

# AsiaPac – Europe System 100G

CTO Forum – by VC  
Thursday, 28 June 2018  
Erik-Jan Bos – NORDUnet

- GNA is about close collaboration on intercontinental R&E networking, by:
  - Defining common architecture elements
  - Agreeing on ways to implement things
  - Joining forces when buying bandwidth
  - Learning from each other, inspiring each other
- Goals:
  - Lower costs, more “bang for the buck”
  - Focus on end-to-end networking

- 2012: 25+ individual 10G across the Atlantic
- 2012: Challenging the subsea market for 100 Gbit/s
- 2013: ANA-100G Pilot link up and running
- 2014: Resilience: Ring @ 100G
- 2014: ESnet mutual backup, NORDUnet production
- 2016: ANA-300G
- 2017: NEAAR added: 400G (+ESnet's 400G)
- 2017: APR started: 300G

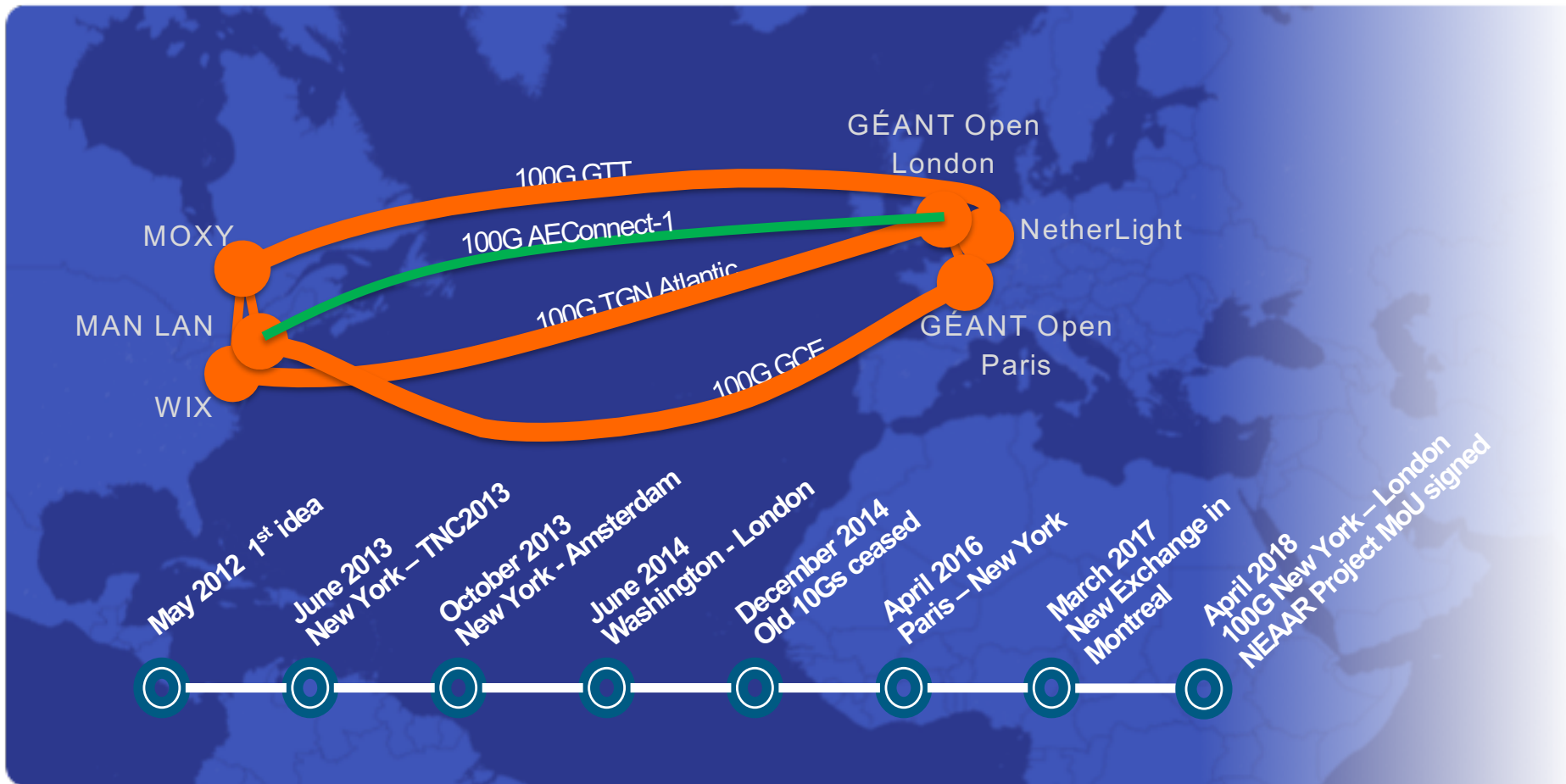
# ANA-300G today



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# ANA-300G + NEAAR = 400G bandwidth for R&E



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Mutual back-up with



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# Collaboration with ESnet & NEAAR: 800G



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APR Start:  
• Q4 2017

APR Partners:

- NICT,
- NSCC,
- SingAREN,
- Internet2,
- NII/SINET,
- Pacific Wave,
- TransPAC,
- The WIDE Project, and
- CENIC.



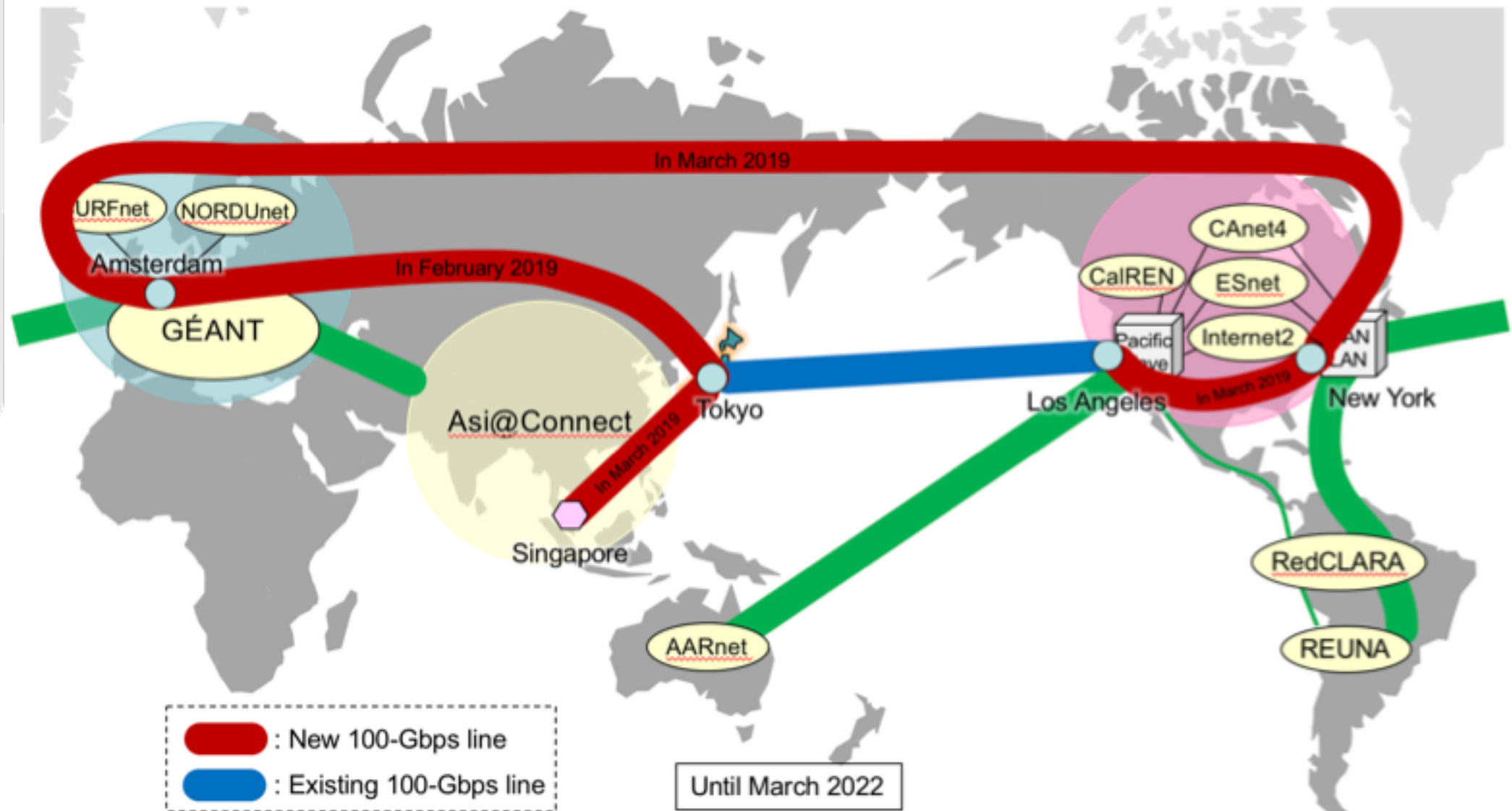
- NORDUnet's 1G between NORDUnet PoPs in Frankfurt and Hong Kong.
- A 10G between London and Beijing, dedicated to Europe-China traffic.
- A 10G between London and Singapore, dedicated to Europe-SingAREN and TEIN traffic.
- 2x 10G between London and Tokyo, dedicated to Europe-Japan traffic.



- Or... How could we create a ANA & APR like collaboration on this path
- Demands from several of the organizations
- Current efforts to start a collaboration on two levels:
  1. Jointly procuring a 100G
  2. Forming a system (ring) with SINET (Japan)

- From AsiaPac:
  - SingAREN,
  - AARNet, and
  - TEIN\*CC.
- From Europe:
  - GÉANT,
  - SURFnet, and
  - NORDUnet.
- Looking at a long-term 100G, jointly





- Current market indications for a 100G LON-SIN:
  - Average MRC Q4 2015: 675 kUSD
  - Average MRC Q4 2016: 160 kUSD
  - Average MRC Q4 2017: 74 kUSD
  - Average MRC Q2 2018: 66 kUSD



Source: TeleGeography



- AARNet recently became an anchor tenant on two cable systems
- AARNet only buys on the Wholesale Market
- First indications on “not to exceed pricing” with 6 equal partners:
  - Carrier #1: MRC = 3,700 USD
  - Carrier #2: MRC = 2,800 USD

- SingAREN's 10G run out in February 2019
- AARNet desires to spend money already in 2018
- Current ambitious plan is:
  - Work on (European) Procurement NOW
  - Sign contract in October 2018
  - RfS in December 2018





Thank You!



