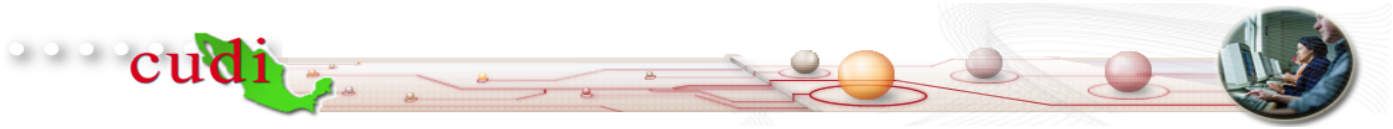
2ª Edición del ciclo de videoconferencias **"Desafíos y prospectiva de la Industria de las Tecnologías para la Información, Comunicación y Conocimiento"**

Importancia de la Innovación en la Industria de las TICC

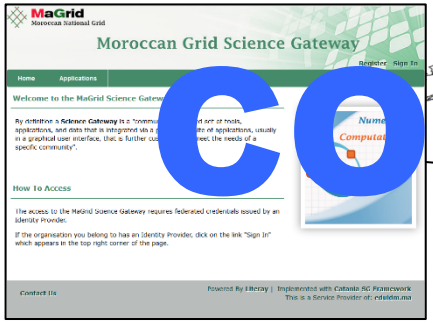
TEMA: La Red Nacional de Investigación y Educación como soporte a la Innovación de las Instituciones de la Educación Superior

Salma Jalife
Asuntos Internacionales
CUDI
Red Nacional de Investigación y Educación de México

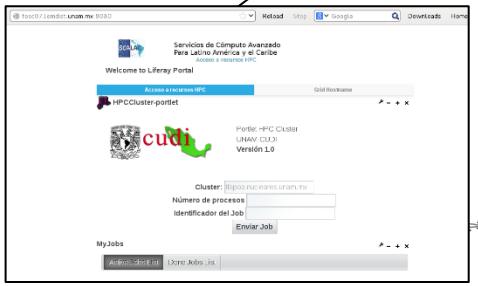
26 de marzo de 2014



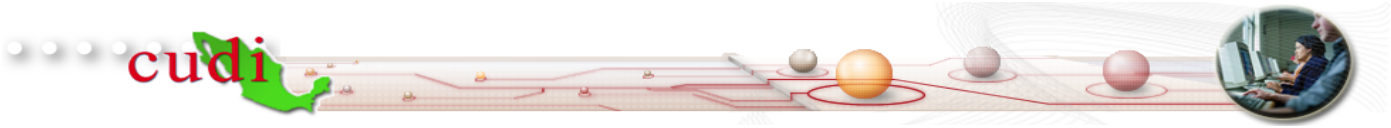
1. ¿De qué manera la Red Nacional de Investigación y Educación, participa y contribuye con la innovación en la industria de las tecnologías de la información, la comunicación y el conocimiento (TICC) en el país?



COLABORACION



in preparation



Projectos colaborativos para promover la e-infrastructura para la e-Ciencia

PASADO

GRAMA
Grid Académica Mexicana

eela
EPIKH

giSela

chain

PRESENTE

RISC

SCALAC

chain reds

FUTURO

PRIORIDAD 1
Estudiar estas iniciativas

XSEDE
Extreme Science and Engineering Discovery Environment

PRACE

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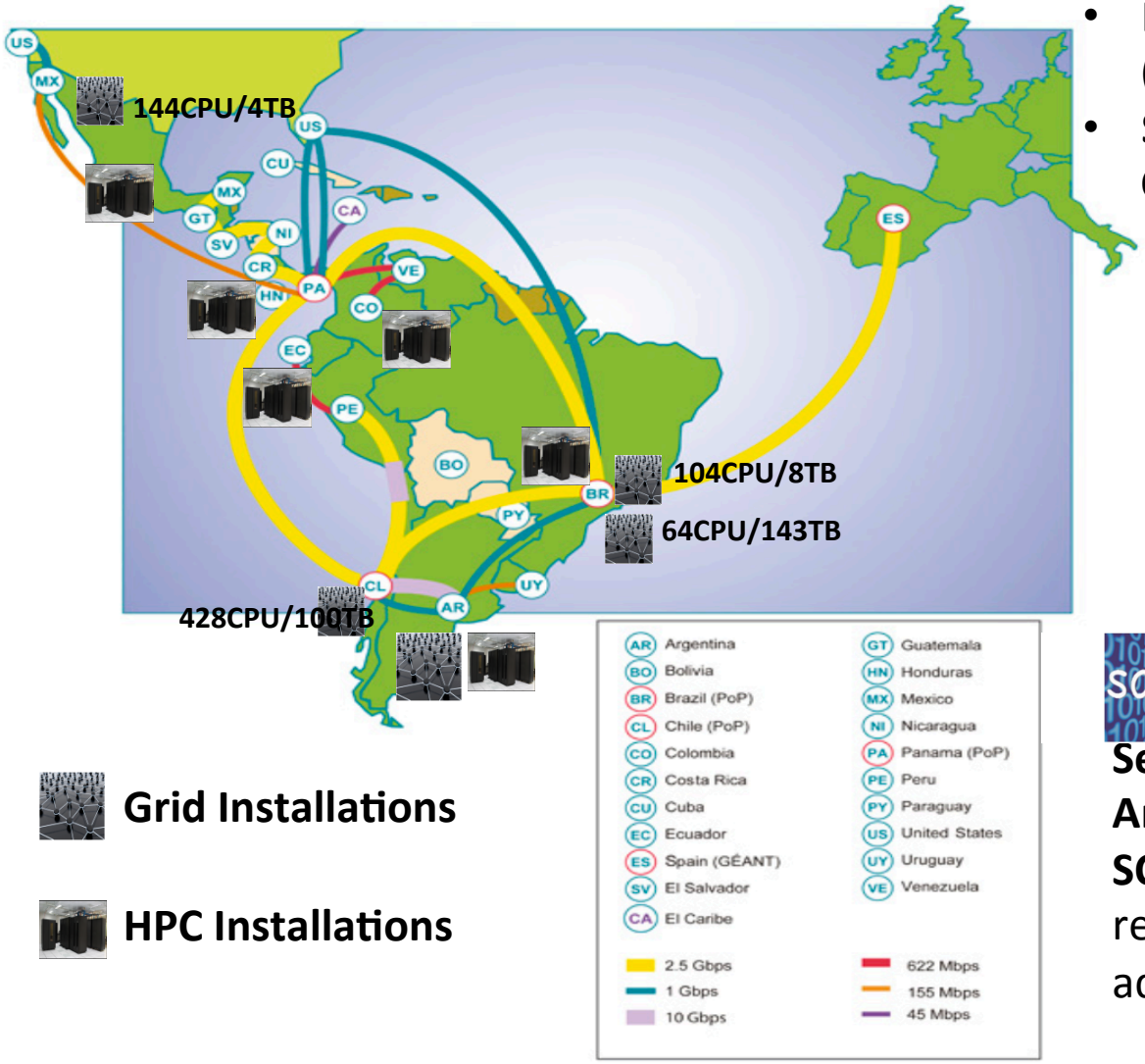
RedCLARA Network Topology
November, 2013



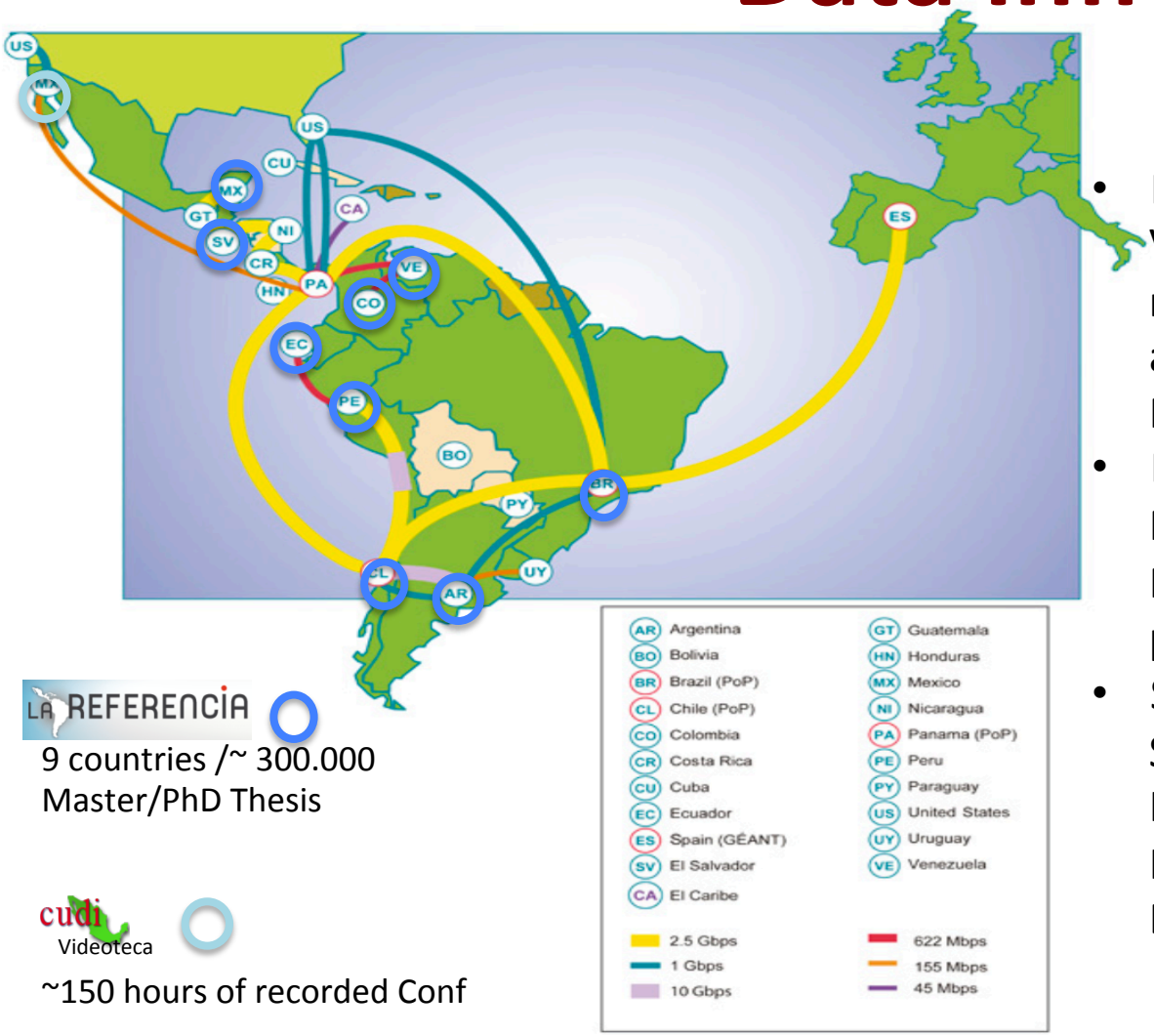
- **ROC-LA** supports Grid Services (HEP + Astroparticle communities)
- **SCALAC** promotes a network of HPC Centres in LA
  - SINAPAD (Brazil)
  - SNCAD (Argentina)
  - CEDIA (Ecuador),
  - CENAT (Costa Rica),
  - UNAM (Mexico),
  - SC3/GridColombia (Colombia),
  - CeCalCULA (Venezuela)

Grid Installations

HPC Installations

Servicio de Computo Avanzado para America Latina y el Caribe, SCALAC, is the integration of LA regional resources to provide advanced computing services.

Data Infrastructures in the region:



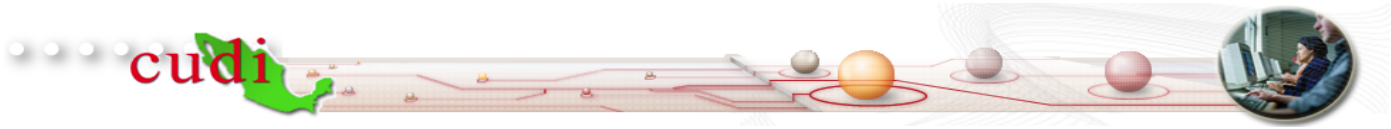
LA REFERENCIA

9 countries /~ 300.000 Master/PhD Thesis

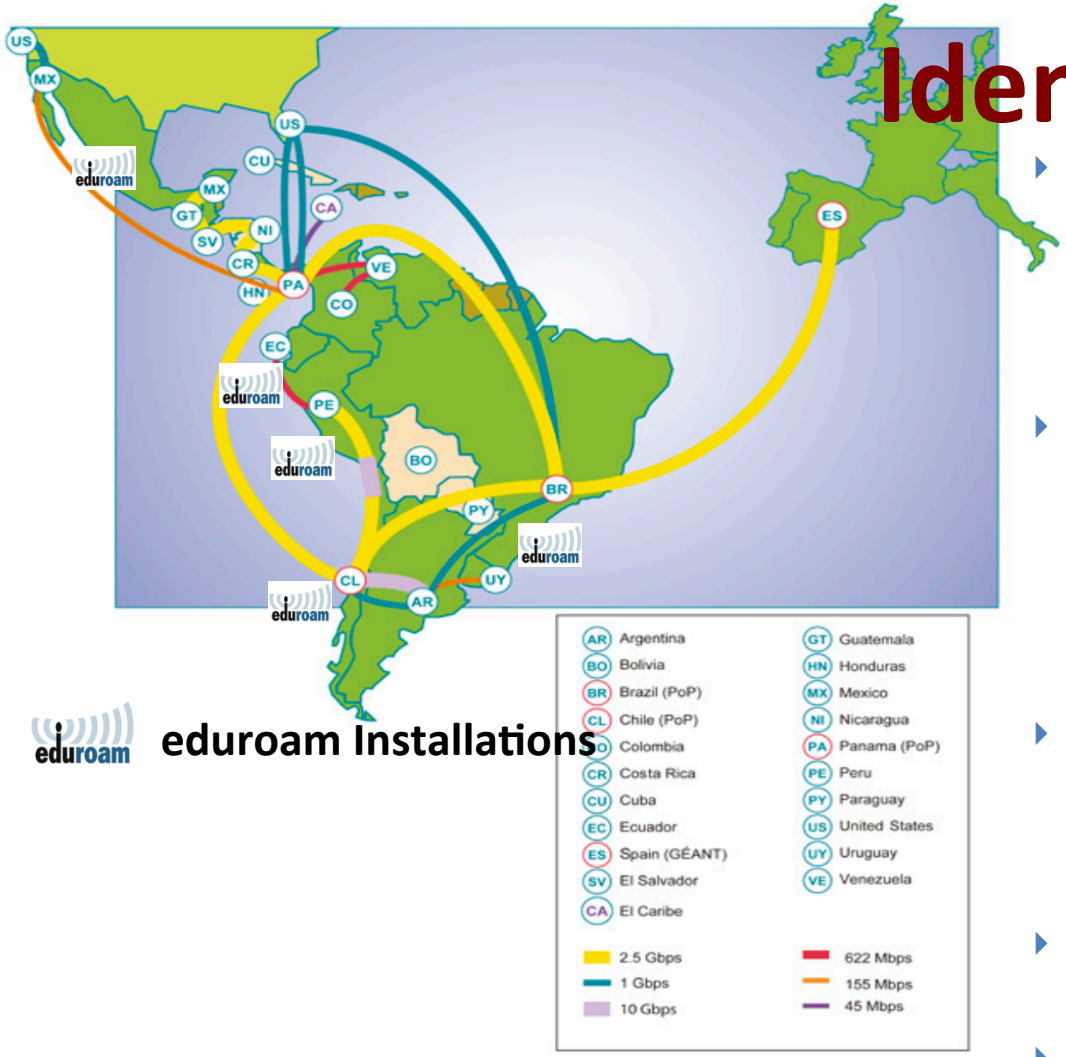
cudi Videoteca

~150 hours of recorded Conf

- LA Referencia and CUDI 's Videoteca are harvested using the new OAI-PMH standard end-point and are integrated in the CHAIN-REDS Knowledge Base
- Big Data task force lead by UNAM Mexico profiting from CHAIN REDS guidelines for data preservation
- Survey to identify potential Data Sources from LA Research Institutes and Scientific Instruments (in cooperation with ELCIRA)



Scientific Gateways and Identity Federations



eduroam Installations

- MoU between CHAIN-REDS and ELCIRA (Europe Latin-America Collaborative e-infrastructure for Research Activities) Synergies with the training and deploying of IdP in LA the region
- CHAIN REDS has helped to start/consolidate FIdMex (Mexico). In cooperation with ELCIRA has promoted other emerging ones (Ecuador, Colombia and Peru). LA has an active participation in CHAIN-REDS/TERENA meetings.
- Best-practice documents and how-to material from AAI (Authentication and Authorization Infrastructure) were adapted for the LA environment.
- LA SG TaskForce lead by UNAM is supporting SCALAC SG with Several Apps
- eduroam, as a prototype federated service, promotes IdP/IdF in the region

Resultados

- Cerca de 500 instituciones conectados a la RedCUDI
  - 16 comunidades de aplicaciones
  - 8 grupos tecnológicos

- Una red más robusta

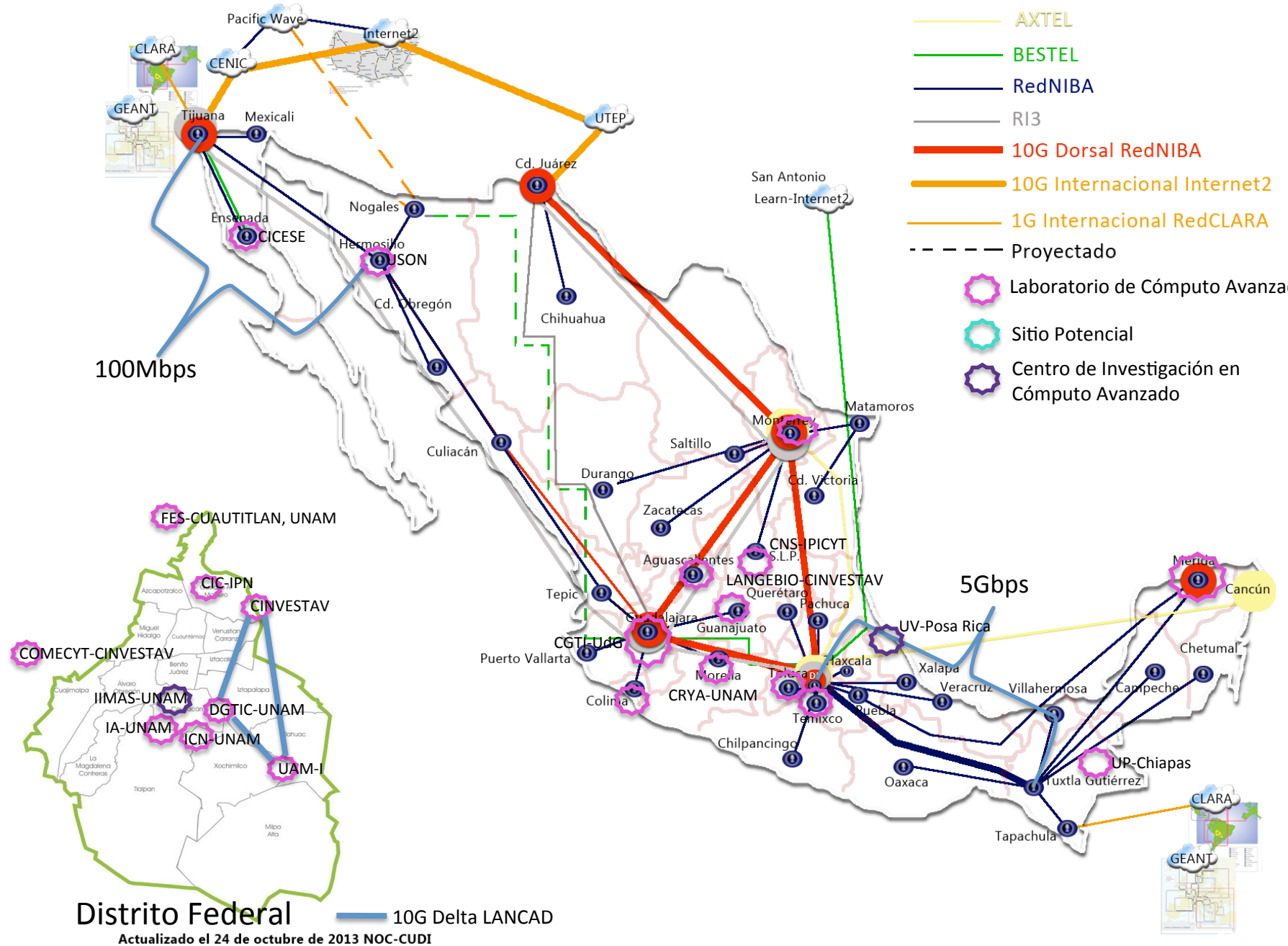
- Acceso a servicios de cómputo avanzado
  - HPC
  - Grid
  - Science Gateways
  - Infraestructuras de datos
  - Laboratorios
  - Iniciativas de cómputo en la nube

- Recursos Humanos con habilidades tecnológicas

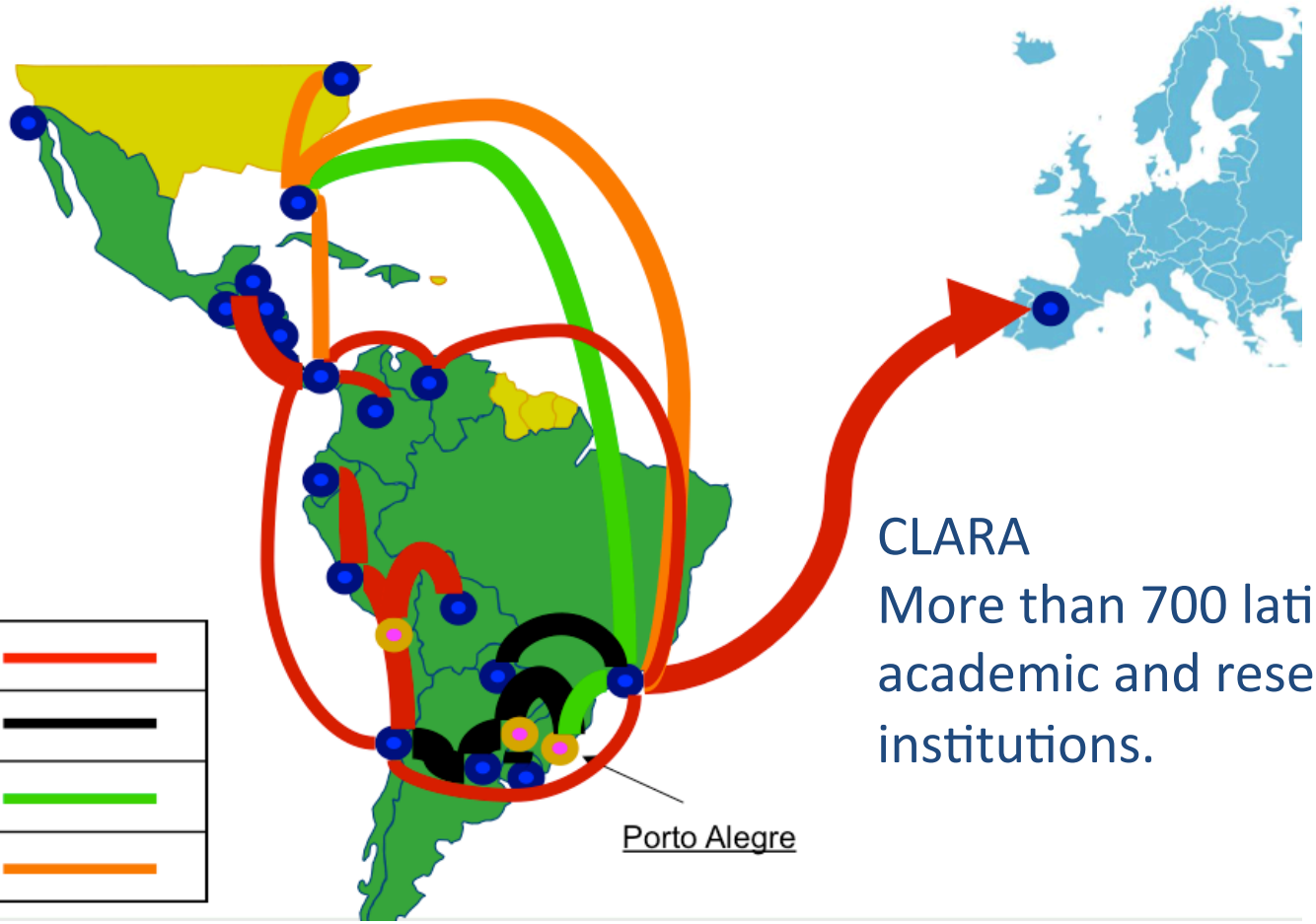
- Integración regional con la red CLARA – formando comunidades regionales

- Colaboración intercontinental

e-infraestructura en México



RedCLARA 2.0
Al final del Proyecto ALICE2



ALICE2	
CLARA	
RNP	
AmLight	

CLARA
More than 700 latinamerican academic and research institutions.

EU-Mexico Workshop: Exploring common research interests in the Future Networks and Cloud Computing

Stream B: Cloud Computing

PRIORIDAD 2

Moderators:
(EU) Maria Tsakali (EU)
(MX) Salma Jalife (MX)

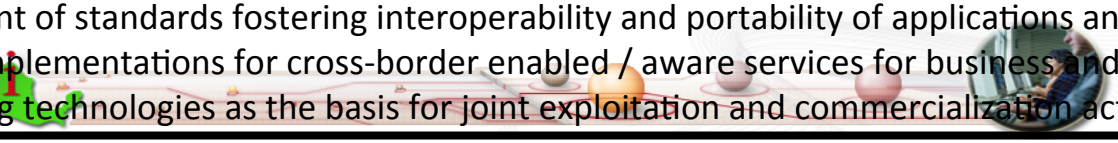
Target area: Federated environments, Mobile clouds, Big data, Virtualization techniques, SLA and trust management, Open source software and open access data

Research topics / collaboration areas:

- Research & Innovation
  - Service engineering & management
    - Service composition automation and semantics of composition
    - Generic / flexible development frameworks and models for service portability / mobility
  - Data management
    - Efficient big data management and resource optimization
    - Real-time business analytics
  - Cross-cutting aspects
    - Workload migration, federations and interoperability (service & user perspectives)
    - Certification, security, trust, privacy ("mobile" applications)
    - Vendor neutrality
- Application Domains / Developed pilots
  - Health, agriculture, education, recycling, logistics, energy management, manufacturing

Expected impact:

- Joint research activities towards cross-border service provisioning in federated Cloud environments
- Development of standards fostering interoperability and portability of applications and services
- Concrete implementations for cross-border enabled / aware services for business and societal benefit.
- Key enabling technologies as the basis for joint exploitation and commercialization activities



EU-Mexico Workshop: Exploring common research interests in the Future Networks and Cloud Computing

Stream B: Cloud Computing

Moderators:
(EU) Maria Tsakali (EU)
(MX) Salma Jalife (MX)

Target area: Federated environments, Mobile clouds, Big data, Virtualization techniques, SLA and trust management, Open source software and open access data

Main objectives:

- Explore current research activities in EU and Mexico to facilitate information exchange and collaboration towards future research
- Identify research issues / priorities of common interest in the two regions, as the baseline for joint-research in H2020

Key issues highlighted:

- Applications migration with respect to data management
- Cross-platform mobile applications, enterprise mobility
- Adaptive application development and deployment
- Elasticity specification and modelling in different levels (cost, quality, resource)
- Data quality and consistency
- Scalable data management
- Multi-cloud service orchestration and dynamic service composition
- Software-defined data centers
- Eco-efficient cloud services
- Open-source developments
- Business models
- Platforms and services for various applications / disciplines

EU-Mexico Workshop: Exploring common research interests in the Future Networks and Cloud Computing

Stream A: Future Networks

PRIORIDAD 3

Moderators:	Other contacts:
(EU) Ari Sorsaniemi (Mexico) Raúl Monroy	(EU) J.P. Fernandez-Palacios Gimenez, D. López, P. Demestichas, D. Simeonidou, A. Azcorra, R. Muñoz (Mexico) J. Rubio, J. Solis, R. Aquino, G. Safa, C. Agüero, R. Acosta

Target area: **Wireless, SDN, NFV, physical layer and optical network technologies, Internet of Things**

Main Objectives: OBJECTIVES OF THE TECHNOLOGIES, how they benefit in terms of new functionality

SDN: low cost, scalability, programmability/flexibility

Increase abstraction from heterogenity, open programmability for networks, optimization of management and autonomic management

User centric experience , merge IT and Network, increase efficiency of connected IoT and Cloud services

Optimized transport , improve smart city functionality by combinations of services, improve power consumption of data centres

Automation of DC management, enhance security aspects

Improve quality iof life

Key issues discussed:

Control plane of carrier SDN , implementation tradeoffs based on categories (small, medium DCs) or vendor domains, heterogeneity
SDN controllers actions and improvements for heterogenity, need for standardization of key components to manage different domains, independency from vendor domain (h/w and s/w), apply software development techniques for network, virtual software appliances for network functions;
manageability and orchestration of SDN;
IoT objects limitations in terms of communication with each other, combination with cloud, context-rule based monitoring and control, connectivity implementation protocols, IoT objects description, inserting control loops in the network layer for autonomic management
Integration of multiple sources in smart cities;
Optical DCs, inter rack bottlenecks, how to upgrade intra-DC networking;
Exploiting clouds for mobile network management, Mobile integration with cloud: the tradeoff and functional split between backhaul consumption bandwidth and code offloading, flexible architectures adapting to varying topologies
Devices, electronics and security for smart city objects

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EU-Mexico Workshop: Exploring common research interests in the Future Networks and Cloud Computing

Research topics:

Abstraction from different vendors, different domains and different network types;
Network Operating system to abstract programmability of network to the whole world, not only vendors define common interfaces and information model (abstract and standardize) to hide heterogeneity
Self managed on demand federated networks and orchestration
Multi domain QoS, network as a computer (abstraction of operations), security extremely critical,IoT&Cloud services combination, connected diversified objects , autonomics and SDN to enable self-management of networks
Smart city services for green management , e-health and optimization of transportation
optical DCs management and service orchestration
Security aspects and certification models , user-centric identity management
Networking Hypervisors for abstraction, partitioning and management

Expected impact/Potential common work:

- **Development of abstractions, API definitions, hide heterogeneity, span across domains, increase programmability/flexibility;**
- **Collaboration between public/private sector, PPP, bilateral with regard to management and automation;**
- **Targeting at a generic initiative to support software-based networking functions standardization, information model;**
- **Collaboration on: Test beds e.g. smart cities or networks, integration of platforms/services from both worlds ;**
- **Open platform specification for smart cities ;**
- **Matching between Mexican, American and European technology platforms to support cooperation (MTP/ETP)**

Participación de IES mexicanas en el Horizonte 2020 de la UE

Acceder a www.cordis.eu

Seleccionar el módulo de H2020 http://ec.europa.eu/programmes/horizon2020/

Buscar "Calls on ICT" → convocatorias sobre TIC
http://ec.europa.eu/programmes/horizon2020/en/h2020-section/information-and-communication-technologies

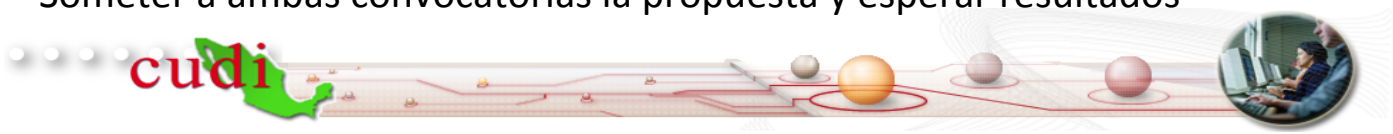
Seleccionar la convocatoria relacionada con el tema en donde le interese colaborar

Buscar un grupo europeo que esté interesado en el mismo tema

Trabajar en la elaboración de la propuesta de proyecto colaborativo mediante los lineamientos que establece la Unión Europea (UE)

Acceder a www.conacyt.mx para bajar la Convocatoria
http://www.conacyt.mx/index.php/el-conacyt/convocatorias-y-resultados-conacyt/convocatoria-conacyt-horizon2020

Someter a ambas convocatorias la propuesta y esperar resultados



¡Gracias!

www.cudi.edu.mx

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