

## GLIF Americas (GLIF-Am) Working Group Meeting

Wednesday, 19 September 2018

Co-Located With the 18th Annual Global LambdaGrid Workshop

Organized by Joe Mambretti and Maxine Brown

DRAFT NOTES distributed June 12, 2019

### ATTENDEES

|                   |                         |                              |
|-------------------|-------------------------|------------------------------|
| Maxine Brown      | UIC/StarLight           | maxine@uic.edu               |
| Buseung Cho       | KISTI/KREONET/KRLight   | bscho@kisti.re.kr            |
| Eli Dart          | ESnet                   | dart@es.net                  |
| Aluizio Hazin     | RNP                     | aluizio.hazin@rnp.br         |
| John Hess         | CENIC/Pacific Wave      | jhess@cenic.org              |
| Jonah Keough      | PNWGP/Pacific Wave      | keough@uw.edu                |
| Raj Kettimuthu    | ANL                     | kettimut@anl.gov             |
| Andrew Lee        | Indiana University      | leea@iu.edu                  |
| Yan Luo           | U Massachusetts Lowell  | yan_luo@uml.edu              |
| Marc Lyonnais     | Ciena                   | mlyonnai@ciena.com           |
| Joe Mambretti     | StarLight/MREN/iCAIR/NU | j-mambretti@northwestern.edu |
| Kevin Meynell     | GLIF Secretariat        | meynell@glif.is              |
| Rogério Motitsuki | ANSP/AmLight            | rogerio@ansp.br              |
| Chanjin Park      | KISTI/KREONET           | pcj0722@kisti.re.kr          |
| Yves Poppe        | NSCC                    | yves@nscg.sg                 |
| Dave Reese        | CENIC/Pacific Wave      | dave@cenic.org               |
| Marcos Schwarz    | RNP                     | marcos.schwarz@rnp.br        |
| Michael Stanton   | RNP                     | michael@rnp.br               |
| Thomas Tam        | CANARIE                 | thomas.tam@canarie.ca        |
| David Wilde       | AARnet                  | david.wilde@aarnet.edu.au    |
| Rod Wilson        | Ciena                   | rwilson@ciena.com            |
| Linda Winkler     | StarLight/ANL           | winkler@mcs.anl.gov          |

### A. Meeting Objectives

1. Meeting logistics overview
2. Introductions
3. Review of agenda/meeting objectives
4. Review of key topics/conclusions from the GLIF-Am 2017 meeting – Minutes available at <https://www.glif.is/meetings/2017/glif-am/>

### B. Key Initiatives Related to North and South American R&E International Networking – NSF IRNC (grouped by PIs, institutions and/or collaborators). Relevant NSF CC\* awards also included.

For a list of current IRNC awards, see:

<https://nsf.gov/awardsearch/simpleSearchResult?queryText=irnc&ActiveAwards=true>

1. a. IRNC: Backbone: TransPAC4
- b. IRNC: Backbone: NEAAR: Networks for European, American, and African Research – Andrew Lee, Indiana University  
**PPTs: LEE-GLIFAm2018-TransPAC-NEAAR.pdf**
  - TransPAC (in partnership with others): Asia Pacific Rim – Seattle and Tokyo; Los Angeles to Tokyo; Tokyo to Hong Kong to Singapore. Also, 10G from Guam to Hong Kong, and Guam to Japan to Taiwan to Hong Kong.
  - NEAAR (working with GEANT): New York to London to Africa

- c. IRNC: AMI: NetSage: An Open, Privacy-Aware, Network Measurement, Analysis, and Visualization Service – Andrew Lee (Indiana) for Jennifer Schopf, Indiana U
  - d. IRNC: NOC: Global Research Network Operations Center at Indiana University: Performance Engagement and Monitoring and Visualization – Andrew Lee (Indiana) for David Jent, Indiana U
  - e. CC\* NPEO: EPOC – The Research and Science Engagement Center: A Production Platform for Operations, Applied Training, Monitoring, and R&E Support – Andrew Lee (Indiana) for Jennifer Schopf, Indiana U  
**PPTs: [LEE-GLIFAm2018-NOC-NetSage-EPOC.pdf](#)**
    - GNOC (Global NOC) and IRNC NOC recently collaborated on <https://globalresearchmap.org>
    - NetSage is setting up deployments for other networks (e.g., ANA, APR-Asia Pacific Ring, etc.)
    - EPOC (Engagement and Performance Operations Center is funded by the NSF CC\* program and has 5 goals: roadside assistance; science deep dives (science engagement); network analysis; services “in a box”; and, training.
2. a. CC\* Network Design: Upgrading Guam Network to Connect to Internet2 and Create a Science DMZ, and GOREX – Dave Reese (CENIC) for Rommel Hildago, Univ. of Guam  
**PPTs: [REESE-HIDALGO-GLIFAm18-GOREX.pdf](#)**
  - b. IRNC: Backbone: SXTransPORT Pacific Islands Research and Education Network (PIREN)  
**PPTs: [LASSNER-APAN46-01-01-04-01.pdf](#)**  
 Note: David Lassner gave a keynote at the recent APAN 46 meeting. His PPTs from that talk have been downloaded and are made available here.
  - c. IRNC: RXP: Pacific Wave Expansion Supporting SDX & Experimentation – Dave Reese, CENIC  
**PPTs: [REESE-GLIFAm2018-PacificWave.pdf](#)**  
 Reese also spoke about SDX but did not have supporting PPTs.
3. IRNC: Backbone: AmLight Express and Protect (ExP) – Aluizio Hazin (RNP) for Julio Ibarra, FIU  
**PPTs: [HAZIN-IBARRA-GLIFAm2018-AmLight-ExP.pdf](#)**
  4. IRNC: RXP: AtlanticWave SDX – Marcos Schwarz (RNP) for Julio Ibarra, FIU  
**PPTs: [SCHWARZ-IBARRA-GLIFAm2018-AtlanticWave-SDX.pdf](#)**
  5. IRNC: RXP: StarLight SDX – Joe Mambretti, Northwestern University  
**PPTs: [MAMBRETTI-GLIF2018-TECH-StarLight.pdf](#)**  
 Note: Joe Mambretti gave a StarLight presentation during the GLIF meeting which is being included here. He did not show the PPTs during the GLIF-Am meeting.  
*StarLight Capacity:* 8700 was upgraded to 8700HD. Showcasing multi-100G experiments for the SC18 conference. *Programmability:* StarLight supports many 100G testbeds. Working with GENI (P4 testbed for computer scientists) and Chameleon (tenant networks). Working with Alex Szalay on Open Storage Network.
  6. IRNC: AMI: The InSight Advanced Performance Measurement System – Buseung Cho, KISTI/KREONET, on behalf of Jens Gregor, U Tennessee  
**PPTs: [CHO-GREGOR-GLIFAm2018-InSight\\_2018](#)**
  7. IRNC: AMI: Collaborative Research: Software-Defined and Privacy-Preserving Network Measurement Instrument and Services for Understanding Data-Driven Science Discovery –Yan Luo, University of Massachusetts, Lowell  
**PPTs: [LUO-GLIFAm2018-AMIS.pdf](#)**

8. IRNC: ENgage: Building Network Expertise and Capacity for International Science Collaboration – John Hess (CENIC) for Steve Huter, U Oregon, NSRC  
**PPTs: [HESS-HUTER-GLIFAm2018-NSRC-PRP-Update.pdf](#)**
9. CC\*DNI DIBBs: The Pacific Research Platform (PRP) – John Hess (CENIC) for Tom DeFanti, Calit2-QI/UCSD  
**PPTs: [HESS-DeFANTI-GLIFAm2018-PRP.pdf](#)**  
**PPTs: [MOORE\\_NORDUnet\\_1809.pdf](#)**  
Hess also referred to Richard Moore’s PRP presentation at the NORDUnet 2018 conference, which was downloaded and is included here.

**C. Key Initiatives Related to North and South American R&E International Networking – Other U.S. networks, international networks, and initiatives**

1. DOE ESnet international networking initiatives – Eli Dart, ESnet
2. LHCOPN/LHCONE P2P Service – Gerben van Malenstein, SURFnet  
**PPTs: [vanMALENSTEIN-GLIF2018-lhc-p2p.pdf](#)**  
Note: Gerben van Malenstein gave a GLIF 2018 plenary presentation “AutoGOLE and LHCONE Point-to-Point Service.” PPTs for that presentation are included here.
3. CANARIE international networking initiatives – Thomas Tam, CANARIE  
No PPTs. CANARIE is currently applying for new government funding for the next 5 years. They are wrapping up activities they committed to do under the current mandate.
4. Brazil GOLES; Southern Light (SOL) and South Atlantic Crossroads (SAX) – Michael Stanton, RNP  
**PPTs: [STANTON-GLIFAm2018-RNP.pdf](#)**
5. National SuperComputing Centre (NSCC), Singapore – Yves Poppe, NSCC  
**PPTs: [POPPE-GLIFAm2018-Asia-update.pdf](#)**

**E. Progress on Developing the Global Research Platform – Joe Mambretti, Northwestern U.**

**F. Major Trends in Americas’ International Connection Requirements and Communities Served**  
Areas of potential new major technology-based opportunities, especially projections for resources required *beyond* bandwidth, were briefly discussed, including the Global Research Platform, AI testbeds, and Quantum networks.

*In 2017, we discussed tenant networking and integration of R&E networks with cloud providers. We previously discussed Software Defined Networks (SDN), SDN Exchanges (SDXs), Software Defined Infrastructure (SDI), Network Function Virtualization (NFV), Cloud Computing, Green Networking, Transoceanic Fiber Builds, Research Testbeds, Science DMZs, Distributed NOCs, Data Transfer Nodes (DTNs), etc.*

**G. Wrap-Up**