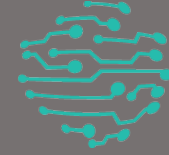


# Global Network Architecture

An inclusive Blueprint for a Global R&E Network Interconnect

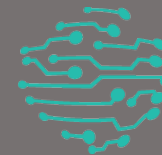
APAN42 – Hong Kong – August 2016





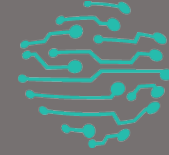
**Location:** 1/F Run Run Shaw Tower  
**Room:** CPD-1.21  
**Date:** Friday, 5 August 2016  
**Times:** 9:00am – 10:30am & 1:30pm – max. 5:00pm HKT

1. Opening & welcome
2. Introductions
3. Introduction to the Global Network Architecture
4. Asia Pacific resources
5. Next steps and Follow Up
6. AoB
7. Closing



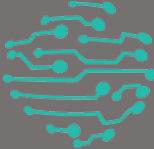
# What is the GNA?

A Vision & An Ambition

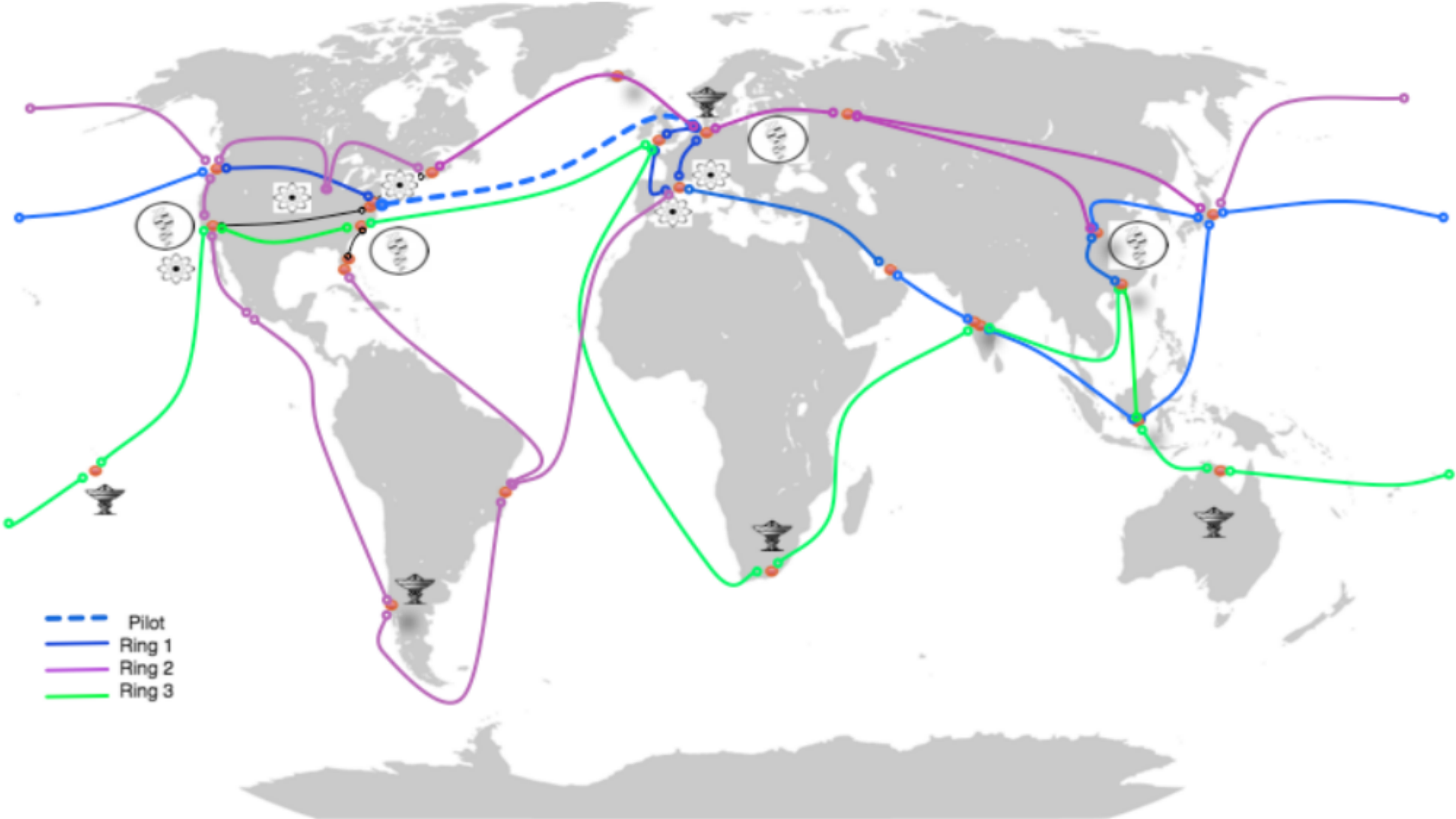


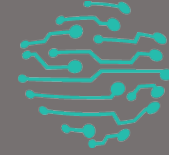
- The GNA is:
  - an “architecture” to facilitate more cooperative interaction among R&E networks in the delivery of network services to the global R&E community
- Achieved by the global R&E Network community contributing resources to:
  - Defining a blueprint that R&E Networks can use to align their investments in intercontinental circuits
- To ensure that:
  - R&E Networks can better meet the expectations and requirements of their member institutions and funders, and have more service for the same amount of money by
    - Co-investing
    - Sharing resources
    - Levering each other’s services

# GNA Artist's Impression



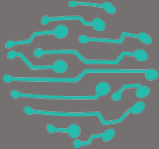
global network architecture





- GNA Technical WG:
  - over 30 network engineers from R&E Network organizations around world (Europe, Australia, North & South America, Asia, and Africa), working on:
    - Network Services Definitions
    - Information Architecture Framework
    - The Commons
- Creation of publicly reviewed framework documents
- Web site (background and documents)
- Getting real life feedback from Path Finders, e.g. ANA-300G, and using this experience in next versions of documents

GNA Website - <http://gna-re.net/>



global network architecture

MEMBERS LOGIN

 global network architecture

[HOME](#) [ABOUT](#) [OUR PLAN](#) [RESOURCES](#) [MEETINGS](#) [GET INVOLVED](#)

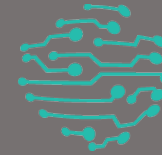
White paper:  
Global R&E Network Architecture Program

[FIND OUT MORE](#)

> ○ ○ |

Developing a blueprint for global  
R&E network architecture





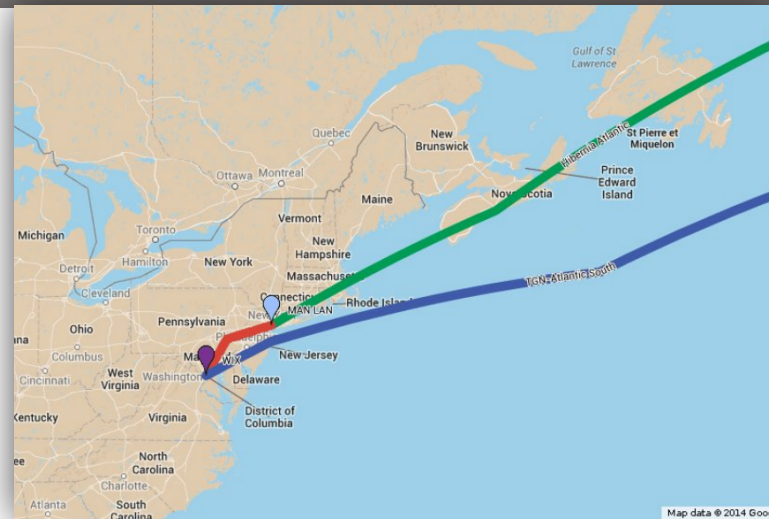
# GNA Path Finding

Doing what we say and learning from what we do



# ANA – 200G

# 100G production ring for R&E

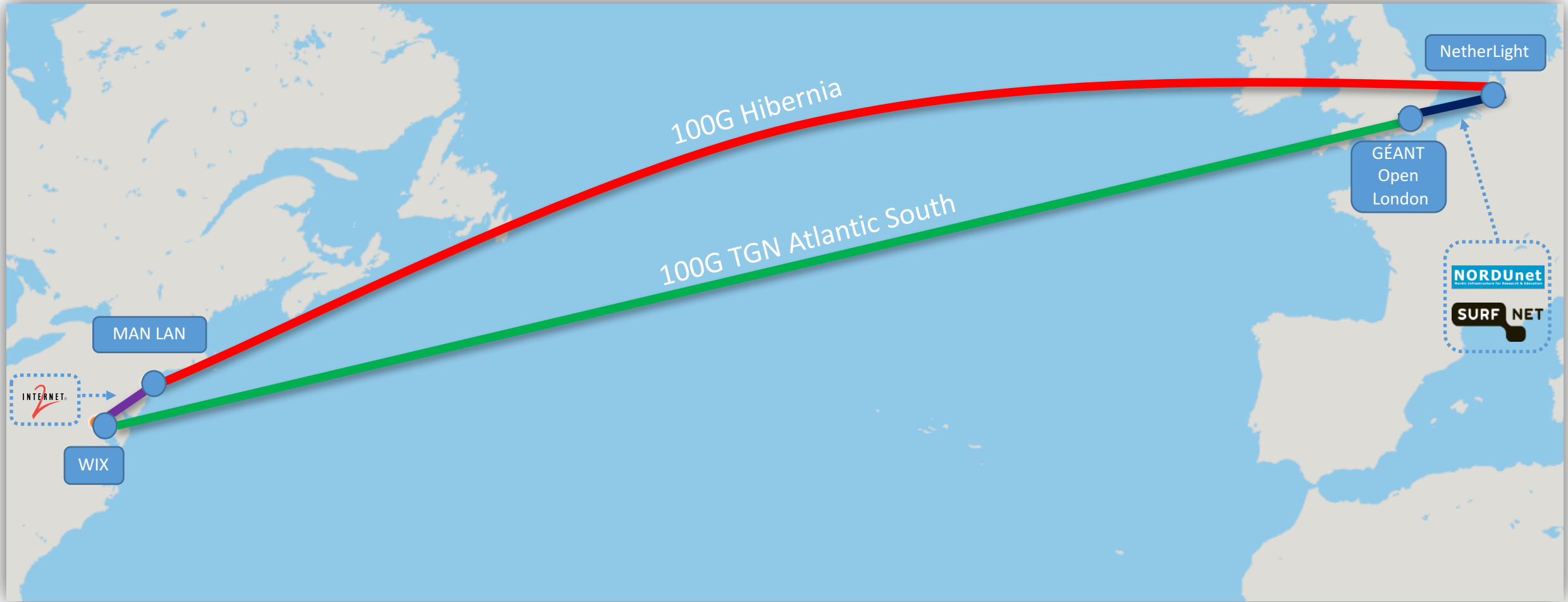


## Open Exchange Points & Links

- MAN LAN
- WIX
- NetherLight
- GEANT Open London
- Internet2
- TGN-Atlantic South
- NORDUnet/SURFnet
- Hibernia Atlantic

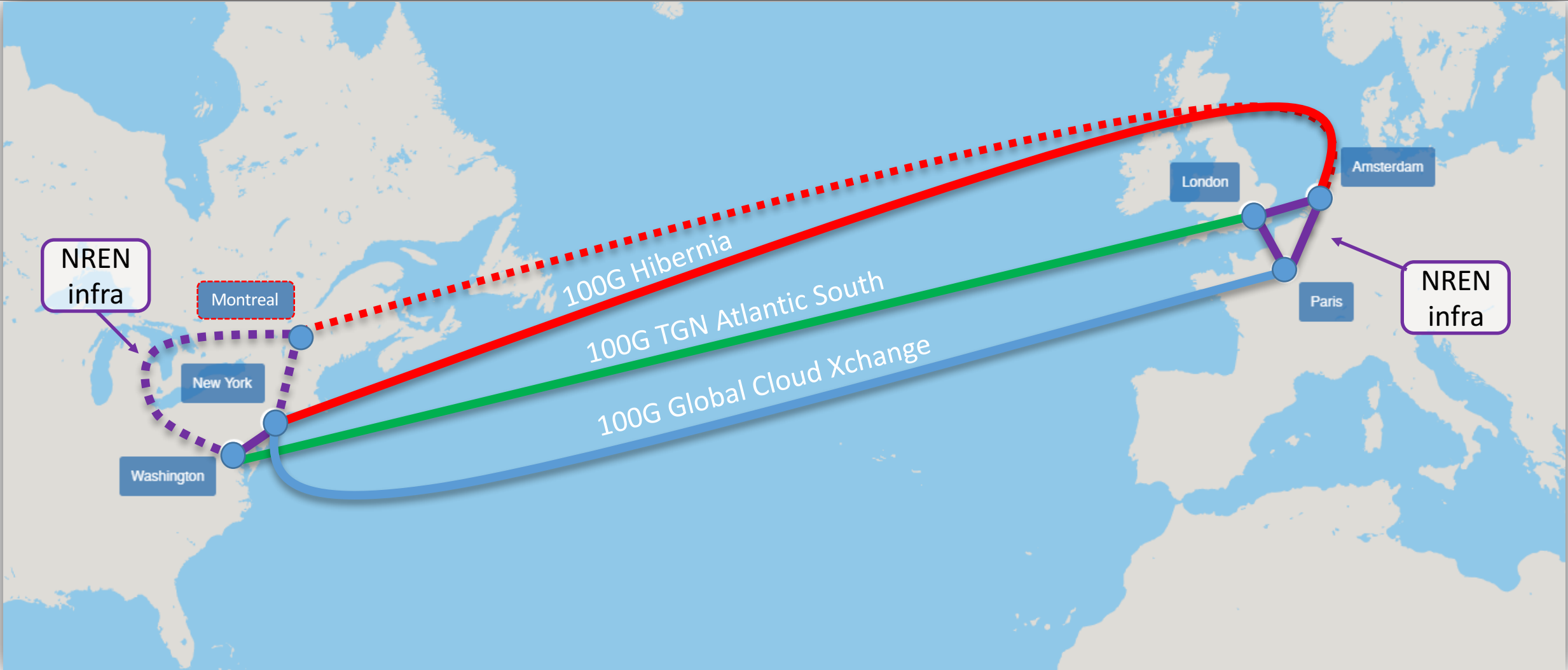
# ANA – 200G

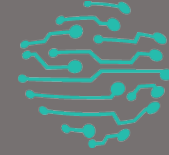
# 100G production ring for R&E



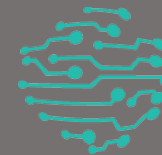
# ANA – 300G

# Reliable Transatlantic connectivity





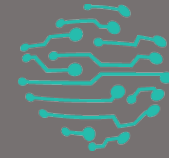
- Already under discussion, planned or established:
  - Singapore
  - Hong Kong
  - Guam
  - Beijing
  - Tokyo
  - Others?



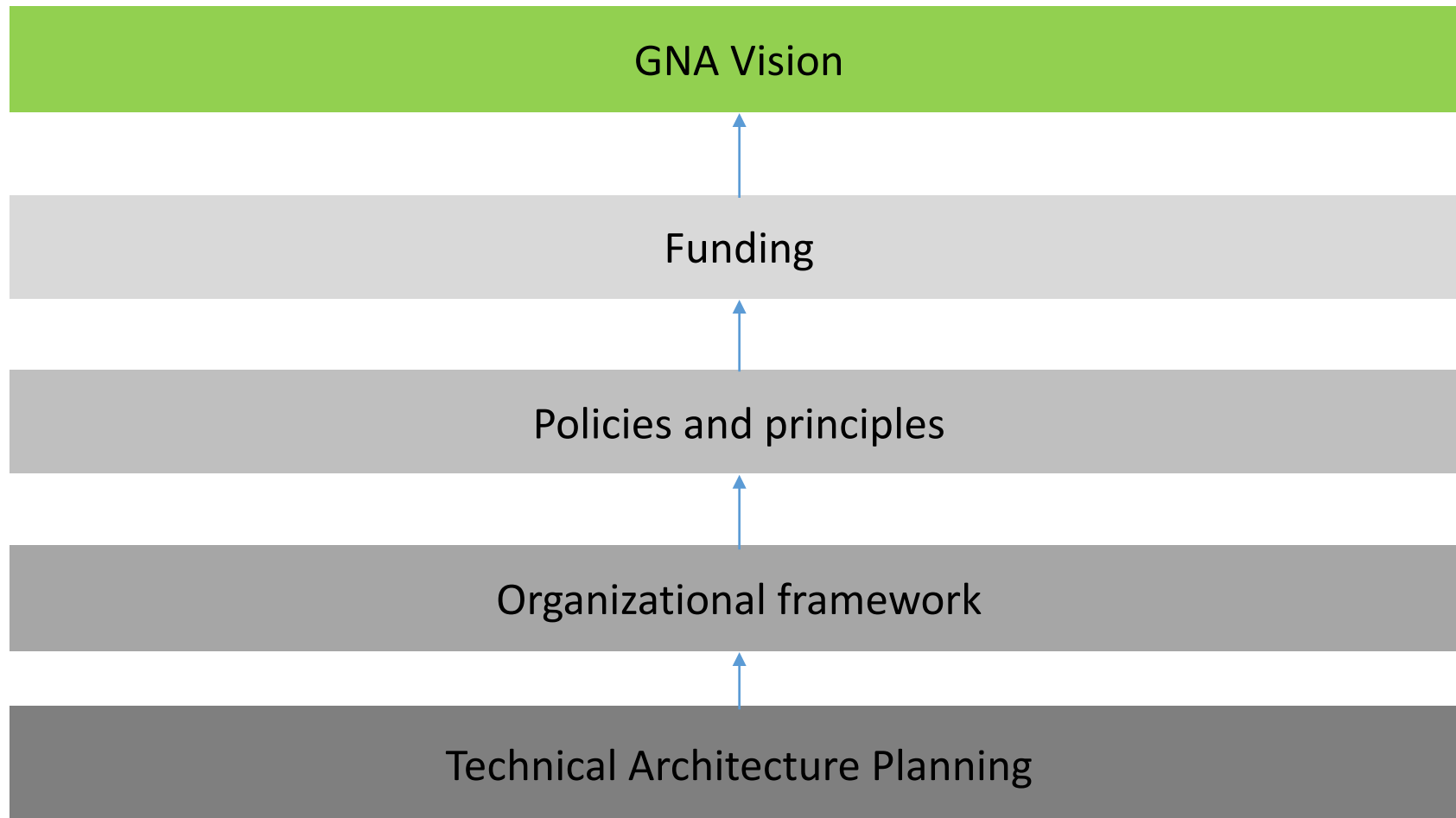
# The bigger picture

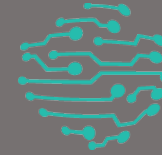
Putting it in context

# Dimensions of GNA



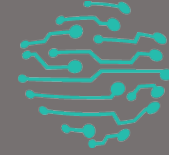
global network architecture





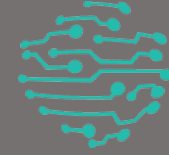
- Recognizing that networking is the foundation of collaboration the GNA is:

A coordinated worldwide effort that efficiently interconnects national and multi-national R&E Networks around the world in a manner which increases the international reach, capacity, and capability of the global R&E network for the benefit of all countries.

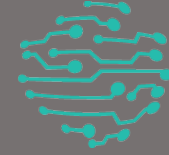


- How are international links funded?
  - NRENs
  - Opportunities for
    - Cost sharing
    - Fibre swaps
    - Private sector partnerships
    - Operational support (op ex funding)
- Work items
  - Value prop for GNA – how to sell to funders?
  - Cost sharing models
  - Private partnerships

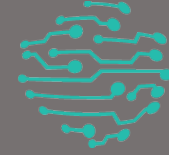




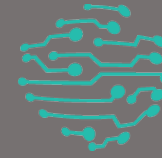
- Equity
  - Value for contribution (what an NREN gets for what it pays)
- Architectural framework
  - Open exchanges
- Work items
  - Usage policies
  - Link restrictions
  - Open exchange policies
  - Accepted practices:
    - At open exchanges: R&E Networks only peer with other R&E Networks?



- Currently organized around:
  - Technical Working Group
  - Executive Action Team
  - Global R&E Network CEO Forum sponsorship
- Rethinking the organizational framework, input welcome



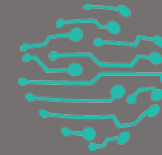
- Principles
  - Open and inclusive
- Work items
  - Architecture
    - Open exchanges
    - Documented rules to qualify as an open exchange
  - Linkage to GLIF?



Thank you!



APAN42 – Hong Kong – August 2016

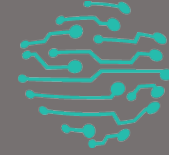


# Global Network Architecture

An inclusive Blueprint for a Global R&E Network  
Interconnect

APAN42 – Hong Kong – August 2016

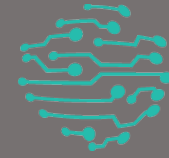




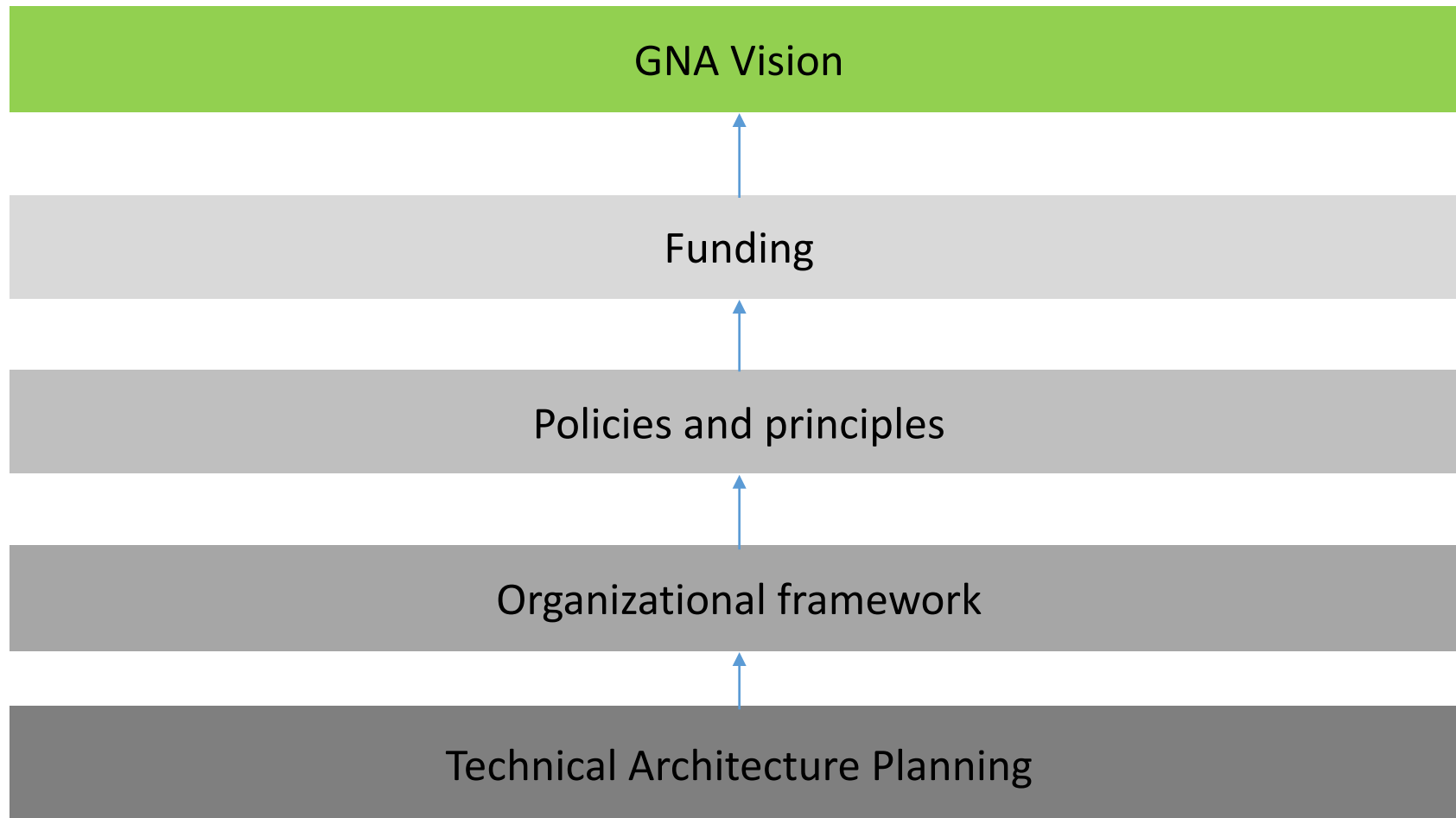
**Location:** 1/F Run Run Shaw Tower  
**Room:** CPD-1.21  
**Date:** Friday, 5 August 2016  
**Times:** 9:00am – 10:30am & 1:30pm – max. 5:00pm HKT

1. Opening & welcome
2. Introductions
3. Introduction to the Global Network Architecture
4. Asia Pacific resources
5. Next steps and Follow Up
6. AoB
7. Closing

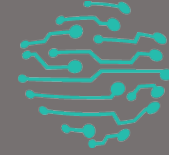
# Dimensions of GNA



global network architecture



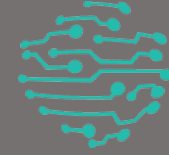
# Which Resources can be added to GNA



global network architecture

- All the comply with the GNA Architecture Structure and Operation
- Resources can still be used for existing purposes

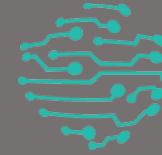




## ANA-300 Principle

- The total capacity is NOT divided by the amount of partners (300/5)
- Each partner has a guaranteed bandwidth of 40 Gbit/sec ( > 200 Gbit/s)
  - It is rare that all partners is using their full guaranteed BW
  - Time shift has a large impact on usage
- The remaining bandwidth is considered as “The Commons” where partners and others can bust into / use @ a best effort basis

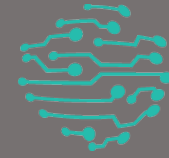




## Schedule & Recurrence Details

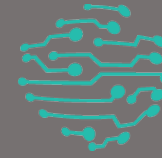
- September 19 @ 1:00 pm - 6:00 pm
- Location: Helsinki, Finland (co-located with the **NORDUnet Conference 2016**)

# Contact Points



global network architecture

- Chris Hancock: [Chris.Hancock@aarnet.edu.au](mailto:Chris.Hancock@aarnet.edu.au)
- Rene Buch: [rbuch@nordu.net](mailto:rbuch@nordu.net)



Thank you!



APAN42 – Hong Kong – August 2016