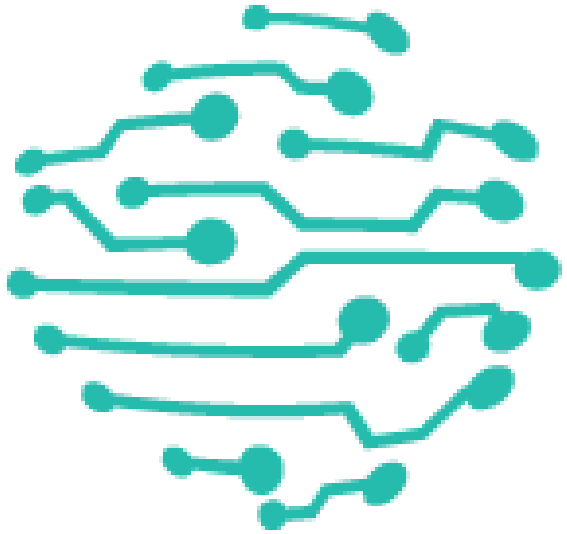
# Why a GNA ?



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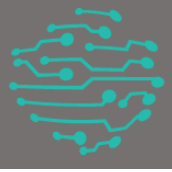
Director, Government Relations and eResearch

AARNet

# Existing NRENs

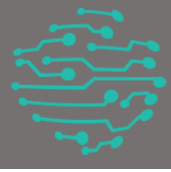


global network architecture

- **Commercially differentiated** through demand aggregation of
  - Universities
  - Research Institutes
  - Other Research and Education – colleges, schools, etc.
  - Research, Education and Administration business functions
  - Geographies – States/Regions/Countries
- **Technically differentiated** (usually) through fibre ownership/access
  - Own equipment
  - Skilled staff
  - Interconnection and peering
  - (Much) higher bandwidth, lower latency/jitter, less congestion, headroom

PLATFORMS FOR INNOVATION

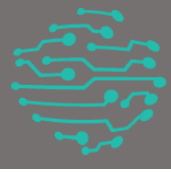
# NREN Challenges



global network architecture

- Cost of intercontinental capacity
- Availability of international capacity (to locations required)
- Collective duplication
- Sustainability (existing services)
- Ability to support/facilitate innovation (new services)
- Uniformity of researcher/research project experience
- Extending and developing NREN’s globally
- 50% Year on Year traffic growth
- And more …

# Why a GNA ?

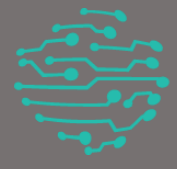


global network architecture

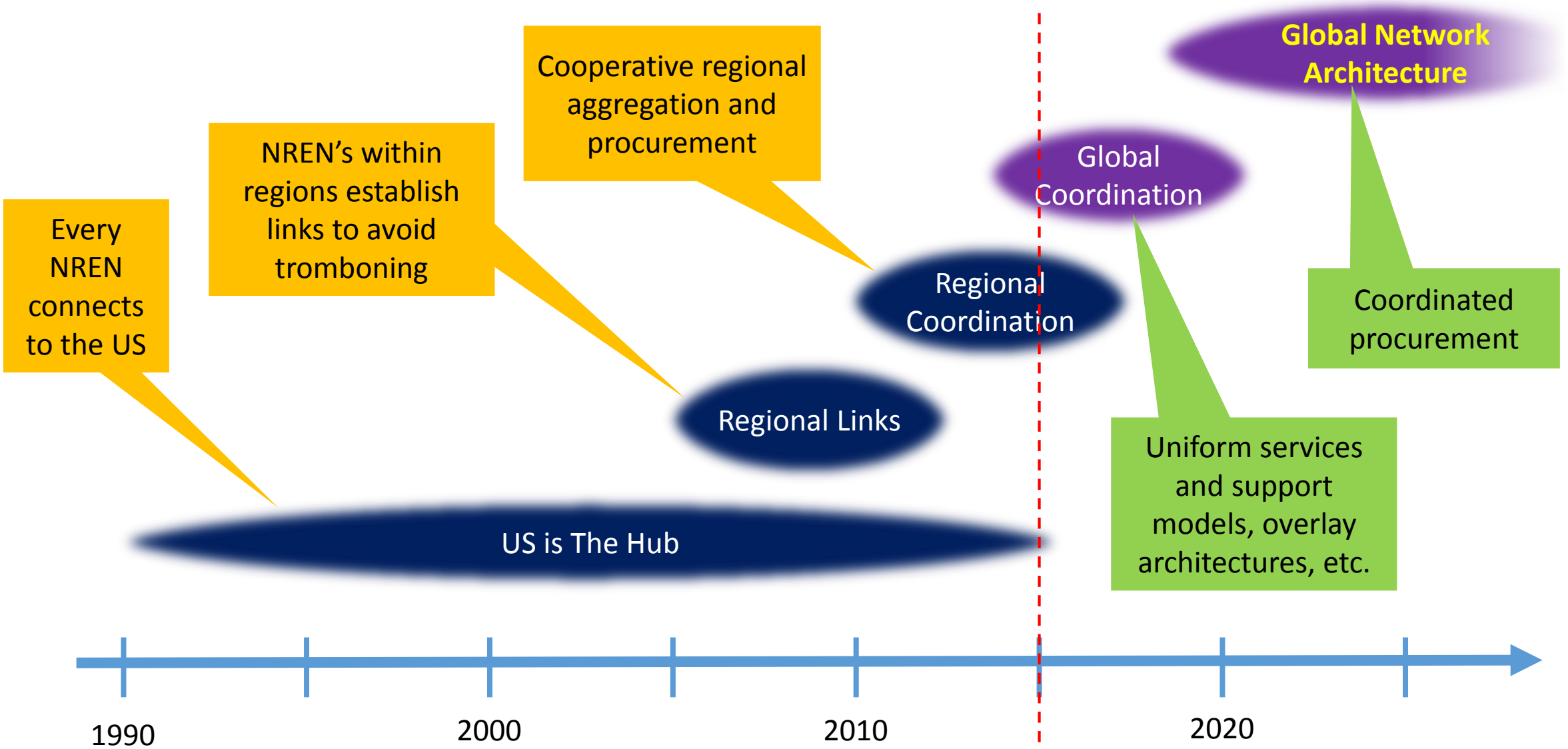
- NREN's required nationally
  - Unique technically and commercially
  - Unique consumption model
  - Delivered by direct access to/ownership of fibre
- NREN's must be internationally interconnected
  - Part of unique technical/consumption value
- International connectivity high cost
  - Very large percentage of an NREN's costs (outside US/EU)
  - Much harder to get direct access to fibre

- Need to move international connectivity to be more like national connectivity
  - Direct access to fibre/spectrum
  - Ownership vs. annual fee (more short-term CAPEX vs longer-term OPEX)
  - Aggregate demand (across countries/NRENs)

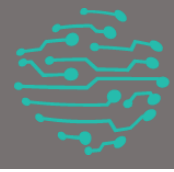
# Logical Evolution



global network architecture



# Global Network Architecture (GNA)

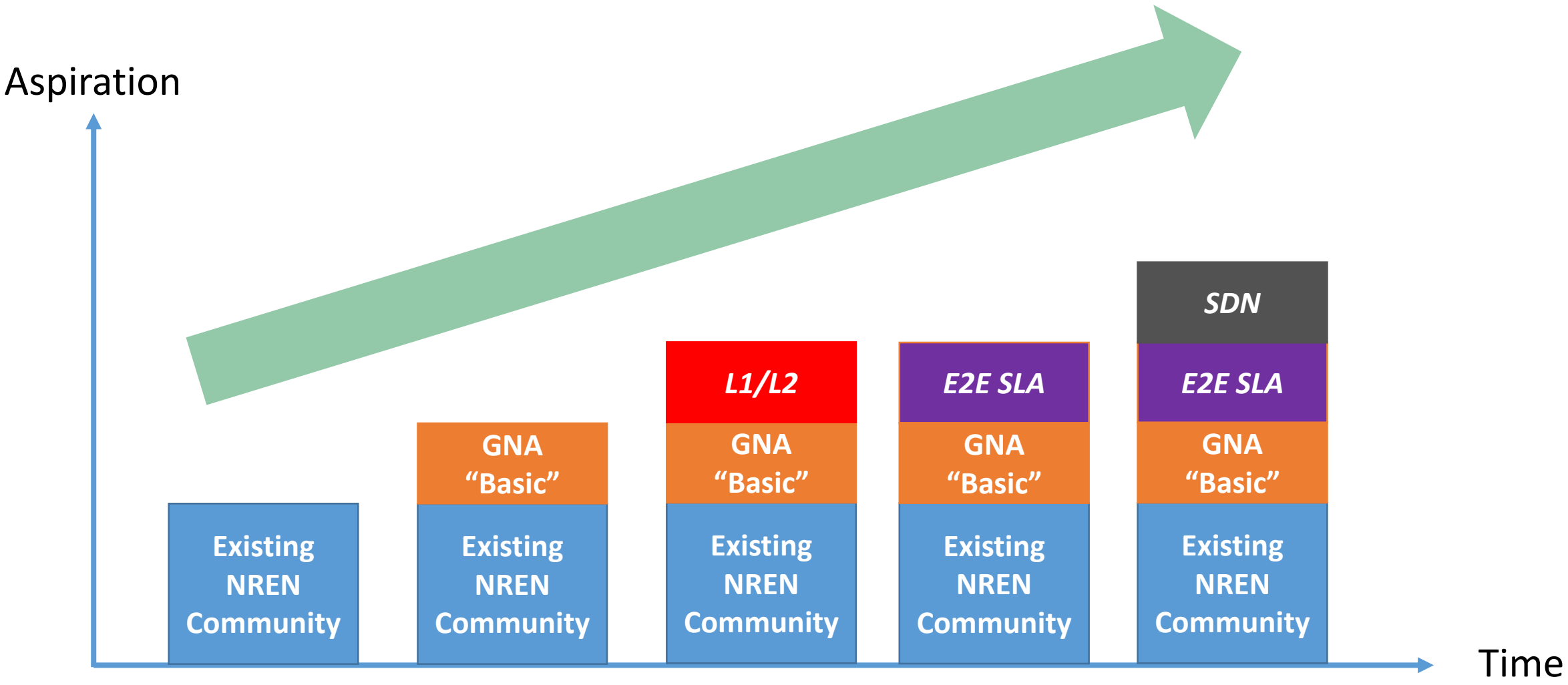


global network architecture

- The GNA is a
  - **Reference architecture** for the R&E Network community
  - **Blueprint** for intercontinental R&E Network interconnects
- Achieved by NREN's committing to
  - Contribute resources to define a current state and future state reference architecture
  - Align their spending for intercontinental bandwidth when practical to do so
- To ensure that
  - R&E Networks can better meet the expectations and requirements of their member institutions and funders

# Architectural Framework

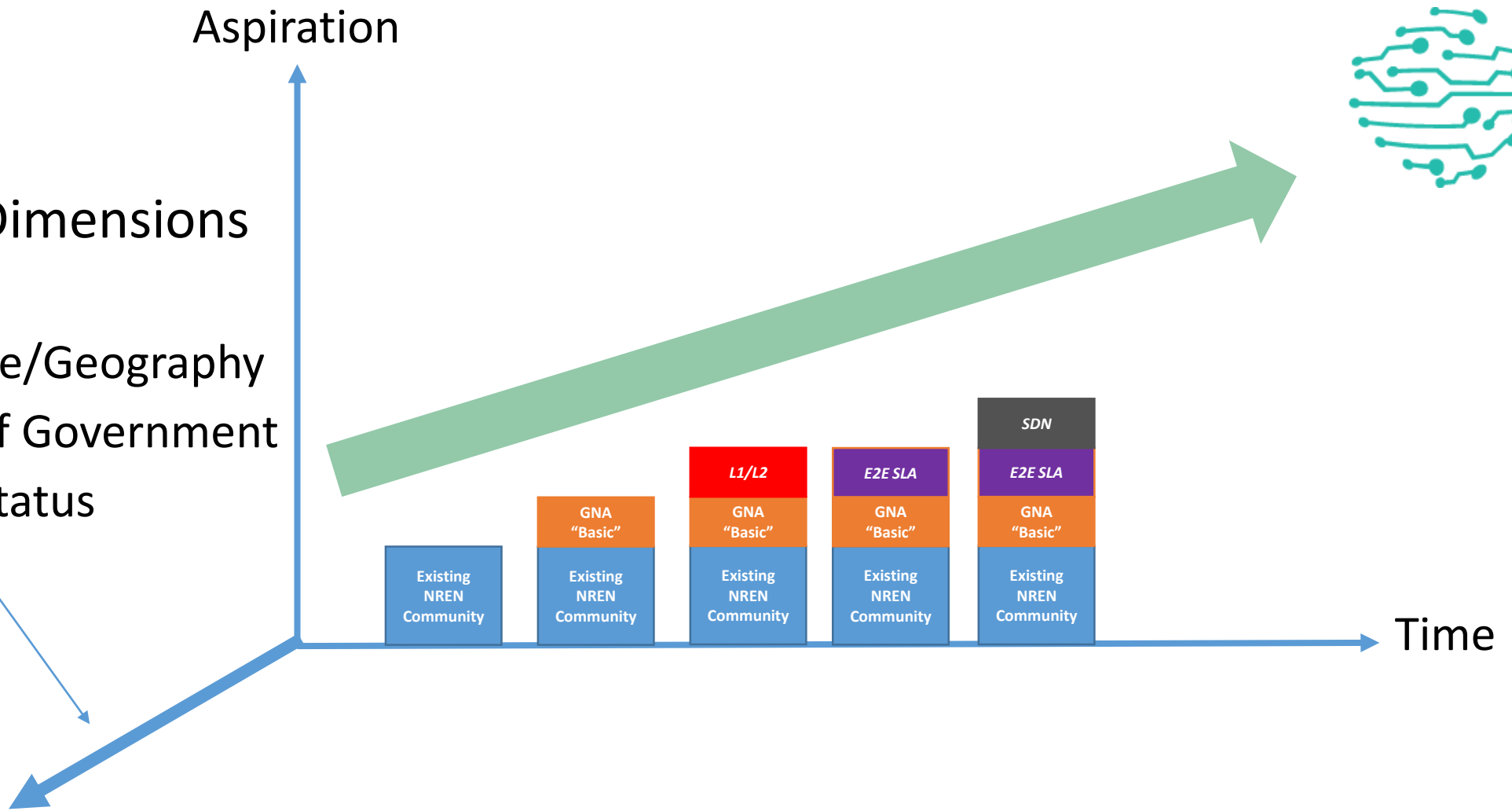
global network architecture



# Architectural Framework

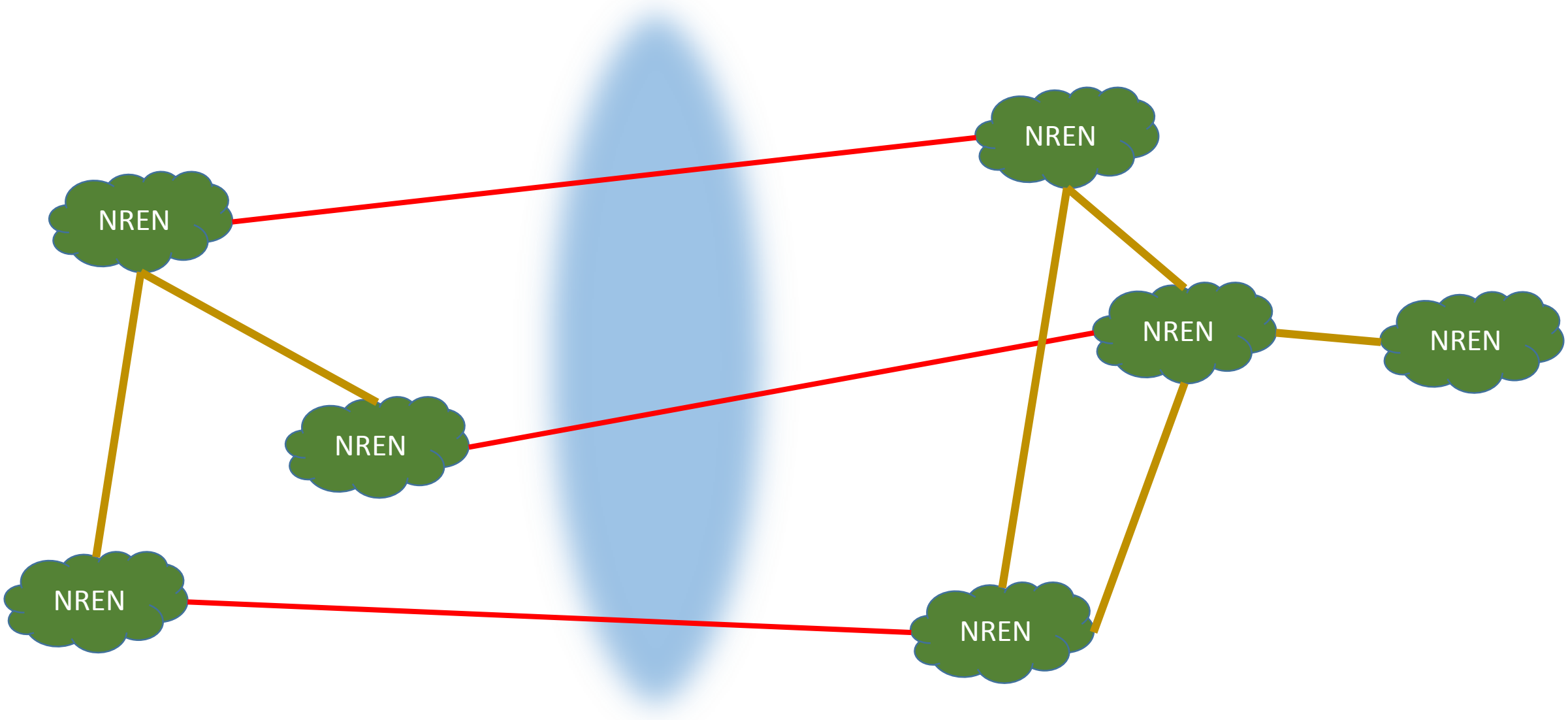
global network architecture

- Multiple Other Dimensions
  - AUP/Policy
  - Location of Fibre/Geography
  - Funding/Role of Government
  - Development Status

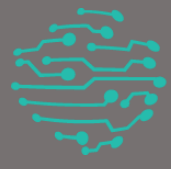


# Intercontinental – NRENs and Links

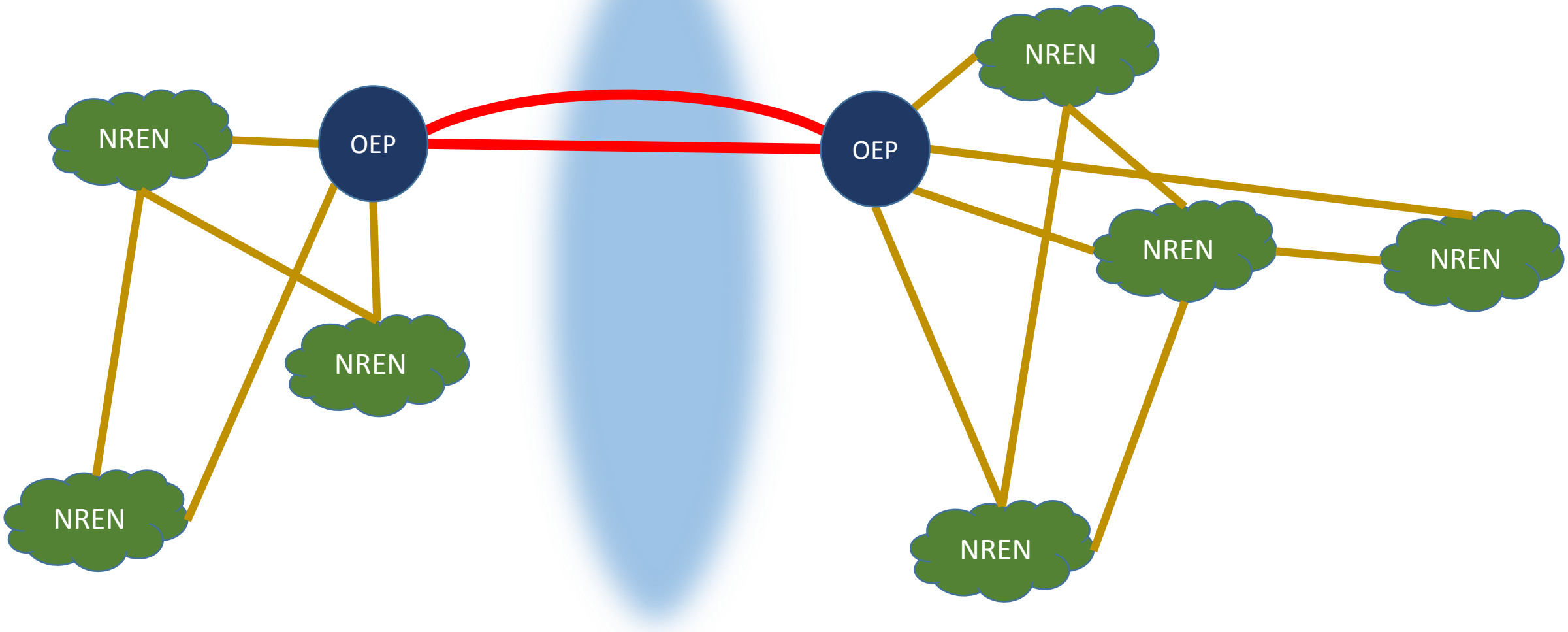




# Intercontinental – Open Exchange Points

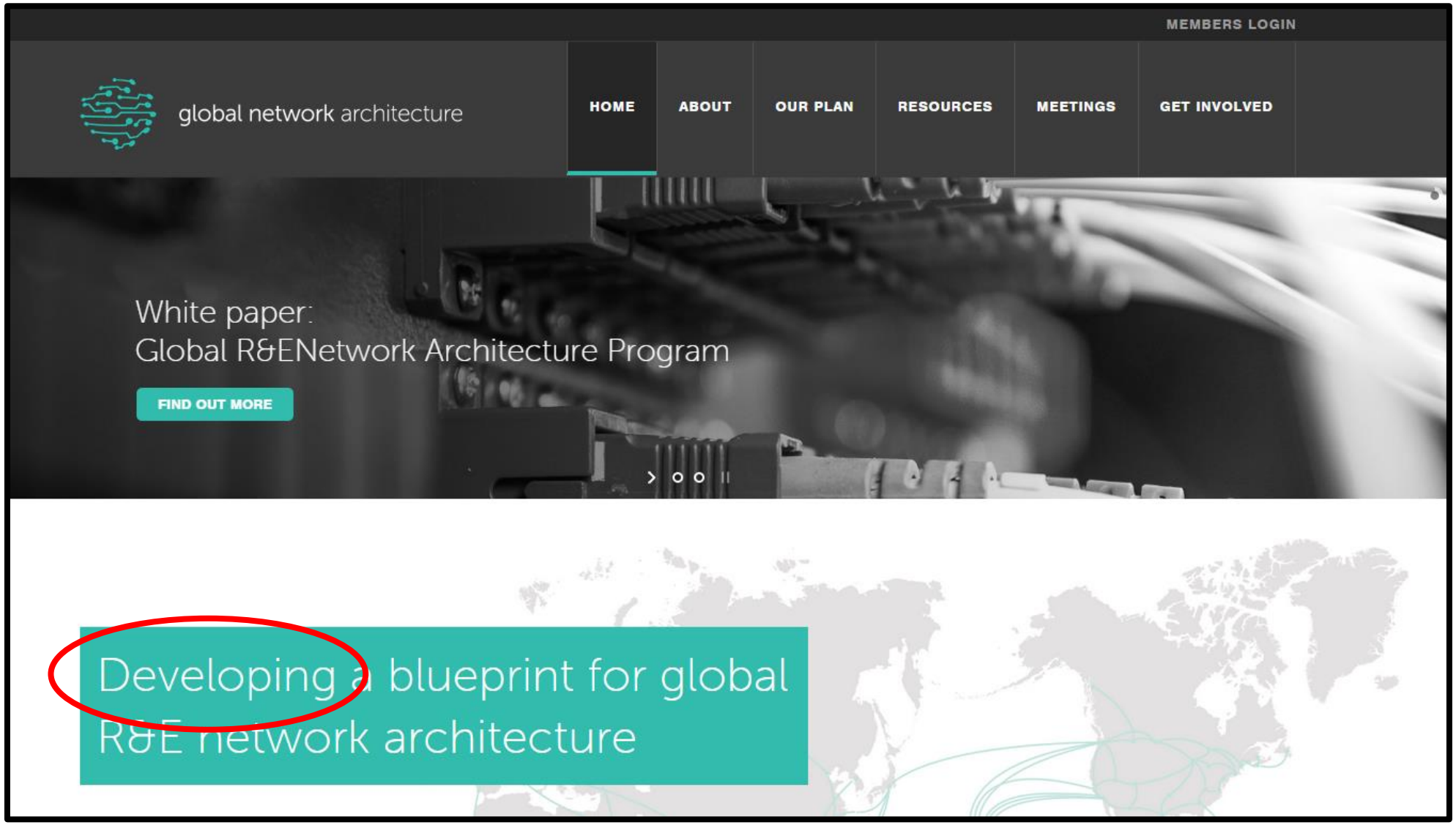


global network architecture

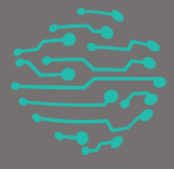


# GNA Website - http://gna-re.net/

global network architecture



# End



global network architecture

- Get involved
- Open to any NREN network architect