The Research Engagement function in GÉANT

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Head of Research Engagement and Support

SEE User Forum
3 November 2021

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User engagement & support

- Why we do it
- What is it
- How it works
- The impact it has

Why provide user support?

- Promote scientific excellence
- Promote interoperability
- Improve access to research data (FAIR)
- Understand what users want and need
- Generate additional revenues

What is User Engagement

- Talking to users
- Providing users with a voice in the GÉANT community
- Relationship management of international user groups
- Finding new projects and communities

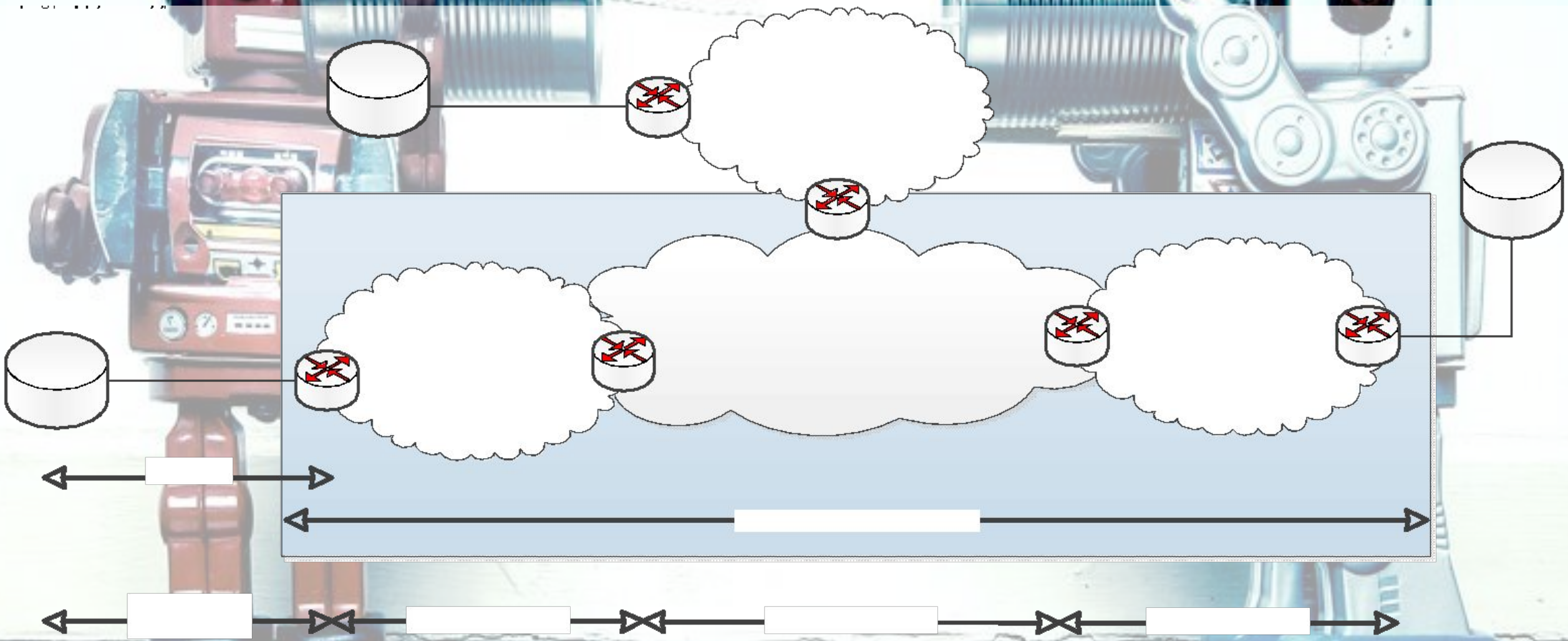
User engagement activities

- Attend relevant events (conferences, exhibition booths, presentations at user's events)
- Inviting users to participate in GÉANT/NREN events
- Establish enhanced partnerships
- Distribute outreach material
- Perform PR work

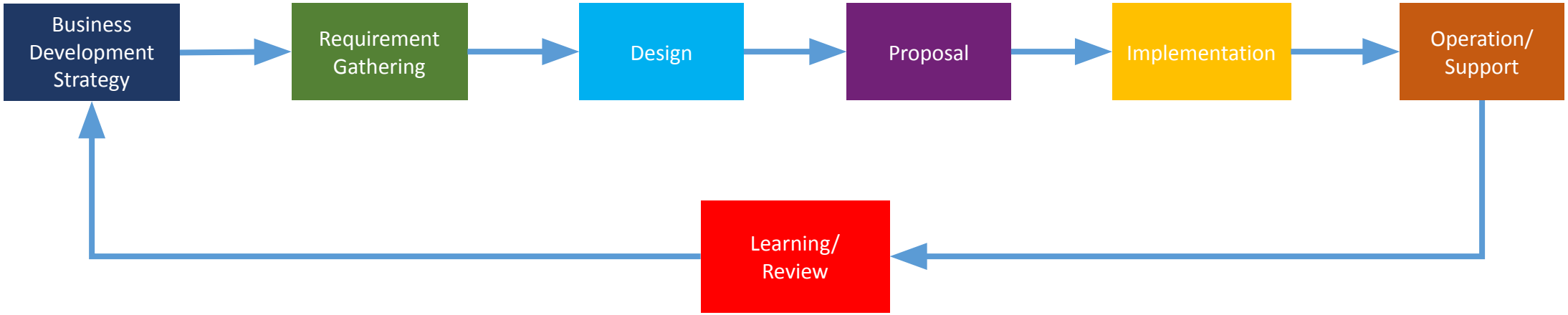
How we provide user support

- Intelligence gathering (requirement analysis, stakeholder maps, etc.)
- Coordination of service supply chain (SPOC)
- Contractual facilitation
- Consultancy
- End-to-end network performance support
- Bid management

SPOC



User support process

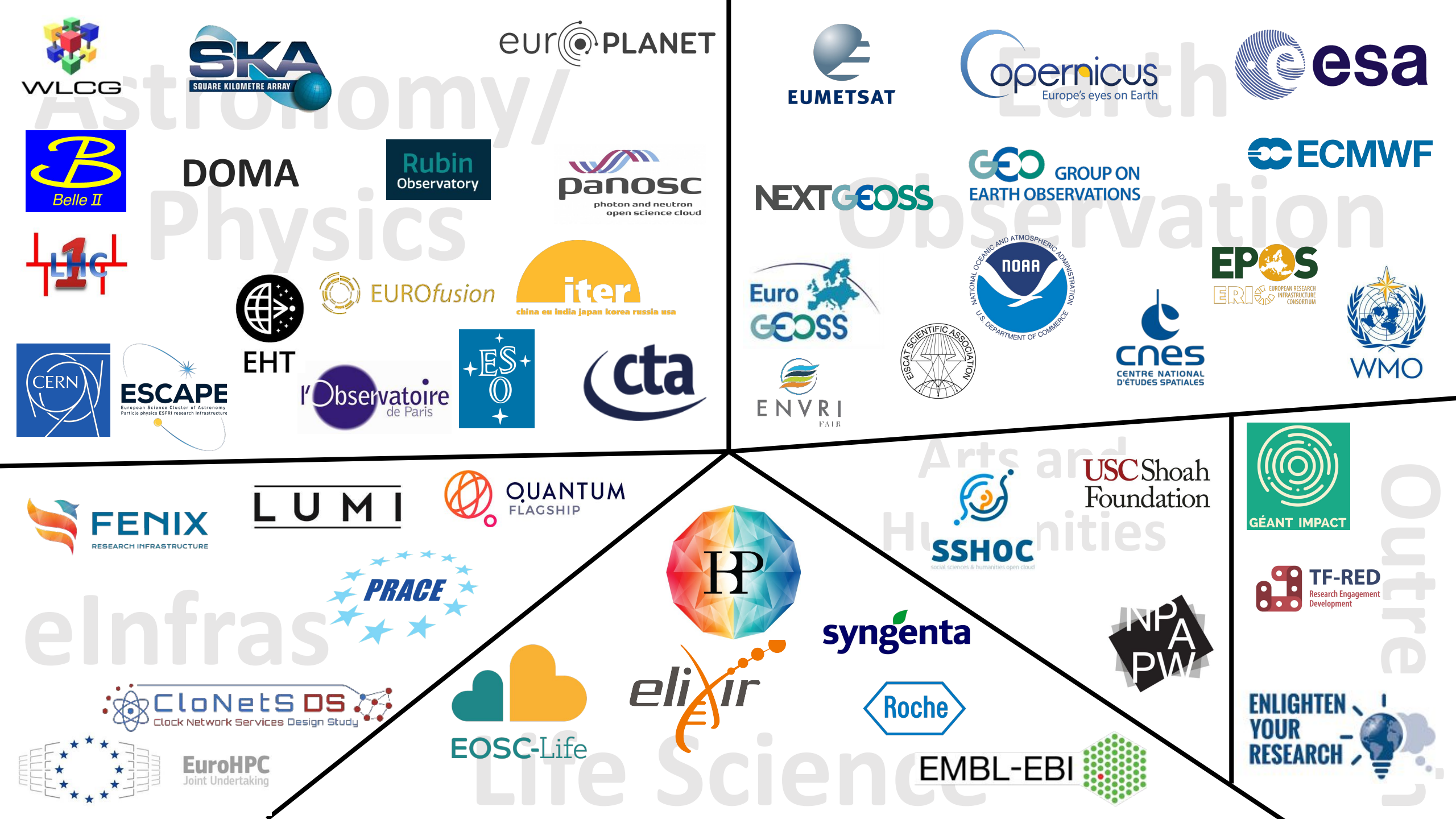


Connectivity and Network

Professional Services

T&I

Cloud Services


Astronomy/
Physics
Earth
Observation
Arts and
Humanities
eInfras
Life Science
Outreach
WLCG
SKA
SQUARE KILOMETRE ARRAY
EUROPLANET
EUMETSAT
opernicus
Europe's eyes on Earth
esa
Belle II
DOMA
Rubin
Observatory
panosc
photon and neutron
open science cloud
NEXTGEOSS
GEO
GROUP ON
EARTH OBSERVATIONS
ECMWF
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GEOSS
NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
EPOS
ERIC
EUROPEAN RESEARCH
INFRASTRUCTURE
CONSORTIUM
EHT
CERN
ESCAPE
European Science Cluster of Astronomy
Particle physics ESFRI research infrastructure
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cnes
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FLAGSHIP
USC Shoah
Foundation
SSHOC
social sciences & humanities open cloud
GÉANT IMPACT
PRACE
TF-RED
Research Engagement
Development
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Clock Network Services Design Study
elixir
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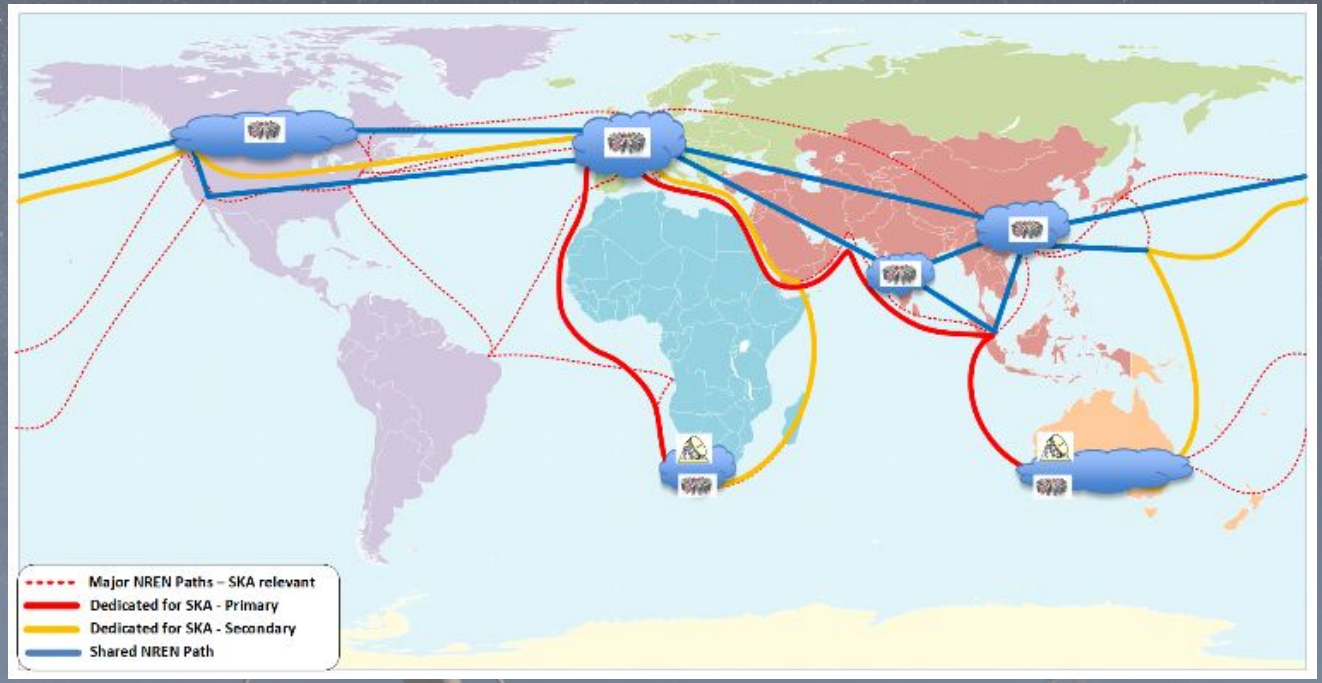
YOUR
RESEARCH
EOSC-Life
EuroHPC
Joint Undertaking
EMBL-EBI

SQUARE KILOMETRE ARRAY

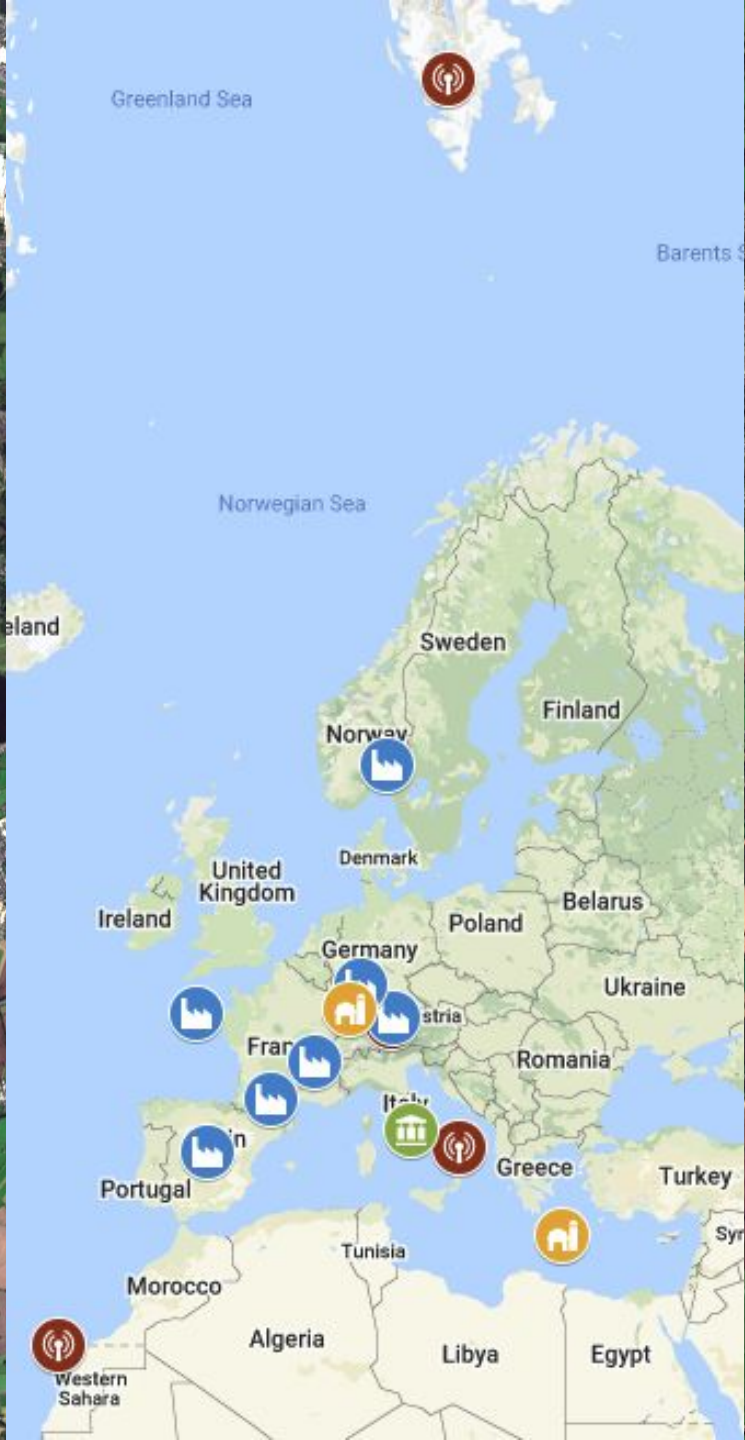
Advanced European Network of E-infrastructures for Astronomy with the SKA



- Collaborating with SKAO
- GÉANT leads the design of the 20 Tbit/s internal data network
- Members of the AENEAS project
- In the process of creating the SKA-NREN Forum

- 280,000 registered users
- 178 PB of data download volume so far
- 20 million products available
- 30,000 new images per day

- 2021: Design Criteria Document Requested
- 2022/23: Proposal for the Copernicus Ground Segment (requested by ESA)



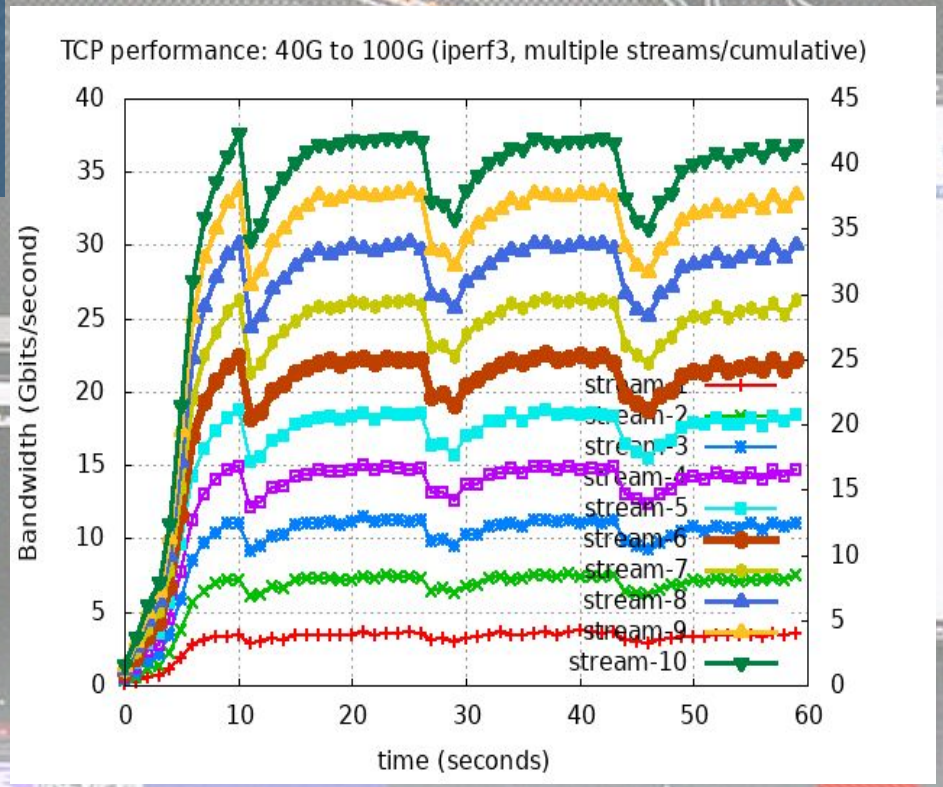
•Long running engagement since 2014
•First user of the SPOC service
•Currently generating 277k€ p/a in revenue
•SPOC
•Connectivity:
•HQ Link
•Svalbard
•Cheia
•Investigating automatic multicast tunneling
•More sites to connect globally
EUMETSAT

DTN Testing Facility

Successful proof-of-concept:

- WLCG/LHC (test of transfer protocols over LHCONE)
- Belle-II (Data transfers to/from Japan)
- LRZ (ScienceDMZ validation tests)
- LSST/IN2P3

Example: Japan (KEK) -> London DTN (Max 37 Gb/s)



Analyse requests and, if approved, provide access to the service

Provide secure access to the DTN servers

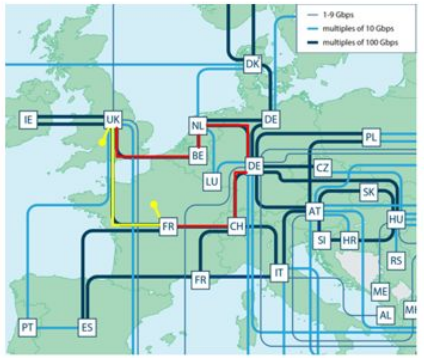
Coordinate testing procedures with users and GÉANT OC

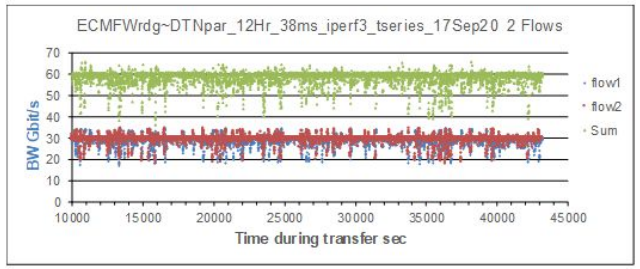
End-to-end performance

ECMWF

Performance of Multiple TCP Flows Reading – Paris RTT 38.4 ms

- Created a DMZ with the DTNs
  - Tests did not interfere with site production traffic
- Design & tuning followed the AENEAS recommendations
- Network & disk-to-disk tests
  Reading and GÉANT DTN in Paris
- Routes used
  - Direct route 16.1 ms
  - Long route 38.4 ms





- Two TCP flows for 12 Hours.
- Using TCP auto-tuning.
- Single flows stable ave. 30-32 Gbit/s.
- Network can carry the load.

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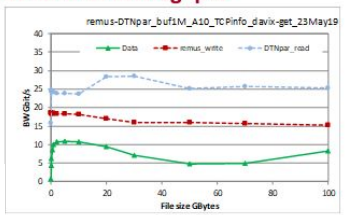
davix-get HTTP Protocol: Different RTT. File Size Scan, Disk-to-disk

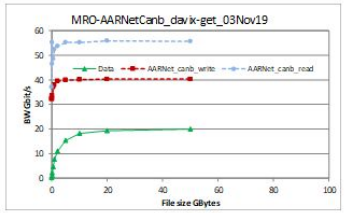
DTNpar → Remus RTT 14.1 ms

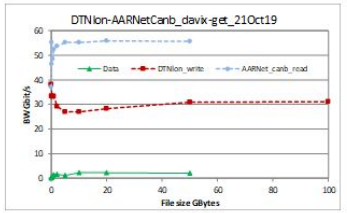
AARNetCanb → MRO RTT 56.5 ms

AARnetCanb → DTNlon RTT 259 ms

Disk-to-Disk Throughput

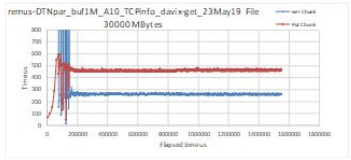


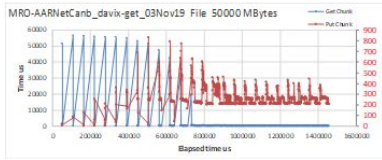


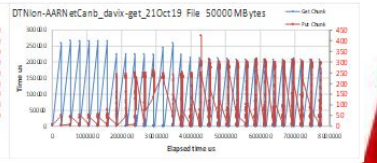


hunk time series Net read, Disk write

- Peak times = RTT → waiting for data
- Expect Network read times stable after Slow Start







aarnet

GÉANT

Network Performing Arts

- Co-organised events: Network Performing Arts Production Workshops (NPAPW)
- Yearly conventions in the US and Europe built around the growing community of art educators, academics and performers.
- Advice and general best practices for teaching performing arts online

QKD

- OpenQKD Open Call to test long-haul QKD
- Collaboration with TOSHIBA R&D Europe
- Support and coordination with WP6 for European NRENs to develop quantum-secure solutions

Achieve technical excellence
Send/receive QKD-secured information across GÉANT and NREN.

Fostering International Collaboration
supporting European NRENs and coordinate efforts towards full adoption of quantum communication

Creating strategic partnerships
working with key vendors testing new technologies

Impact

- Contribute to REN community value proposition
- Enhance science collaboration
- Increase NREN's and GÉANT's business (possibly revenues)
- Increased insights of what is to come

Promoting, facilitating and accelerating European and global scientific research and education, through the RENs services and infrastructures

Conclusions

We want to to help:

- to add value to the NREN community
- to keep helping science users
- to boost global collaboration in R&E

Thank you

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