



## SCIENTIFIC DATA AND SUSTAINABLE DEVELOPMENT

22<sup>ND</sup> INTERNATIONAL CODATA CONFERENCE

24-27 OCTOBER, 2010

STELLENBOSCH, CAPE TOWN, SOUTH AFRICA

# The role of C@ribNET in the preservation of and access to scientific and technical data in developing countries.

(Preservation and Archiving )

Carlton A. Samuels

Caribbean Knowledge and Learning Network (CKLN)

The Mutual/Trans-Nemwil Office Complex,

The Villa, P.O. Box 1431, St. George's, Grenada

*carlton.samuels@ckln.org*

Prof. Robert J. Lancashire

Department of Chemistry,

The University of the West Indies,

Mona Campus, Kingston 7, Jamaica

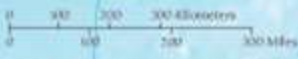
*robert.lancashire@uwimona.edu.jm*



# The caribbean

Scale 1:12,500,000

Lambert Conformal Conic Projection,  
standard parallels 9°N and 17°N



Boundary representation lines primarily authoritative

# SUMMARY

- **Introduction to CKLN and C@ribNET**
- **How and when will C@ribNET be implemented**
- **Support of Science and Technology development**
- **Support for Open Knowledge Environments**
- **Acknowledgements**

# CKLN - CARIBBEAN KNOWLEDGE AND LEARNING NETWORK

**CKLN** is an Intergovernmental Agency financed and owned by the 15+ governments of the CARICOM Community that implements development projects with the assistance of grant funds.

There are around 16 million people living in CARICOM member countries.





# CKLN - Project Components

1. Building capacity in the Tertiary Education Institutions in the Region, necessary for the successful adoption of new approaches to learning and the *sustainable and strategic management* of the host institutions
2. Harness state-of-the-art communication technologies to provide virtual learning networks between Caribbean Tertiary Level Institutions of Education
3. Implement, or assist in the implementation of Region-wide mechanisms required for the success of the Tertiary Institutions, particularly as these relate to training, accreditation, quality assurance, standards, financial transactions, learning management and technical support

# AREAS OF INTEREST

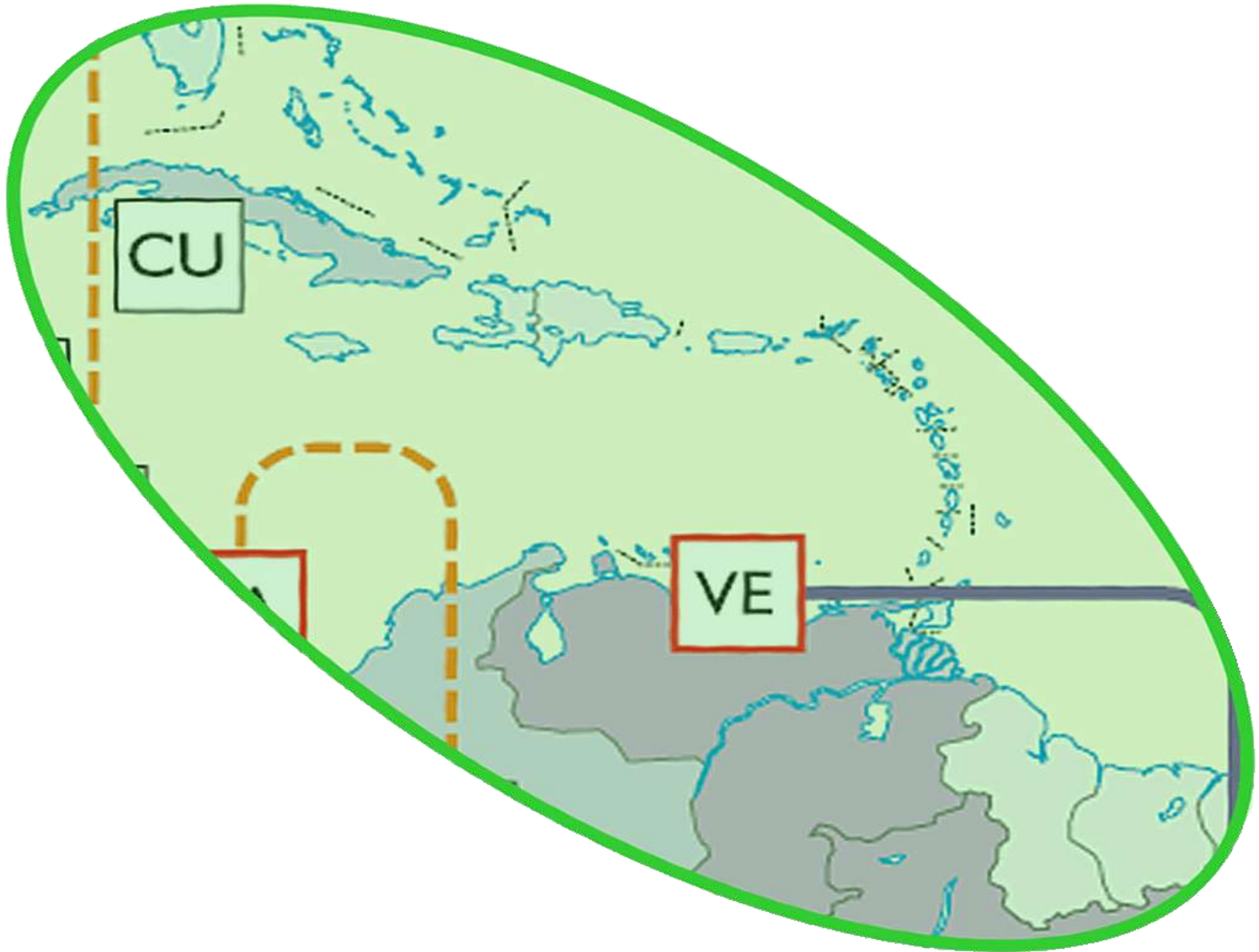
- Distributed and online learning (e-Learning)
- Telemedicine (e-Health)
- Disaster management
- Crime and security
- Culture
- Public Administration

# C@ribNET

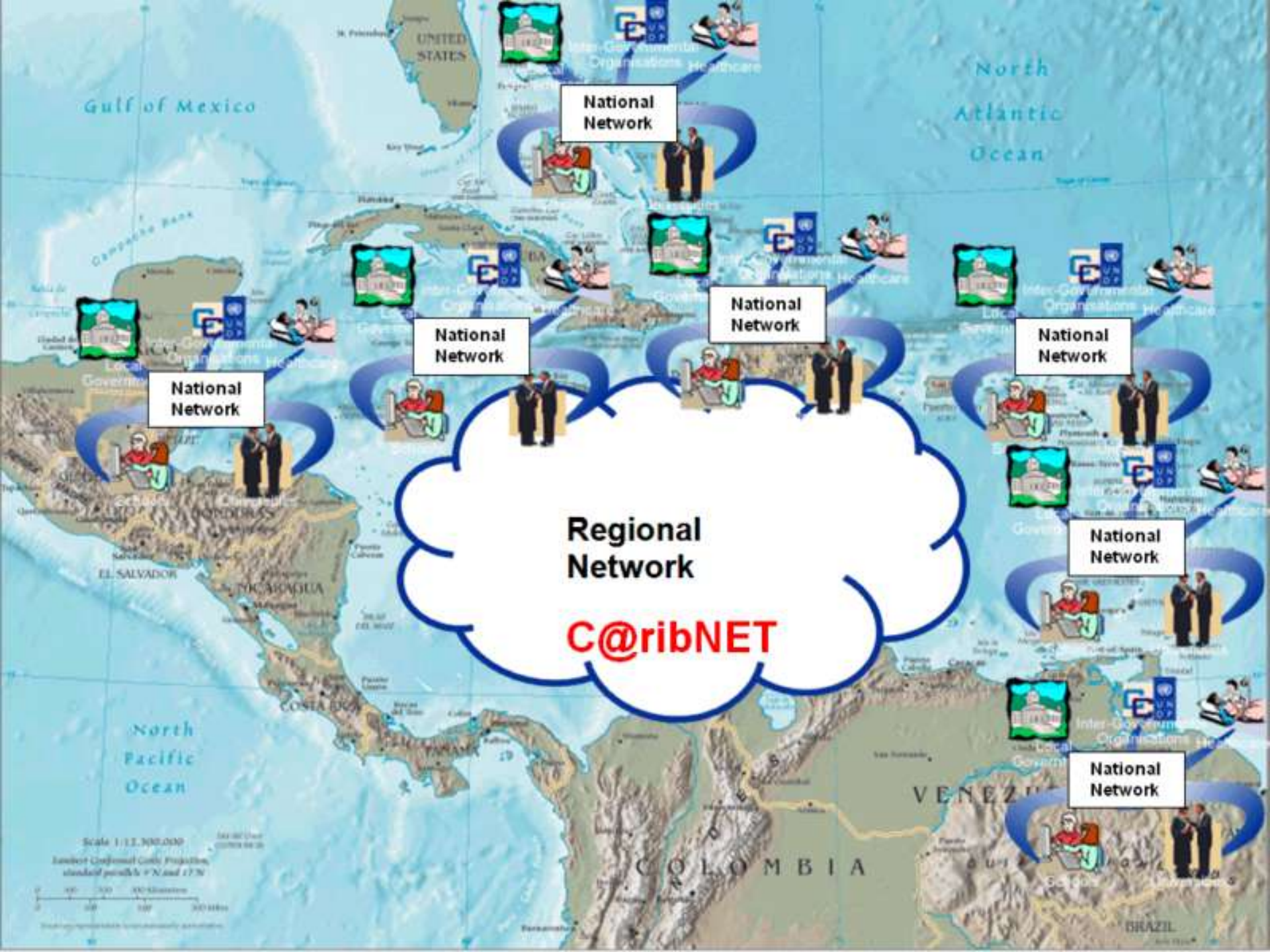
**C@ribNET** was conceived in 2007 and funded by the EU in August 2009 by € 10M, with administration expenses to be funded by CARICOM

- Initial funding was for 5 years; a 2nd grant is expected. Implementation began in September 2009 with consultants collecting and assessing user needs.
- User input helped to create business and operational plans to guide the development of C@ribNET. Implementation began in September 2010.

# The “digital hole” in the Caribbean







National Network

National Network

National Network

National Network

National Network

Regional Network  
**C@ribNET**

National Network

National Network

Gulf of Mexico

North Atlantic Ocean

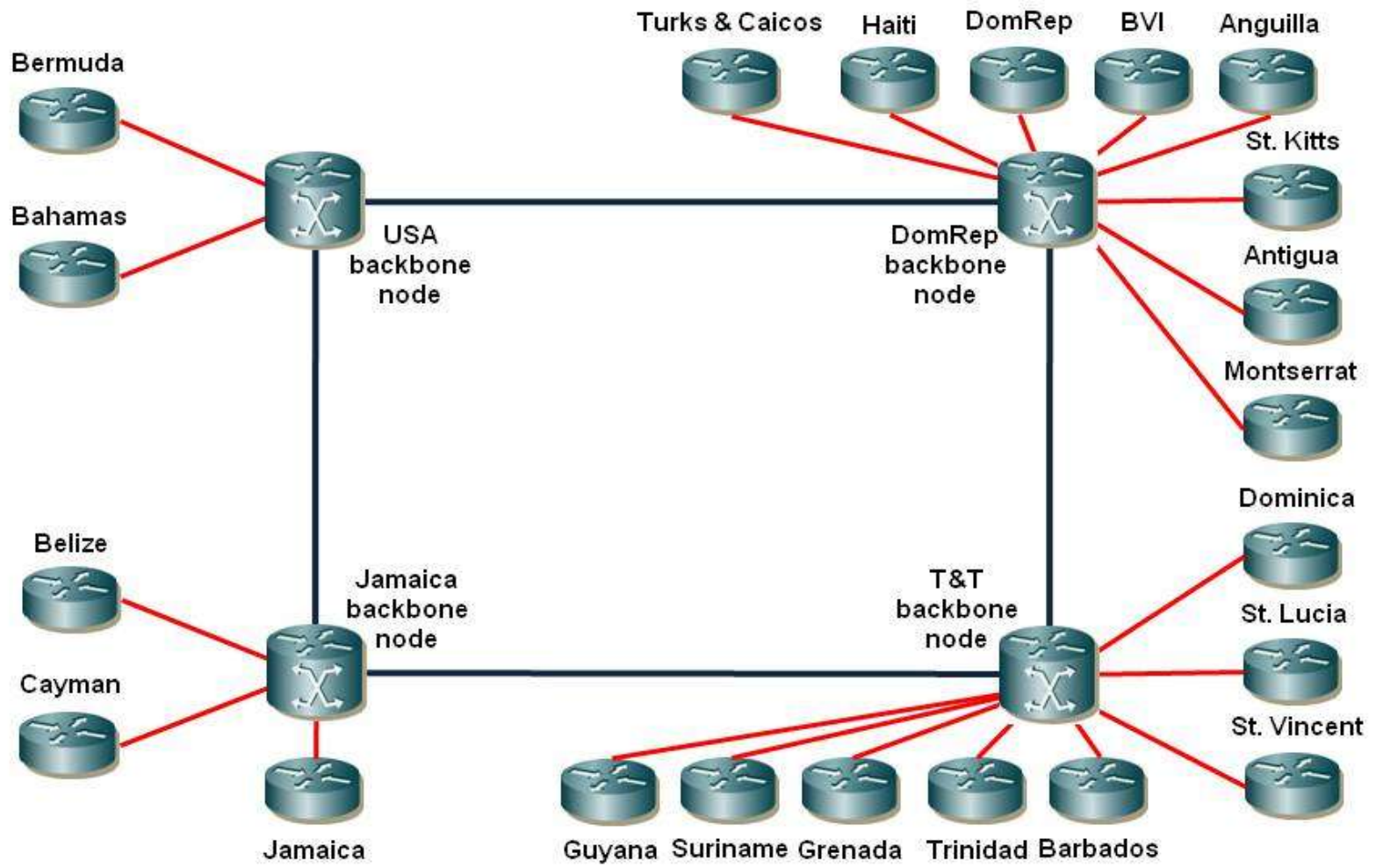
North Pacific Ocean

Scale 1:12,000,000

Eastern Equatorial Conic Projection, standard parallels 9°N and 17°N

0 400 800 Kilometers  
0 100 200 Miles

# SCHEMATIC DIAGRAM OF C@ribNET CONNECTIONS



**MIA will provide direct connection to GEANT, Internet2 and redCLARA**

# CKLN's PHILOSOPHY

In the context of Caribbean development:

- [Developmental] information is a **public good**
- **Networked information** has greater value than not
- **Open access** to information enables innovation
- **Open knowledge environments (OKEs)** are critical to multidisciplinary collaborative initiatives in knowledge creation
- OKEs are essential enablers of social and economic development



# C@ribNET PROJECT CONSTRAINTS

## Constraints

- [Relatively] small geographical entities with small populations (Jamaica < 3 million, T&T < 2 million etc)
- [Comparatively] weak economies (and getting weaker?)
- Little collaboration in knowledge creation and dissemination for social and economic development
- Relatively high cost of bandwidth in and between countries
  - 20 x as much for the same amount as N. America
- No National Research and Education Networks (NRENs)

# RESPONDING TO PROJECT CONSTRAINTS

## [Interim] Responses

- Connect academic institutions independent of NRENs
- Connect other public institutions
- Connect significant private institutions
- Provide direct support to institutions for connecting to nodes



# IMPLEMENTATION of C@ribNET

- Phase 1 – Design of the network
- Phase 2 – Connectivity procurement
- Phase 3 – Hardware procurement
- Phase 4 – Deployment of the network

# C@ribNET Implementation Plan

	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2011	Q4 2011
Deliverables							
Design Network	→						
Procure Bandwidth		→					
Procure NOC Services		→					
Procure & Install Equipment		→					
Phase I Connections			→				
Phase II				→			

# Phase 4 – Deployment of the network (Q1, 2011)

- Activation and testing of the core links
- Establishment of the main TCP/IP services (IGP and EGP routing, IPv6 routing, Multicast, etc.) in the core
- Activation of the distribution hardware & links
- **Four backbone nodes** – Jamaica, Trinidad & Tobago, Dominican Republic and NAP of the Americas - to be accomplished by Q1-2011
- **Connections to GEANT, redCLARA and Internet2** by Q1- 2011

# CAVEATS

- The following actions will be conducted in parallel to ensure smooth phase transitions:
  - Network Operation Centre (NOC) procurement
  - NRENs empowerment
  - **Academic institution engagement**
  - **Academic researcher engagement**

# NREN IMPLEMENTATION

- NREN development is necessary because it is the best vehicle for increasing the user base in the longer term
- Some countries are already on the road to developing their NREN; Dominican Republic's RADEI
- There are issues and challenges that must be understood and overcome for **sustainability**



# NREN ISSUES & CHALLENGES

- Organizational & legal existence
- Governance
- Membership & Eligibility
- **Funding**
- Service Offerings
- Operational model to be implemented

# ACADEMIC ENGAGEMENT

- An Academic Special Interest Group (SIG) is to be formed and resourced
- Survey of academic research interests to identify collaborative research potential in conjunction with international partnerships
- Promote collaborative tools and resources
  - Network storage and archiving for huge amounts of data
  - Distributed data analysis and visualization

# OPEN KNOWLEDGE ENVIRONMENTS (OKEs)

- CKLN has a strategic interest in promoting OKEs
  - **Open Access** is a bedrock principle
  - Promotion of Open Institutional Repositories is central to OKEs
  - **Networked OIRs via C@ribNET** is a strategic imperative
- CKLN strongly supports changes in regional Science & Technology Policy Perspectives to embrace OKE concepts
- Partnering with **Caribbean Academy of Sciences** to move the OKE agenda

# Acknowledgments

- CKLN
- IAP – both Carlton and I signed the Statement of the Steering Committee of the InterAcademies Panel Program on Digital Knowledge Resources and Infrastructure in Developing Countries, **“Building the CyberInfrastructure for 21st Century e-Science in Central America and the Caribbean”**
- Caribbean Academy of Science (CAS)
- University of the West Indies (UWI)