

# **A Pan Arab University Research and Education Network**

**Presentation to the Conference on  
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**World Summit on the Information Society**

Connectivity Partners International, Inc., and Xit Telcom, Inc.  
with support from  
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# Pan Arab University Research and Education Network: Phase 1: Middle East and North Africa



# Pan Arab Network

## Concept:

- Integrated, dedicated broadband network linking Arab universities in 22 countries
- Modeled on Jordan's University Broadband Network
- Under collaborative Arab university management
- Accessing and leveraging existing and interconnected power grid dark fibre
- Will eventually link hundreds of Arab research and education institutions
- Initial sites would be universities currently serving as network hubs

## Benefits:

- Improved Arab university capability to build national HR, S&T, management capacity
- Greater interaction and resource development and sharing amongst Arab universities
- Other key areas: collaborative research, e-learning, grid computing, administration.
- Access to much higher bandwidth (10 gbps) at low on-going cost
- Possible demand aggregation of Internet services for price discounts
- Faster connections to international research networks like GEANT, Internet 2, Ca\*Net

# Background and Status

## Who We are:

- CPI is a Canadian consulting firm specializing in national ICT Strategy development and implementation and the networking of education and research institutions
- Xit is a Canadian network engineering firm with experience in designing and implementing wide-area broadband networks, especially for universities and schools

## Project Status:

- In 2004 CPI proposed PAN to Government of Jordan which decided to champion
- Other feasibility study funding secured from CIDA and Cisco Systems
- Feasibility Study began in March 2005 and covered:
  - Policy benefits, obstacles and requirements
  - Regulatory frameworks and conditions
  - Technical challenges and options
  - Business and sustainability alternatives
  - Implementation costs, plan and possible funding sources
- Phase I Study of Middle East and North Africa has been completed

# Summary of Consultations

- Consulted:
  - Telecom and IT, Higher Education and Energy (MoHE only in Libya)
  - Regulatory authorities, leading universities and network managers
  - DANTE, Arab League, ITU, UNESCO, ISESCO and Arab Fund
  
- Highlights:
  - Strong support everywhere for PAN as an Arab League initiative
  - No major regulatory barriers if PAN structured as a private network
  - Only major technical challenge is 1100 km Egypt-Libya fibre gap
  - Universities and network managers excited by prospect of PAN
  - DANTE supportive of direct PAN-GEANT interconnection

# Network Design and Costing

- 6,700 km 10 gb private fibre network connected to GEANT
- Main design and cost assumptions:
  - 1,100 km Egypt-Libya gap will be closed by power authorities
  - Redundant GEANT connection at Madrid and Cyprus
  - Low cost access to power grid fibre (IRUs on 2 strands)
  - Buy and install about 67 repeater huts, 9 local loops and network gear
  - All software, testing and training requirements
- Design Scenarios:
  - Two transport solutions designed and priced: SONET/SDH and DWDM
  - Routing design is fully redundant with carrier grade hardware
- Capital Cost: Ranges from \$US 33M (SONET) to \$US 42M (DWDM)
- Operating Cost: Estimated at \$US 3.5 M annually

# Implementation Plan

- PAN proposed as a League of Arab States initiative
- Key implementation tasks:
  - Confirm network design with detailed needs analysis
  - Design and cost local loops where needed
  - Secure access to fibre and huts
  - Negotiate best prices on equipment and software
  - Explore scope for public-private partnerships
  - Specify requirements for Project Management Office
  - Finalize project budget and timetable
  - Develop detailed implementation plan
  - Assemble public and private sector funding
- Implementation Period: Expected to be 2-3 years from launch

# Possible PAN Challenges

1. Structuring an implementation consensus
  - Jordan has proposed PAN as an Arab League initiative
  - Extending initial 9 members to all 22 Arab states
  - Clear and simple PAN launch accord
2. Raising resources
  - Conservative budget estimates to avoid surprises
  - Creating an agreed formula for sharing certain costs
  - Involving private donors in funding the balance
3. Creating an early focus on content and applications
  - Build on success of EUMEDCONNECT
  - Identify powerful and successful applications
  - Fully engage the user community and developers