



# ROLE OF NATIONAL RESEARCH EDUCATION NETWORK (NREN) IN NATIONAL DEVELOPMENT

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# Outline of presentation

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- A WISE SAYING
- WHAT AN NREN IS
- WHY WE HAVE NRENS
- DO WE HAVE AN NREN in GHANA?
- THE CHALLENGES OF GARNET
- SUMMING UP, THE THREE PEAS IN A POD



# A WISE SAYING

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- NO NATION CAN BE WISER THAN ITS HIGHER EDUCATION INSTITUTIONS.



# WHAT AN NREN IS

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- In every country there are Universities and research institutions. Each of these institutions in recent times, with the arrival of ICT, has developed Campus /institutional networks to serve its needs. Those that have not, are possibly in the process of establishing their networks. The linking of the networks of these institutions through a Wide Area Network (WAN), so that they can **collaborate** and as well **share resources**, creates the National Research Education Network **NREN**, which is the subject of this Presentation. Such Network will also be the focal point for contributing to shaping National policy issue on ICT.



# NREN SPECIFICS

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- ❑ Nationally recognised entity
- ❑ Usually, participating institutions must be research or educational institutions
- ❑ Uses standard Internet engineering protocols
- ❑ Secures/provides connectivity, content, capacity development, related services\*
- ❑ Acceptable Use Policy (AUP)
- ❑ Acts as a Local Internet Registry for participating institutions \*
- ❑ Has peering/transit agreements with other RENS \*



# WHY WE HAVE NRENS

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- The formation of an NREN does not in any way compromise the independent ICT policy of any of the participation institutions. **It is purely to serve as a way of collaborating in research and sharing of ideas and resources among the institutions:**



# Collaboration and sharing of ideas and resources(CSIR): Examples

- good practices,\*
- educational resources,\*
- physical resources,
- one voice on national policies dealing with ICT,
- a united force in dealing with ISPs,\*
- Capacity development:- by jointly leveraging on existing initiatives and opportunities i.e in the architecture for the building, and optimization of Campus network infrastructure. Examples being using AfNOG and AfriNIC to achieve this. (ghNOG)!
- Resources Acquisition:- jointly leveraging in the acquisition of funding and research support from donors; for example, the “Partnership for Higher Education in Africa( PHEA)” the EU, AU, NEPAD, AFUNET and JICA
- Strengthening cooperation amongst National Research and Education Networks so formed, to build a regional case with the support of the AAU
- Foster the deployment of regional networks and their interconnection resulting in a continental education network.



# Some Specific Examples of CSIR

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- Teaching and Learning:
  - Teaching & Learning (e-learning)
  - Distance Education
  - Library Services (Galileo <http://www.galileo.usg.edu>)
- Research:
  - Distributed/GRID computing
    - Within NREN
    - Within RREN
    - NREN or RREN With GEANT or INTERNET2
- IP acquisition, NREN as a LIR



# Do we have an NREN in GHANA?

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- YES; GHANA ACADEMIC RESEARCH NETWORK (GARNET) name since 1994?
- Process started in 1995
- NREN stage reached only in March 2009
- GOVERNANCE being sorted out now
- PHYSICAL INFRASTRUCTURE IN VIEW!



# Challenges in the evolution of NRENS

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- Reason can be discussed under:-
  - State of campus network, and policy.
  - Human resource both quantity and quality
  - Financial
  - Bandwidth issues (old problem)
  - National network infrastructure\*

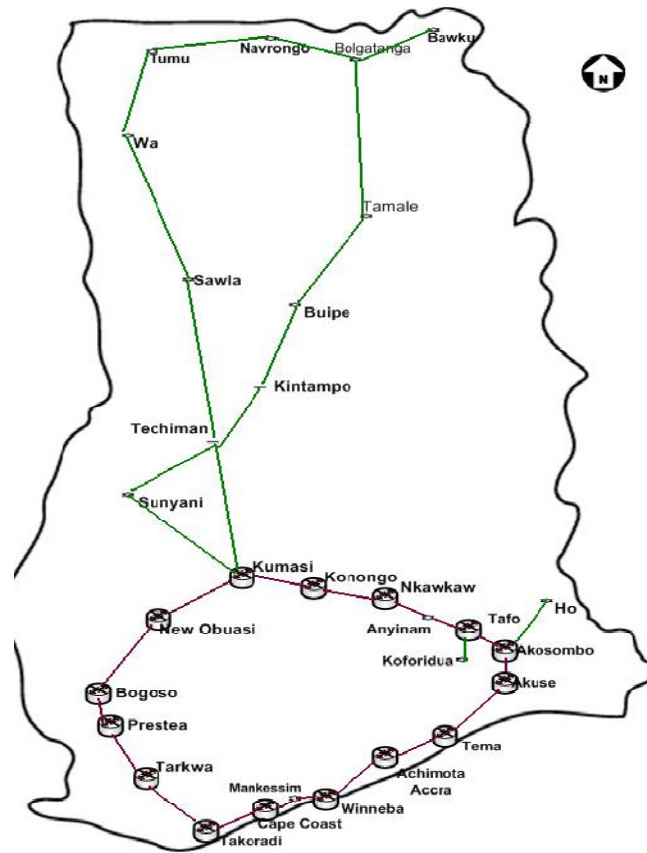


# Having a National Backbone will makes a big difference!

- ❑ Negotiations though have to be made as to how to interconnect!
- ❑ Government assistance vital



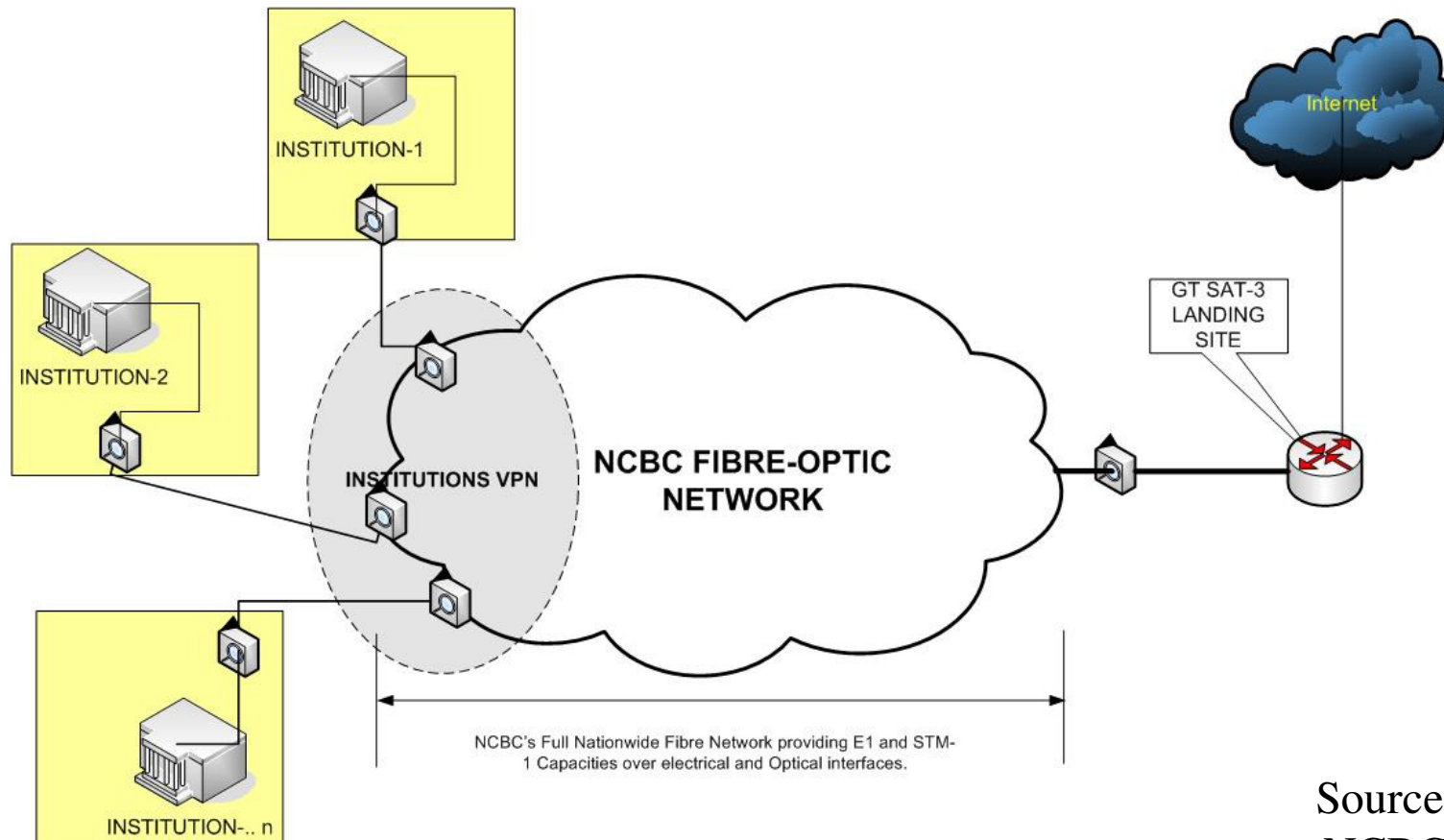
# New National Fibre Backbone





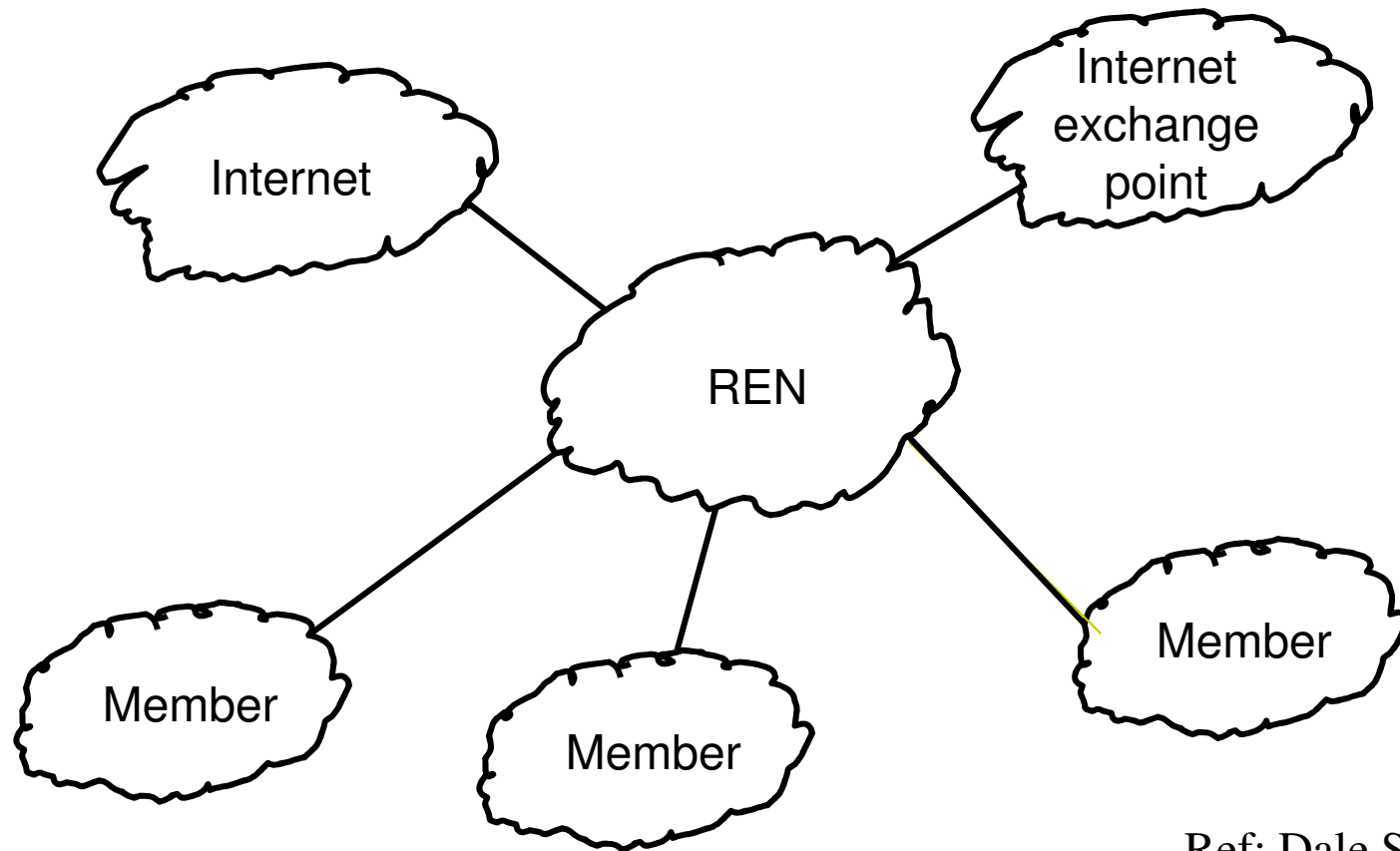


# INSTITUTIONAL CONNECTIVITY



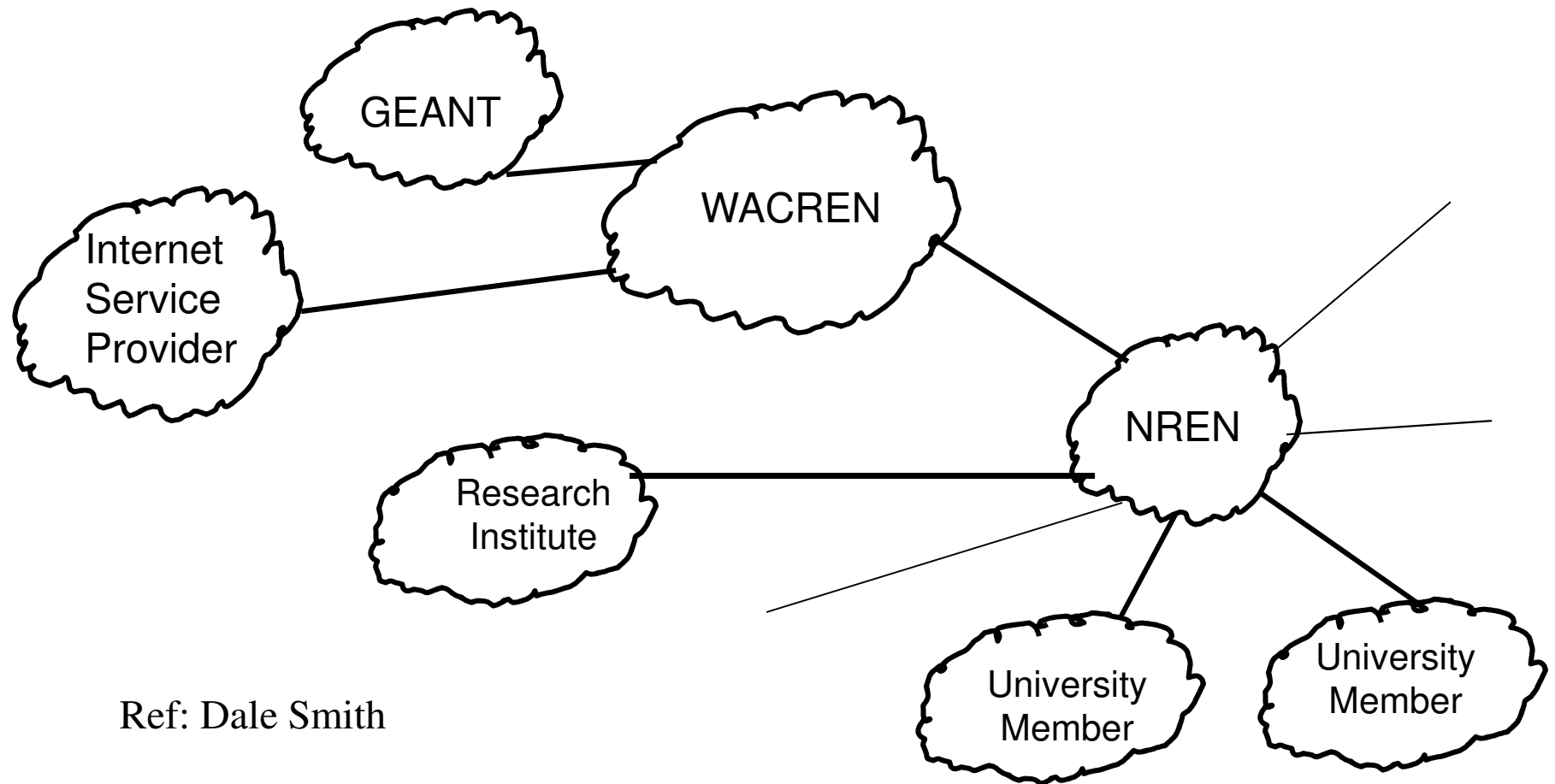
Source:  
NCBC

# REN as Internet Service Provider



Ref: Dale Smith

# A MODEL FOR GARNET?



Ref: Dale Smith



# Importance of NRENs

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- **“Education, research and ICTs are like three peas in a pod. It is impossible to develop a knowledge- driven economy and to conduct research to develop solutions to pressing social and economic problems in Africa, without connectivity. Academic and research network is now regarded as an essential national infrastructure comparable to road, water and energy services due to its implication on learning, teaching, research and many other scientific endeavours that have a positive impact on general economic development and social cohesion”**



THANK YOU FOR  
YOUR ATTENTION

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