



Global Network Advancement: Today and Tomorrow

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GNA-G Leadership Team

SC23, GNA-G Side Meeting, 15 November 2023, Denver Colorado, USA

Agenda



- Welcome, Agenda (5')
- GNA-G Leadership Team Update (5')
- Discovery (30')
- R&E Networks Planning and Development (30')
- Conclusion (5')

Agenda



- Welcome, Intro
- GNA-G Leadership Team Update
- Discovery
- R&E Networks Planning and Development
- Summary

GNA-G LT Update



Meetings In 2023:

1. Community VCs Q1a 2023, February 15, 2023 - WG update
2. Community VCs Q1b 2023, February 28, 2023 - DIS and AutoGOLE/SENSE WG
3. Network Automation Working Group Workshop, June 2023, Utrecht, Netherlands
4. Side Meeting @TNC23, June 2023, Tirana, Albania
5. Community VCs Q2 2023, June 26 2023 - GREN Security
6. GNA-G Update at APAN56, August 2023, Colombo, Sri Lanka
7. Side Meeting at TechEx 2023, Minneapolis MN, USA
8. Side meeting at SC23, Denver CO, USA
9. Planned: Community VCs Q4 2023, December 5-6



GNA-G LT Update

Future Meetings:

1. GNA-G Community VCs :

VC#1: Tue, 5/Dec/23, 6am-8am UTC

VC #2: Wed, 6/Dec/23 , 8pm-10pm UTC

1. Side meeting @ SCAsia - TBC

19-22 Feb 24 - Sydney, Australia

1. Side meeting @ Internet2 Community Exchange - CONFIRMED

5-7 Mar 24 - Chicago, USA



GNA-G Working Groups

- AutoGOLE/SENSE
- Data Intensive Science
- GREN Map
- Network Automation
- GNA-G Routing WG
- GREN Engineering Advancement - **NEW** from Feb 2023
- GREN Connecting Offshore Students - closed in Feb 2023
- NomCom

Proposed in Feb 2023:

- Subsea cable sensing and smart cables
- Securing the Global R&E Network
- GREN Risk Review



How can you get involved?

Join the GNA-G Community mailing-list: all@lists.gna-g.net

Join a working-group

<https://www.gna-g.net/working-groups/>

Contribute your thoughts & ideas at the next meeting/VC:

<https://www.gna-g.net/meeting/>

Reach out to the Leadership Team

Web: <https://www.gna-g.net/contact-us/>

Email: leadershipteam@lists.gna-g.net



Session 2: R&E Networks – Planning and Development

- TNC23 R&E Networks session summary
- Discussion

TNC23 Planning and Development in R&E Networks

(Side meeting) June 9, 2023

Slides by C.Guok (ESnet) and M.Usman (GÉANT)

Intercontinental Connectivity

- Information consolidation and sharing
 - Systems view of trans-oceanic connectivity as well as terrestrial footprints *[GNA]*
 - Logical connectivity view of experiments and large science collaborations, e.g., partnership resource map *[GNA]*
- Coordinated groups
 - Science engagement group to experiments approach to coordinate requirements, co-design, solutions, etc. *[Joint collaboration based on requirements of experiment, inform GNA of outcomes]*
 - Technical coordination group to explore efficiency, resiliency, etc, across the various trans-oceanic connectivity, and potentially joint operations. *[Joint collaboration based on requirements of experiment, inform GNA of outcomes]*
- Dedicate effort to work on the various coordinated tasks

Packet Layer Renewal

- Information consolidation and sharing
 - List of networks and associated services, hardware, and protocols. *[GNA]*
 - Tender information, e.g., RFP, and potentially reasoning for selection. *[Bilateral (for sensitive information), public information can be shared with GNA]*
 - Technology and vendor roadmaps. *[Bilateral (for sensitive information), public information can be shared with GNA]*
 - Network element testing tools, methodology and results. *[Bilateral for testing collaborations and sensitive information, general/public results/information shared with GNA]*
 - Work towards a unified view of what we could be tendering in 5-7 years. *[General sharing with GNA, more focused (bilateral) discussions among like minded NRENs]*
- Service coordination
 - Building consistent end-to-end services. May require us to review our services and simplify if warranted. *[Bespoke services would require bilateral cooperation and shared with GNA, general services can be addressed in GNA]*

Automation and Orchestration

- Information consolidation and sharing
 - System level architecture design documentation, e.g., block diagram. *[GNA]*
 - Workflow models and functions. *[GNA]*
 - Taking lessons learned from bi-lateral collaborations and sharing that in a larger forum. *[GNA]*
 - Socialize the NREN SLACK Automation channel. *[General SLACK]*
- Coordinated training and outreach activities. *[Bilateral activities for focused engagement, might hand over to GNA for general engagement (and if process is more matured)]*

Big Science Requirements

- Information consolidation and sharing
 - Sharing requirements gathering reports among the NRENs. *[GNA]*
 - ESnet can share how requirements workshops are done. *[Multiple forums]*
 - A register that tracks the current connectivity asks (understanding that there may be big error bars). *[GNA]*
- External engagements
 - Create a unified “global” R&E network pitch that we can use for funding agencies, experiments, etc. *[GNA++]*

Summary of potential activities



- Re-launch the **global network architecture** activity, to ensure we have a system (ie. not link) view of each region (ANA, AER, APONET, etc) and a global view of the overall GREN, in order to optimise architecture, engineering, operations, and capacity planning. This would also enable us to provide a more unified picture to big science projects.
- Create an ongoing “**packet layer renewal**” WG to provide a forum for NRENs who are going to the market to upgrade their backbone networks. The main aim is information sharing, so that we can all benefit from each others’ procurement process. ie. share tender documents & outcomes of technical reviews, and get NRENs who have completed a procurement to present to the community. This process should aim to pull together a unified approach feeding into the next 5-7 year cycle of procurements, i.e., what type of chips, buffering requirements, etc. Finally, we should also create a repository of tools & methodologies for lab testing.
- Keep driving the **Network Automation** WG: ensure that it supports both focused collaboration/co-development, as well as regular information sharing sessions for those who aren't in a position to participate more actively at a given time
- Create a **register of big science / data intensive projects** which NRENs should be engaging with. Develop a "**GREN pitch**" and **comms strategy**, so that we don't reinvent the wheel for each big science project, and provide them with a clear understanding of what the GREN can do and what funding would be required.

Discussion



Which collaboration models would be most useful in each of the recognised areas?

- (Best effort-based) Working groups
- Committed partnership
- Resource sharing (best-effort / committed...?)
- Other - please specify

Any other area of interest apart from:

- International connectivity / Network renewal / A&O / Big Science Support



Thank you