



# ASREN

Arab States Research and Education Network

## Summary Report 3<sup>rd</sup> International Platform on Integrating Arab e-Infrastructure in a Global Environment

### e-AGE 2013

“Connect..  
Access..  
Innovate”

El Mouradi Hotel, Gammarath  
Tunis, Tunisia

12-13, December, 2013

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## 1. Introduction / ASREN Overview

The Arab States Research and Education Network (ASREN) was launched in 2010 under the auspices of the League of Arab States and the UN Global Alliance for ICT and Development (GAID). ASREN is a legal not for profit regional Arab organization that aim to implement, manage and extend sustainable Pan-Arab e-Infrastructures dedicated for the Research and Education communities and to boost scientific research and cooperation in the Arab countries through the provision of world-class e-Infrastructures and e-services.

ASREN's vision is "Pan-Arab collaborative research and education projects and activities, contribute to boost the scientific research, innovation and education levels in the Arab countries by uplifting efficiency and productivity of research and education communities". Its mission is "To implement, manage and extend sustainable Pan-Arab e-Infrastructures dedicated for the Research and Education communities and to boost scientific research and cooperation in member countries through the provision of world-class e-Infrastructures and E-services". The e-AGE platform is a very important tool which includes several activities in the aim of achieving this mission. The activities include promotion, creating awareness, networking people, draw the attention of high level and key decision makers and promoting the use of technology and communications in conducting research and education activities.

## 2. e-AGE 2013 Themes and Activities

After 2 years of success in bringing together high level and wide range of participants from many countries around the world, e-AGE 2013 was planned on the basis of three main themes:

Connect - Access - Innovate

**Connect:** Facilitate connectivity through a high-speed network to allow scientists to communicate, collaborate, exchange, and run both data and computational-intensive scientific applications and services. The objective is to scale up broadband dedicated networks with a growing focus on cross-boarder connections and regional peering. Several initiatives can be introduced to support reforms, e-Infrastructure sharing, and open access models.

**Access:** Enable seamless access to data, services, applications, and resources related to science and education. e-AGE 2013 will be a platform to explore access opportunities and services that can be provided to research communities in a federated context. Case studies and best practices will be demonstrated on federated access, science gateway, cloud and grid computing, data repositories, and other related resources and services.

**Innovate:** High-speed networks and wide access represent enabling environments for students, researchers and scientists to innovate for greater competitiveness across industries towards better revenue generation through knowledge economy.

ASREN is becoming more visible and more active in the region and beyond. It has developed a new shareholder scheme with more Arab NRENs joining as well as more supporting organizations. Following on the success of e-AGE in 2011 and 2012, e-AGE 2013 included events, workshops, meetings centered on the following themes:

- The 6th Event on Euro-Mediterranean e-Infrastructure
- The 3rd annual conference of ASREN
- CHAIN-REDS Workshop on e-Infrastructures
- Network Management Tools for NREN NOCs Workshop
- EUMEDCONENCT3 Project Meeting
- AROQA AQUIN Workshop
- AROQA 5th Annual Conference

### 3. Participants

As a Platform on Integrating Arab e-Infrastructure in a Global Environment, the e-AGE 2013 was attended by academics, network professionals, researchers, scientists, and high level decision makers from governments, enterprises, NGOs, academia, and civil society. The e-AGE platform became a very important venue for networking among experts and scientists from all over the world.

Representatives from many countries participated in e-AGE meetings including Jordan, Palestine, Egypt, UAE, Saudi Arabia, Oman, Algeria, Tunis, Morocco, Lebanon, Sudan, Qatar, USA, Italy, Netherlands, Switzerland, Belgium, Germany, Greece, UK, Bahrain, Yemen, Canada, Spain, Rwanda, and Belgium.

### 4. Highlights from the Opening Ceremony

Joint opening with AROQA's fifth annual conference started with the following opening keynotes:



#### H.E. Moncef Ben Salem

Minister, MOHESR, Tunisia

Dr. Moncef started his speech with greeting the attendance and said that the meeting aims at evaluating what has been achieved since the last two sessions in Amman and Dubai as well as enhancing the cooperation among national, regional, Arab and international networks in terms of education and scientific research. The Minister, Al Moncef Bin Salem, also stressed that this meeting is pivotal by being the only one of its kind in the Arab region and the world in terms of the parties participating in it. It is a privileged opportunity for Arab researchers to benefit from this gathering that includes academics, technicians, specialized and experts in these areas.

His Excellency praised the efforts exerted by the Computing Centre El-Khawarizmi (CCK) for enhancing the field of higher education and scientific research by the technical services it offers in the area of information and communication through creating an information network with a high flow capability. He also pointed out Tunisia's role in creating several technological institutions and research centers in order to support creativeness and innovation in different areas that serve research and education.

At the end, His Excellency pointed out the importance of this meeting in which there was a wide and effective participation by figures including senior decision-makers from governments, institutions, academic circles, NGOs and Civil Society Organizations with the aim of providing a platform through which it is possible to motivate and encourage partnerships and the exchange of the best practices that aim at merging scientific research networks with international ones as well as ensuring their sustainability.



#### H.E. Fa'eqa Saeed Alsaleh

Assistant Secretary General for Social Affairs, LAS, Egypt

Dr. Fa'eqa addressed a speech through which she delivered the greetings of His Excellency the Arab League's Secretary-General, Dr. Nabil Al Arabi, and his wishes for the success of e-AGE 2013 and the fifth annual conference of the Arab Organization for Quality Assurance in Education (AROQA). She also expressed her pleasure for participating in inaugurating the activities of these two events which bring together favored elite of privileged and international experience concerned with the field of information technology and education quality which both contribute to scaling up the educational process that meets today's prevailing variables in order to cope with scientific progress and its developments and continually evolving and developing requirements.

She also stressed that the League's participation in the conference comes in the context of enhancing partnership

and communication between the Arab League and the NGOs which include ASREN and AROQA for their effective role in the advancement of the Arab's scientific level. In the light of astonishing developments in the field of information technology and communication that prevail this era, it is essential that concerned organizations, both governmental and non-governmental, consolidate with each other in order to raise the technical capabilities of Arab states to benefit from such developments, and to set strategies, plans and programs that help Arab states reach the proper basics in order to merge technologies with the educational system that affects the performance of both the teacher and learner.

Dr. Fa'eqa expressed the Arab League's hope that the platform and conference produce applicative results that can help Arab states develop new methods for merging technologies and their applications with education, and particularly help them develop the entire educational system to be more capable of meeting the countries' needs of national competencies.

At the end, she extended her thanks and gratitude to Tunisia for its hospitality. She also extended her thanks and appreciation to His Excellency Mr. Talal Abu Ghazaleh, chairman of ARSEN and AROQA, for his efforts in the field of improving the quality of education and scaling up scientific research. Finally, she praised the efforts exerted by the organizing committees in both organizations.



**H.E. Ali Al-Adeeb**  
Minister, MOESR, Iraq

**(Represented by Dr. Mohammed Atiya-Sarag,**  
Director General, Research and Development Directorate)

Dr. Mohammad started his speech with stressing the importance of this scientific and practical event in terms of proper connectivity and communication with other countries in the Arab world and abroad in order to realize the scientific benefit for researchers and students as well as realizing communication with their counterparts in the world. He also stated that the Higher Education and Scientific Research Ministry gives magnificent importance for strategic projects through which it sees essential changes occur in the reality of education in general and scientific research in particular, one of which is the National Strategy for Education (2012-2022) in cooperation with the World Bank and UNESCO.

He also talked about «Iraq Virtual Scientific Library» which enabled thousands of Iraqi researchers and students to reach many well-known international publishing houses with a pioneering scientific reputation. They also launched the website of accurate Iraqi scientific journals which contains «200» journals. Moreover, Dr. Mohammad talked about the Ministry's achievements of following the electronic pattern in different areas. He also stressed the importance of the existence of an e-infrastructure that is capable of absorbing all electronic services as well as providing them to large numbers of researchers and students, hoping that the understanding with ASREN will be the first sign for a fruitful cooperation in order to create the Iraqi National Research and Education Network through which Iraq will start connecting with the other Arab and international networks.

At the end of his speech, Dr. Mohammad expressed his certainty that this meeting within this «electronic» scientific congregation will realize the desired goals. Then, he extended his thanks and gratitude to the sister state Tunisia for hosting this conference, and to ASREN for organizing this conference and supporting education and scientific research in the Arab countries.



### **H.E. Ali Abu Zuhri**

Minister, MOHESR, Palestine

Dr. Ali Abu Zuhri started his speech with expressing his appreciation for the unremitting efforts to create a state of communication among the concerned people in the Arab world and abroad in the areas of scientific research and quality in education. He also noted that the development of any country is measured by its education quality and contribution to the scientific research at scientific level. This ratio became an indication of the impact of these countries and the extent of their participation in the world economy.

The Minister stated that the higher education sector in Palestine consists of three main councils: Higher Education Council, Accreditation and Quality Assurance Commission (AQAC) and The Research Council. He also stated the role of these councils in enhancing education and scientific research in Palestine. Moreover, His Excellency pointed out the importance of the National Research and Education Network and the technical services it provides in increasing interaction and integration among higher education institutions and connecting it with its counterparts in developed countries. Finally, he noted that the Higher Education Ministry is concerned with this network and with providing it with direct financial support in order to assure realizing the desired goals.

At the end, Dr. Zuhri stressed his concern with the outputs of this meeting that might contribute to enriching mutual experiments which seek the same goals. He also thanked Dr. Talal Abu Ghazaleh for his efforts and hard work regarding initiating establishing ASREN and AROQA. Finally, he thanked the organizing committee of the conference.



### **Mr. Kamel Braham**

Human Development Coordinator for the Maghreb in the Middle East and North Africa Region, World Bank

Mr. Kamel has extended his pleasure to participate in this important event and stressed on the importance of quality in education in all its stages. He explained that this attention to the issue of quality has been demonstrated in a number of initiatives, both at the regional level or national level or even at the institutional level. The World Bank had a significant role in some of these initiatives; such as the regional network to improve the quality of education which was established as a result of the recommendations of the Doha summit in partnership with the «ALECSO» and a number of educational institutions such as Queen Rania Academy teacher, Injaz institution, the regional office of UNESCO in Beirut and the ARC Foundation for Children.

The World Bank has helped and still helping a number of Arab countries in the establishment and development of national regulations to ensure the quality of education as in Egypt, Palestine, Yemen, Tunisia, and Morocco.

Finally, He appreciated the efforts and the role of both AROQA and ASREN for the good organization and linking the quality of education with information technology, then he expressed his confidence that this conference will provide an opportunity to learn and exchange information and ideas with many of the workers in this field in addition to the valuable contributions included in the program.



## H.E. Talal Abu Ghazaleh

Chairman, ASREN, Jordan

In his opening speech, HE Dr. Talal Abu Ghazaleh expressed his sincere appreciation and recognition of the hosts of the conference: the Ministry of higher education and scientific research and Al khwarizim Computing Center. HE Dr. Talal Abu-Ghazaleh thanked the Tunisian Minister Higher Education, his Excellency Moncef Bin Salem for his patronage and the Minister of Higher Education in Palestine, Dr. Ali Abu Zuhri, for his participation. He also expressed his appreciation to the delegation of the League of Arab States, headed by HE Ambassador Faeqa Al-Saleh, keynote speakers, and representatives of NRENs and international organizations from across the world. Hosting both e-AGE 2013 and AROQA's fifth annual conference is seen as a great support to the host research and education activities and e-infrastructure networking for all the Arab region in Tunis.

HE Dr. Talal Abu-Ghazaleh expressed his appreciation to the European commission for their continuous support and welcomes high level delegation from Iraq and other Arab countries. An MOU was signed between ASREN and the Ministry of Higher Education in Iraq for supporting the development of a high-speed network infrastructure in Iraq to connect Iraqi universities and research institutions. He also highlighted the growing interest of Arab NRENs for joining ASREN as shareholders and look forward to have all NRENs of Arab countries to become part of ASREN to help support and sustain the development of the Pan-Arab research and e-infrastructure. HE Dr. Abu Ghazaleh has also expressed the hope to see high speed networks with Gigabits bandwidth connecting neighboring countries in the Arab region and to the world regional networks for research and education. It was also elaborated on ASREN setting up its first POP in London for peering and linking to the European research and education network "GEANT", with the support of the EUMEDCONNECT3 project, ISOC, and Cisco as well as technical and operational support of DANTE.

At the end, HE Dr. Abu-Ghazaleh concluded his speech by saying: "Without high speed networks and dedicated e-infrastructure, advancement of research, innovation and development will not be realized, thanks to all who have contributing to this development".

## 5. ASREN Shield



In recognition and honor for their efforts and their role in the success of the e-AGE 2103 Conference and activities, HE Dr. Talal Abu-Ghazaleh, ASREN Chairman, has given the ASREN and AROQA shield to the following:

- H.E. Moncef Ben Salem, Minister, MOHESR, Tunisia
- H.E. Faeqa Saeed Alsaleh, Assistant Secretary General for Social Affairs, LAS, Egypt
- H.E. Ali Al-Adeeb, Minister, MOESR, Iraq (Represented by Dr. Mohammed Atiya-Sarag, Director General, Research and Development Directorate)
- H.E. Ali Abu Zuhri, Minister, MOHESR, Palestine
- Mr. Kamel Braham, Human Development Coordinator for the Maghreb in the Middle East and North Africa Region, World Bank
- Ms. Marion Moser, Vice Managing Director, ACQUIN, Germany
- Prof. Habib Yousef, General Director, CCK, Tunisia

## 6. Highlights from the Panels and Discussions

### 6.1 Keynotes

#### Yousef Torman

“Regional Update”, Managing Director, Technology, Networking and Infrastructures, ASREN, Jordan

The main focus in Yousef’s keynote was on the recent e-Infrastructures developments in the Arab region in the last 3 years referring to the role of ASREN in these developments.

- At the national level and looking back to 2011, only 8 Arab Countries had operational NRENs, 5 countries started initiatives and plans to develop NRENs and there was only one country that has school network. Now there are 9 countries having operational NRENs and 9 countries started developing their NRENs. 3 Arab countries now have schools network.



*ASREN’s message to NRENs and R&E Communities in the Arab Countries “We are your servant”*

- At the regional level, there were some countries connected individually to the global R&E networks. The EUMEDCONNECT3 was considered the only regional R&E network for the Arab Region. Now ASREN already started its first PoP in London and planning other PoPs in UAE and Egypt.
- ASREN now has 6 shareholders, 4 shareholders in the process and 6 countries planned to join.
- ASREN will provide several services on its communities as it is now launching its first science gateway initiative followed by implementation of Eduroam in some Arab countries. ASREN is giving special focus to the establishment of Pan Arab Federation of Identity Infrastructures.
- ASREN was very active in conducting conferences, workshops, and technical training courses to its communities in a plan to cover the Arab countries. ASREN also participated in the regional events and activities. Several newsletters and publications were released, published and circulated.

### Roberto Barbera

“Science Gateways”, Associate Professor, University of Catania and INFN, Italy

Science gateways have proven over the last years to be fertile ground for e-Infrastructure research while at the same time dramatically increasing the usage and accessibility of Distributed Computing Infrastructures all around the world to scientists and educators. Science Gateways may indeed provide access to a variety of capabilities including workflows, visualization, resource discovery, job execution and data management services.

In this contribution to e-AGE 2013, the Catania Science Gateway Framework is presented together with the implementations done in the context of several EU co-funded projects and other initiatives. Science Gateways being deployed in the Arab Region will also be shown.

The talk includes a part on the mobile apps being developed to let users access and use Science Gateways “on the go” and on the Science Gateway Market Place established to create an international task force of developers.



*“Standard-based Science Gateways allow members of Virtual Research Communities spread across the world to seamlessly access and use heterogeneous e-Infrastructures based on various distributed computing models”*

## 6.2 Session1: “Connect...”

### Habib Yousef

“CCK: Past, Present and Future”, General Director, Computing Center Al Khwarizmi, Tunisia

CCK (Centre de Calcul Khawarizmi) was created in 1976 to provide local centralized access to computing services for several public entities (ministries, government administrative offices, public academic institutions, etc). In 1997, it became an Internet Service Provider for the entire Tunisian academic community, where local access networks of various institutions were connected to CCK backbone network via leased lines of bandwidth varying between 64 Kbps to 2 Mbps, and providing basic Internet Information Services such as telnet, ftp, email and web access. It also continued to provide computing services. Since then, it has evolved to become a Datacenter, hosting numerous secure Internet, computing and Application services (e-administration/academic services) to a large academic population of over 400 000 users, composed of 25 000 faculty members, 20 000 administrative staff, and 370 000 students. A total of 400 Access networks are attached to CCK backbone using mostly fiber optic links of bandwidth varying between 20 and 100 Mbps. Backbone nodes are connected via metro Ethernet links of bandwidth 2x1 Gbps. Measured aggregate network traffic evolved from around 20 Mbps in 1997 to about 1.6 Gbps in 2013. A major



upgrade is underway that will put more bandwidth into the backbone (2x10 Gbps) as well as the access networks, and to introduce new services that will facilitate efficient, reliable and secure collaboration among researchers as well as students.

### Hyong Soon KIM

«KOREN, The Progress of ICT Research Infrastructure in Korea», Director, KOREN, Korea

In this talk, Mr. Hyong Soon KIM addressed how Korea started its research infrastructure in ICT field and progress up to now. Recent activities related advanced technologies including future internet will be also delivered.



### Markus Buchhorn

“Advancement of the NREN Infrastructure and Applications in the Asia-Pacific Region”, General Manager, APAN, Australia

APAN (Asia-Pacific Advanced Network) has been the venue for the development of cooperative NREN infrastructure and promotion of advanced Internet applications for over fifteen years. Challenges have included the vast geographical size and cultural and economical diversities among the members. However, the exemplary cooperation among member economies has led to considerable achievements in advanced infrastructure, services and application activities in medicine, natural resources, e-culture and Future Internet to name a few. However, much more can and has to be done to bring the whole community the benefits of this infrastructure. APAN continues to adapt and fulfill its voluntary mission in this direction and share its experiences, both tough and rewarding, on that course.



### Alberto Perez Gomez

“RedIRIS – New network infrastructure and new challenges”, Deputy Director for RedIRIS & International Relations of Dominios.es, Spain

RedIRIS, the Spanish National Research and Education Network, has just celebrated, on the 27th October 2013, its 25th anniversary, in an event kindly hosted by His Royal Highness the Crown Prince Felipe de Borbón.

But the event was not only about commemorating milestones of RedIRIS history, such as the introduction of Internet in Spain, the creation of the “.es” Registry, or the pioneering role played in the deployment of technologies like IPv6 or multicast.

The event was mainly focused on the future. RedIRIS has just deployed “RedIRIS-NOVA”, a new dark-fibre backbone, with a footprint of 14.000 Km (including 2.000 Km of submarine cable to the Canary Islands) and a cost of 100 M€ (partly funded by European Regional Development Funds), which gives RedIRIS an Indefeasible Right of Use (IRU) over a pair of fibres for the next 20 years.

The challenge now is how to make the best possible use of this infrastructure, in order to further promote collaboration among scholars and researchers, which in turn must bring benefits to the Spanish society. RedIRIS has recently presented its view of its strategy for 2.013-2.106, which includes proposals for launching new services and reaching new users groups.

Dr. Perez, the Deputy Director of RedIRIS, will share with the audience the experiences gained from the deployment of the new backbone, RedIRIS-NOVA, and he will also present an outline of the new RedIRIS strategy for the future.



## 6.3 Session2: “Access: R&E Enablers”

### Hedi Haddada

“International Cooperation of the CNRS”, Research Director, CNRS, France, (CHAIR)

Mr. Haddada has introduced the Centre National de la Recherche Scientifique in terms of mission, activities and services. He also talked about the European and international cooperation of the centre which lies within promoting the different fields of science and technology.

Mr. Haddada showed some stats about the CNRS international strategies, stating that CNRS is widely accessible to the international scientists. In addition, he highlighted the international cooperation tools used by the CNRS community.

Mr. Haddada mentioned that collaborative projects are organized on the basis of researchers’ proposals, which are subjected to a selection process within the CNRS authorities and in liaison with international partners.



### Magda Hussein Zaki

“The Role Arab League”, Director of Education and Scientific Research, LAS, Egypt

The league of Arab States has established the department of Education and Scientific research in 2004 with the aim of raising the level of importance of Science and Education in the Arab World, and upgrades it to a top priority.

The department’s mission is to act as a bridge between the scientific and educational institutions in the Arab World on the one hand; and the Political ones on the other hand.

This said the spectrum of work of the department has increasingly widened to include issues varying from school curriculums, education for refugees, to IT, scientific research and infrastructure, and e-learning.

On a different level; the level of outsourcing and international cooperation has also increased through a system of forums established within the framework of the Arab League, such as the Arab-Chinese / Arab –US / Arab – EU forum; these are considered mechanisms that strengthen and diversify our partnerships and areas of cooperation.



*I quote by Albert Einstein «Where the world ceases to be the scene of our personal hopes and wishes, where we face it as free beings admiring, asking, and observing; there we enter the realm of Art and Science»*

### Hans Frese

“Filling Gaps and Needs of NRENs – The SILK Experience”, Technical Advisor, NATO, Germany

For more than a decade, the NATO Virtual Silk Highway Project has used available funds and available technology to maximum effect to fill the gaps and needs of the NRENs in Central Asia and in the Caucasus, enabling them in turn to provide their stakeholders with access to the Internet for education including schools, audio and video conferencing support, and scientific projects from earthquake detection to telemedicine.

With the SILK background, let us look at the gaps and needs of ASREN in the context of the NATO Mediterranean Dialogue.



*“Opportunities for ASREN to learn from the SILK experience”*

## Patrick Fassnacht

“CERN: the main three axis - Research, Innovation and Training”, Adviser to DG for MENA, CERN, Switzerland

The talk was all about CERN, its scientific program, its innovative technical developments and its training facilities.

The discovery of the Higgs boson by the two major experiments at the LHC (Large Hadron Collider), the ATLAS and CMS experiments, is the major breakthrough which was awaited to confirm fully the Standard Model. This discovery of the boson was announced in July 2012 and since confirmed to be a scalar boson. This opens the door to look what is beyond the Standard Model to explain what is dark matter, what is dark energy. Models like SUSY (Super Symmetry) are good candidates. This is the main scientific objective for the next decades.

The second aspect covered by the talk is about innovation; in many domains CERN is at the forefront in terms of technical developments. The LHC accelerator is more than 1200 superconducting magnets, meaning high currents, cryogenics and controls – all at the frontier of the state of art. The experiments at the LHC are done using high-tech detectors, able to read out events of typically 25Mbytes at a frequency of 40 MHz (1PBbytes/s). The “big data” produced by these experiments are analysed through the GRID, the worldwide shared computing infrastructure, the generation after the WEB, which was born at CERN.

The last part was about CERN's training opportunities; from the Teachers programme, followed by more than 6000 High Scholl teachers over the last 15 years to the Summer student programme, followed by more than 1200 students from close to 100 countries (400 from Non Member States). CERN is a unique place where to get the most up to date training in High Energy Physics, in computing and Accelerator science.



*“CERN is the reference in High Energy Physics; by its scientific program, its innovative technologies and its wide training programme, it is the place to be for young scientists in the field”*

## 6.4 Session3: “Roundtable Discussion on ASREN and e-Infrastructures Developments in the Arab World”

### Federico Ruggieri

CHAIN-REDS Project Manager, University of Rome III, Italy, (CHAIR)

The CHAIN-REDS project after one year of activities has a number of achievements to show. The consortium has gathered key e-Infrastructure partners, currently 10, from different regions of the world with a strong core of EU organisations already expert in e-Infrastructures and International Cooperation.

The project has produced an interoperation model between Europe and the regions participating in CHAIN-REDS, supporting also the existing Regional Operation Centres, in Latin America (ROC-LA), Africa and Arab Countries (Africa & Arabia ROC) and China (China ROC). A demo on application level interoperability among Cloud infrastructures has also been demonstrated at the EGI TF2013, while a Knowledge Base, accessible via web, has been extended to include Document and Data Repositories. CHAIN-REDS consortium has also semantically enriched the metadata harvested from the repositories and built a search engine on the related linked data.

CHAIN-REDS has further developed the Science Gateway in the implementation made by the INFN Catania Group.

Promoting Federations of Identity Providers (IdP) is also a key action of the CHAIN-REDS project and the project has organised three workshops, during the first twelve months, in different target regions.



*“Coordination and harmonisation of e-Infrastructures among different regions of the world is crucial for the existing and emerging research communities with intercontinental span”*

## David West

EUMEDCONNECT3 Project Manager, DANTE, UK

The talk traced the reasons behind the formation of NRENs in Europe, which were to provide e-infrastructure dedicated for research and education at capacities and quality that were not available or affordable in the commercial market. From the outset the NRENs co-operated to form a regional network since this gave economies of scale and buying power that individually they could not achieve. In the last 20 years these principles have been adopted across world, by over 120 NREN and regional networks have successfully been established.

This model is also strongly recommended for the Arab region despite the diversity and regional challenges. By working together with ASREN and by taking advantage of EU funding available through the EUMEDCONNECT project, Arab NRENs can a regional network which their researchers and universities can use to collaborate with Europe, North America and globally, as well within the Arab region.



*"EUMEDCONNECT3 provides European funding which can assist Arab NRENs form a pan-Arab network together"*

## Salem Alagtash

Managing Director, Research, Education and Administration, ASREN, Bahrain

Dr. Salem Al-Agtash presented the concept of REN by referencing the US DARPA NET project in the 40's, which aimed at creating high speed communication links between universities and research centers. As a result, the commercial internet emerged, but Internet2 was established in 1996 to reserve high speed connectivity between educational institutions. The objective has been to realise the importance of universities and research centers networks to be isolated from the commercial internet, on the basis of which research and education networks are evolving. He pointed to all existing RENs in the world, including ASREN, where all regions worldwide beginning to establish dedicated infrastructure for R&E. From his perspective, there is now an emerging connectivity at the world level that is in parallel to the internet and the purpose is to help support researchers in universities and to give them tools so they can collaborate, push data, use services, applications and facilities everywhere in the world which become like a small village.



Dr. Al-Agtash has pointed out the role of ASREN in helping to build NRENs in the Arab countries and its aim to interconnect them together to provide them a secure access to resources, services, and applications which are of a major target. He encouraged all to collaborate together to be able to build a research infrastructure and make the connectivity available for young researchers to be able to get access to the various resources that exist at the world level.

He also stressed the significance of increasing the awareness at the decision makers level. In this regard, he mentioned that ASREN is in the process of preparing a proposal to submit to the League of Arab States on the needs to support youth in terms of access, resources, facilities, and create more innovation. ASREN needs this political umbrella support that to increase awareness at the political level in the Arab region to understand why it is important to build this research infrastructure and connectivity. He also highlighted that working with the regulatory authorities to try to convince Telecommunications operators to invest in the R&E networks, is an urgent need. It was also pointed out that user meetings for students, professors and rectors of universities and research institutions should take a place.

## Mohamad Eljazzar

Manager, Information Security, Qatar University , Qatar

Mr. Eljazzar introduced to the ASREN community the newly established Qatar National Research and Education Network (QNREN), an independent, government-supported initiative that serves all R&E stakeholders in the State of Qatar.

The Ministry of Information and Communications Technology (ictQATAR) commissioned Qatar University, the first and largest National University in the country, to initiate the project and build the foundation for the National REN.

Initially, QNREN will focus on expanding high-speed connectivity between local and international research centers and networks. At a later stage, the organization will provide services that enhance collaboration and research and education in the region.



*"Inspired by the Qatar National Vision for 2030, QNREN aspires to contribute to the building of a knowledge-based society"*

## Tiwonge Msulira Banda

F&A Manager, UbuntuNet Alliance, Malawi

The Arab region is diverse and has the advantage that it has many rich countries, which gives the region a huge strength. Those that are ahead in establishing and operationalizing R&E networks should lead and demonstrate the need for regional collaboration. Building from EUMEDCONNECT, ASREN has a footing to continue from. In addition, ASREN is developing at the right time when sister regional RENs – such as DANTE, UbuntuNet Alliance, CKLN, CLARA and others – have made progress on various fronts and have a lot of success stories to share.

In the process, a number of approaches successfully done by other regional RENs can be replicated by ASREN. From UbuntuNet Alliance:

(a) Strong NRENs are key to the success of the regional REN. Let each country establish an NREN and let them come together as ASREN at regional level. This has been successful elsewhere in the world; (b) Identification of champions to talk about the need for R&E networks at all levels is necessary. These could be politicians, researchers or government officials; and (c) Build demand for e-Infrastructures in the region. These will keep the pressure on their local NRENs and governments.

Lastly, as Tusu says: "Building R&E networks is like a marriage. People will give you lots of pieces of advice about running a marriage, but once you marry, you realise that the two of you must discover your own way of doing things." In addition to what ASREN can learn from other regional RENs, it has its own knowledge of the region which is necessary to the success of research and education networking in the region.



*"Working together as communities is a crucial component of ASREN's regional e-Infrastructure"*

## 6.5 Session 4: “NRENs, Changes, Challenges and Opportunities”

### Johnathon Chapman

“NREN 3.0 –Globalization”, Chair, Internet2 Emerging NRENs Middle East Special Interest Group, Qatar (CHAIR)

NRENs were established by higher education and research institutions and/or governments in the late 1980’s and 1990’s providing dedicated network connectivity where research, innovation, and unfettered communication could progress without the restrictions and competition for resources of the commercial Internet. Over the late 1990’s and 2000’s these networks morphed into specialized regional ISPs, supply-side market players, and contract brokers providing shrink-wrapped solutions but not necessarily interested in the risks of experimentation and community service (NREN v2). We became risk adverse.



*“A challenge to the NREN community: Construct NREN v3, a platform for and enabler of innovation”*

NREN v2 is not enough anymore. Disruptive technologies such as mobile Internet, Cloud, the Internet of Things, and other advances challenge us to provide new network solutions. Big Data is a primary driver in our need for more capacity and innovative communication solutions. Today scientific research is global with rising focus on team science with team members spread around the globe. As an example, LHC (Large Hadron Collider) involves scientists from 36 countries. Remote campuses, classical distance education, and MOOCs are globalizing higher education. In the US NREN speed is not keeping up with Moore’s Law. Big Data has led to fundamental advances in network design, science, and analytics.

What are the implications and consequences? It is time for us to engineer a global R&E connectivity (a GREN). We need to create a network where virtual communities can develop. One-size-fits-all IP networks are not enough. We need larger pipes with greater capacity. Example: the Advanced North Atlantic 100G Pilot demonstrated at Terena 2013. We need to enable our networks for “Computation in place” where computation moves to the data using GREN as a backplane.

Our community calls on us to become a global platform, a demand-side market maker, an innovation incubator, and most importantly, an enabler – the NREN v3.

### John Dyer

“The evolution & development of Research & Education Networks”, Business & Technical Strategist, TERENA, Netherlands

The Trans-European Research & Education Networking Association (TERENA) provides a forum in which NRENs from Europe and beyond can come together to work collaboratively to meet the challenges of developing and supporting new and existing network services.

TERENA undertakes several activities that explore the status and trends of research and education networking and enable trends to be seen and understood. In particular the annual Compendium of NRENs that benchmarks NRENs and the recent ASPIRE foresight provide much up-to-date information.



*“Users are key”*

During the presentation the growth trends in the number of European NRENs and their capacity were discussed, as was the relationship between NREN traffic and budgets. Amongst the recommendations of the ASPIRE study is the need to put satisfying users needs at the centre of NREN business. This is a central requirement for good governance of future network services.

The presentation went on to explain details of the eduroam and eduGAIN that are important Authentication and Authorisation services. Already increasingly used to support users in Europe, eduroam and eduGAIN are being

adopted in other parts of the world.

John Dyer finished his presentation by discussing the European/Latin American collaboration in the ELCIRA project.

### Yves Poppe

“Evolution of the Middle Eastern Subsea Cable Capacity”, Director of Business Development and Strategy, Data Services, Tata Communications, Canada

The subsea cables linking the ASREN countries constitute the lifelines linking National Research and Education Networks (NREN's). In this presentation we will review the current and planned cables in the Middle-East and North Africa, the phenomenal increase in their transmission capacity and identify the possible regional hubs where multiple cables meet. This will define the possible topologies of the ASREN network.

### Rodney Wilson

“Ultra-high Speed, long reach 400G Transmission made real”, Senior Director, External Research, Ciena, Canada

400Gbps long reach transmission made real. Although such capacity may not be needed for connectivity in the Arab States for some time, this presentation showed the technology under-pinnings of long reach high capacity optical networks. In his talk, Mr. Wilson showed how cutting edge research has been able to deliver optical infrastructure that provides capacity, reach and efficient use of optical spectrum. Regardless of the bandwidth being deployed optical signal to noise ratios have an impact and this talk showed how new innovations are able to address the inevitable speed-distance trade off. Capacity evolution is happening with the development of 3 key technologies, increased performance of digital signal processing, increased density of carrier constellations and the ability to increase multiple sub carriers with tight spectral spacing. The talk concluded with a discussion of how this technology has been created and productized by Ciena and deployed in partnership with other national research and education networks, most recently on the Advanced North Atlantic 100Gbps pilot project being driven by SURFnet, CANARIE, Nordunet, Esnet and Geant.

### Fahd Batayneh

“Middle East Strategy Working Group (MESWG) – A Community Driven Approach”, Stakeholder Engagement Coordinator, ICANN, Jordan

The Middle East Strategy is a community driven strategy that was facilitated by ICANN to understand the needs of the Internet ecosystem in the Middle East region and tailor a strategy to cover these needs. The strategic goals for ICANN's Engagement in the Middle East is to:

Foster two-way engagement between ICANN and the broader Internet community in the region;

Build strong and competitive domain name industry in the region; and  
Promote multi-stakeholder Internet governance mechanisms in the region



*“Growing transoceanic R&E connectivity from 45mbps to 100gbps links in two decades”*



*“Mr. Rodney Wilson of Ciena's research Labs in Ottawa Canada left snow and ice behind to present a talk on ultra-high speed optical network technology”*



*“I look forward to more collaboration between the ASREN community and ICAN”*

The strategy was defined and developed by a working group that started work in late 2012, and consists of 21 volunteers from 11 countries the strategy covers. The working group defined three strategic areas to work on; i.e. DNS Security and Stability, the Domain Name Industry, and Internet Governance. The strategy spans over 3 years, and has an yearly updated implementation plan.

One year later, two task forces have been born as part of the strategy; i.e. the Task Force on Arabic Script Internationalized Domain Names (TF-AIDN), and the Task Force on Capacity Building Activities (TF-CBA).

## 6.6 Session5: "Innovate..."

### Oum Kalthoum Ben Hassine

"The regional gender research network in Africa and the Middle East into ICTs for empowerment (GRACE) : Objectives, Researchers, Projects, Working Policies and Lessons Learned", Professor, University of Tunis, Tunisia, (CHAIR)

The power of ICTs is their ability to connect people around the world and enable networking and then the emergence of an online community and online working groups, what favour a human development based on a vision of society conducive to empowerment. Thus, starting from the postulate that Access to and use of ICTs is both a gender and a development issue, the Grace network, managed by The GRACE Project Voluntary Association based in South Africa, was launched in 2005, on the issue «The ICTs and women's empowerment». In a first step, Grace network was involved 14 researchers teams from 12 African countries. Then, in a second stage, which began in 2008, it was expanded to include 14 other researchers teams from the MENA region, from six countries. This has led to the formation of an African and Middle Eastern network of gender and ICT researchers.

All research initiated within the framework of this network try to explore how technology disclosure can change gender realities women in Africa and the Middle East. The goal of these researches is building a large body of research on how African and Arab women access to and use ICTs, what will enrich our understanding of development problems in general and of African and Arab development in particular. and will influence policies and interventions to help reduce the obstacles women currently encounter.

All of the research conducted within the framework of the first phase of GRACE led to the publication of a book entitled «African Women and ICTs: Investigating Technology, Gender and Empowerment.» A second book, from the research of the second phase of GRACE, is currently being published. The main lesson learned from this experience is that the working in Network, through internet, is a great enrichment for the research and for the researcher.

### Najoua Kamoun

"Institute Of Physicochemical Analysis", General Director, INRAP, Tunisia

Najoua made 2 presentations:

1. "Presentation of Institute of Physicochemical Analysis": The institute includes an analysis branch. The service provides the means available to serve the Tunisian socio-economic sectors, whether public or private. It currently has a variety of analytical techniques with international standards such as, elementary microanalysis CHNOS, CS, separation techniques GC, GC-AED, HPLC / DAD / FLD / RID, UPLC / Dad and ionic HPLC, mass spectrometry inductively coupled plasma (ICP-MS), atomic emission spectroscopy (ICP-AES), AAS Atomic



*"Pr. Ben Hassine is an activist for the development of knowledge, for a high quality in Higher education, for a scientific research on priority issues and for the promotion and encouragement of women in science and technology"*



*"I'm favorable for projects of scientific cooperation"*

Absorption Spectroscopy, GC-HRMS, GC-MS-MS, GC / MS and LC-MS-MS, thermal analysis: DTA-TGA-DSC, FTIR Spectroscopy, technical electrochemical analysis: Titrimetry, pH-metry, X-ray diffraction, X-ray fluorescence, UV-visible spectroscopy, SEM, Nuclear Magnetic Resonance Spectrometry, Direct Mercury Analyzer and AFM.

2. "Growth and characterization of II-VI and I-II-VI 2 nanomaterial used in the photovoltaic devices» : The objective of this presentation is to present the synthesis and physical characterization of nanomaterials and thin films semiconductors ZnO, ZnS, SnS, In<sub>2</sub>S<sub>3</sub>, In<sub>2</sub>O<sub>3</sub> and doped ZnO: In, ZnS: In and In<sub>2</sub>S<sub>3</sub>: Al, CuInS<sub>2</sub>, and doped CuInS<sub>2</sub>: Al. We performed multi-scale characterization of these thin films before and after vacuum annealing at various temperatures. The study of the optoelectronic properties of ZnO, ZnS, SnS, In<sub>2</sub>S<sub>3</sub>, In<sub>2</sub>O<sub>3</sub> and CuInS<sub>2</sub> nanomaterials was made from measurements of reflection - transmission and ellipsometry. From these optical characterization, one could deduce the optical band gap materials and their thicknesses. We could follow the variation of these optical parameters with the growth parameters of different materials. Local studies conducted, could allow us to make a fairly accurate analysis of nanomaterials that are used either as optical windows, or as absorbent material, or as detectors of UV or IR radiation in a photovoltaic devices.

### Guido Zebisch

"Speeding Up Knowledge Transfer: ALECSO's Quadrilingual Arabic Technical Online Dictionary", ARABTERM Project Director, Morocco (presented via recorded video)

ARABTERM is a regional project by the Arab League Educational, Cultural and Scientific Organization (ALECSO), co-funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and carried out by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). ALECSO's Arabisation Coordination Bureau (BCA) in Rabat has designed technical terminologies in 6 disciplines: Automotive Engineering, Water Technology, Renewable Energies, Electrical Engineering, Textiles, Transport and Infrastructure on a new and unique web-based platform called [www.arabterm.org](http://www.arabterm.org).

ARABTERM offers technical terms simultaneously in 4 languages (Arabic, English, German, French), the target language and the definitions being Arabic, along with technical drawings and sketches with Arabic legends. [www.arabterm.org](http://www.arabterm.org) has downsized traditional terminology translation- and validation-related processes from 6 years to 1.5 years, and in a joint effort, can make available numerous data bases in Arabic to a large audience.

The objective of [www.arabterm.org](http://www.arabterm.org) is to fill the technical knowledge gap in an outright and direct way. Together, we need to raise visibility of the project and look forward to your collaboration with regard to placing links onto [www.arabterm.org](http://www.arabterm.org) from any suitable website. Our target groups are technical and administrative staff, technicians, educational planning specialists, academics, students, translators.

The scope of the present dictionaries can be widened by adding quantities per volume, by adding customized new volumes, by joint revisions. The project searches future collaboration with any terminology developing institution within ASREN networks.



*"To create a catalyzer that will quickly absorb technical terminology into Arabic"*

## Hafedh Belmabrouk

"National Center for Nuclear Science and Technology – CNSTN, Director General, CNSTN, Tunisia

The CNSTN was created in 1993 with a mission "Peaceful Applications of Nuclear Sciences and Technologies in Industry, Agriculture, Environment and Medicine", with objectives: Research and Development, Collection and Diffusion of Information, Technical Support to Industrial and Research Institutions, and Advising on Issues related to Nuclear Safety and Radiation Protection. CNSTN now has more than 30 researchers (Physics, Chemistry, Biology, Geology, Electronics,...), 20 PhD students, 20 engineers and 40 technician.

Fields of activity include Radiation Processing, Radiation measurements, Cobalt irradiator, Electron beam accelerator (not operational !!!), Nuclear Safety and Radiation Protection, Radioactive sources and waste management, Neutron Activation Analysis, Isotopic Hydrology, Radiopharmaceuticals, Microbiology, Sterile Insect Technique and Nuclear Legislation.

Applications areas include:

1. Environment: Physical environment (air, water, soil) and biological environment (flora and fauna)
2. Food: Qualitative and quantitative determination of radionuclides in food products for contamination identification. Determining the level of radioactivity in food products imported or to be exported
3. Agriculture: Qualitative and quantitative determination of radionuclides in certain products used in agriculture (fertilizers, pesticides ...)

## Jauad El Kharraz

"Arab World Association of Young Scientists", Secretary General, ArabWAYS, Morocco (Presentation only)

Research and development (R&D) have assumed, since decades, an increasingly important place in developing countries strategies & budgets. Nowadays, the Arab states devote 0.2% of their resources to R&D. Where an estimated 0.34% of the GDP is spent on research in Jordan, United States spends about 2.7% of its income. Regarding per capita expenditure on scientific research, US spends \$1205.9 & Japan \$1153.3, while the Arab countries spend an average of \$14.7 annually per capita. While global focus has been placed on political developments in the Arab region, ongoing scientific research crisis continues which is still leading to Arab brain drain. Hence, there is an urgent need to boost spending on scientific research and consolidate national research institutions and academia as well as encouraging scientists.

In this context, the Arab World Association of Young Scientists (ArabWAYS) is called to play a crucial role at least vis-à-vis mobilizing young scientists in the Arab World to play fully their role in enhancing science outputs for the well-being of Arab societies. The objective is to contribute towards strengthening the capacity of young Arab scientists to conduct relevant and high quality research that covers Science & Technology (S&T), environment, social sciences, humanities and their inter-linkages, to advance science and enhance the situation of young scientists throughout the Arab world. ArabWAYS intends to work on encouraging scientific research, increasing the impact and utility of scientific knowledge, building a scientific network that enables the potential of young scientists to contribute to the advancement of science and society, helping and providing training, mobility and career development opportunities. ArabWAYS counts on more than 9400 young scientists from almost Arab countries. They cover a wide variety of research fields, with special emphasis on technologies fields such as: water, climate change, renewable energies, IT sciences, agriculture, biotechnology, nanotechnology, earth sciences.



*"Tunisia has many years of experience in the field of peaceful uses of nuclear techniques and technologies"*



*"As young scientists, we have a unique perspective, special responsibility, and active need to build for the future. As such, we have established ArabWAYS to enhance the voice of Arab young scientists in decision making and action for science and society"*

## 6.7 Session6: “eScience across borders”

This session was merged with session 7.

## 6.8 Session7: “Round Table Discussion on Clouds for Research and Education”

### Ognjen Prnjat

“Regional Development Approaches to Shared Computing Infrastructures”, European and Regional e-Infrastructure Manager, GRNET, Greece, (CHAIR)

Contemporary research relies on the ability to share storage and computational resources, as well as algorithms and data, between research groups on national, regional and global levels. This paper presents a case study for regional organization of computational resource sharing and joint operations, enabling international research over a spectrum of scientific fields. The case study is based on 10 years of multiple high-end technology projects in South-East European region, including both Grid Computing and High-Performance Computing. The case study is considered as a useful model for organising computing resource sharing in other world regions, including the Arab countries and the Mediterranean, as currently promoted by the project CHAIN-REDS.



*«Based on our experiences in South-East Europe, regional collaboration and development in core ICT areas is a strong contributor to wider progress and stability - an experience which we would like to share with the ASREN partnership»*

### Rafael Mayo-García

“A CHAIN-REDS Perspective about Data Access and Metadata Management”, Senior Researcher, CIEMAT, Spain

The presentation focused on the actions carried out by the CHAIN-REDS project regarding an important necessity in scientific computation: data handling (use, management, exploitation, interoperability, curation, etc.). Such an objective is being considered under the premise of a transcontinental coverage and the different e-infrastructure that are being operated worldwide.



*“Pursuing Data Accessibility, Reproducibility and Trustworthiness”*

### Karim Chine

“Elastic-R, Towards a Universal Platform for Research and Education in the Cloud”, Director, Cloud Era Ltd. UK

Cloud Computing is holding the promise of democratizing access to computing infrastructures and deeply influencing research and education. However, the question «How will we bring the Infrastructure-as-a-Service paradigm to the data scientist’s desk and to the statistics classroom?» has remained unanswered. The Elastic-R Software platform proposes new concepts and frameworks to address this question: R, Python, Matlab, Spreadsheets, etc. are made accessible as articulated, programmable and collaborative components within a virtual and immersive environment for scientific research and higher education.



*“Public clouds are the e-Infrastructures for research and education of the future. With technologies such as Elastic-R, they become an ecosystem for open innovation, open science and open education”*

Scientists can easily use the cloud as a ubiquitous and fully programmable collaborative environment for traceable and reproducible data analysis and computational research. The cloud becomes a user-friendly Google-Docs-like platform where all the artifacts of computing can be produced by any number of geographically distributed real-time collaborators and can be stored, published and reused. Big data access and analysis are simplified and made

accessible to wider range of research professional. Science Gateways (graphical user interfaces for data science; set of tools, applications, and data integrated via portals) are made easy to create, publish and update.

Teachers can easily and autonomously prepare interactive custom learning environments and share them like documents in Google Docs. They can use them in the classroom or remotely in a distant learning context. They can also associate them with on-line-courses. Students are granted seamless access to pre-prepared, controlled and traceable learning environments. They can share their R or Python sessions for example to receive guidance from Teachers or to solve problems in collaboration. Costs may be hidden to the students by allowing them to access temporarily shared institution-owned resources or using tokens that a teacher can generate using institutional cloud accounts.

Live demos of the Elastic-R platform on public clouds will illustrate highly promising new directions for using cloud computing to empower researchers and educators.

### Salem Alagdash

Managing Director, Research, Education and Administration, ASREN, Bahrain

Inspired by a personal research experience when he was a PhD student, Dr. Salem Alagdash debate ASREN's perspective on cloud infrastructure and how this concept came into the floor when a discussion with other colleagues from CHAIN-REDS and other cloud provides began to analyse how can research and education communities benefit from cloud computing infrastructure on both supply and demand sides. A survey by CHAIN-REDS has been distributed to many targeted organizations to help issuing a status report on cloud infrastructure in the Arab region.



Dr. Salem stressed the importance of a local cloud to create innovation, awareness and people who can manage and maintain what you offer as a technology. From another side, to keep your data on the local level and not to consume much network to push outside the country, as well as a concern of security issues.

### Vincenzo Puliatti

Chairman, IT Synergy, Egypt

Like most technology breakthrough, Cloud Computing may have a revolutionary or just an evolutionary impact according to different categories of users and different perspectives.

As a technology itself the main difference is between back and front office: change is evolutionary for the end user but revolutionary in the datacenter. However, Cloud Computing may also bring a revolution in the business model and greatly benefit organizations based in emerging countries that have traditionally limited resources. Also, there is a new trend toward the provision of secure, locally based cloud services. This can be beneficial to small, agile organizations based in emerging countries.



*"We need to bring the disruptive power of Cloud Computing within the reach of any small organization and leverage from a South-North approach to this technology that can benefit emerging countries"*

In addition to the above, we presented the practical experience of our Egyptian company, IT Synergy, that leveraging also on the potential of Open Source and Open Standard Cloud Technology, has been able to compete with large, global organizations and win the first tender in the region aimed to implement the largest Cloud and HPC infrastructure for researchers in the region.

We also presented our experience on the importance of providing quality training to cope with the unfulfilled demand of Cloud Professional by establishing a Cloud Academy that has obtained international certifications for its Cloud Curricula and Courseware.

## 7. Closing

At the closing of the full week of successful activities (9-13 December 2013), Yousef Torman, thanked all who joined, participated, supported or helped in making it a success. Namely:

1. Patronage and high level participation
2. Local host (CCK) and local organizers (TAG-Org Tunisia)
3. Speakers
4. Trainers
5. Sponsors
6. Program and Organizing Committees
7. All participants



ASREN and AROQA Join Closing  
*Thanks to all who attended the full event until the closing*

Salem Alagdash presented the event summary and conclusions under the name "Tunis Declarations" which can be found later in this document.

At the end, Yousef addressed all participants "ASREN needs you, so please continue supporting ASREN and follow up its activities, initiatives and publications."

## 8. Tunis Declarations

TUNIS --- December 13, 2013 ---- Chaired by His Excellency Dr. Talal Abu-Ghazaleh (Chairman of ASREN), the 3rd "International Platform on Integrating Arab e-infrastructure in a Global Environment, e-AGE 2013" concluded under the patronage of His Excellency Dr. Moncef Ben Salem, Tunisian Minister of Higher Education and Scientific Research, and participation of Her Excellency Ambassador Faeqa Al-Saleh, representing His Excellency the Secretary General of the League of Arab States.

It has been recognized that the Arab region has attained a certain level of development towards developing advanced e-Infrastructure and it is important for the Arab States Research and Education Network to make use of its current potential in strengthening research connectivity and make it available for use on a regional scale.

It is our duty at ASREN to provide the regional e-infrastructure and services, for the benefit of the research and educational institutions that are members of ASREN together with the wider regional research and education community.

The e-AGE platform organized by ASREN on December 12-13, 2013 has set among its priorities, the development of pan-Arab e-Infrastructure and services, coordination with regional e-infrastructures, and enhancement of research and education cooperation in a wide range of activities, among the Arab countries and with communities in Europe, the US, Canada, Latin America, Africa, and the world at large.

In addition, it is our objective that a suitable medium for dialogue is created to facilitate investments needed for regional links and capacity for research and education through preparation and execution of national and regional e-Infrastructure projects. It is important that this dialogue and debate are based on objective grounds motivated by the long-term strategies and interests of our countries in the Arab region.

We deem it inspiring that e-AGE was attended by esteemed speakers, policy makers, experts, and scientists representing all the Arab countries, Europe, the US, Africa, Latin America, Canada, Asia, and international organizations and companies in a larger audience scale, representing over 30 countries. We see this as a manifestation of the sound basis and the respectable sustainability of the dialogue environment towards developing Arab research and education networks.

It is of the utmost importance that we build on the success of e-AGE and take necessary steps towards developing Arab e-Infrastructure and linking to the world research and education communities on a global scale.

It is also of great importance that we make use of the support of the League of Arab States, Europe, the US, and the international donors to initiate cooperation and develop sustainable projects towards connectivity and ensurance of a sense of self dependence.

It is of significant value that the Arab NRENs, the European GEANT, the US Internet2, the Candian Canarrie, the African UbuntuNet, and the Asia Pacific APAN have come together and declared to continue cooperation in order to develop sustainable and interoperable e-Infrastructures, providing support to scientists and researchers across the world.

After presenting topics, holding meetings and deliberating between delegations and participants, e-AGE concluded:

- To address a thanks and appreciation to the Government of Tunis for their host and support
- To strengthen collaboration with the League of Arab States towards developing an e-integration of educational networks in the Arab countries
- To adopt ASREN programs and strategy for the upcoming stage, with focus on "Arab Connect" and pan-Arab e-infrastructure
- To continue to focus on the ASREN main exchange points in London currently being deployed, and those being planned at Fujairah and Alexandria with UAE Ankabut and Egypt Universities Network, respectively
- To plan for the fourth e-AGE in December in 2014

It was also concluded on a concrete basis:

- To accelerate the integration of Arab e-infrastructure and connecting them with the European, the US, the Latin American, and the African research and education Networks through three main exchange points in London, Fujaira, and Alexandria
- To continue to support the relatively well established NRENs such as in Algeria, Egypt, Morocco, Tunisia and Palestine, especially where facing temporary sustainability issues
- To continue to support the development of research and education infrastructure in Lebanon, Bahrain, and Iraq
- To continue to support peering of emerging networks in Qatar and Oman
- To continue to support and initiate concrete discussions with Yemen and Libya towards taking concrete steps in developing their national e-Infrastructures
- To emphasize the importance to extend effective participation of ASREN, integrate Arab unified e-infrastructure and promote the role of research and education communities in the Arab world
- To encourage the participation of Arab NRENs in ASREN regional network and peering at the evolving ASREN hubs in London, Fujairah, and Alexandria
- To deploy network services of direct benefit to Arab NRENs and researchers including EduRoam, EduGain and the Catania Science Gateway
- To benefit from and build upon the success of the EUMEDCONNECT, CHAIN-REDS and other EC funded projects in the field of developing cooperation and coordination between Arab and European researchers, and should tackle joint scientific research projects that use scientific infrastructure between countries
- To encourage and attract donors, research foundations and supporting organizations in the Arab region, Europe and the world to support ASREN development as well as research infrastructures in the Arab world.
- To promote private sector's participation and cooperation in developing research and education

This year e-AGE has witnessed signing an MOU between the Ministry of Higher Education and Scientific Research in Iraq and ASREN to support the development of Iraq National Research and Education Network. ASREN role will be in the technical analysis and design of network topology as well as operational framework of Iraq REN. It has also witnessed signing an MOU with Telecity Group for the setup of ASREN PoP in London for research and education traffic exchange with Europe, the US, and other regional networks. The ASREN PoP will be supported through the EUMEDCONNECT3 project and in partnership with Talal Abu-Ghazaleh Organization.

On behalf of Tunis Ministry of Higher Education and Scientific Research, the League of Arab States, the shareholders of ASREN, EUMEDCONNECT, CHAIN-REDS, and the participating organizations, we thank all those who have contributed to e-AGE and we hope that it has successfully served as an effective medium in attaining a convincing environment towards achieving our goals in developing stronger research and education communities in the Arab region and beyond.

With all respect and appreciation,

Dr. Talal Abu-Ghazaleh  
Chairman of ASREN

## 9. CHAIN-REDS Workshop, 11 December, 2013



The CHAIN-REDS Project organized a workshop on «e-Infrastructures for Education, Research and Development», presenting project outcomes and focusing on initiatives and developments in the Arab region. The event was organized under the aegis of the European Commission, in association with EUMEDCONNECT3, and in co-location with the e-AGE 2013 conference «Connect, Access, Innovate», held in Tunis, Tunisia on December 12-13, 2013, hosted by Computer Center El-Khawarizmi (CCK) and the ministry of higher education and scientific research of Tunisia.

The event involved around 40 participants from the Arab region and Europe. Organized by ASREN with the support of Sigma Orionis and all project partners, this workshop aimed at:

- Presenting CHAIN-REDS project outcomes to date
- Exploring existing e-Infrastructure initiatives relevant for the Arab region
- Offering an overview of the current status of e-Infrastructures in ASREN countries.

The one-day workshop started with the opening session and welcome addresses chaired by Federico Ruggieri, the project coordinator, with the speakers: Habib Youssef, the general manager of CCK (the host) along with the EUMEDCONNECT3 project manager, David West, and ASREN managing director, Yousef Torman. The keynote session followed chaired by Ognjen Prnjat, European and Regional e-Infrastructure Manager from GRNET, with Vincenzo Puliatti, CEO and Chairman of IT Synergy who talked about the cloud e-infrastructure.

The workshop consisted of the following 3 main sessions:

- 1. Highlights of related e-infrastructure initiatives:** chaired by Roberto Barbera, where Nouredine Hamdi, (INSAT, Tunisia) gave a sight on Tunisian ICT policies for e-infrastructure of education, research and innovation, followed by Federico Ruggieri who introduced the CHAIN-REDS project to the audience. Then an overview of the ODIN Project, ORCID and DataCite interoperability network presented by Sergio Ruiz (DataCite, UK). The session ended with the presentation by Nadine Kutz, (Bonn-Rhine-Sieg University of Applied Sciences, Germany) who talked about the OSSCOM Project.
- 2. Overview of the CHAIN-REDS Project Outcomes:** Roberto Barbera (Catania University and INFN) pointed to CHAIN-REDS computing solutions for Virtual Research Communities, while Rafael Mayo (CIEMAT, and CHAIN-REDS Project Partner, Spain) showed CHAIN-REDS Data Solutions for Virtual Research Communities. Ended by Ognjen Prnjat, (GRNET, and CHAIN-REDS Project Partner, Greece) who presented the e-Infrastructures in the CHAIN-REDS virtuous cycle.

**3. e-Infrastructures in ASREN countries (common session with EUMEDCONNECT3 project meeting):** David West, EUMEDCONNECT3 Project Manager (DANTE, UK) who chaired this session, reported the updates of the EUMEDCONNECT3 project and GEANT. Yousef Torman, highlighted the current status of the Arab States Research and Education Network. Helga Spitaler, Regional Marketing Officer (DANTE, UK) talked about the Global marketing initiatives, then short updates from NRENs on status and plans took place. Presentations continued where Salem Alagdash, Chairman's Senior Advisor, ICT and technology and Managing Director, Administration, Education and Research (ASREN, Kingdom of Bahrain) showed the Arab e-Infrastructures updates.

The event involved around 40 participants from the Arab region and Europe, and provided a forum for discussions and debates on recent developments and perspectives in the field.

The following points emerged as concluding remarks:

- It is very impressive to see how much cooperation and collaboration can be put into work across the world, and in particular the growing number of NRENs and activities in the Arab Countries
- The rapidly changing scenarios in technology and social activities have to be matched by an evolving Research and Education system based on powerful and fast evolving e-Infrastructures

The evolution, however, has to take into consideration the use of standards and interoperable solutions in order to be inclusive, allow international collaboration, and be reasonably long term sustainable.

## 10. EUMEDCONNECT3 Project Meeting, 11 December, 2013



David West, EUMEDCONNECT3 Project Manager presented the most recent project status updates including connectivity, budget and the recent positive ROM (Results Oriented Monitoring) June 2013. He also provided brief about other projects funded by EC including CAREN, TIEN and RedCLARA. The main priority areas for DANTE are to increase regional connectivity, continue supporting ASREN and Disseminating R&E infrastructure benefits to regional stakeholders.

Managing Directors of ASREN, Salam Alagdash and Yousef Torman presented the recent activities and achievements of ASREN under the CHAIN-REDS and the EUMEDCONNECT3 Projects. The update included network and connectivity, shareholders development, services.

1. Network and Connectivity: establishing the first PoP in Telecity, work with UAE on Gig PoP in Fujairah and Egypt on OLPE in Cairo
2. NRENs Development: ASREN approached and provided support to many Arab Countries including Qatar, Bahrain, Iraq, Yemen, Lebanon, KSA and Kuwait
3. Services: ASREN concluded its Science Gateway and working on implementing Eduroam with plans to join Edugain
4. ASREN worked on regional capacity building through technical workshops and technical support provision

Helga Spitaler, DANTE, presented the Global PR Network initiative which came out after several meetings and discussion with a vision: *"To establish a learning, sharing and collaborative forum among PR professionals in the R&E networking community with geographical representation from across the world to build the profile, awareness of and reputation of R&E networks and services (and thus NRENs) at a global level"*.

Representatives from Qatar, Morocco, Algeria, Tunisia, Yemen, Iraq and Libya had presented recent developments in their countries.

## 11. AQUIN Workshop, 12 December, 2013

### “Quality enhancement through internal and external quality assurance” Workshop



This workshop was held in cooperation with the Accreditation, Certification and Quality assurance Institute (ACQUIN)-Germany . It gave an overview about internal and external quality assurance and how these two instruments can be linked for enhancement of quality in higher education institutions. It also gave examples of internal quality assurance procedures on study program level as well as on institutional level and their external quality assurance. Furthermore the workshop showed how the institutions can prepare themselves for accreditation.

The workshop consisted of two main session in addition to the opening and discussion sessions. The following main subjects were discussed:

1. Internal Quality Assurance in Teaching and Learning: Study Program Level vs. Institutional Level
  - Quality Cycle
  - Design of Internal Quality Assurance on Study Program Level: learning outcomes, curriculum design, assessment procedures, quality assurance mechanisms, internal requirements (e.g. resources, costs)
  - Design of Internal Quality Assurance on Institutional Level (Design of Quality Management Systems): bringing together the different levels of a HEI
  - Comparison of the Systems program accreditation vs. institutional accreditation: how to decide for the one or the other
  - Presentation of Examples
2. External Quality Assurance (Example of ACQUIN)
  - Accreditation of Study Programs: procedure, criteria, possible results
  - Accreditation of Quality Management Systems in Teaching and Learning on Institutional Level: procedure, criteria, possible results
  - How to prepare for accreditation on study program and institutional level: writing the self-report, possible schedule on-site visit

## 12. AROQA 5<sup>th</sup> Conference, 13 December, 2013



The importance of AROQA annual conferences arise from our sense of responsibility towards the future of education in the Arab world. Such a future requires us to raise the level of awareness among Arab educational institutions on the importance of accreditation and quality assurance, and work together towards building and enhancing the Pan-Arab educational systems and structures.

AROQA's 5th Annual Conference served as a platform for the promotion of quality in education. It is brought together academics, policy leaders, representatives of quality assurance and accreditation agencies and quality experts. The objective was to discuss implementing quality systems using innovative technological methods and develop educational models and successful accreditation systems to ensure quality of education. The theme of the conference focused on developing new quality models, accreditation systems, and capacity-building.

The conference held three sessions in addition to the opening and closing sessions, the workshop, and annual general assembly meeting. The themes of the sessions were:

1. Systems of quality assurance and accreditation in the educational institutions
2. Quality management models in higher education
3. QA and accreditation procedures, the programs in the Arab region and linking them to national and international quality and accreditation systems
4. Quality management systems and uses of ICT tools
5. Challenges and opportunities of quality assurances systems

The conference conclusion and recommendations:

- The importance of continuous cooperation between educational institutions and accrediting bodies and quality organizations to consolidate the concepts of quality and accreditation
- The urgent need to promote a culture of quality and certification systems and improve the quality of education in the Arab educational institutions
- The need for continuous discussion and deployment of best practices related to quality in education
- Joint cooperation at the national and regional levels
- Support initiatives that aims at enhancing the quality of education and work on further studies and research related to quality and accreditation
- To contribute to the researches and studies for the biannual peer-reviewed journal (Arab journal of quality in education) specialized in the quality of education , which was launched last month
- Promote systematic work among educational institutions and bodies of quality and accreditation and launch programs to promote joint research
- Strengthening the role of the Secretariat of the League of Arab States ALECSO,AARU and AROQA, and coordination among these institutions to work to support the establishment of a comprehensive system of quality Arabic in Education
- Enabling the environment and conditions for the establishment of an independent Arab accreditation body recognized by the Arab world and without any legal or legislative dependency of any government or union or association

### 13. Technical Workshop on NREN NOC Management Tools, 9 – 11, December, 2013



ASREN in Cooperation with Network Startup Resources Center (NSRC) and with the support of EUMEDCONENCT3 Project had successfully conducted a workshop on Network Management Tools for NREN Network Operation Centers. NSRC provided 3 experts to do the workshop:

1. Phil Regnauld, Systems Architect & Trainer, Network Startup Resource Center (NSRC)
2. Dale Smith, International Networking Coordinator, Network Startup Resource Center (NSRC)
3. John Hicks, Principal Network Systems Engineer, Indiana University

The training covered:

- Network Management Concepts
- Basics of IOS configuration for Network Management
- Simple Network Management Protocol
- Network performance tools: Graphing using Cacti (including best practices and automation)
- Latency and jitter monitoring with SmokePing
- Observium: all-in-one network performance monitoring
- Service monitoring: Using Nagios to monitor system and service availability
- Auditing and security: Log management and monitoring tools and techniques
- Configuration management and auditing with RANCID
- Traffic analysis and exploration with NetFlow
- Documentation: Network documentation with Netdot , Integration with the above tools
- Ticketing systems
- Demo of perfSonar (psPS): Service oriented network monitoring, including throughput measurement tools.

The workshop was attended by representatives from Iraq, Yemen, Qatar, Algeria, Libya, Jordan and Tunisia.

## 14. e-AGE 2014

It was decided to have the 4th International Platform on Integrating Arab e-Infrastructure in a Global Environment e-AGE 2014 in Oman in December 2014.

## 15. ANNEX

### *Organizers and Partners*

The Platform is organized by Arab States Research and Education Network GmbH, in cooperation with:

- Ministry of Higher Education and Scientific Research of Tunisia (MOHE)
- The Computing Center Al Khwarizmi (CCK)
- Talal Abu-Ghazaleh Organization (TAG-Org)
- Delivery of Advanced Network Technology to Europe Ltd (DANTE)
- Euro-Mediterranean Connect project (EUMEDCONNECT3)
- US Internet2 Special Interest Group Middle East (Internet2)
- Co-ordination & Harmonization of Advanced e-Infrastructures for Research & Education Data Sharing (CHAIN - REDS)

### *Program Committee*

- Mohamed Jemni, The Computing Center Al Khwarizmi, Tunisia
- Eshaa Mohamed Alkhalifa, University of Bahrain, Bahrain
- David West, Delivery of Advanced Network Technology to Europe, UK
- Ahmed Dabbagh, Ankabut, UAE
- Salem Al-Agtash, German Jordanian University and Arab States Research and Education Network, Jordan
- Federico Ruggieri, The Italian National Institute of Nuclear Physics, Italy
- Johnathon Chapman, US Internet2 Special Interest Group Middle East, Qatar
- Helga Spitaler, Delivery of Advanced Network Technology to Europe, UK
- Federica Tanlongo, GARR Consortium, Italy
- Heithem Abbes, Research Laboratory LaTICE, Tunisia
- Yousef Torman, Arab States Research and Education Network, Germany

### *Organizing Committee*

- Yousef Torman, Arab States Research and Education Network, Jordan
- Heithem Abbes, Research Laboratory LaTICE, Tunisia
- Fathi Abu Nimeh, Talal Abu Ghazaleh Organization, Tunisia
- Mondher Belaid, The Computing Center Al Khwarizmi, Tunisia
- Ali Labyadh, The Computing Center Al Khwarizmi, Tunisia
- Alaa Laabidi, The Computing Center Al Khwarizmi, Tunisia
- Oussama Elghoul, Research Laboratory LaTICE, Tunisia
- Sara Al-Eisawi, Arab States Research and Education Network, Jordan
- Ola Samara, Arab States Research and Education Network, Jordan

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