



NRENs as providers of Open Scholarly Infrastructure

How GARNET supports Open Science in Ghana

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Venue: Accra Ghana

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BACKGROUND INFORMATION

Purpose

Membership

THE INFRASTRUCTURE

GARNET Network

Services Provided

IMPACT

FUTURE OUTLOOK

Planned & Ongoing Activities

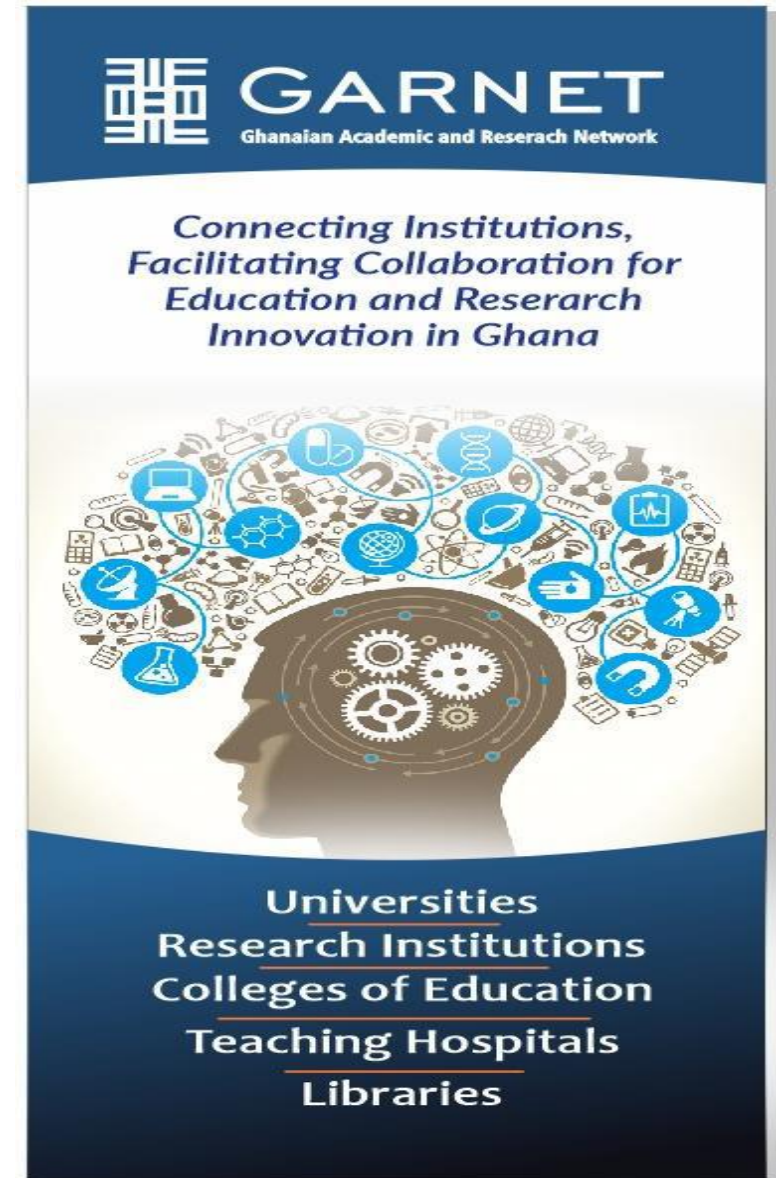
BENEFACTORS



GARNET was incorporated as a Not-for-profit Company Limited by Guarantee in 2010.

PURPOSE OF GARNET

Connect Institutions, Provide Cheap Access To Internet To Facilitate Collaboration For Education & Research Innovation.





ACTIVITIES

Connect Institutions, Provide Cheap Access To Internet To Facilitate Collaboration For Education & Research Innovation.

- Support in **building strong and viable** campus/institutional **networks**.
- Building network infrastructure to **inter-connect all campus/institutional networks**.
- Providing **Direct technical support** services to member institutions.
- Acting as “Buyers Club” to **negotiate for better pricing** by aggregating the requirements of its members.
- Having **one voice on National Policies on Open Science** and ICT.



GARNET is owned by its members.

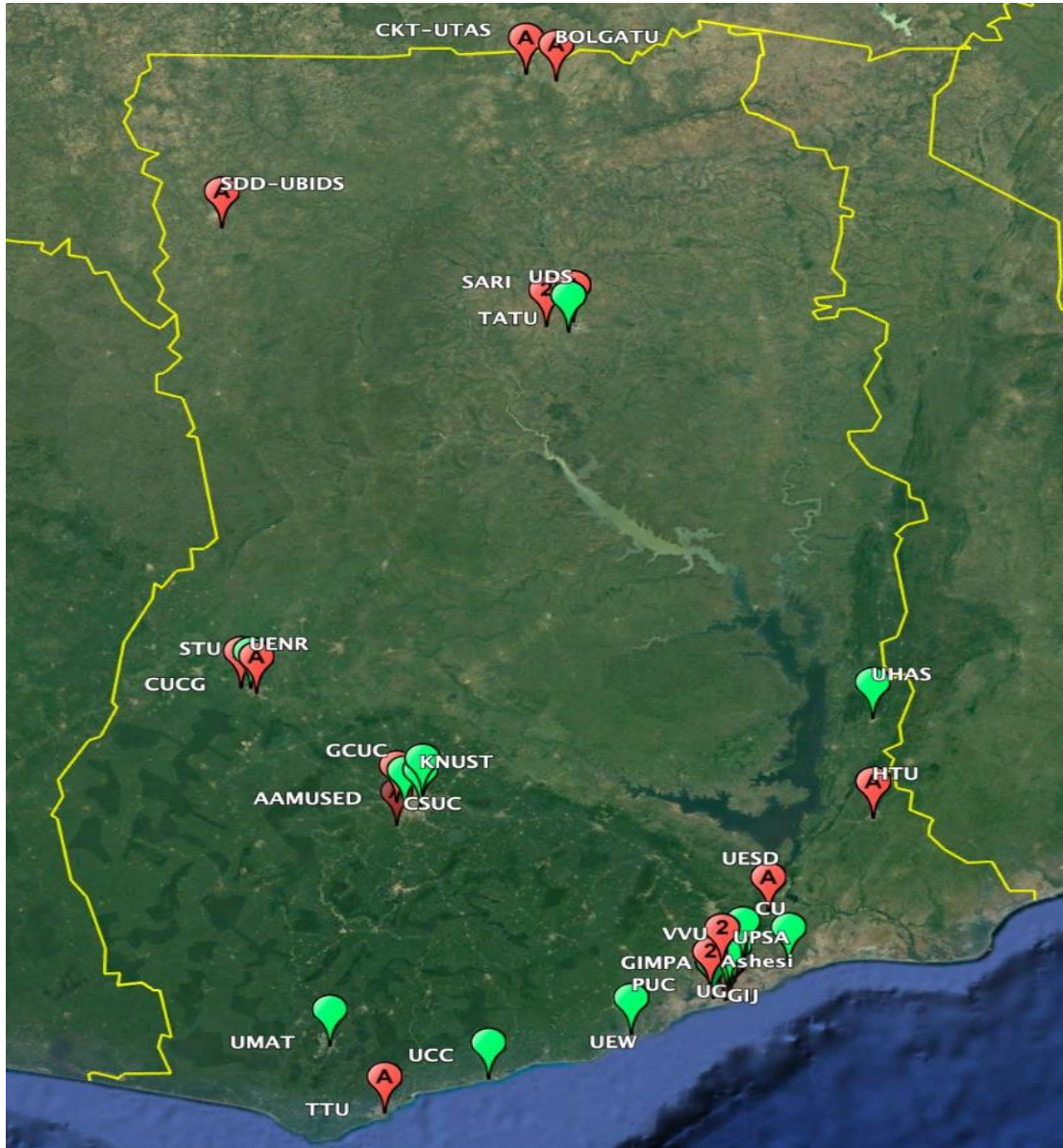
Membership to GARNET is formulated based on Open Access.

All accredited Tertiary Education and Research Institutions in Ghana are free to join as members.

GARNET MEMBERSHIP



GARNET
Ghanaian Academic and Research Network



Total Membership **40**

Thirty **(30)** Public

Nine **(10)** Private

MEMBERSHIP

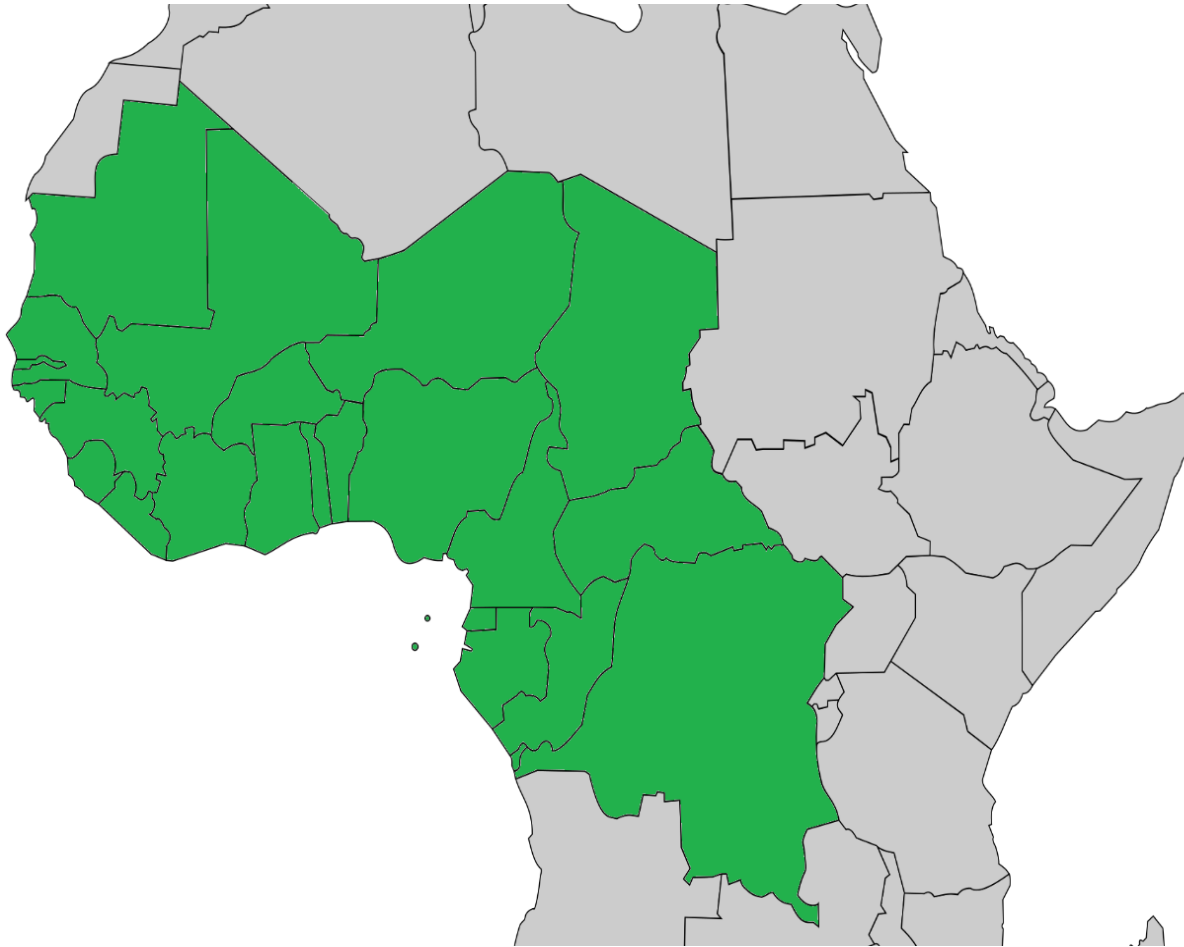


GARNET
Ghanaian Academic and Research Network

1. University of Ghana
2. Kwame Nkrumah University of Science and Technology
3. University of Cape Coast
4. University of Education Winneba
5. University of Development Studies
6. University of Professional Studies, Accra
7. Ghana Institute of Management and Public Administration
8. University of Health and Allied Sciences
9. University of Mines and Technology
10. University Energy and Natural Resources
11. Kumasi Technical University
12. Ho Technical University
13. Koforidua Technical University
14. Takoradi Technical University
15. Accra Technical University
16. Cape Coast Technical University
17. Central University
18. Garden City University College
19. Bolgatanga Technical University
20. Ghana Communication and Technology University
21. University of Environmental and Sustainable Dev't
22. CKT University of Technology and Applied Science
23. SDD University of Business & Integrated Dev't Studies
24. AAM University of Skills Training & Entrepreneurial Dev't
25. Ghana Institute of Journalism
26. Ghana Maritime University
27. Ghana Institute of Languages
28. National Film and Television Institute
29. Ghana Tertiary Education Commission
30. Savannah Agricultural Research Institute
31. Christian Service University College
32. Ashesi University
33. African Institute for Mathematical Sciences
34. Catholic University College of Ghana
35. Presbyterian University College
36. Methodist University College
37. Valley View University
38. Sunyani Technical University
39. Tamale Technical University
40. Accra College of Medicine



GARNET belongs to the West And Central Africa Research & Education Network (WACREN)



WACREN Members are:

1. RerBénin – Bénin
2. RBER - Bénin
3. FasoREN - Burkina Faso
4. RIC - Cameroon
5. TchadREN - Tchad
6. RITER - Côte d'Ivoire
7. **GARNET - Ghana**
8. GhREN - Ghana
9. Gn-REN - Guinea
10. LRREN - Liberia
11. MaliREN - Mali
12. NgREN - Nigeria
13. NigerREN - Niger
14. SLREN - Sierra Leone
15. TogoRER - Togo



THE INFRASTRUCTURE



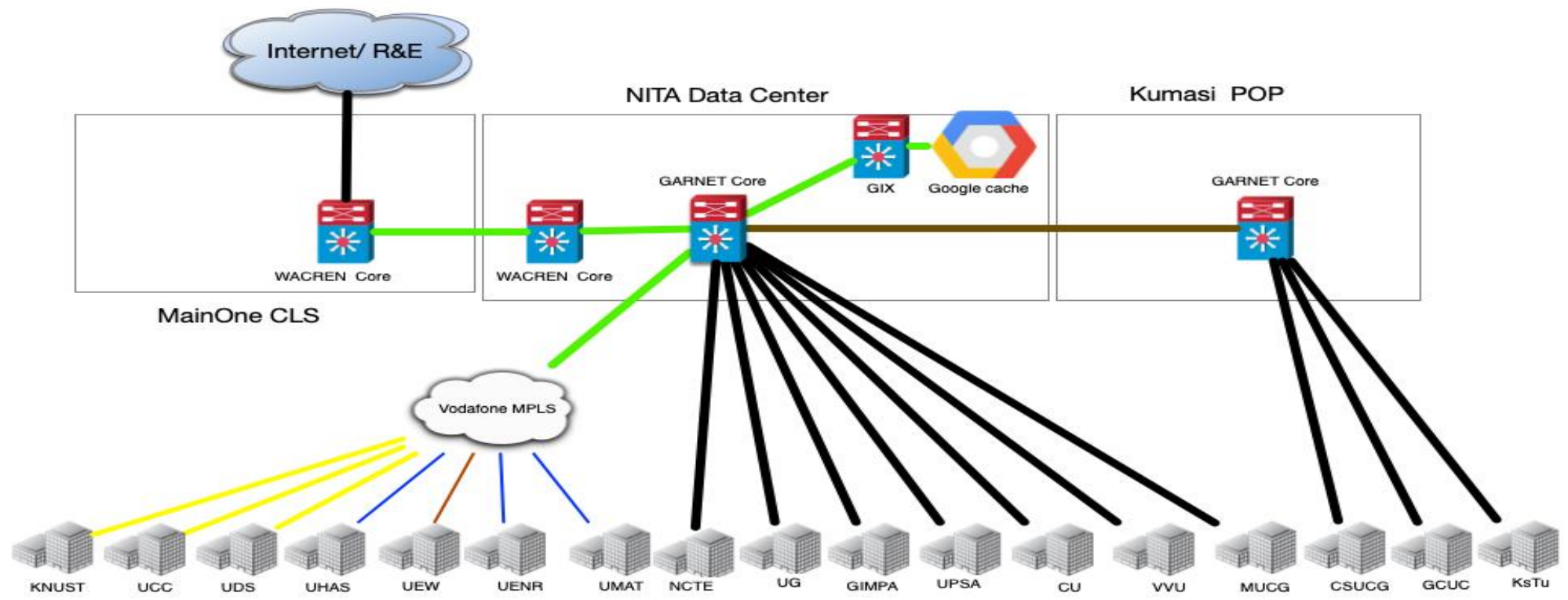
The GARNET Network



GARNET

Ghanaian Academic and Research Network

GARNET Logical Network



The GARNET network design envisaging the establishment of Points of presence (POPs)

Some connected institutions currently have two links: Commercial Service Provider and through GARNET.

- 10G Link
- Dark Fiber
- 1G LC
- STM1 LC
- 2 STM1 LC
- 1.5G LC



Project Implementation Support, Content Sharing, Internet Access, Deal Negotiation, Skills Development.

- **Eduroam** (Educational roaming for Academics and Researchers).
- **Cheaper Zoom** Conferencing package for R&E Community.
- **GARNET Tertiary Education Mobile Data** (roaming service on GARNET).
- Skills Development Through **Technical Training** Workshops.
- Network Improvement through **Direct Engineering Assistance** (DEA).
- **Access to High-Performance Computing Systems** Infrastructure.



IMPACT



- **Overall population impacted is in excess of 375,000**
 - 338,000 students
 - 55/45 percentage Male to female split

- **Improved access** to internet for students, faculty and researchers
 - Access to Wi-fi in student hostels, computer labs, and Libraries
 - Access to research and educational content and HPC Services

- **Increased availability** of bandwidth (10G from July 2022)



FUTURE OUTLOOK





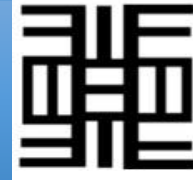
Ongoing Activities

- **Collaboration** with CARLIGH and other stakeholders to promote Open Science (MoU).
- Pursue **Funding** opportunities to grow GARNET infrastructure.
- Encourage **more institutions to join** the network.
- Skills development through **Training Workshops**.
- Assistance to institutions to **build** or **strengthen Campus networks**.
- **Engagement with key domain stakeholders:** Researchers, Librarians, Faculty, Students



Planned Activities

- Provide National Platform for learning management systems (LMS).
- Work on **Design specifications** of a shared **open access repository and publishing platform** with CARLIGH and LIBSENSE
- Implementation of a **Ghana Qualifications Register** - Digital Certificates.
- Deployment of **Datawarehouse and Analytics Portal** (Education & earth observation).
- **Promote** the use of **Federated identities and single sign-on** to access academic and research services.



Planned Activities

- Pilot of **eduID Ghana and BonafID** cloud platform.
- **Facilitate Transport of Earth Observation data**, from satellites and sensors to Meteorological and Geological Survey agencies **using highspeed terrestrial links.**



- Ministry of Communication (e-Transform/NITA/NCA)
 - Ministry of Education
 - Ghana Tertiary Education Commission (GTEC)
 - Association of African Universities (AAU)
 - Vice Chancellors Ghana (VCG)
 - Conference of Independent Universities (CIU)
 - World Bank
 - European Union
 - Vice Chancellors of Technical Universities
 - Network Startup Resource Centre (NSRC)
 - WACREN
 - NORDUNeT
 - Google Inc
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Thank You