



First International Platform on Integrating
Arab e-infrastructure in a Global Environment



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Ankabut C³ Update:
Connect-Communicate-Collaborate

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Development

Internet2 MiddleEast Regional SIG Meeting
E-Age2011
12th – 15th December 2011



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Agenda



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Agenda

1. The Telecommunication Infrastructure
2. The Benchmark
Network , Services & Budget
3. Ankabut Network
IP Registry
4. Ankabut Services
Cloud, Grid, & Video



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UAE KnowHow

UAE doesn't need Technology Transfer,
UAE needs Knowledge Transfer

Dr. Eesa Bastaki, CEO ICT-Fund : "Made in UAE" ICTRF2011, May 15th 2011



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02

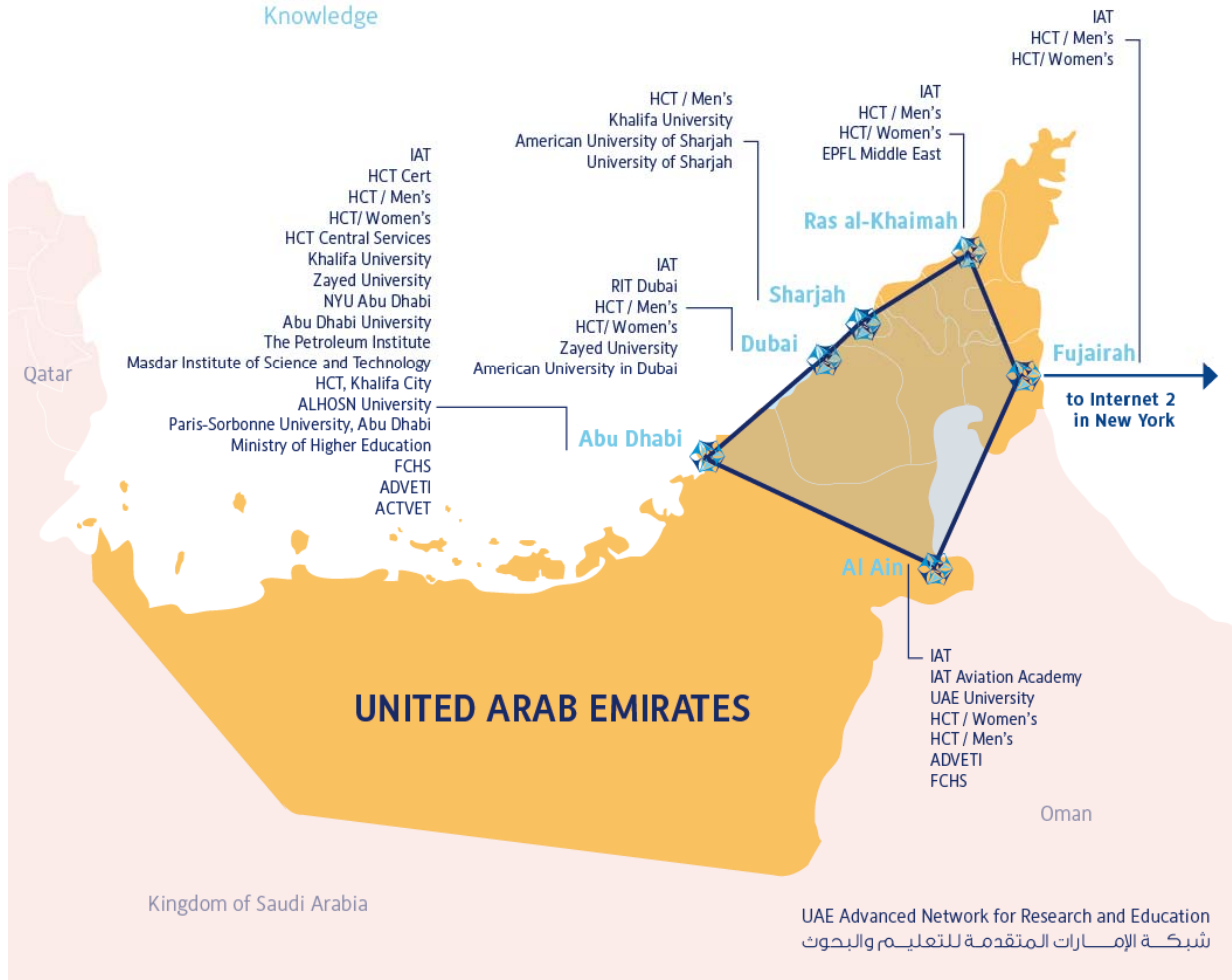
**The Telecommunication
Infrastructure**



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Processing
Tomorrow's
Knowledge



The Ankabut Network

Highlights...

- Has become a Local Internet Registry
- Increased international bandwidth to a **155 mbps** leased line with Internet2.
- Placed an Internet1 link in the Sharjah Router
- Has connected/connecting **53** academic **1Gbps** Access links.
- Has created **DNS, NTP, Email and Web hosting** services.
- Is implementing a network wide **Video Conf. MCU**



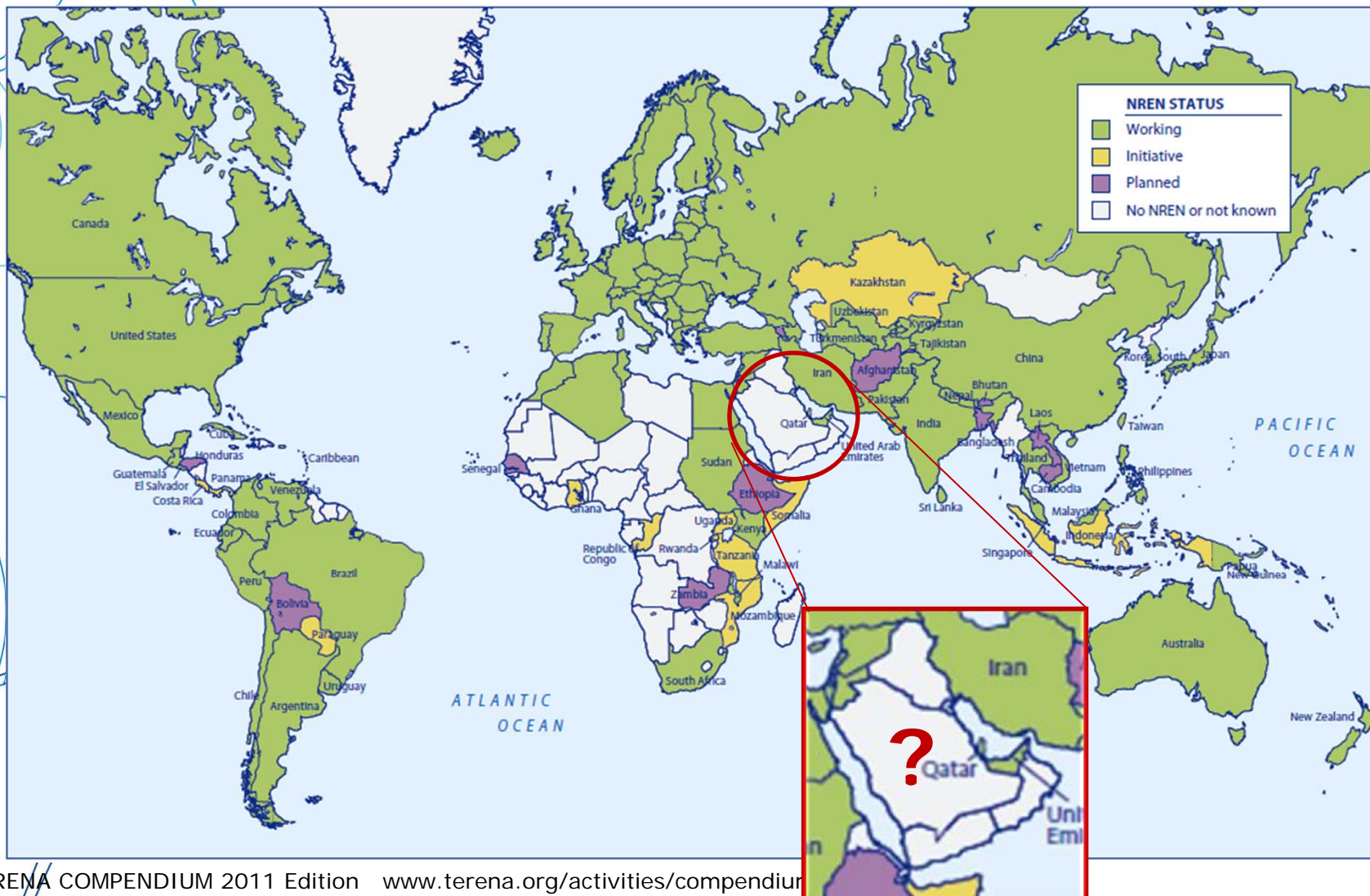
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To Be or Not To Be

This is the QUESTION?

GCC Network, Is't possible?





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Looking for
International
Connectivity

- GCC discussions launched last year between KAUST, QATAR FOUNDATION and ANKABUT.
 - Result : very high cost estimation**
- Participated to the EumedConnect3 Tender process to connect Ankabut to Geant.
- Overall proposed cost was too expensive
- Signed a Letter of Accord to explore collaboration with ASREN
- We are looking for a smart solution to have connectivity happen.



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What we are looking for ?

Collaboration

Starting to Identify a regional need project.

Some of proposed projects :

- 1- Federation Identity
- 2- EduRoam
- 3- Grid/Cloud Services
- 4- Open Library Resources



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- **The Benchmark**
 - Network and Services & Budget



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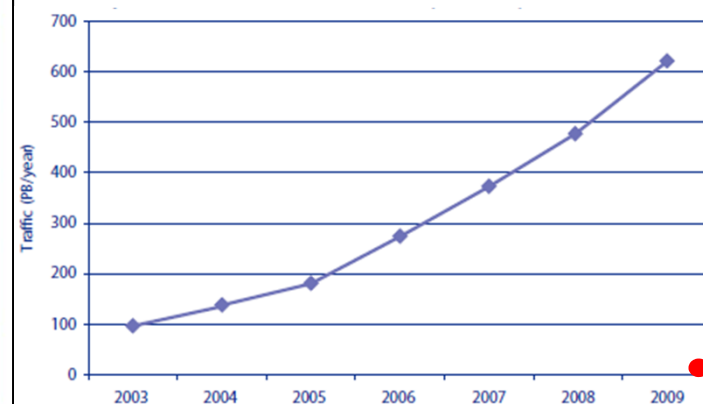
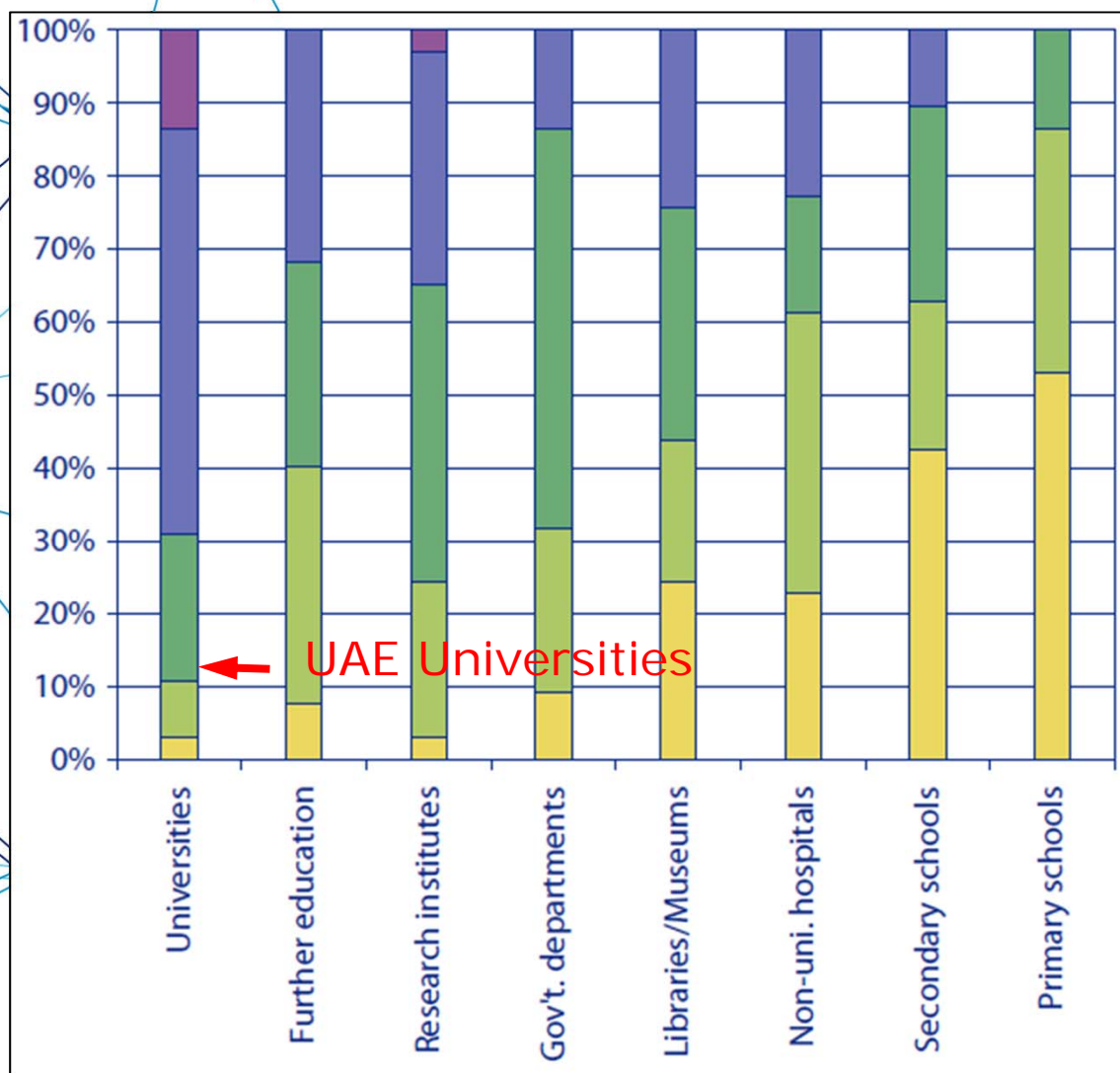


Benchmark

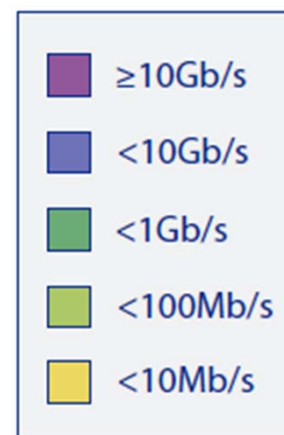
National Research and
Education Networks



Bandwidth in use across Europe's Education Sector



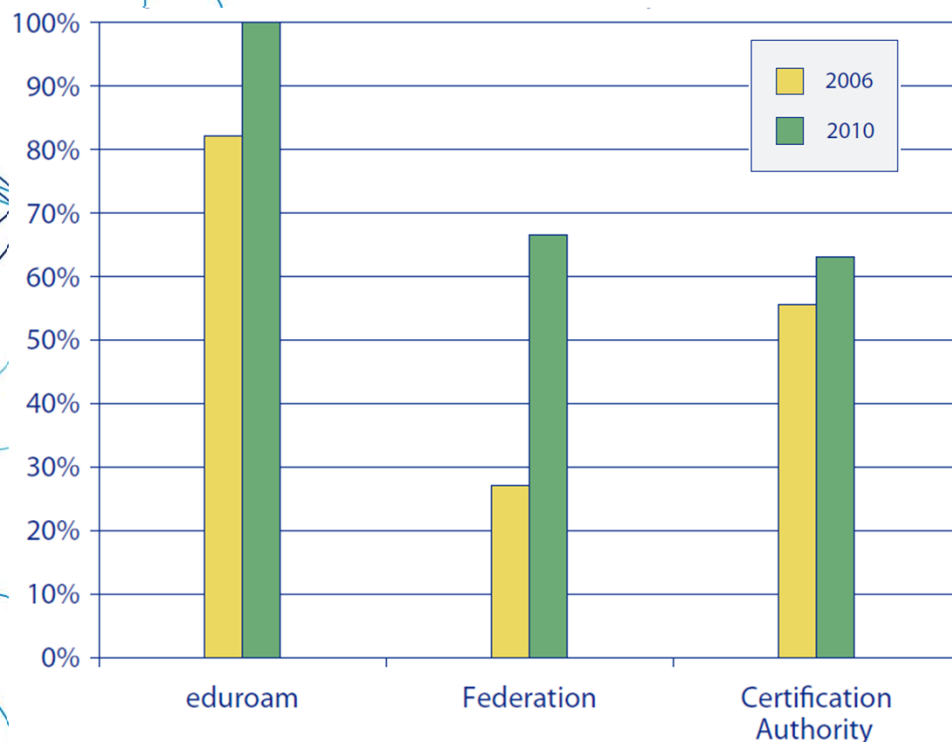
700 Terabytes





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Network Identity Service



NI: Consultation + Implementation

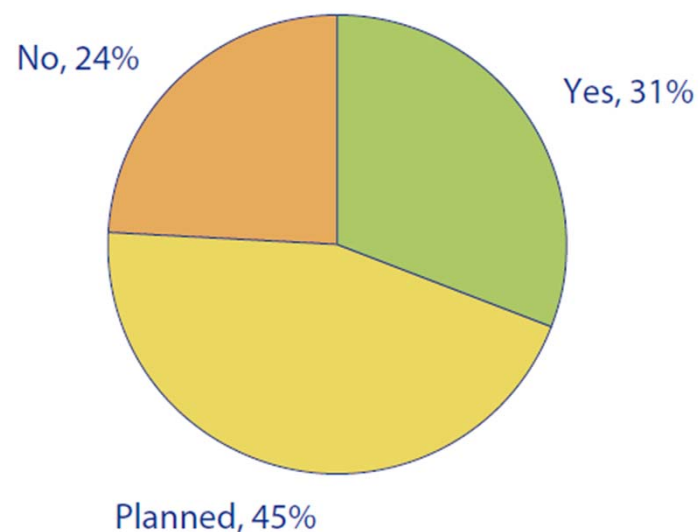


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NREN Services

Unified Communication:
Planned

IP Telephony



Storage Service

Storage: in Consultation

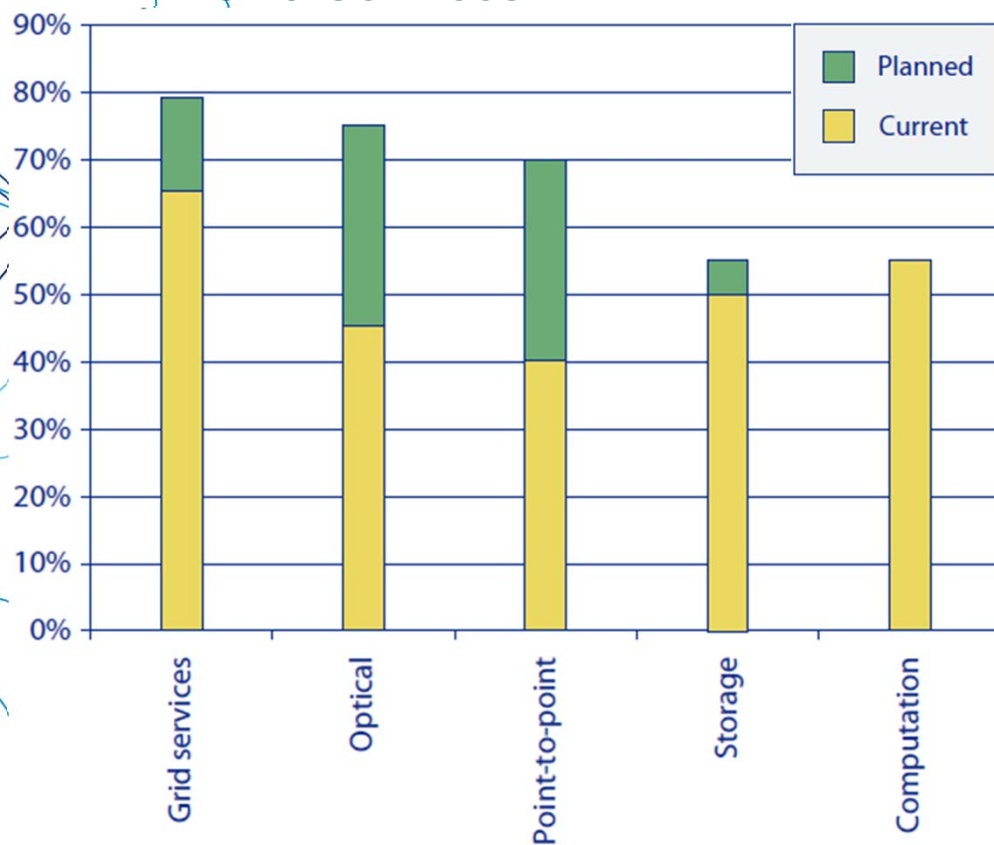
	Grid storage	Data storage	Peered commercial	Hosting commercial	Video service	Mirroring
EU/EFTA countries	31%	17%	21%	28%	45%	72%



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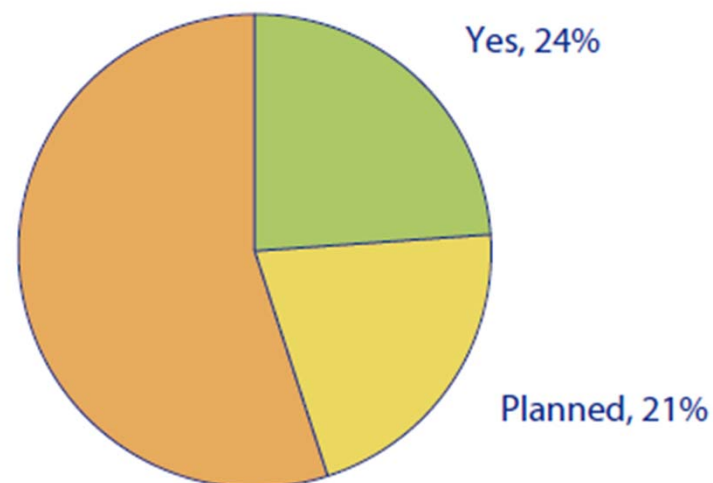
Grid Services



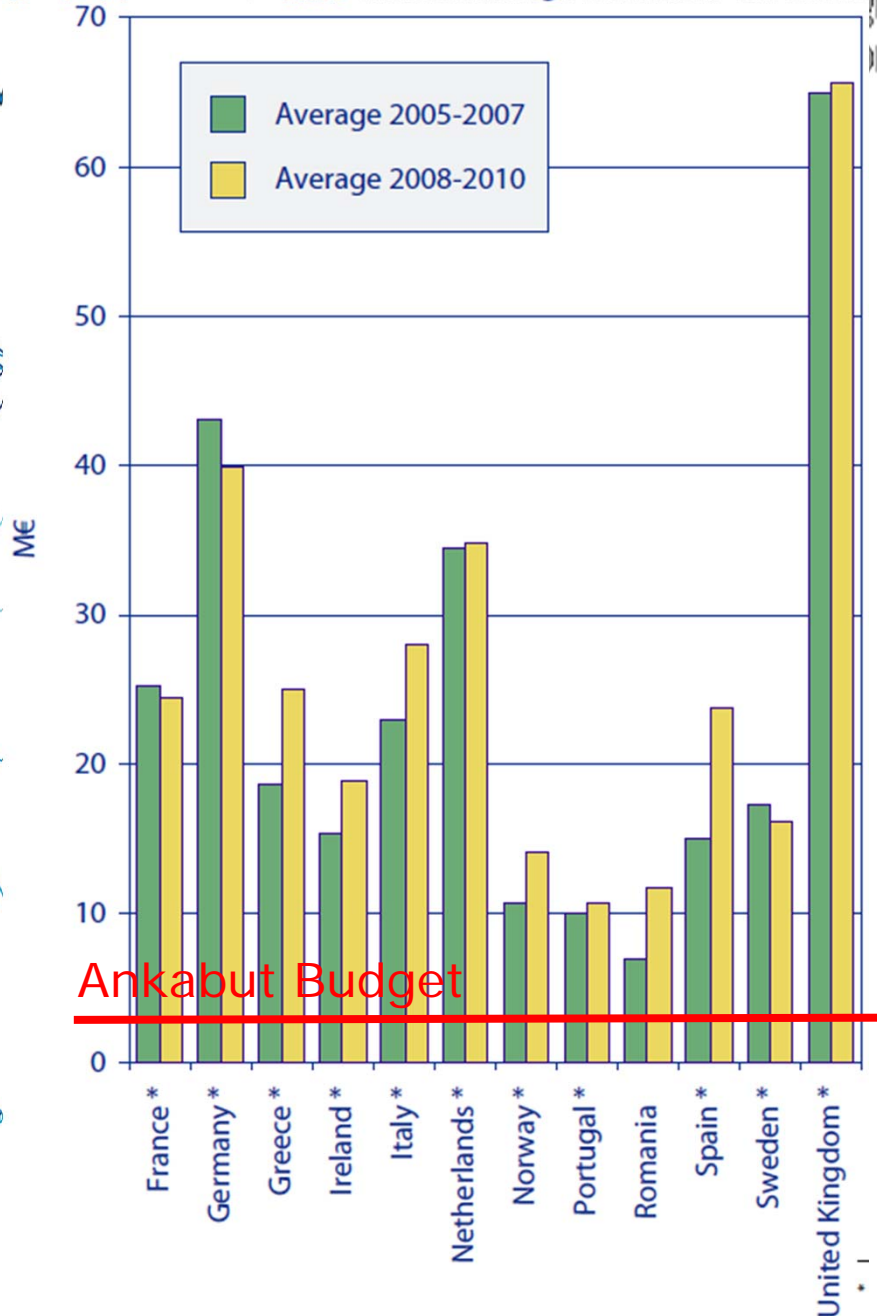
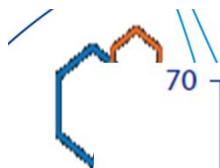
NREN Services

Cloud: in PoC phase

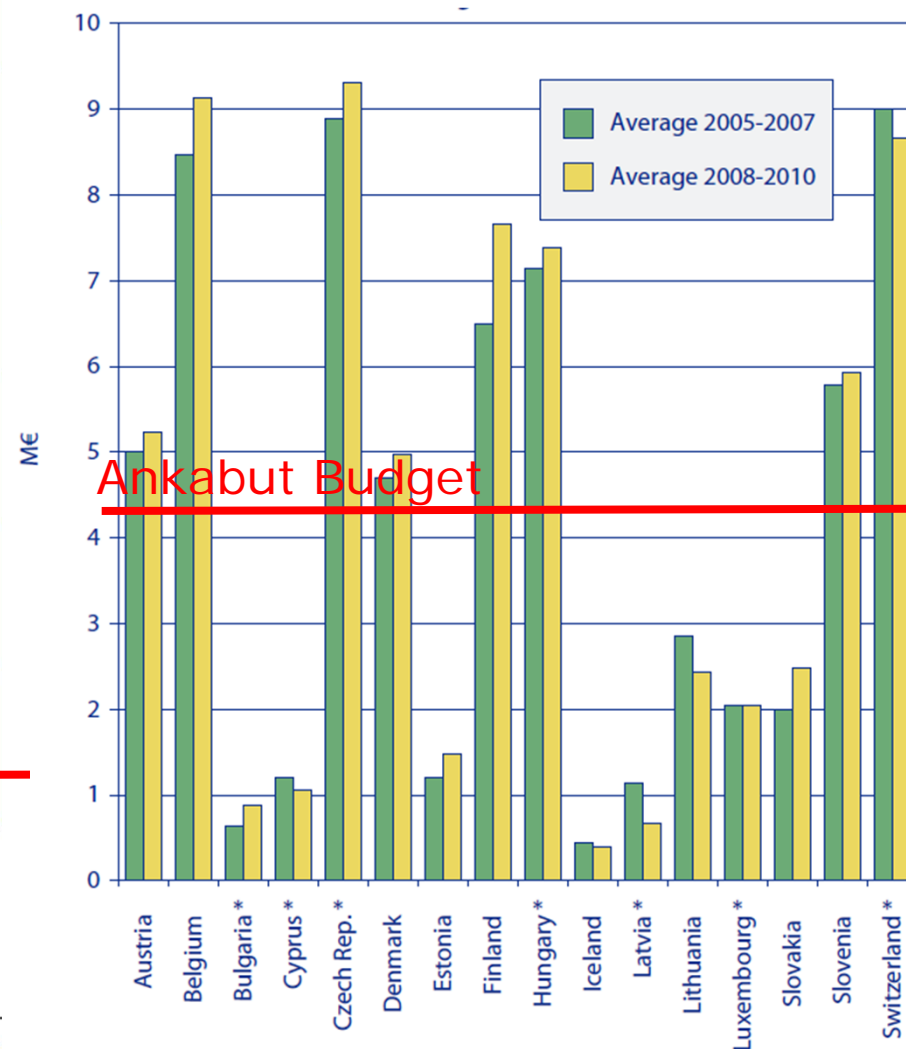
Cloud Services



GRID: in negotiation with
international community



Annual NREN Budget





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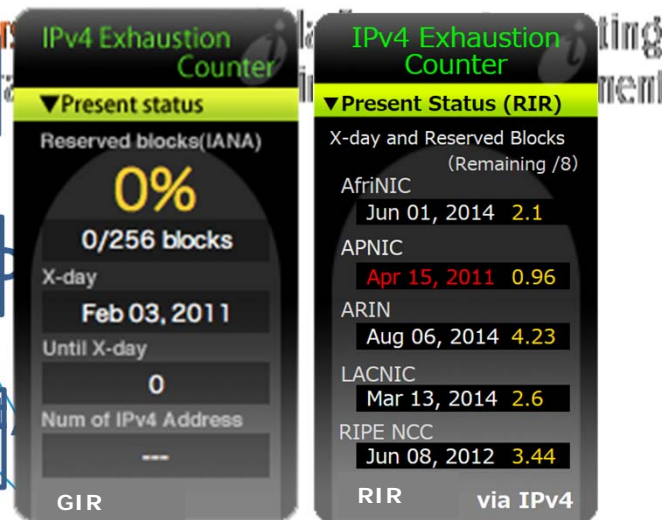
04

- **Ankabut Network**
 - IP Registry




RIR: RIPE NCC

RIR: Ankabut
Etisalat/DU



Local Internet
Registry

Ankabut Provides Data Network
Addressing to the Community

Entity	PI Resources		
	IPv4	IPv6	AS Number
Ankabut	109.205.24.0/21	2a00:1b00::/32	AS47862
	176.74.48.0/21		
UAE University 	178.250.248.0/22	2a02:1718::/32	AS51182
	194.69.1.0/24		
	178.250.248.0/23		
	178.250.250.0/23		
American University in Dubai (AUD)	194.153.153.128/25	2001:67c:2040::/48	AS52216
Higher Colleges of Technology (HCT)	31.29.64.0/19		AS56479
Paris-Sorbonne University Abu Dhabi	91.229.64.0/23	2001:67c:2348::/48	AS39031
New York University Abu Dhabi (NYUAD)	91.230.41.0/24	2001:67c:2350::/48	AS50811
Abu Dhabi University (ADU)	91.231.11.0/24	2001:67c:23e8::/48	AS57143
Zayed University (ZU)	193.33.102.0 /23	2001:67c:23f0::/48	AS57163
American University of Sharjah (AUS)	193.33.172.0/23	2001:67c:2408::/48	AS57171

IPv4 Exhaustion Counter, Ref: http://inetcore.com/project/ipv4ec/index_en.htm



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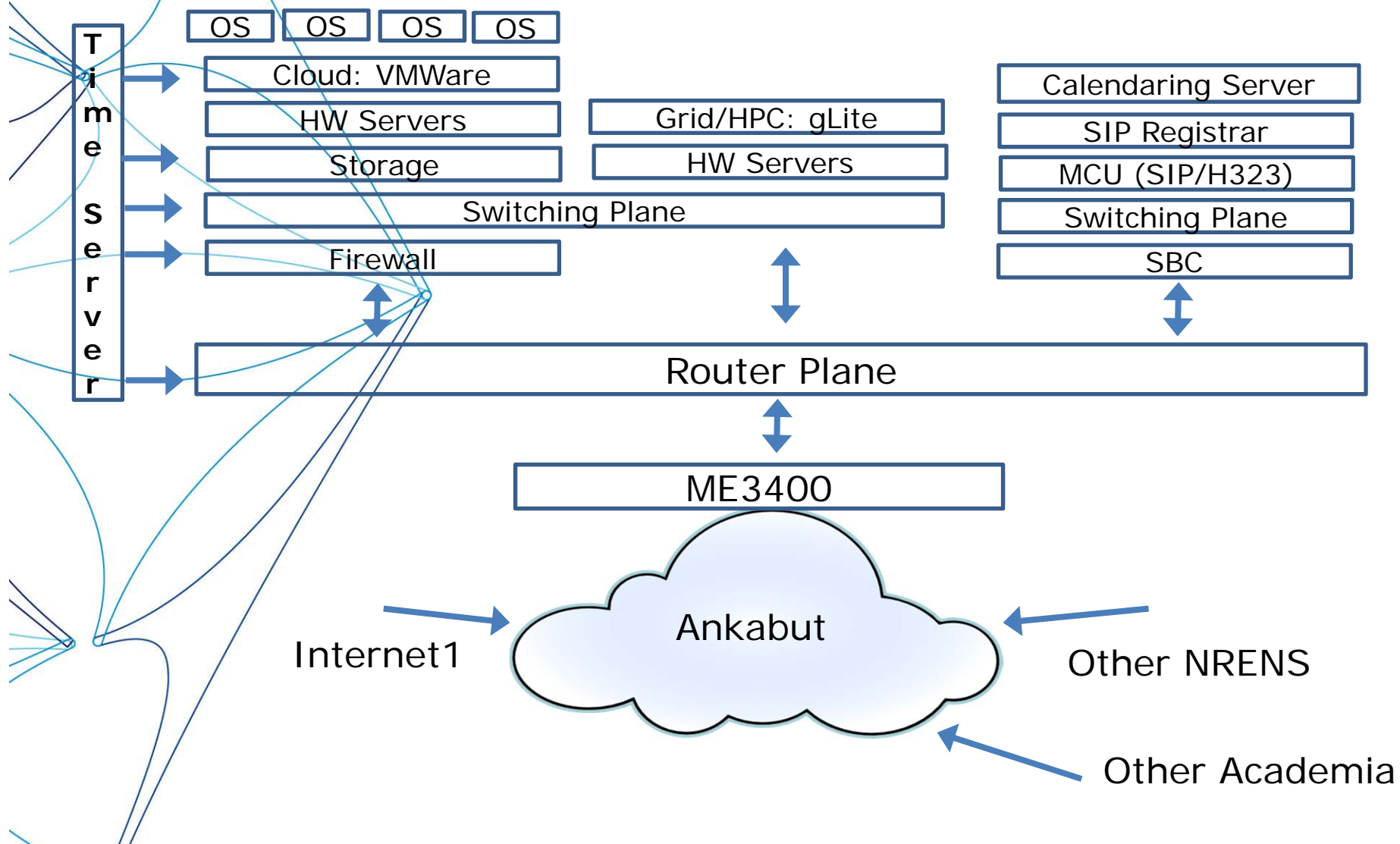
- **Ankabut Services**
 - Cloud, Grid, & Video



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Hardware Architecture





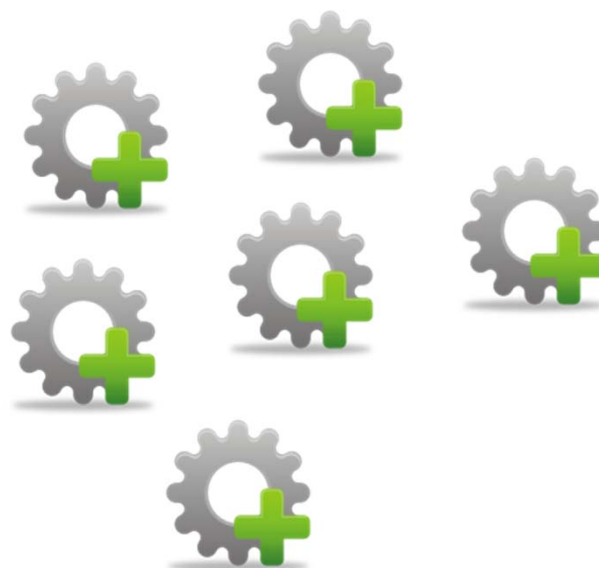
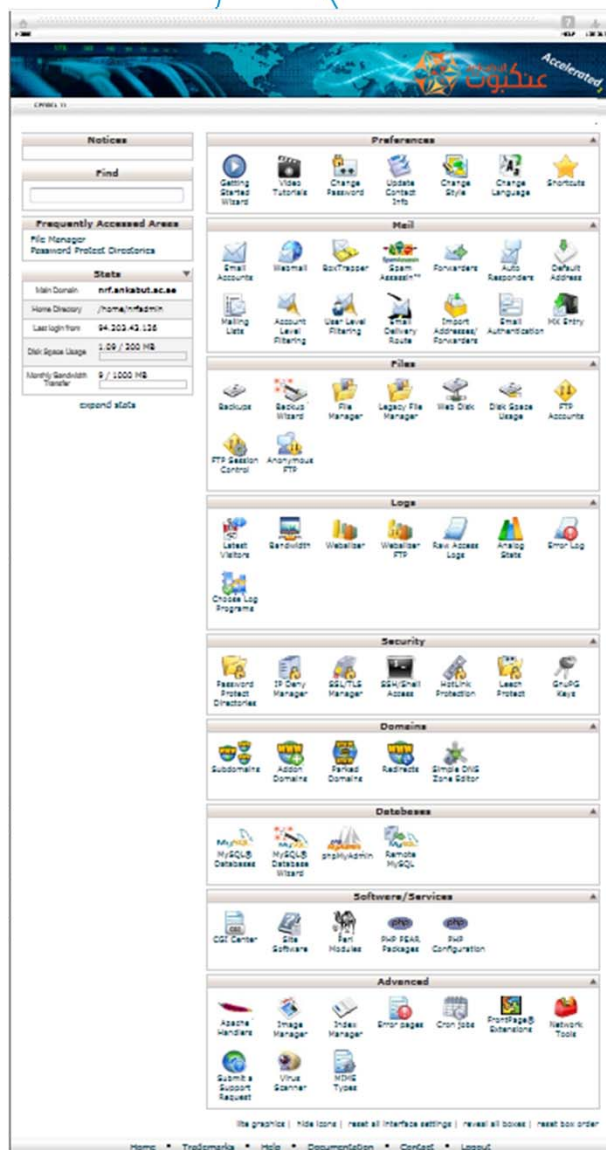
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Software Architecture

OS OS OS OS

Cloud: VMWare



Web Hosting Manager

Thin Client Manager

Domain Name Park

LAMP Web Hosting

FTP Server

IMAP(s) POP(s)
Server

Recursive DNS
Cluster

Public NTP

Cloud: VMWare Environment



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GRID: Distributed HPC

Highlights...

- Ankabut has maintained its small node in the UAE and can dispatch HPC jobs across the EGI using gLite
- Has participated in the second Grid School
- Ankabut is seeking **Grid partners** to grow the distributed computing environment within the UAE.

Ankabut is in International negotiation to enable the interaction with the EGI using X.509 Certificates. This means that Ankabut will be the **Certification Authority** in the UAE not just for GRID but many applications requiring universities to be authorised and certified on to national and global services.





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UAE-Grid Initiative

University 1

- They own their Grid Computers including proprietary Middleware
- Wish to be part of the national Grid
- To submit jobs directly to EumedGrid without going through Ankabut Middleware

University 2

- They have No Grid
- Wish to be part of the national Grid
- To use UAE resources

University 5

- They have Blue Gene
- Wish to be part of the national Grid
- To use UAE resources
- To use EumedGrid resources

University 4

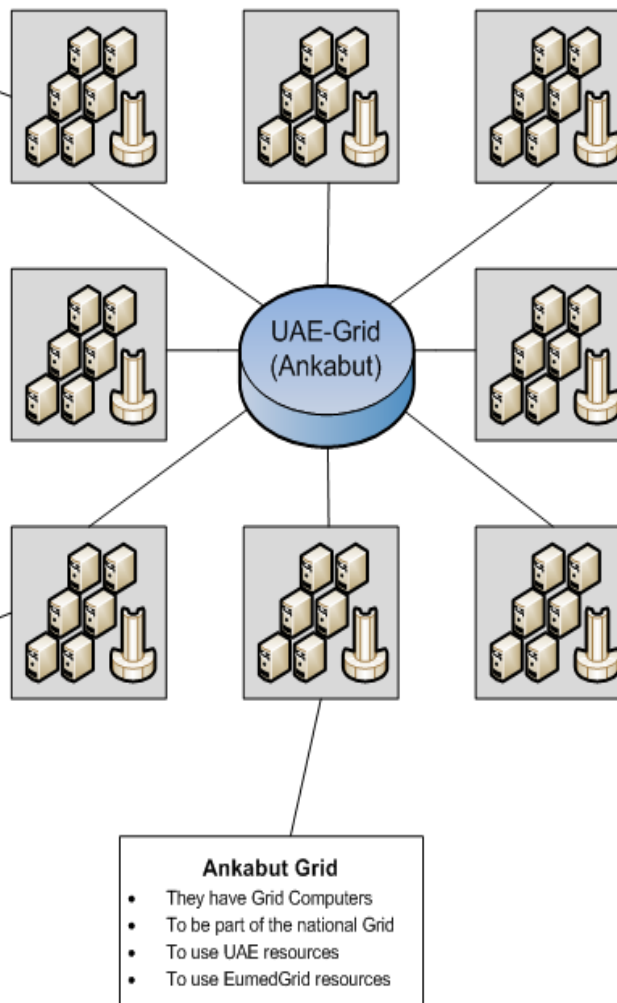
- They have HPC with proprietary middleware and to be compatible with gLite.
- Wish to be part of the national Grid
- To use UAE resources

University 3

- They have Grid and would like to have gLite for internal use.
- Wish to be part of the national Grid
- To use UAE resources
- To use EumedGrid resources

Ankabut Grid

- They have Grid Computers
- To be part of the national Grid
- To use UAE resources
- To use EumedGrid resources



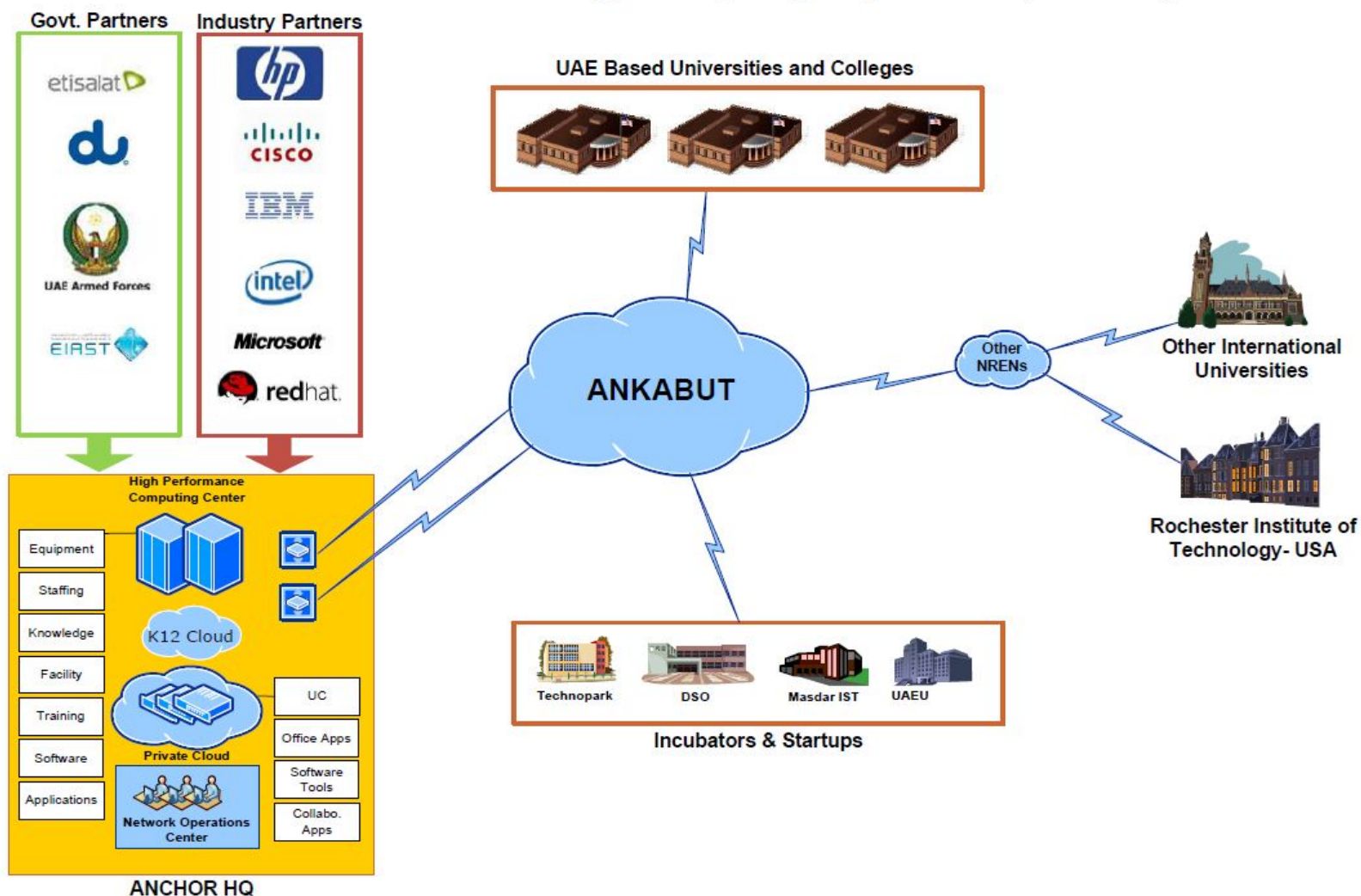


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1st Draft of ANCHOR

Ankabut National Cloud & Hypercomputing ORganization (ANCHOR)





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Video Conferencing

Highlights...

- Is implementing a network wide Video Conf. MCU





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Conclusions



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Conclusions

- Ankabut is building its e-Infrastructure
- Ankabut started deploying services to users
- Ankabut is building its second Grid-site based on virtual machines
- Ankabut is in the last mile to be Accredited as Robot Certification Authority

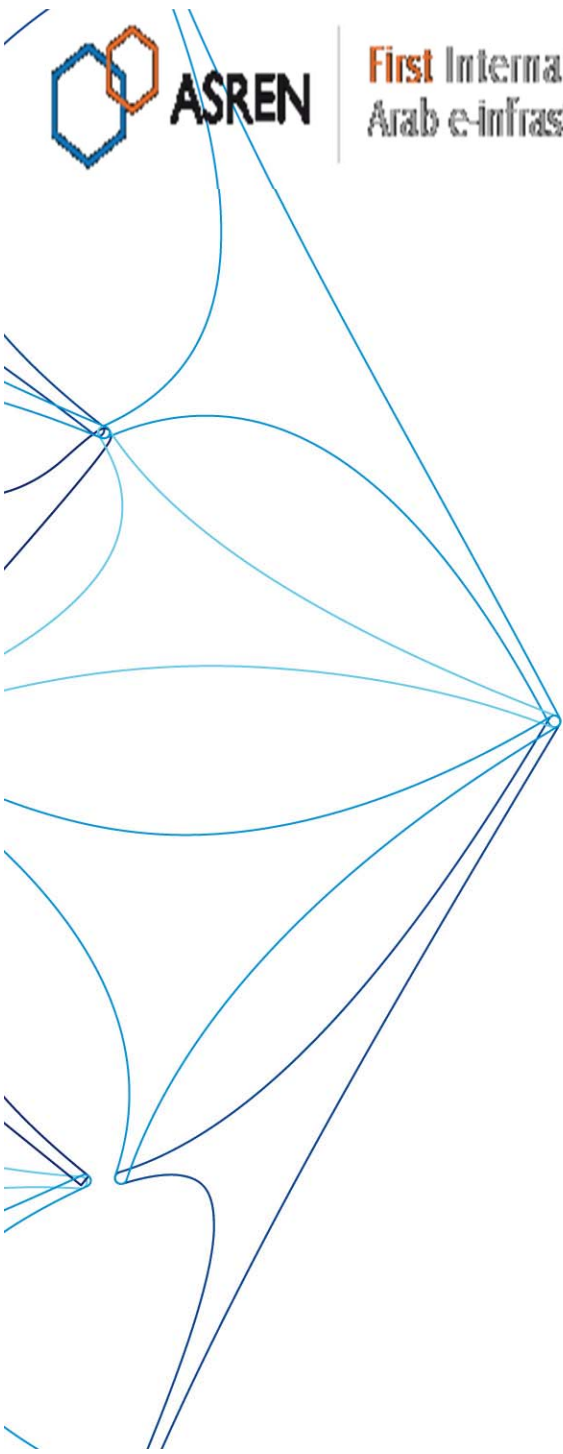


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- Questions?



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Questions

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Thank You