



United Arab Emirates



ankabut
عنكبوت

Arabian GigaPoP for Education & Research

UAE Advanced Network for Research & Education
Internet2 SIG Meeting
Doha, 10th September 2013



01

Arabian R&E International Connectivity

Status



What is the Actual
Arabian Research &
Education situation ???

I. Some Arab NRENs communicate with International Hubs at non-optimized cost

- Example on GCC:

- I. Ankabut connects to I2

- II. QFRN connects to I2

- III. KAUST connects to GEANT

- IV. OMREN, Bahrain connects to NEANT

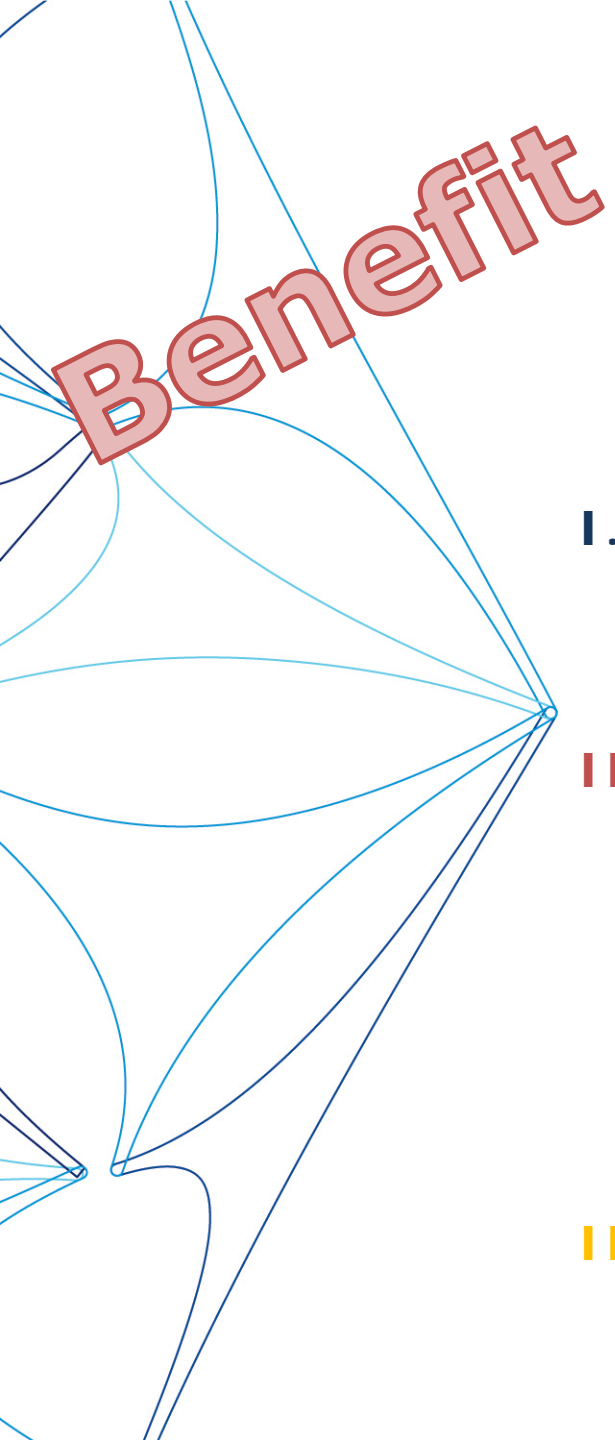
II. No connection between Western and Eastern Arab regions

Opportunity



How to be better served ???

- I. **ONE GigaPoP** to connect ALL Arab Countries to the rest of the World of R&E (GEANT, I2, TIEN4,...)
- II. Each Arab country should have **ONLY ONE** connection to the Arabian GigaPoP
- III. ASREN should be the **AUTHORITY** to guarantee the above scheme in connectivity and to play the Legal Interface to Internet2, GEANT, TIEN4, APAN,...
- IV. ASREN should generate **Global Services** and deploy them over the GigaPoP to ALL connected Arab



Why Arabian GigaPoP for Education & Research ???

- I. Arab World NREN 's can communicate with all their peers at **minimal additional cost**.
- II. **Asia to Europe** and **East Africa to Europe** R&E connections can break out their circuits in Fujairah at little additional costs. Africa gains Africa-Asia connectivity.
- III. **American** R&E can be well served to Arab NRENs, Asia and East Africa



02

Ankabut & UAE



اتصالات
etisalat



1. Met DU Higher Management and discussed the opportunity of GiGaPoP :
 1. DU has a Dubai free-zone called "Data MENA"
 2. DU doesn't have a full cable coverage
2. Met ETISALAT International Sales Carrier & Wholesale Management and discussed the opportunity of GiGaPoP :
 1. Etisalat has Fujairah SmartHub & CrossConnect
 2. Fujairah has more International Cable presence



**UAE LEADERSHIP
COMMITTED TO THE
SUCCESS OF THE
ARABIAN R&E
GIGAPOP IN UAE as
the 4th GIGAPOP WW**



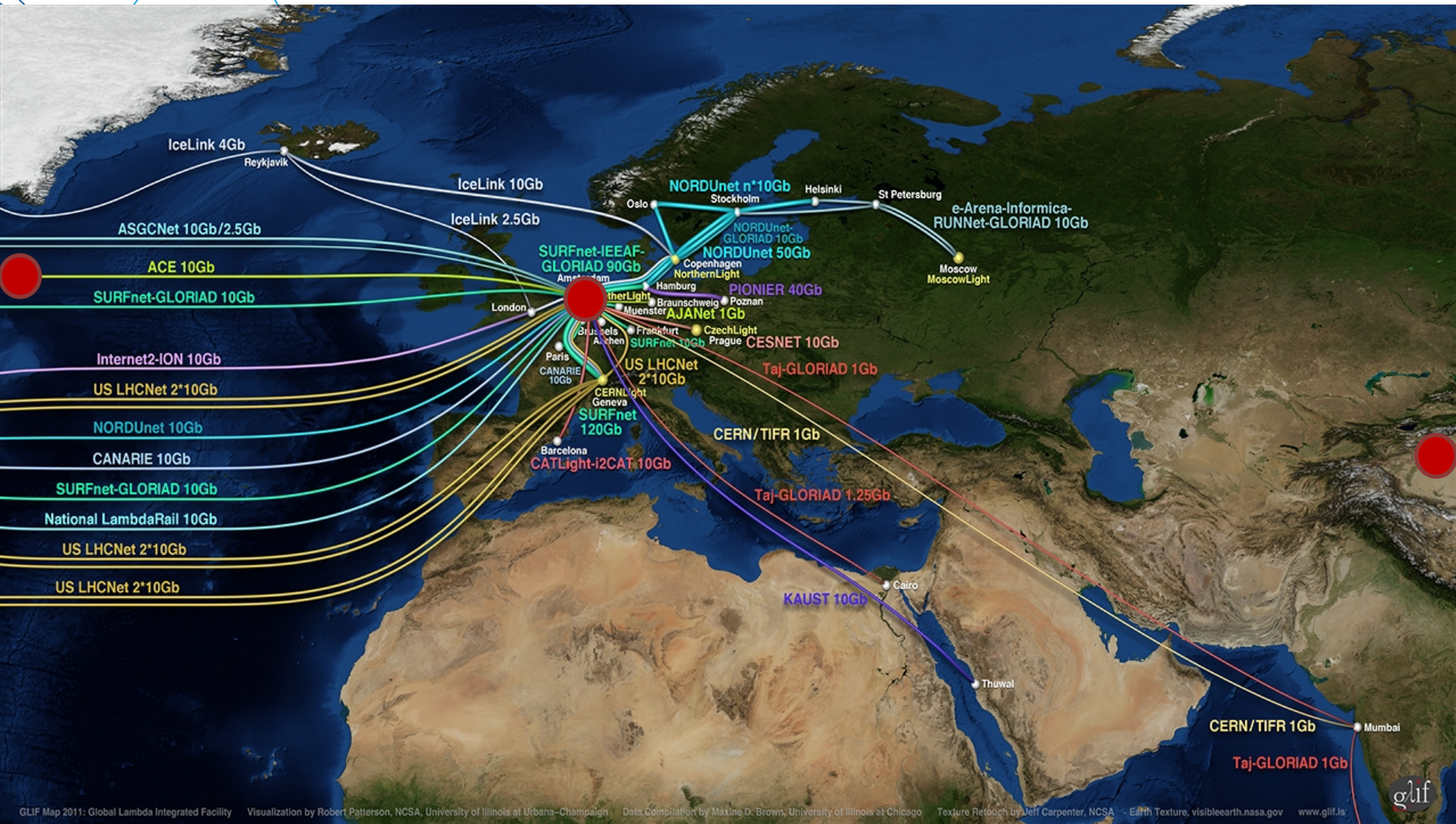
03

Arabian GiGaPoP for R&E



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TO BE THE 4th
GiGaPoP WW for R&E



UAE GiGaPoP Target

1. **ASREN** (Pan Arab States REN)
2. **Ankabut** (UAE)
3. **QFREN** (Qatar)
4. **KACST** and **KAUST** (KSA)
5. **OMREN** (OMAN)
6. **Kuwait Universities** (KUWAIT)
7. **Bahrain Universities** (BAHRAIN)
8. **Internet2/CANARIE** (US & CANADA)
9. **GEANT/Dante Eumedconnect** (European R&E)
10. **TEIN4** (APAN Asian & Dante JV)
11. **Ubuntunet** (panafrican R&E association)
12. **Kenet** (Kenya), **Tannet** (Tanzania) and **Tenet** (South Africa).
13. **SKA** (Square Kikometer Array – billion dollar level international radioastronomy project)
14. **Gloriad** (USA NSF funded project)

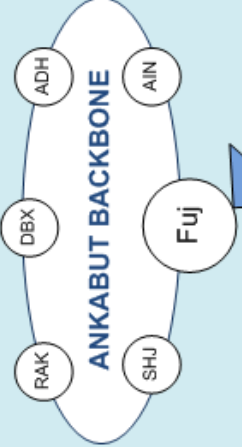
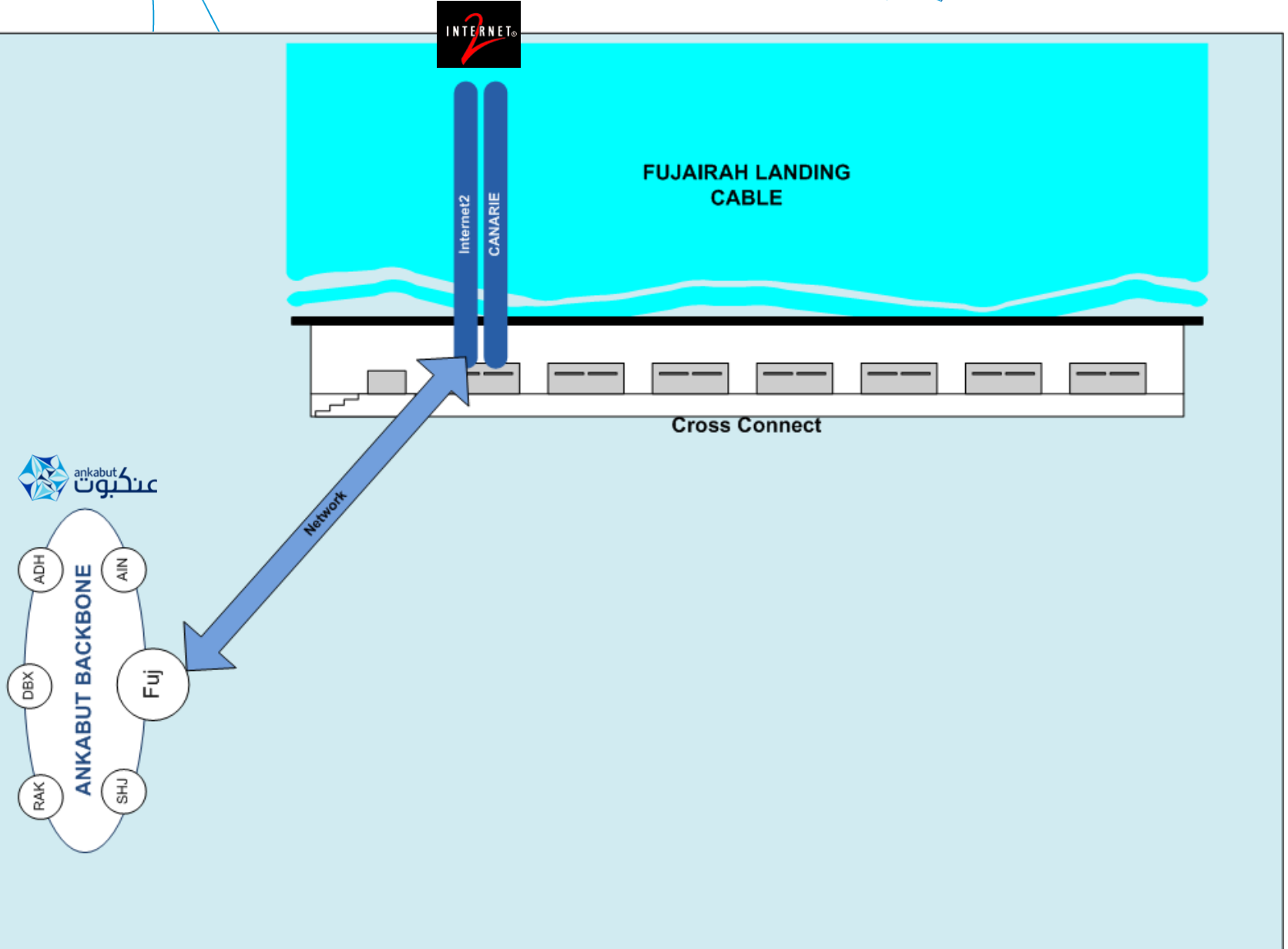
Strength: Cables (TGN-Gulf, TGN-EA, SEAMEWE, IMEWE), presence with multiple services at the Fujairah Smarthub.

Weakness: Perceived lack of commitment /interest of International R&E Hubs to be present in Fujairah

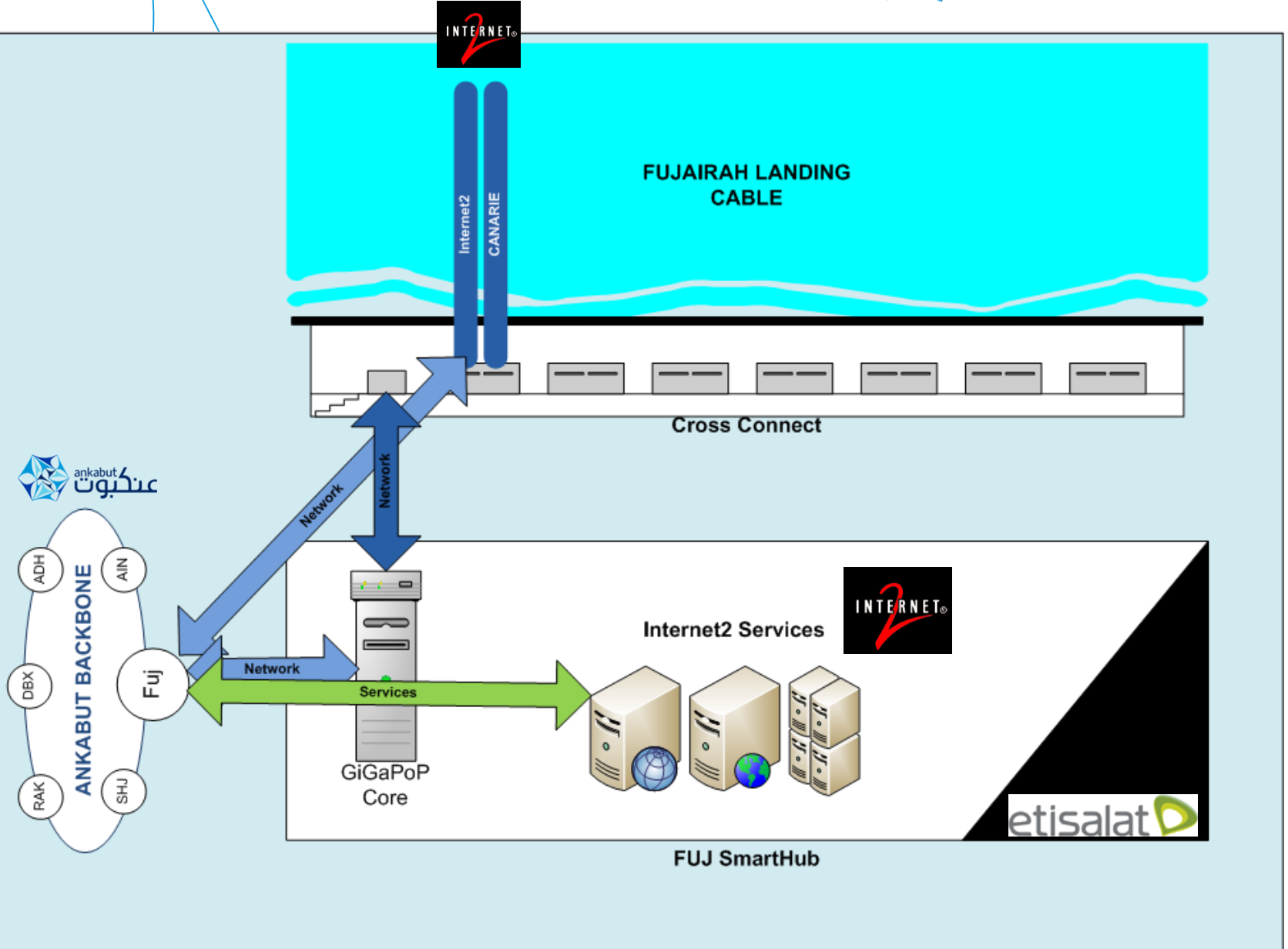
Opportunity: One stop shop of various R&E Connectivity to Arab State, Asian, African, European and American R&E entities if Fujairah becomes the 4th R&E hub similar to Amsterdam' SARA , NewYork's MANLAN , and Singapore TEIN4.

Threat: The timing is right and the concept is easy to implement.

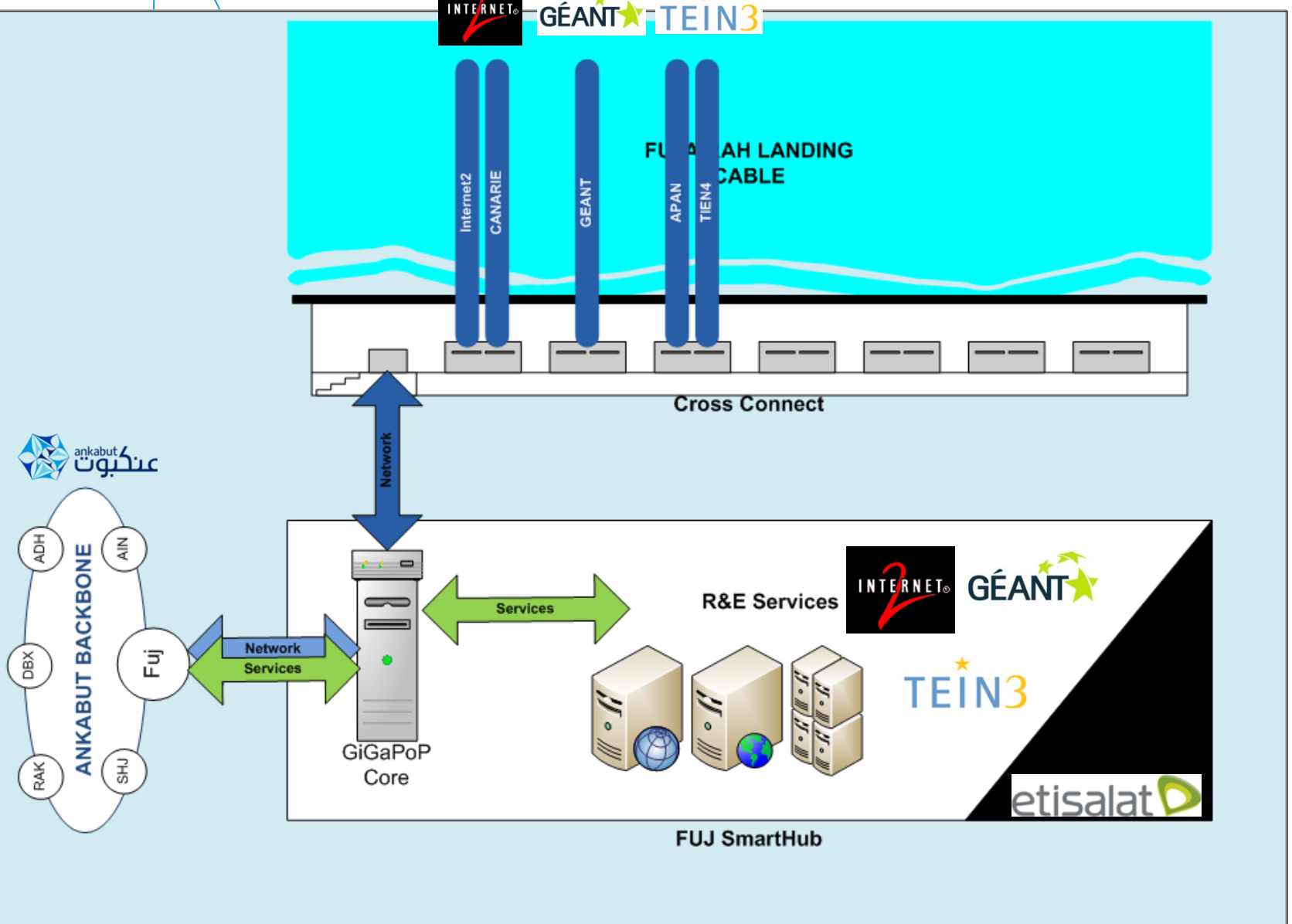
Phase0: Internet2 Connection – No Services



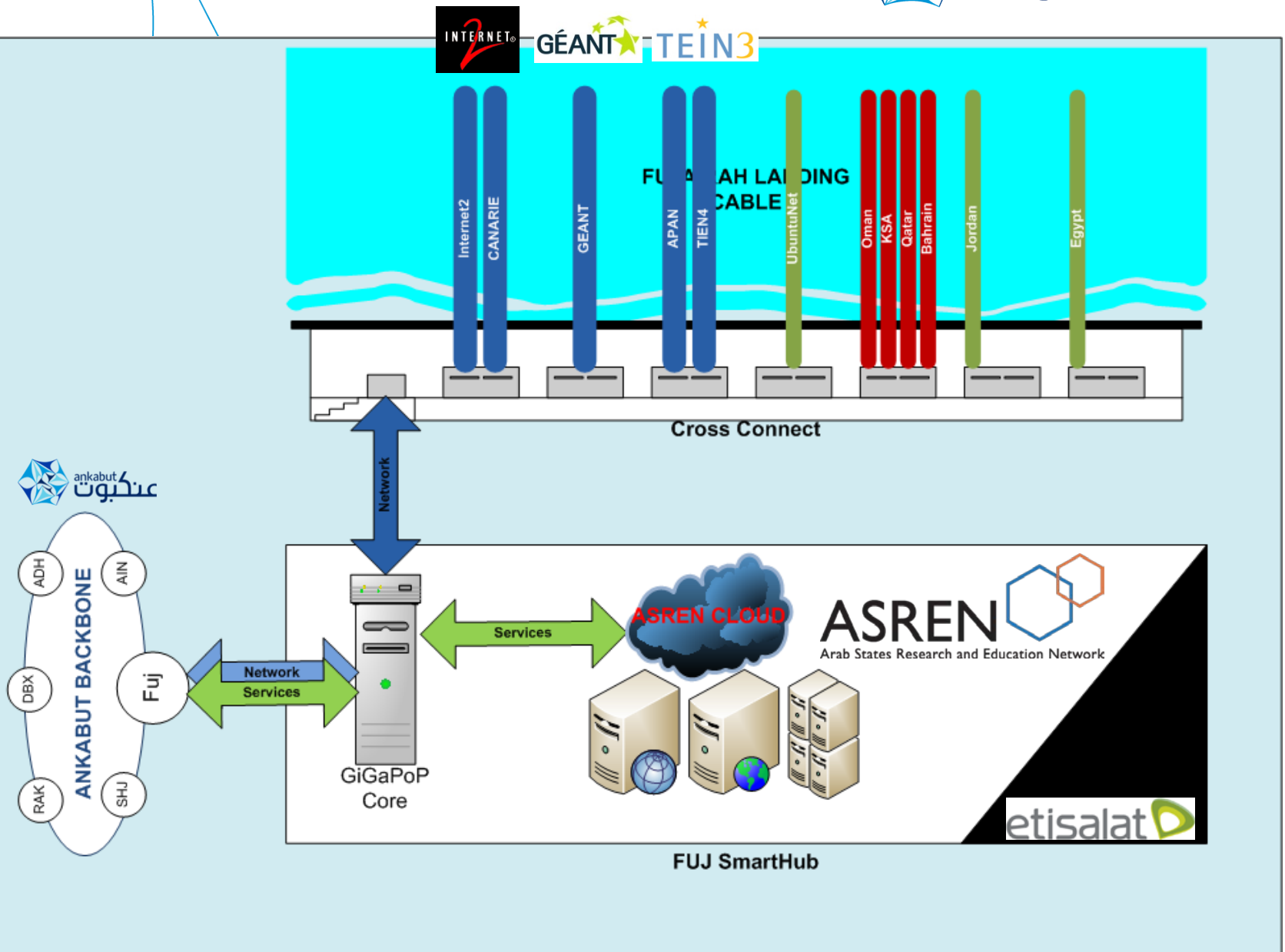
Phase 1 : Internet2 Connection & Services



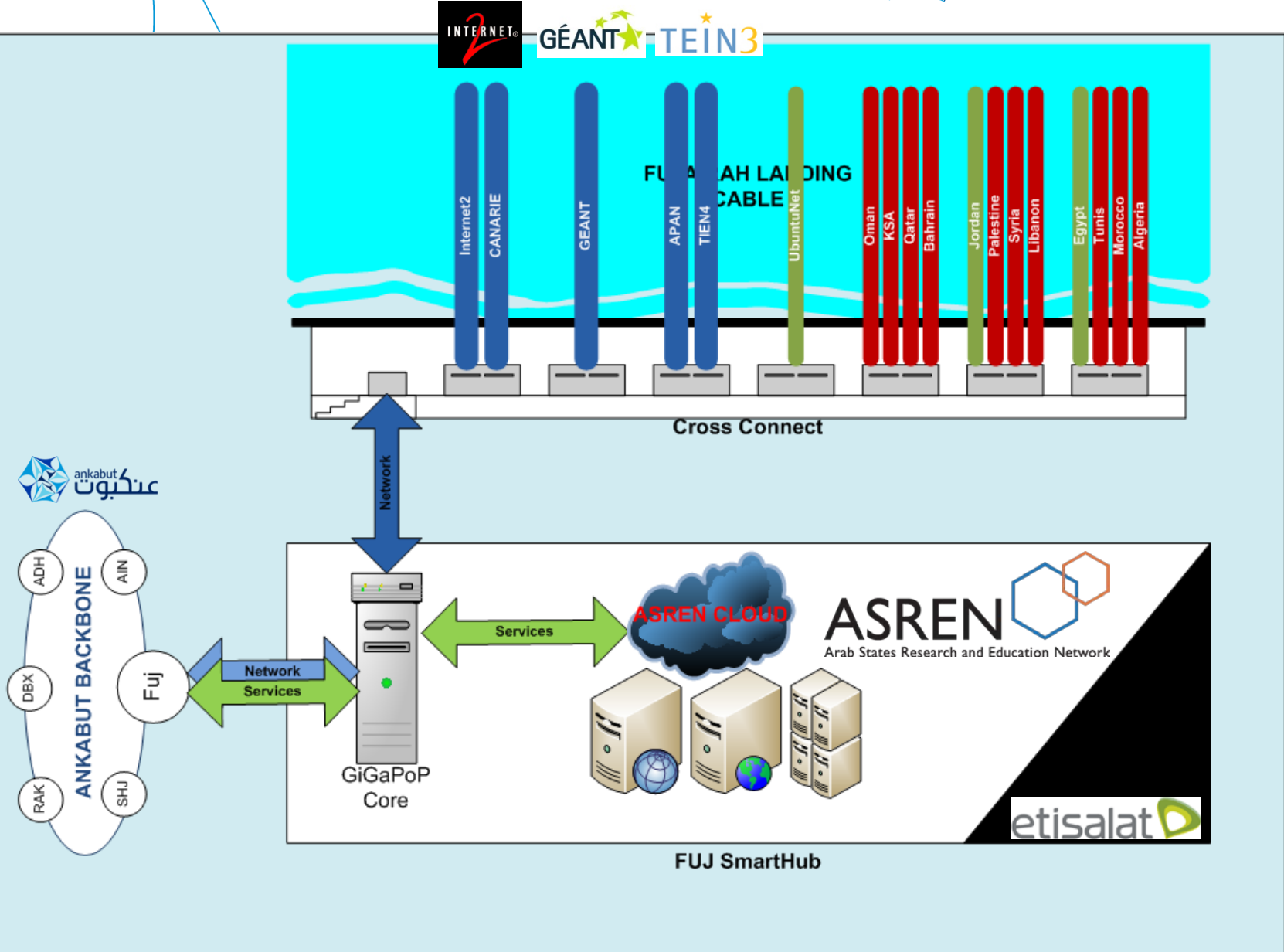
Phase 2 : Internet2, Geant, APAN Connection & Services



Phase 3 : GCC, PoPs Connection & Services



Phase 4 : ASREN Connection & Services



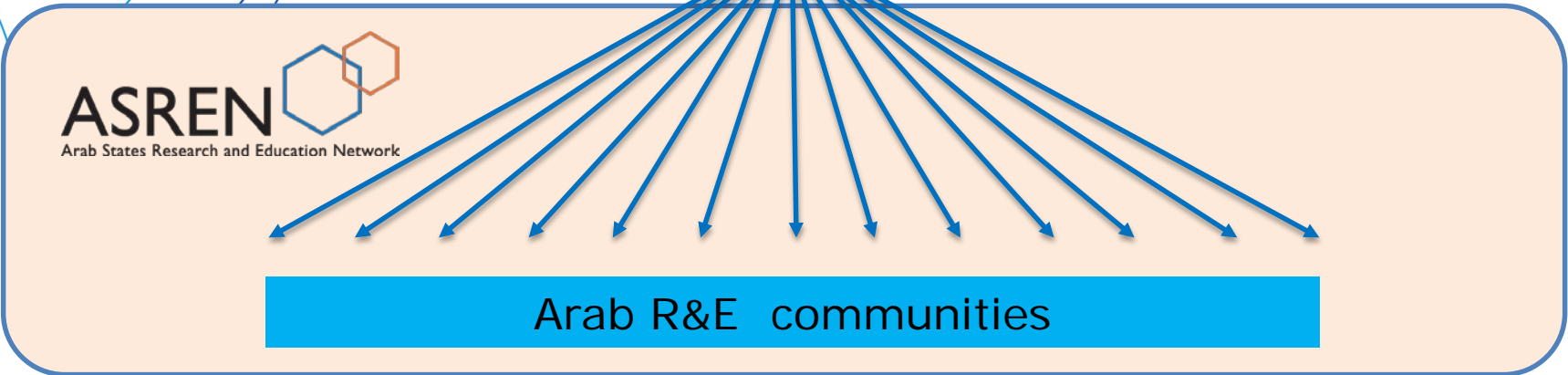
UAE GiGaPoP for International R&E Connection



1xSTM-1



1xSTM-4



1. (Cisco 7606, Juniper, APAN, etc..) could provide a core/switch. Ankabut provides the rack-space and power at the Fujairah GiGaPoP.
2. The R&E network targets **pay their own way** into the GiGaPoP, leased line or Ethernet. R&E participants build VLAN's with each other and run their own intra R&E internet peering and bandwidth on demand.
3. No CAPEX to get, give the project a two year window to meet its objectives.



Challenges

- 1. FINANCE**
- 2. COMMITMENT**
- 3. SERVICES**
- 4. SUSTAINABILITY**
- 5. REGULATIONS**

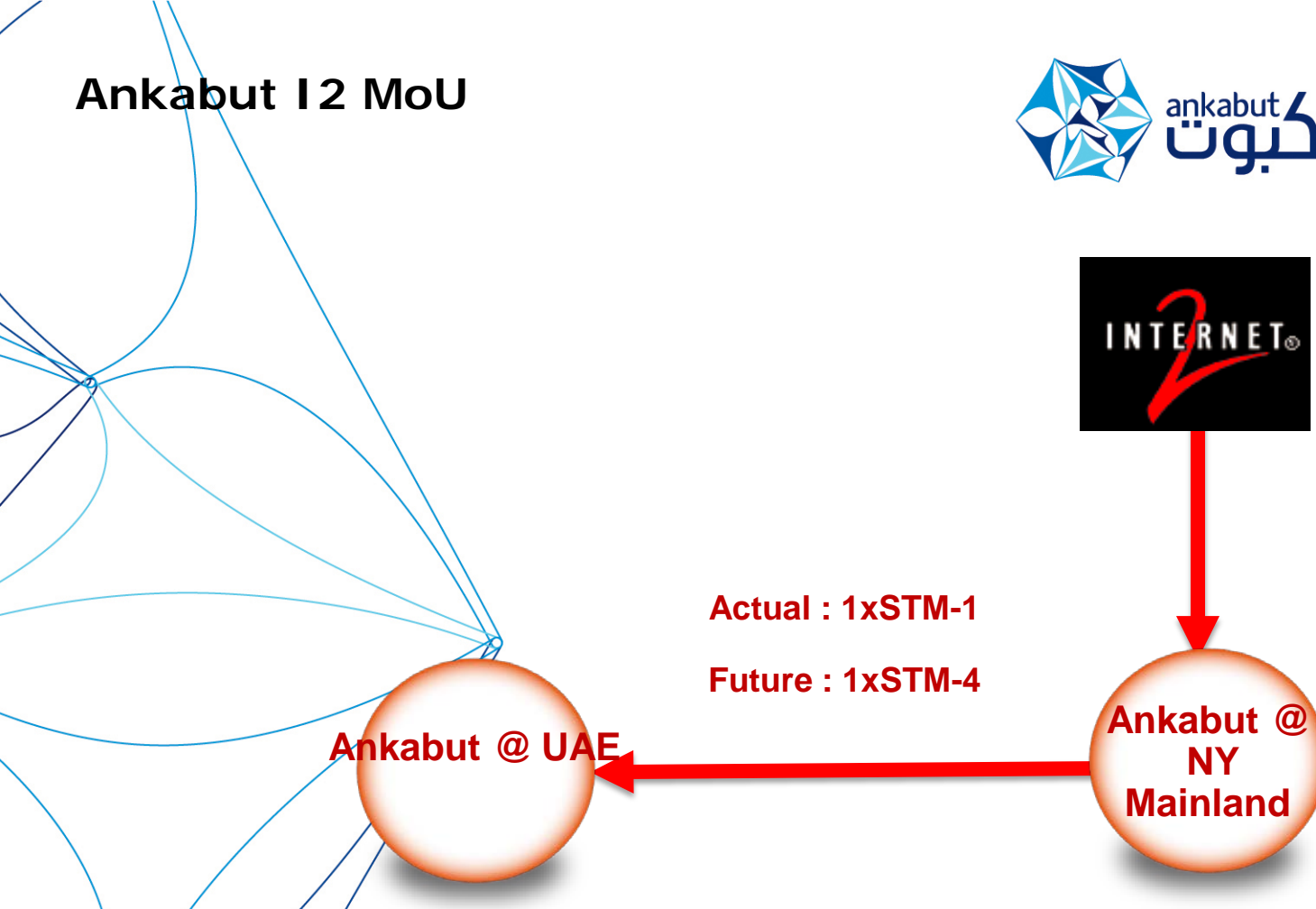


04

Ankabut & Internet2

- 1. MoU signed during I2 Annual Meeting in Arlington UAE GiGaPoP Working Group (co-chaired between I2 & Ankabut), it includes NYU, I2 Singapore.**
- 2. ANKABUT & DANTE drafted an MoU to be signed soon to support the UAE GiGaPoP project**
- 3. ANKABUT & ASREN to discuss the Shareholder proposal**
- 4. ANKABUT & ETISALAT agreed in a very attractive business model for the GiGaPoP**

Ankabut I2 MoU



Ankabut @ UAE

Ankabut @ NY Mainland



Highlights :

- 1- MoU signed between Ankabut & I2
- 2- To have UAE as the GiGaPoP Hub for the region
- 3- To be very attractive for the neighbored countries to connect internationally

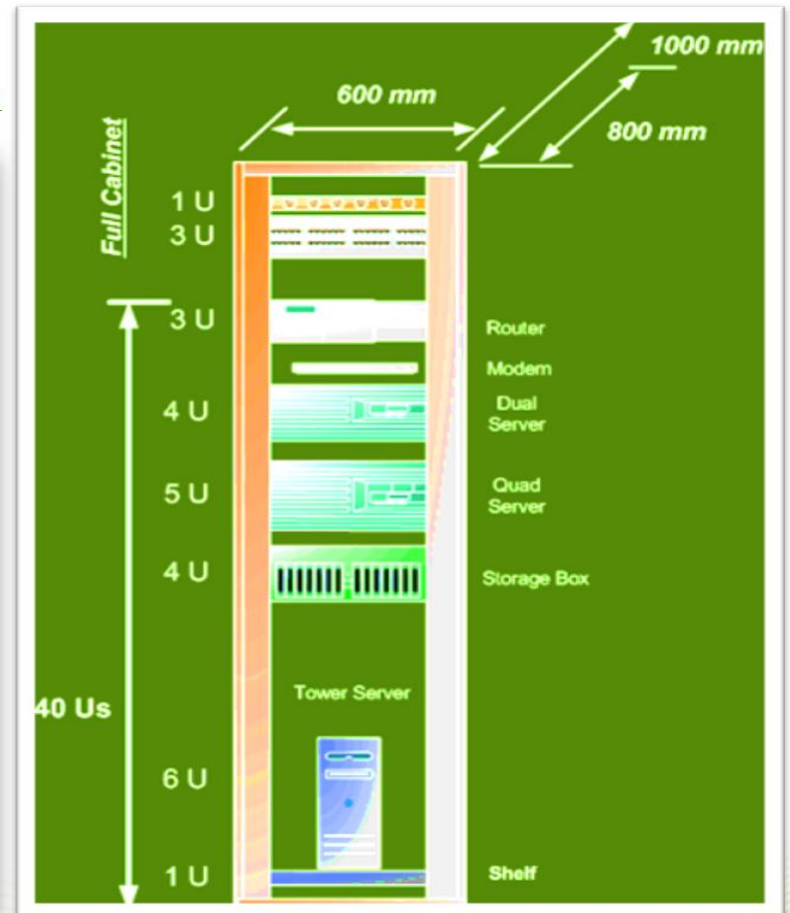
Carrier & Wholesale Services – SmartHub

Co-location Cabinet charges and specs.:

<http://www.apc.com/products/family/index.cfm?id=301>

Part number : AR 3107

SmartHub
Cabinet actual
shape & Type



4Kw Co-location Charges:

Service\Package	Full Cabinet
Price (USD /Month)	
Set Up Fees	

7Kw Co-location Charges:

Service\Package	Full Cabinet
Price (USD /Month)	
Set Up Fees	

*Subject to providing feasibility sheet and power availability.



Carrier & Wholesale Services - eCapacity

We provide intra-regional and international capacity worldwide. C&WS can meet any bandwidth requirement.

International Submarine Cables system:

- SMW-3
- SMW-4
- FLAG
- IMEWE
- TGN
- TEAMS (UAE-Kenya)
- TW1 (UAE-PAK-Oman)
- EASSy

Regional Cable Systems:

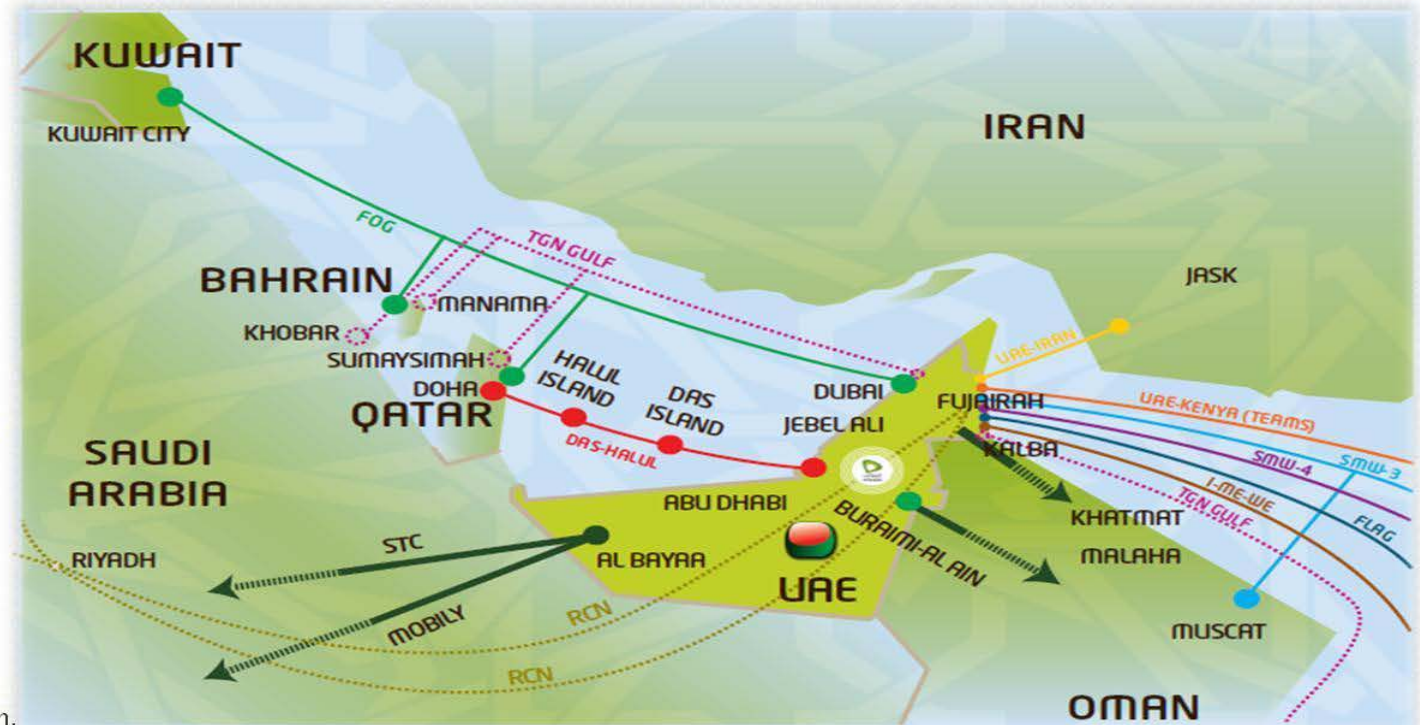
- FOG
- UAE-Iran
- UAE-Qatar

Terrestrial Cable Systems:

- UAE-Oman 1
- UAE-Oman 2
- UAE-Saudi 1
- UAE-Saudi 2
- GCCIA
- RCN

Satellite capacity:

- Intelsat, Eutelsat, Thaicom, NSS-6&7, Arab sat, Apstar, Nile sat, Europe Star, China Star & Asia Sat.



Special Annual Lease "X" Connect and Terrestrial Charges for "Ankabut" Project

Capacity	OTC/NRC	"X" Connect	"X" Connect	"X" Connect	"X" Connect	"X" Connect
		Fujairah "X" -Connect / Year	Buraimi / Nawras "X" connect / Year	DAS HALUL "X" connect / Year	FOG "X" Connect / Year	Sila "X" Connect / Year
2048 Kbps						
45 Mbps (DS3)						
155 Mbps (STM-1)						
1 x STM – 4						
1 x STM -16						
1 x STM – 64						

Note:

- * The above charges are specially constructed for Ankabut UAE project only.
- * Ankabut UAE to be "SPOC" for future requirements of any other universities.



Thank You