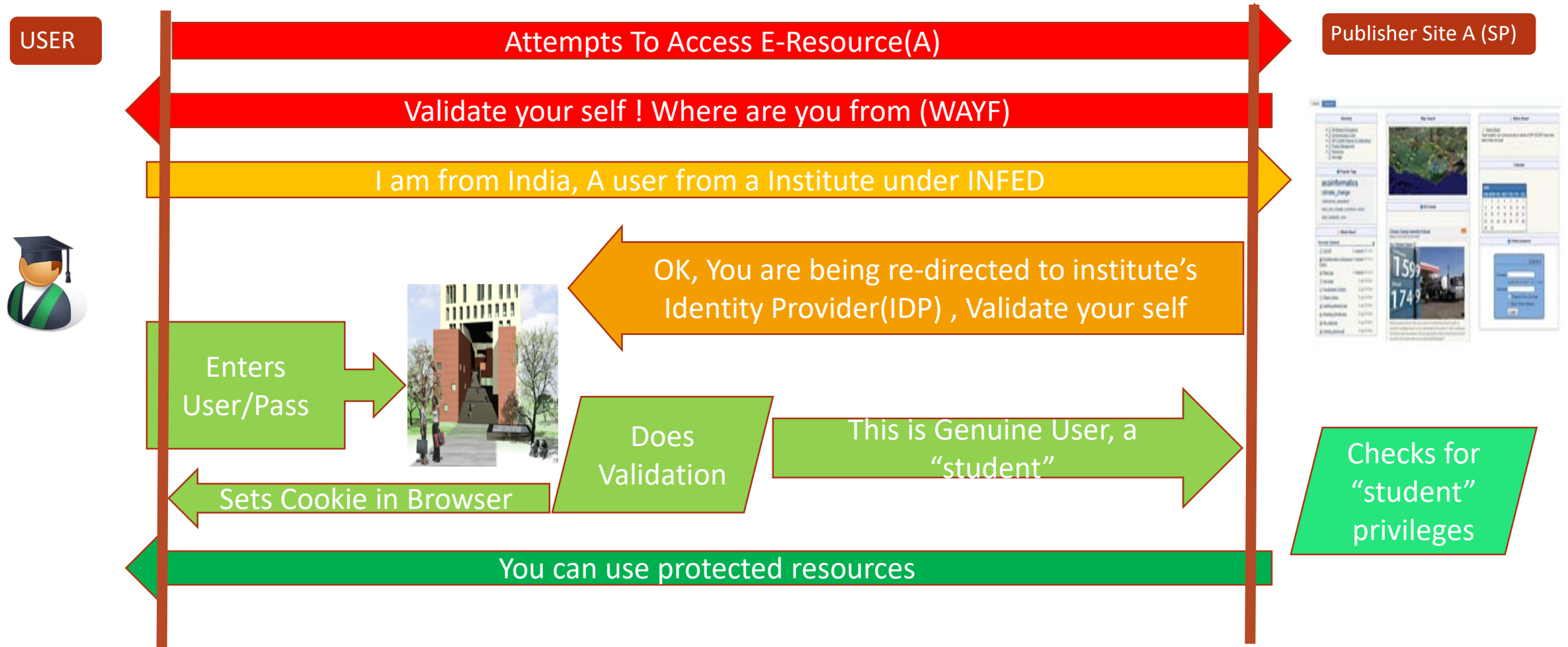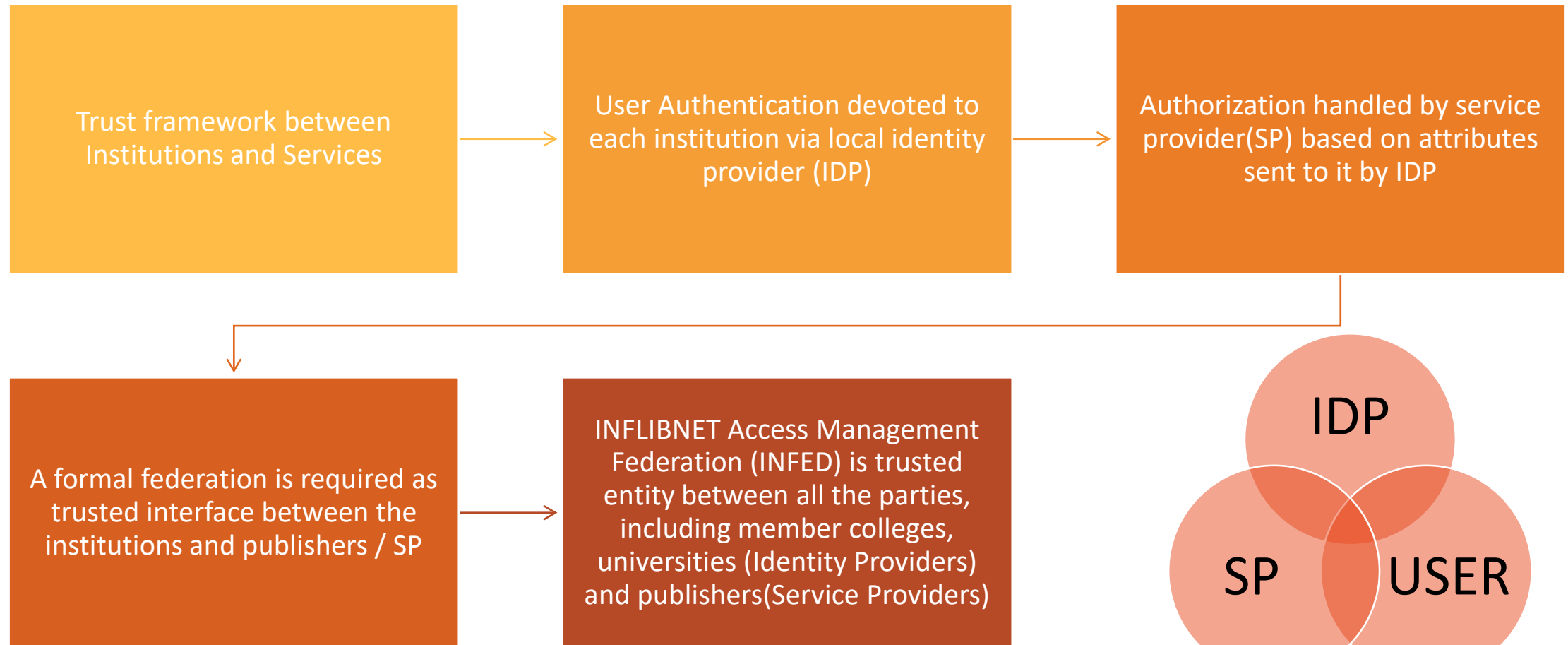
infed@inflibnet.ac.in

Parichay.inflibnet.ac.in

How Federated Access Works

USER

Publisher Site A (SP)

Attempts To Access E-Resource(A)

Validate your self ! Where are you from (WAYF)

I am from India, A user from a Institute under INFED

OK, You are being re-directed to institute's Identity Provider(IDP) , Validate your self

Enters User/Pass

Does Validation

This is Genuine User, a "student"

Sets Cookie in Browser

Checks for "student" privileges

You can use protected resources

Attempted to solve with Federated Access Management

Trust framework between Institutions and Services

User Authentication devoted to each institution via local identity provider (IDP)

Authorization handled by service provider(SP) based on attributes sent to it by IDP

A formal federation is required as trusted interface between the institutions and publishers / SP

INFLIBNET Access Management Federation (INFED) is trusted entity between all the parties, including member colleges, universities (Identity Providers) and publishers(Service Providers)

IDP

SP

USER

How it Works?

Institution asks user to authenticate

User Authenticates

Publishers ask Institution to vouch for user

This visitor is a student

Publisher grants access

Students visit Publisher's Website

Institute

Student

Publisher

Single Sign-On (SSO)

"One Login, Many Services" - users can access number of services by authenticating themselves only once.

Features of SSO are as follows,

    (i) Mitigate risk for access to 3rd-party sites (user passwords not stored or managed externally),

    (ii) Minimal Disclosure of Identity,

    (iii) Time saving for entering passwords different service providers,

    (iv) Cost saving for managing IT helpdesk for password issues

It shares centralized authentication servers such as LDAP, Kerberos, Active Directory, etc. It will ensure that users do not have to actively enter their credentials more than once else explicitly specified at time of first login.

For example, Google Apps, Facebook Login, Linked In and Microsoft Live ID provide centralized authentication for third-party web applications where users can log in using their existing identities.

INFED Members

INFED Members

Institutional Members (110)

- Acharya Nagarjuna University
- Alagappa University *
- Ambedkar University Delhi *
- Assam University
- Avinashilingam University *
- Bharathiar University
- Bharathidasan University *
- Bharati Vidyapeeth Deemed University, Pune *
- BPS Mahila Vishwavidyalaya
- Central university of kashmir
- Central University of Kerala
- Central University of Punjab
- Central University of Rajastan
- Central University of Tamilnadu *
- E.G.S Pillay Engineering College, Tamil Nadu
- Gandhigram Rural Institute *
- Gurunanak Dev University
- IIMA *
- IISER Pune
- IISER Tirupati
- IIT Guwahati *
- IIT-BBS
- Indira Group of Institutes, Pune
- INTEGRAL UNIVERSITY

- ISEC(Institute for Social and Economic Change)
- Jawaharlal Nehru University
- Kameshwar Singh Darbhanga Sanskrit University
- Kavikulaguru Kalidas Sanskrit University
- M S University
- Madurai Kamaraj University*
- Maharshi Dayanand University, Rohtak
- Mazharul Uloom College
- National Institute for Research in Tuberculosis *
- National Law School of India University, Bangalore
- National Law University, Odisha *
- NIT Rourkela
- Periyar University
- Punjab University
- Shivaji University, Kolhapur *
- South Asian University *
- Sri Padmavathi Mahila Visvavidyalayam
- Sri Venkateswara University, Tirupati
- Tumkur University
- University of Calicut
- Veer Surendra Sai University of Technology
- Vidyasagar University *

* On Production

Service Providers (35)

- ACM Digital Library
- American Chemical Society
- American Institute of Physics
- Annual Reviews
- ASTM Standards + Digital Library
- Cambridge University Press
- Emerald Publishing
- Institute of Physics
- JSTOR
- Springer Link
- Taylor and Francis
- Web of Science
- Wiley and etc.

Inter-Federation
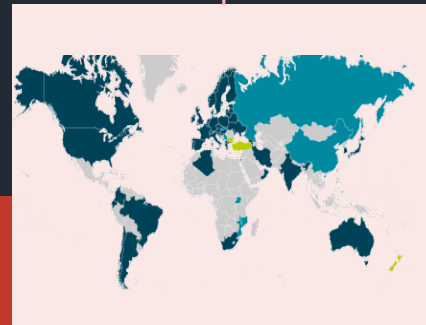
> **Inter-federation:**

  ❖ INFED is part of an inter-federation. Inter-federation is a means for getting access of the other federations resources (If they allowed any restricted content to only, simplifying access to content, services and resources for the global research and education community.

  ❖ eduGAIN, a non-profit entity, is playing a major role to connect all the federation around the world. It helps the researchers and faculty to access online services and manages all the service providers metadata in common place.

  ❖ It is also giving service providers access to a larger pool of users globally, and allows users to access resources of collaborative research institutions.

> **Benefits of Inter-federation**

  ❖ Around the world there are currently more than 50 federations participating in or in the process of joining eduGAIN, with approximately 2,574 identity providers and 1,764 service providers.

  ❖ Inter-federation facility enabled institutions to access the services and resources for the global research and research and education community.

  ❖ Publishers (SP) offer their services to users in different federations, though they can crease their target market and users also get seamless benefit from the wide range of service providers.

Federation and members can get the following benefits:

Federations	• **Maximum services for your institutions – enables them to access services from different federations.** • **Lower administration costs** • **Saves time - no need to make bilateral agreements with other federations.** • **Trustworthy - secure collaboration and exchange of information.**
Service providers	• More users and more business • Minimal cost and support is needed to maintain user identities
Identity providers	• Ashome federation is interconnected with other federations, hence wide range of services to your users • Less administrative work.
User Community (students, researchers, network and proxy administrators)	• Wider range of services than are available nationally or locally.

Inter-Federation Status

Production   Voting-only   Candidate
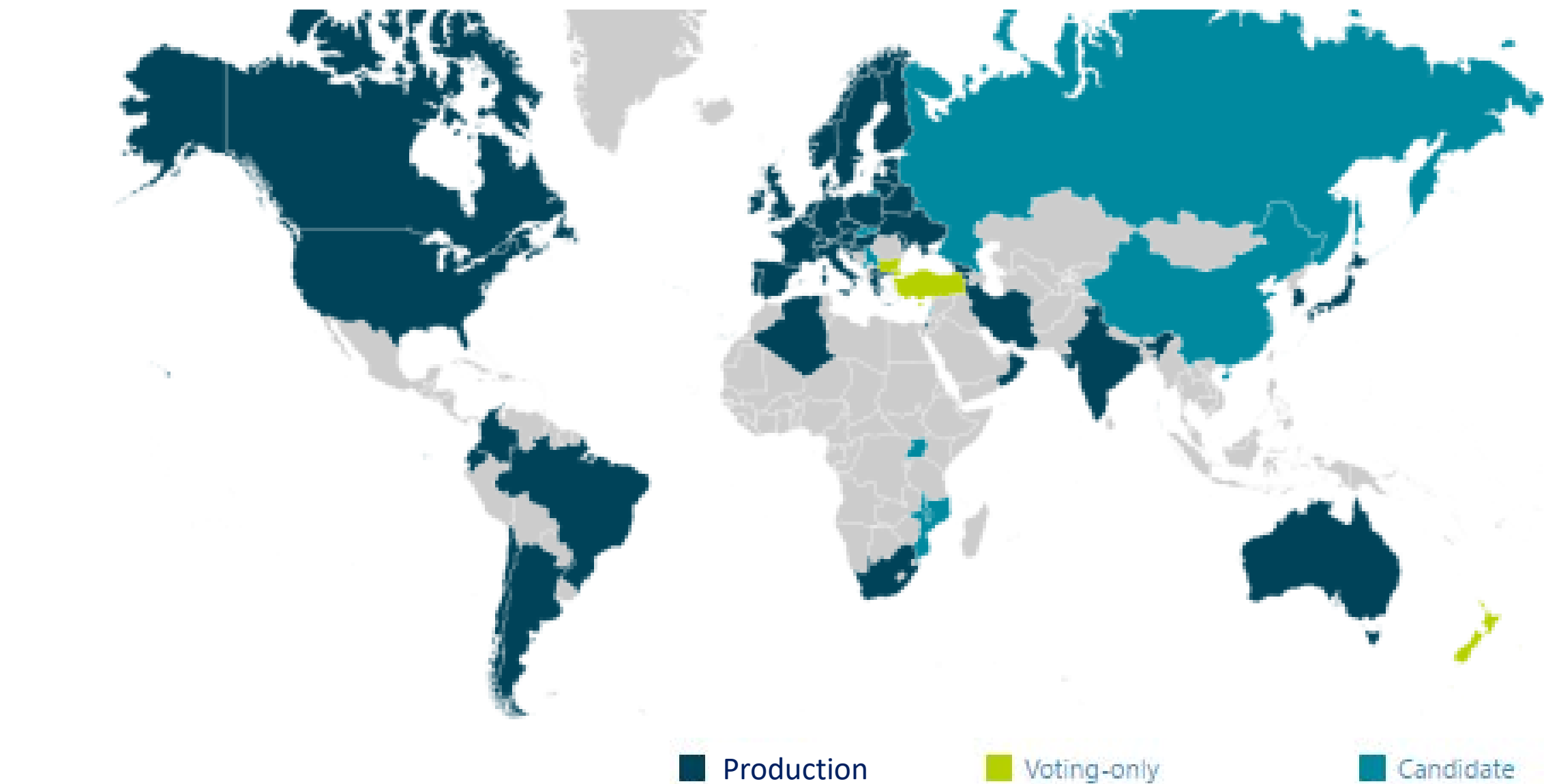
An overview of Other Country federation and IdP Details

*As on 6th November, 2017

Federation	URL	No. of IdP
United Kingdom - UK federation	http://ukfederation.org.uk/	745
U.S. – InCommon	https://incommon.org	455
France - Fédération Éducation-Recherche	https://services.renater.fr/federation/en/index	293
Brazil – café	https://www.rnp.br/en/services/cafe.html	201
The Netherlands – SURFconext	http://www.surfconext.nl/	110
Czech Republic - eduID.cz	http://www.eduid.cz/wiki/en/	83
Italy – IDEM	https://www.idem.garr.it/index.php/en	78
Germany - DFN AAI	https://www.aai.dfn.de/	81
Denmark – WAYF	http://wayf.dk/en	62
Sweden – SWAMID	https://www.sunet.se/swamid/	48
Switzerland – SWITCHaai	https://www.switch.ch/aai	49
Canadian Access Federation	https://www.canarie.ca	47
Greece – GRNET	http://aai.grnet.gr/	41
Spain – SIR	http://www.rediris.es/sir/	36
Austrian Academic Computer Network	https://www.aco.net/?L=1	26
Belgium - Belnet Federation	http://federation.belnet.be/	20
Finland – HAKA	http://www.csc.fi/english/institutions/haka	22
Latvia – LAIFE	https://laife.lanet.lv/	18

➢ **Concreate Examples from Practice**

❖ INFLIBNET Centre is always **keen to implement any new technology and makes it available to all universities and member institutions in India**. INFED is one of such examples of Identity federated Access Management.

❖ Shibboleth is developed based on **Security Assertion Mark-up Language**. It is very secure and especially used for **exchanging user attributes** in a secure manner. Any "SAML-compliant" handling of network user identities seemed and still seem rather hard to grasp. The **main benefit** with the introduction of Shibboleth and the INFLIBNET Access Management Federation (INFED) for institutions is **a move towards a single password system** (the local institutional login working on Shibboleth systems).

❖ Most of the academic libraries are maintaining their own username and password mechanism and it is very inefficient to exchange their attributes. Whereas, single sign-on via LDAP, Active Directory or any other standard based protocol is a trustworthy system for universities and publisher to adopt, **INFED is giving almost all type of assistance to Universities/Institutions.**

❖ At present, INFED is extending all help to the institutions to setting up their IdP, installation and configuration of LDAP and other tools.

➢ Impact

- ❖ Access to e-resources **anytime, any where, any device**.

- ❖ Member institutions will get **off-campus access** of their subscribed resources if the respective service provider is a part of INFED

- ❖ Institute can provide protected content to **multiple organizations** using a single authentication framework.

- ❖ The **home institution can control when an identity is disclosed**, and how much information is revealed.

- ❖ Web-based distributed authentication and authorization services can be used for any other purpose beyond e-resources (EduRoam)

- ❖ Many institutions are spending huge money to avail off-campus facility from private companies. By joining with INFED, members will avail this facility almost free of cost

What is the eligibility to Join with INFED?

➢ **Eligible Institutions**

• The INFED currently has the following classes of participants are eligible to join the federation. All institutions have to apply for the membership of INFED on prescribed application form:

• **Universities & CFTIs**: All Govt. / Govt.-aided universities covered under Section 12(B) and 2 (F) Section of the UGC Act, 1956 and all Inter-University Centre (IUCs) of the UGC that are eligible to get access to e-resources through the e-ShodhSindhu Consortium are eligible to participate of the INFED.

• **Colleges**: All Govt. / Govt.-aided colleges covered under 12(B) and 2(F) Section of the UGC Act, 1956 that are eligible to get access to e-resources through the National Library and Information Infrastructure for Scholarly Content (N-LIST) are eligible to participate in INFED.

• **Private Universities / Colleges and Other Institutions**: The Federation may allow private universities, private colleges and other organizations to participate after obtaining approval from competent authority.

➢ **Eligible Publishers**

• **Publishers:** All publishers providing access to e-resources under the e-ShodhSindhu Consortium or NLIST Programme and any service provider can be a member of the INFED.

How to Join with INFED?

- Universities / colleges falling into categories mentioned in eligibility of membership may submit their application along with a signed participation agreement. The federation may request additional information with regard to participating institution.

- Participating universities and colleges or Service providers are required to assign its officers and / or faculty as its Administrative and Technical contacts to the INFED.

- Universities / Colleges covered under the 12(B) and 12(F) Section of the UGC Act would be accepted as members of the INFED on receipt of application along with signed agreement along with a photocopy of notification issued by the UGC about 12(B) and 2 (F) status of the university. Application from other institutions / research organizations would be examined and accepted on case to case basis.

  ❖ Membership Form: https://parichay.inflibnet.ac.in/documents/INFEDMembershipForm.pdf
  ❖ Rules of membership: https://parichay.inflibnet.ac.in/documents/rules_of_membership.pdf
  ❖ User of personal data: https://parichay.inflibnet.ac.in/documents/use_of_personal_data.pdf

Membership Application

Name of the University / Institution / Service Provider: _____

_____

Complete Address: _____

_____

Telephone: Fax: Mobile:

 E-Mail: Web Site:

On behalf of the _____, I am applying for the membership of the INFLIBNET Access Management Federation (INFED). I confirm that my organization agrees to abide by the INFED's Rules of Membership as soon as we are accepted as its member.

We are pleased to designate the following persons as our Administrative and Technical Contacts for INFED. These persons are fully authorized by our organization to make requests to the INFED for registering new users into our Identity Database or for registering Identity Provider Services at our organization.

Administrative Contact

    Name:
    Address:
    E-Mail:
    Tele: Fax: Mobile:

Technical Contact

    Name:
    Address:
    E-Mail:
    Tele: Fax: Mobile:

(Signature)

Name of the Authorized Signatory:
Designation:
Postal Address:

Prerequisites to setup Identity Provider (IdP)

➢ **Dedicated hostname like idp.yourdomain.ac.in**

➢ **Hardware Requirement:**
   • Shibboleth doesn't require any unusual hardware. It's slightly easier to run on a dedicated machine, but that's not essential, and should not affect performance.

➢ **OS: Unix or Linux or Windows (CentOS 7 would be recommended)**

➢ **RAM: Minimum of 4GB**

➢ **HDD: Minimum of 20GB**

➢ **Port: 80, 443 should be enabled permanently & 8080, 8443 and 8009 should be enable while installation.**

➢ **Installation Guide is available at https://parichay.inflibnet.ac.in/idp.php**

➢ **Applications**

   General application prerequisites for Shibboleth IdP include:
   • Apache and Tomcat Web Server
   • XML
   • PHP, LDAP, MySQL (preferably 5.0 or later - it is possible (but not recommended) to use MySQL 4)
   • mod_ssl and etc.

   You will also need the following applications installed in order to install Shibboleth IdP:
   • tar
   • unzip
   • wget

How much do we charge for INFED Services?

➢ INFED does **not propose to charge any fee from the core member universities / CFTIs of the e-ShodhSindhu Consortium**. However, as the workload and membership database increases for core members, INFED may propose a nominal membership fee for core member universities.

➢ In most of the countries (almost all) , FAM is funded by respective Governments as separate establishment .

➢ INFED started with holistic objective "e-resources, anytime , anywhere" without any funding.

➢ A small amount as annual fees may be charged, or cross-funded by consortium.

➢ Globally federation operators provides add-on services like hosting,Enterprise Support and etc. INFED also will follow the same.

INFEDStat(β)

Shibboleth Identity Provider Statistics
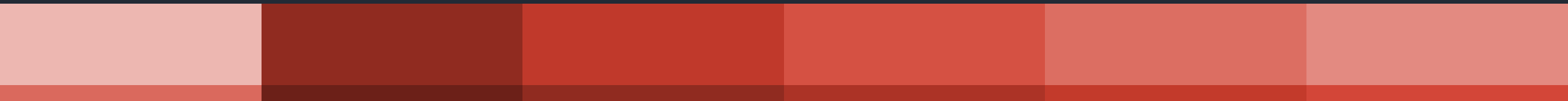
FEATURES

Real time statistics

It provides the statistics between selective date ranges

User Statistics

Provides the details of logged in users with Time, IP Address and Publisher
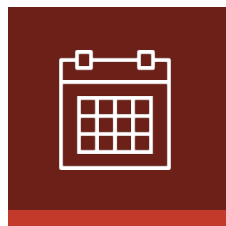
Publisher Statistics

Provides the details of Publishes with total number of count of logins
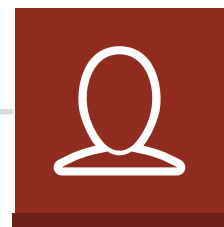
Graphical Representation

Provides the Graphical representation of statistics with export option

Custom date Range

Publisher Statistics

Publisher Statstics
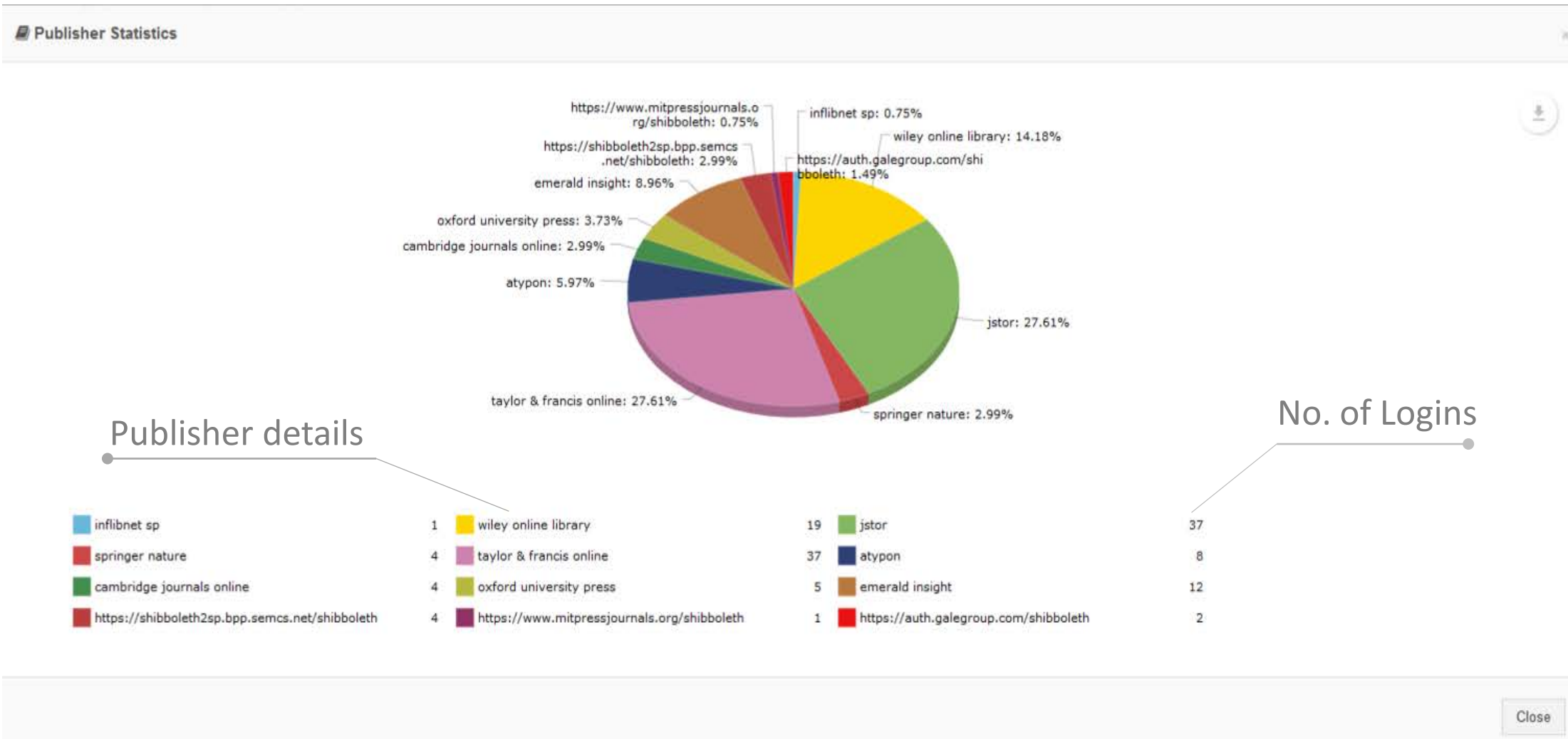
You may export the detail as CSV, JSON and XLSX

Publisher Statistics

https://www.mitpressjournals.o rg/shibboleth: 0.75%
inflibnet sp: 0.75%
https://shibboleth2sp.bpp.semcs .net/shibboleth: 2.99%
wiley online library: 14.18%
emerald insight: 8.96%
https://auth.galegroup.com/shi bboleth: 1.49%
oxford university press: 3.73%
cambridge journals online: 2.99%
atypon: 5.97%
jstor: 27.61%
taylor & francis online: 27.61%
springer nature: 2.99%

Download as ...
CSV   Save as ...
XLSX   Annotate ...
JSON   Print

Export

Export the graph as

csv,xls,JSON,jpg,png,svg also

modify graph using annotate

inflibnet sp	1	wiley online library	19	jstor	37
springer nature	4	taylor & francis online	37	atypon	8
cambridge journals online	4	oxford university press	5	emerald insight	12
https://shibboleth2sp.bpp.semcs.net/shibboleth	4	https://www.mitpressjournals.org/shibboleth	1	https://auth.galegroup.com/shibboleth	2

Close

INFEDStat   Dashboard   Publisher Details ▾   Admin ▾

Dashboard › Publisher details   Statistics

Publisher Details
Contains the details of Publishers

Total No. of Publishers

TOTAL PUBLISHERS
28

Add Publisher

🔒 **Log Statstics**

+ Add new

Show 25 rows   Export

Publisher Name   SP EntityID   Search:

Publisher	Entity ID	Action
ACS Publications	https://pubs.acs.org/shibboleth	🖊 🗑
Annual Reviews	https://www.annualreviews.org/shibboleth	🖊 🗑
Association for Computing Machinery	https://dl.acm.org/shibboleth	🖊 🗑
Association for Computing Machinery - Development	https://dldev.acm.org/shibboleth	🖊 🗑
Atypon	https://iam.atypon.com/shibboleth	🖊 🗑
Cambridge Journals Online	https://shibboleth.cambridge.org/shibboleth-sp	🖊 🗑
ebsco	http://shibboleth.ebscohost.com	🖊 🗑
Emerald Insight	https://www.emeraldinsight.com/shibboleth	🖊 🗑
HighWire Press	https://shibboleth2sp.tf.semcs.net/shibboleth	🖊 🗑
IEEE - XploreUAT SP - Test	https://xploreuat.ieee.org/shibboleth-sp	🖊 🗑
IEEE XploreDigital Library	https://ieeexplore.ieee.org/shibboleth-sp	🖊 🗑

‹ - - - ›

User Statistics

User Statistics

Export

IP Address

Username

Publisher Details

Date

Logs

Copy	Excel	CSV	PDF	Print			Search:
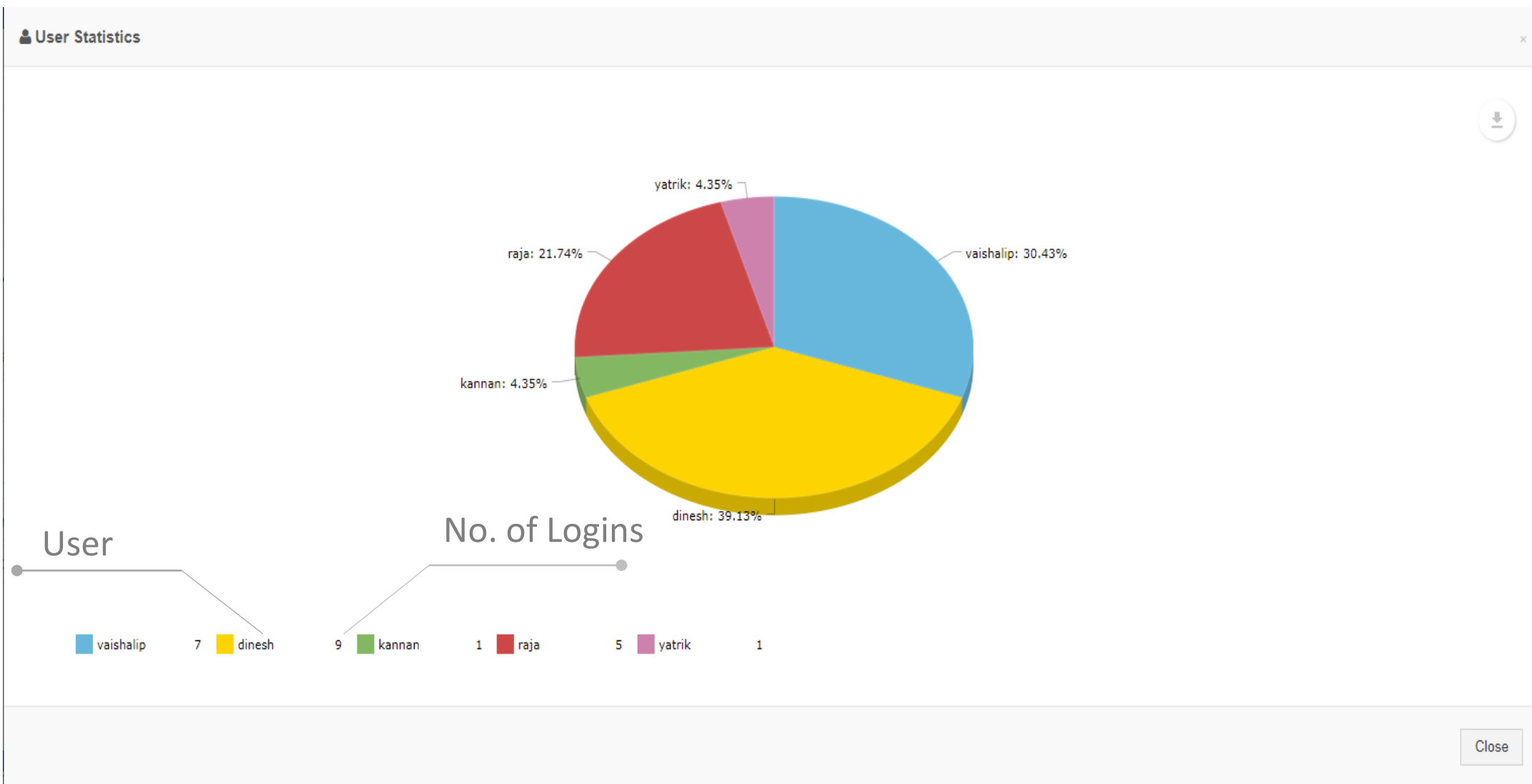
Date	IP	User	Publisher
19-05-2018 13:36:17	117.204.151.26	yatrik	Taylor & Francis Online
16-05-2018 21:23:44	103.240.171.113	raja	Thomson Reuters
16-05-2018 21:18:45	117.196.46.127	vaishalip	Thomson Reuters
16-05-2018 11:10:48	43.249.235.192	raja	Thomson Reuters
16-05-2018 10:53:58	172.16.0.125	vaishalip	Thomson Reuters
15-05-2018 17:31:32	43.249.235.192	raja	https://ezp.inflibnet.ac.in/Shibboleth
14-05-2018 15:56:48	172.16.0.125	vaishalip	ACS Publications
14-05-2018 14:27:57	103.240.171.56	raja	JSTOR
14-05-2018 14:26:28	103.240.171.56	raja	Springer Nature
14-05-2018 11:10:45	172.16.0.125	vaishalip	JSTOR
11-05-2018 16:02:55	14.139.182.249	dinesh	Thomson Reuters
09-05-2018 19:45:01	42.111.30.159	kannan	Thomson Reuters
09-05-2018 10:23:51	172.16.0.125	vaishalip	Thomson Reuters
08-05-2018 15:22:28	172.16.0.125	vaishalip	Thomson Reuters

The Conclusion is..

❑ Indian higher education system encompasses more than **50000 institutions** in India.

❑ **INFED may play a major role in increasing research output for our country by providing access to scholarly e-resources to potential researchers at anytime, anywhere**.

❑ **Majority of the research institutions are not offering off-campus** access to their subscribed resources because of multiple hindrances like lack of funding and as well as limited technical expertise.

❑ **By joining INFED, Institutions may get most of the e-resources beyond the boundary of institutions anywhere, anytime.**

❑ The concept and design of federated access with world-wide deployment is in progress.

References:

Sir Tim Berners-Lee, "History of the Web – World Wide Web Foundation." [Online]. Available: https://webfoundation.org/about/vision/history-of-the-web/. [Accessed: 23-Aug-2017].

[2]   K. G. A. P. Punchihewa, C.N.D, Kumara, A.D.B, 2 and Kiriella, "Beyond the Boundaries : Remote Access to Online Resources at the University of Moratuwa Library," *J. Univ. Libr. Assoc. Sri Lanka*, vol. 17, no. 2, 2013.

[3]   *Benefits of SSO*. University of Guelph.

[4]   E. Malville, J.-M. Crom, and G. Gourmelen, "A survey on identity federation solutions," *Ann. Telecommun. - Ann. Des Télécommunications*, vol. 61, no. 3–4, pp. 379–398, 2006.

[5]   S. Suoranta, K. Manzoor, A. Tontti, J. Ruuskanen, and T. Aura, "Logout in single sign-on systems: Problems and solutions," *J. Inf. Secur. Appl.*, vol. 19, no. 1, pp. 61–77, 2014.

[6]   "eduGAIN website - GÉANT." [Online]. Available: https://www.geant.org/Services/Trust_identity_and_security/eduGAIN. [Accessed: 23-Aug-2017].

[7]   "Benefits of eduGAIN - GÉANT." [Online]. Available: https://www.geant.org/Services/Trust_identity_and_security/eduGAIN/Pages/Benefits-of-eduGAIN.aspx. [Accessed: 23-Aug-2017].

Thanks!

Any Question ???