



# Open-IX: Improving interconnection through industry standards

Wouter van Renterghem

<wouter@nl-ix.net>

AfPIF 2016 - Dar Es Salaam, Tanzania

30 Aug - 1 Sept 2016





# Open-IX Association

- The Open-IX Association (OIX) is an Internet community-based effort to improve Internet peering and interconnection globally
  - United States 501(c)(6) non-profit Trade Association
- Develops common and uniform standards for data transfer and physical connectivity at IXPs and data centers
- Certifies and promotes IXPs and data centers that meet the community-developed standards



# Value Proposition

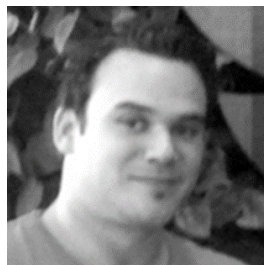
- Improve interconnection with common methods of measurable criteria that reduce complexity for network operators globally
- Standards that focus on critical physical, technical and operational requirements developed by the community
- Transparent, member supported organization
- Clear and open certification process
- Database of data centers and IXPs that meet requirements



# Board of Directors



**Will Charnock**  
*Chairman*



**Christian Koch**  
*Vice Chairman*



**Greg Hankins**  
*Treasurer*



**Gabe Cole**  
*Executive Director and Secretary*



**Chris Malayter**  
*Board Member*



**Vinay Nagpal**  
*Board Member*



**Josh Snowhorn**  
*Board Member*



**David Temkin**  
*Co-Founder and Board Member*



# Committees

## IXP Standards Committees



**Henk Steenman**

*Board Liaison and Chair*

Development and Maintenance of Standards for Internet Exchange Points (IXPs)

**OIX-1 Standard**

## Data Center Standards Committee



**Eli D. Scher**

*Board Liaison and Chair*

Development and Maintenance of Standards for Data Centers

**OIX-2 Standard**

## Marketing Committee



**Vinay Nagpal**

*Board Member and Chair*

Promoting Open-IX in the Community, Working with Certified Companies to Promote Membership

## Membership Committee



**Joseph Perez**

*Board Liaison and Chair*

Recruiting and Retaining Members, Membership Management



# Certification

- Any company can adopt Open-IX standards and apply for certification
- Certification signifies implementation and compliance with OIX standards
- Provides company the ability to use the certification marks publicly
- Provides network operators an easy way to see compliant companies
- Companies may choose to be compliant without being certified





# Standards

## OIX-1 IXP

- Infrastructure: switching platform, IP space, route server
- Standard physical interface
- Best practices for traffic forwarding
- Clear customer interface demarcation points
- Operational: NOC, monitoring, statistics reports
- Current peering contact information
- Accessible information on public website

## OIX-2 Data Center

- Infrastructure: utility feeds, transformers, water sources, network access, MMR, interconnection
- Operational: rules, licensing, commissioning, maintenance, operating procedures, change management
- Service levels for generator(s), UPS, cooling, interconnect delivery, electrical circuit
- Open, non-discriminatory access and pricing
- Accessible information on public website



# International Certification

- Growing demand for neutrality, open service offerings, and infrastructure and operations standards in data centers and IXPs around the world
- Current international certified data centers and IXPs
  - AMS-IX Amsterdam, Amsterdam, NL (OIX-1)
  - AMS-IX Hong Kong (OIX-1)
  - Jaguar Network, Marseille, FR (OIX-2)
  - MIX, Milan, IT (OIX-1)





# OIX-1 IXP Certifications



**amsix**  
amsterdam  
internet exchange

**AMS-IX Amsterdam**  
*Amsterdam, NL*



**amsix**  
Bay Area

**AMS-IX Bay Area**  
*San Francisco, CA, US*



**amsix**  
Chicago

**AMS-IX Chicago**  
*Chicago, IL, US*



**amsix**  
Hong Kong

**AMS-IX Hong Kong**  
*Hong Kong*



**amsix**  
New York

**AMS-IX New York**  
*New York, NY, US*



**DE-CIX**  
New York

**DE-CIX New York**  
*New York, NY, US*



**FL-IX**

**FI-IX**  
*Miami, FL, US*

**LINX**  
— Est. 1994 —

**LINX NoVa**  
*Ashburn, VA, US*



**MASS IX**  
Massachusetts Internet Exchange

**Mass IX**  
*Boston, MA, US*



**MIX**  
*Milan, IT*

**10 IXPs, 6 Companies**





# OIX-2 Data Center Certifications



Austin, TX, US  
Cincinnati, OH, US  
Cincinnati, OH, US  
Dallas, TX, US  
Houston, TX, US  
Phoenix, AZ, US



DATA BANK

Richardson, TX, US



New York, NY, US



DIGITAL REALTY  
Data Center Solutions

Dallas, TX, US  
Los Angeles, CA, US  
New York, NY, US  
San Francisco, CA, US



Ashburn, VA, US  
Chicago, IL, US  
Piscataway, NJ, US



Houston, TX



Manassas, VA



Marseille, FR



Chicago, IL, US



Phoenix, AZ, US



Atlanta, GA, US  
Suwanee, GA, US  
Richmond, VA, US



New York, NY, US



Durham, NC, US  
Somerset, NJ, US



Santa Clara, CA, US



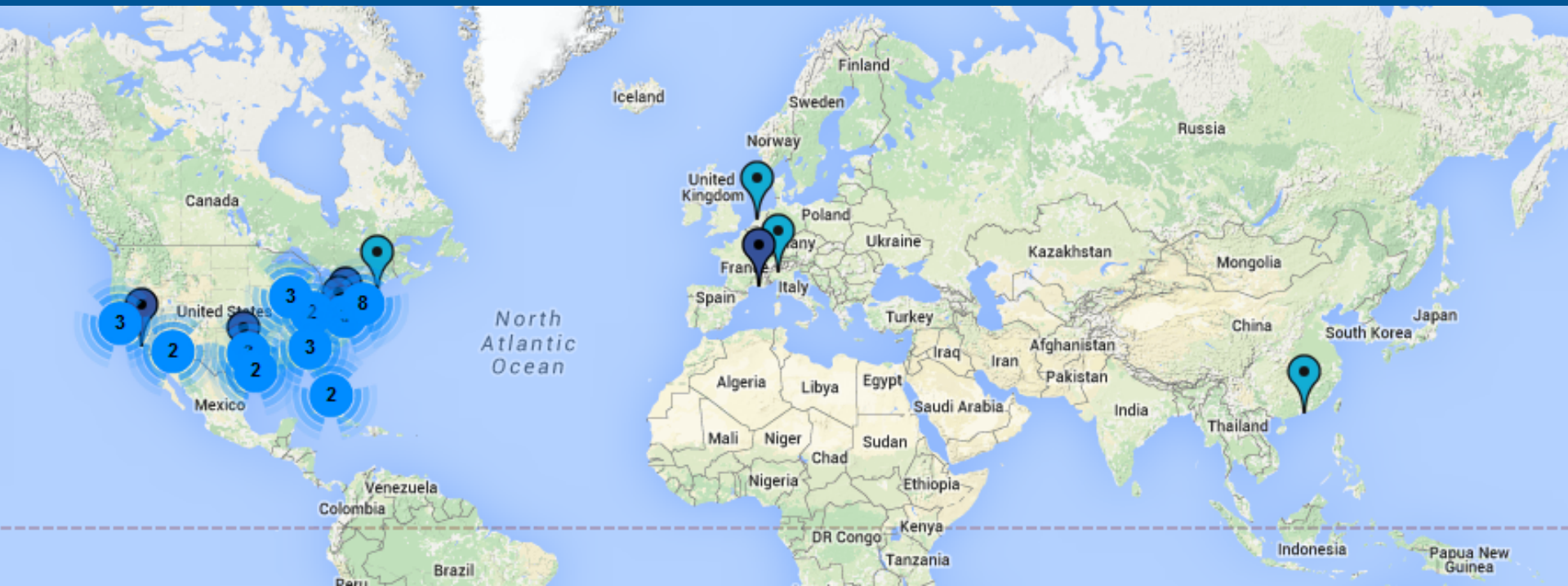
Garden City, NY, US



Atlanta, GA, US  
Miami, FL, US



# Certifications Global View



 OIX-1    OIX-2



# Membership

- Open to anyone with an interest in interconnection that wants to participate in the future of Internet interconnect
- Members benefits
  - Vote in all Open-IX elections
  - Nominate and elect the Board of Directors
  - Serve on volunteer committees
  - Provide input on certification applications
- One class of membership, \$50/year



# Initiatives for 2016

- Several initiatives from Board of Directors and committees planned to grow Open-IX and the global interconnection community
- Tactical short term initiatives
  - Revitalize committees with new members and elect chairs
  - Streamline operations and infrastructure
  - Plan 2016 Americas Interconnection Summit (AIS) and Annual General Meeting (AGM)
- Strategic long term initiatives
  - Expand certifications around the world
  - Redefine and promote value proposition of membership and certifications
  - Develop new OIX-1 standards for smaller and remote peering IXPs
  - Develop new OIX-2 standards for smaller and lights out data center
  - Develop collateral to simplify IXP and data center procurement: educational resources, model RFPs, questionnaires, model contracts



# Contact Us

- General information: [www.open-ix.org](http://www.open-ix.org)
- Certification: [info@open-ix.org](mailto:info@open-ix.org)
- Board of Directors: [board-voting@open-ix.org](mailto:board-voting@open-ix.org)
- OIX-1 IXP Committee: [ix-group@open-ix.org](mailto:ix-group@open-ix.org)
- OIX-2 Data Center Committee: [dc-group@open-ix.org](mailto:dc-group@open-ix.org)
- Marketing Committee: [marketing@open-ix.org](mailto:marketing@open-ix.org)
- Membership Committee: [membership@open-ix.org](mailto:membership@open-ix.org)



Questions?

[www.open-ix.org](http://www.open-ix.org)

