2nd GLOBAL RESEARCH PLATFORM WORKSHOP

Final Program – September 24, 2021
Co-Located with eScience 2021
September 20-22, 2021 – Europe and North/South America
September 22-24, 2021 – Asia Pacific, Southeast Asia, and North/South America

FINAL PROGRAM: North/South America and Europe

8:00 am CDT (6:00 am PDT) = 3:00 pm Innsbruck, Austria (GMT+2 – 7 hours ahead of CDT)

CDT	GMT+2	MONDAY, SEPTEMBER 20, 2021
8:00 - 8:10 am	3:00 - 3:10 pm	**Welcome and GRP Introduction – Maxine Brown,** UIC
8:10 - 8:40 am **30 min**	3:10 - 3:40 pm	**Workshop Overview** **Global Research Platform (GRP):** A Software Defined, Globally Distributed, Multi-Domain Computational Science Environment – Architectural Framework, Innovations, Future Directions – **Joe Mambretti**, StarLight/iCAIR/NU *Overview: Science drivers and technology requirements for such applications as the High Luminosity LHC, SKA Australia Telescope National Facility, Vera Rubin Observatory, KSTAR Korea Superconducting Tokamak Advanced Research, HL-Synchrotrons, and BioInformatics/Genomics.*
8:40 - 10:00 am **4 talks @ 20 min each**	3:40 - 5:00 pm	**Session 1 Theme: Next Generation Research Platform Frameworks** **Moderator: Maxine Brown,** UIC The Science DMZ in GRP: Scaling Up – **Eli Dart**, ESnet Distributed Computing Operations For HL-LHC With Operational Intelligence – **Federica Legger**, National Institute of Nuclear Physics (INFN) Prototype National Research Platform – **Frank Wuerthwein**, UC San Diego/SDSC Evolution of OSG Resources and Operations – **Derek Weitzel,** U Nebraska Lincoln
10:00 - 10:10 am	5:00 - 5:10 pm	**Break (10 min)**
10:10- 11:30 am **4 talks @ 20 min each**	5:10 - 6:30 pm	**Session 2 Theme: Orchestration Among Multi-Domains** **Moderator: Tom DeFanti,** Calit2-QI/UC San Diego Pacific Wave Distributed Environments – **Sana Bellamine**, CENIC AMPATH/AmLight Distributed Environments – **Vasilka Chergarova**, CIARA/FIU Admiralty Federation and Netbox Infrastructure Resource Modeling (IRM) on the Nautilus Distributed Hypercluster – **John Graham**, Calit2-QI/UC San Diego

		PRP/NRP Software Defined Infrastructure – **Dima Mishin**, Calit2-QI/UC San Diego
11:30am - 12:50 pm **4 talks @ 20 min each**	6:30 - 7:50 pm	**Session 3 Theme: Large-Scale Data WAN Transport** **Moderator: Jim Chen,** StarLight/iCAIR/NU Rucio/BigData Express/SENSE (ROBIN): A Next-Generation High-Performance Data Service Platform – **Wenji Wu**, Fermilab DTN as a Service – **Se-young Yu**, StarLight/iCAIR/NU SCAsia Data Mover Challenge – **Francis Lee,** Nanyang Technological University Multi-Experiment Data Flow Orchestration – **Mario Lassnig**, CERN
12:50 - 1:00 pm	7:50 - 8:00 pm	**Closing Session for Day 1 – Joe Mambretti,** StarLight/iCAIR/NU

CDT	GMT+2	TUESDAY, SEPTEMBER 21, 2021
8:00 - 8:10 am	3:00 - 3:10 pm	**Introduction to Day 2 – Joe Mambretti,** StarLight/iCAIR/NU
8:10 - 9:30 am **4 talks @ 20 min each**	3:10 - 4:30 pm	**Session 4 Theme: High-Fidelity Data Flow Monitoring, Visualization, Analytics, Diagnostic Algorithms, Event Correlation AI/ML/DL** **Moderator: Sana Bellamine,** CENIC AI/ML/DL Response: Big Data and AI – **Anna Giannakou**, Lawrence Berkeley National Laboratory AI/ML/DL Response: Network Optimized Transfer for Experimental Data (NOTED) – **Joanna Waczynska,** Wroclaw University of Science and Technology Packet and Flow Marking for Global Science Domains – **Shawn McKee,** U Michigan Agile Optical 400-800Gbps-Tbps Optical Networking – **Marc Lyonnais**, Ciena
9:30 - 11:10 am **5 talks @ 20 min each**	4:30 - 6:10 pm	**Session 5 Theme: Data-Intensive Science and Programmable Networking** **Moderator: Vasilka Chergarova,** CIARA/FIU Segment Routing – **Paola Grosso**, UvA ESnet6 High-Touch - A Flexible Programmable Network Platform – **Chin Guok**, ESnet Infrastructure and Services for Domain Science Workflow Innovation (AutoGOLE/NSI/MEICAN/SENSE/Open Exchanges) – **Tom Lehman**, ESnet Operationalizing Programmable Networks: Extensible Production Grade P4 NOSes – **Marcos Schwarz,** RNP ESnet SDN Enable for Big Data Science – **John MacAuley**, ESnet

11:10 - 11:20 am	6:10 - 6:20 pm	**Break (10 min)**
11:20am- 12:40 pm **4 talks @ 20 min each**	6:20 - 7:40 pm	**Session 6 Theme: Network and Communication Service Extension and Automation** **Moderator: Paola Grosso,** UvA SURFnet8 - Evolving from Device Automation to Service Orchestration – **Peter Boers**, SURF KREONET Optimized Networking Infrastructure and Service for Big Science – **Buseung Cho**, KISTI Network Management as a Service (NMaaS) – **Pavle Vuletić**, U Belgrade Asia Pacific Research Platform – **Andrew Howard**, Australian National University
12:40 - 12:50 pm	7:40 - 7:50 pm	**Closing Session for Day 2 – Joe Mambretti,** StarLight/iCAIR/NU

CDT	GMT+2	WEDNESDAY, SEPTEMBER 22, 2021
8:00 - 8:10 am	3:00 - 3:10 pm	**Introduction to Day 3 – Joe Mambretti,** StarLight/iCAIR/NU
8:10 - 8:50 am **40 min**	3:10 - 3:50 pm	**Session 7 Theme: International Testbeds for Data-Intensive Science** **Moderator: Joe Mambretti,** StarLight/iCAIR/NU International Testbeds and Systems Requirements for Data-Intensive Sciences – **Harvey Newman**, Caltech
8:50 - 10:10 am **4 talks @ 20 min each**	3:50 - 5:10 pm	**Session 7 Theme: International Testbeds for Data-Intensive Science, *continued*** GÉANT RARE P4 Testbed – **Frédéric Loui**, GÉANT/RENATER StarLight and International P4 Experimental Networks Testbed – **Jim Chen**, StarLight/iCAIR/NU FABRIC and FAB: Think Outside the Sandbox – **Anita Nikolich**, UIUC BRIDGES – **Jerry Sobieski,** George Mason University
10:10 - 10:20 am	5:10 - 5:20 pm	**Closing Session for GRP Workshop: North/South America and Europe – Joe Mambretti,** StarLight/iCAIR/NU

FINAL PROGRAM: North/South America and Asia Pacific and Southeast Asia

6:00 pm CDT = 8:00 am Tokyo, Japan (GMT+9 – 14 hours ahead of CDT)

An asterisk [*] after a talk and speaker's name indicates that the presentation was given earlier in the week during the first part of the 2GRP Workshop; however, given the issue of multiple time zones, these talks will be summarized. Full presentations will be posted on the 2nd Global Research Platform Workshop website.

CDT Sept 22	**GMT+9** Sept 23	**WEDNESDAY, SEPTEMBER 22, 2021 (North/South America) THURSDAY, SEPTEMBER 23, 2021 (Tokyo, Japan)**
6:00 - 6:10 pm	8:00 - 8:10 am	**Welcome and GRP Introduction – Maxine Brown,** UIC
6:10 - 6:40 pm **30 min**	8:10 - 8:40 am	**Global Research Platform (GRP):** A Software Defined, Globally Distributed, Multi-Domain Computational Science Environment – Architectural Framework, Innovations, Future Directions **– Joe Mambretti,** StarLight/iCAIR/NU *Overview: Science drivers and technology requirements for such applications as the High Luminosity LHC, SKA Australia Telescope National Facility, Vera Rubin Observatory, KSTAR Korea Superconducting Tokamak Advanced Research, HL-Synchrotrons, and BioInformatics/Genomics.*
6:40 - 7:45 pm **3 talks – 20 min each; 1 summary @ 5 min**	8:40 - 9:45 am	**Session 1 Theme: Next Prototype Research Platform Frameworks** **Moderator: Maxine Brown,** UIC The Science DMZ in GRP: Scaling Up – **Eli Dart**, ESnet Prototype National Research Platform – **Frank Wuerthwein**, UC San Diego/SDSC Evolution of OSG Resources and Operations – **Derek Weitzel,** U Nebraska Lincoln Distributed Computing Operations For HL-LHC With Operational Intelligence – **Federica Legger**, National Institute of Nuclear Physics (INFN) [*]
7:45 - 7:55 pm	9:45 - 9:55 am	**Break (10 min)**
7:55 - 9:15 pm **4 talks – 20 min each**	9:55 - 11:15 am	**Session 2 Theme: Session 2: Orchestration Among Multi-Domains** **Moderator: Tom DeFanti,** Calit2-QI/UC San Diego Pacific Wave Distributed Environments – **Sana Bellamine**, CENIC AMPATH/AmLight Distributed Environments – **Vasilka Chergarova**, CIARA/FIU Admiralty Federation and Netbox Infrastructure Resource Modeling (IRM) on the Nautilus Distributed Hypercluster – **John Graham**, Calit2-QI/UC San Diego

		PRP/NRP Software Defined Infrastructure – **Dima Mishin**, Calit2-QI/UC San Diego
9:15 - 10:20 pm **3 talks @ 20 min each; 1 summary @ 5 min**	11:15am-12:20 pm	**Session 3 Theme: Large-Scale Data WAN Transport** **Moderator: Jim Chen,** StarLight/iCAIR/NU Rucio/BigData Express/SENSE (ROBIN): A Next-Generation High-Performance Data Service Platform – **Wenji Wu**, Fermilab DTN as a Service – **Se-young Yu**, StarLight/iCAIR/NU SCAsia Data Mover Challenge – **Francis Lee,** Nanyang Technological University Multi-Experiment Data Flow Orchestration – **Mario Lassnig**, CERN [*]
10:20 - 10:30 pm	12:20 - 12:30 pm	**Closing Session for Day 1 – Joe Mambretti,** StarLight/iCAIR/NU

CDT Sept 23	**GMT+9** Sept 24	**THURSDAY, SEPTEMBER 23, 2021 (North/South America) FRIDAY, SEPTEMBER 24, 2021 (Tokyo, Japan)**
6:00 - 6:10 pm	8:00 - 8:10 am	**Introduction to Day 2 – Joe Mambretti,** StarLight/iCAIR/NU
6:10 - 6:50 pm **40 min**	8:10 - 8:50 am	**International Testbeds for Data-Intensive Science** **Moderator: Joe Mambretti,** StarLight/iCAIR/NU International Testbeds and Systems Requirements for Data-Intensive Sciences – **Harvey Newman**, Caltech
6:50 - 8:10 pm **4 talks @ 20 min each**	8:50 - 10:10 am	**Session 4 Theme: High-Fidelity Data Flow Monitoring, Visualization, Analytics, Diagnostic Algorithms, Event Correlation AI/ML/DL** **Moderator: Sana Bellamine**, CENIC Packet and Flow Marking for Global Science Domains – **Shawn McKee,** U Michigan AI/ML/DL Response: Big Data and AI – **Anna Giannakou**, Lawrence Berkeley National Laboratory Agile Optical 400-800 Gbps-Tbps Optical Networking – **Marc Lyonnais**, Ciena AI/ML/DL Response: Network Optimized Transfer for Experimental Data (NOTED)-– **Joanna Waczynska**, Wroclaw University of Science and Technology
8:10 - 9:35 pm	10:10 - 11:35 am	**Session 5 Theme: Data-Intensive Science and Programmable Networking** **Moderator: Vasilka Chergarova,** CIARA/FIU

4 talks @ 20 min each; 1 summary @ 5 min		ESnet6 High-Touch: A Flexible Programmable Network Platform – **Chin Guok**, ESnet Infrastructure and Services for Domain Science Workflow Innovation (AutoGOLE/NSI/MEICAN/SENSE/Open Exchanges) – **Tom Lehman**, ESnet Operationalizing Programmable Networks: Extensible Production Grade P4 NOSes – **Marcos Schwarz,** RNP ESnet SDN Enable for Big Data Science – **John MacAuley**, ESnet Segment Routing – **Paola Grosso**, UvA [*]
9:35 - 9:45 pm	11:35 - 11:45 am	**Break (10 min)**
9:45 - 10:20 pm **1 talk @ 20 min each; 3 summary @ 5 min**	11:45am - 12:20 pm	**Session 6 Theme: Network and Communication Service Automation** **Moderator: Yves Poppe,** NSCC KREONET Optimized Networking Infrastructure and Service for Big Science – **Buseung Cho**, KISTI [*] Asia Pacific Research Platform – **Andrew Howard**, Australian National University SURFnet8 - Evolving from Device Automation to Service Orchestration – **Peter Boers**, SURF [*] Network Management as a Service (NMaaS) – **Pavle Vuletić**, U Belgrade [*]
10:20 - 11:40 pm **4 talks @ 20 min each**	12:20 - 1:40 pm	**Session 7 Theme: International Testbeds for Data-Intensive Science** **Moderator: Joe Mambretti,** StarLight/iCAIR/NU FABRIC and FAB: Think Outside the Sandbox – **Anita Nikolich**, UIUC BRIDGES – **Jerry Sobieski,** George Mason University StarLight and International P4 Experimental Networks Testbed – **Jim Chen**, StarLight/iCAIR/NU GÉANT RARE P4 Testbed – **Frédéric Loui**, GÉANT/RENATER
11:40 - 11:50 pm	1:40 - 1:50 pm	**Closing Session for the GRP Workshop: North/South America and Asia Pacific and Southeast Asia – Joe Mambretti,** StarLight/iCAIR/NU