TELECOM Review

Fibre to the **Home**
Council **Middle East & North Africa**

FTTH, the Edge of a Brighter Tomorrow

Under the Patronage of H.E. Dr Ahmed Al-Futaisi, Minister of Transport And Communications of Oman

The 7th Annual FTTH Council MENA Conference in Muscat, Sultanate of Oman

The Impact of the NBN

A Human Perspective on Smart Cities

Regulatory Challenges for Promoting Superfast Broadband Networks

Building a brighter tomorrow

Oman Broadband Company (OBC) was founded in 2014 as a joint-stock company wholly owned by the government of the Sultanate of Oman. It is strategically vital to Oman's future development serving the wider digitization agenda of the country. Through its visionary and collaborative approach to the market, **OBC** will help to empower the nation with high-speed broadband fiber access to citizens and businesses alike. The company aims to have maximum nation coverage in line with the Digital Oman strategy, e-government and Oman Future Economic Vision 2020. The next generation fiber optics network will become exponentially faster, bringing community and enterprise benefits of enhanced delivery of communication services, cost savings, increased competitiveness and improved sustainability.

OBC focuses upon the deployment of a passive fiber network infrastructure, providing equal and open access to telecommunication service providers, on a wholesale basis, and owners and operators of private networks, on a retail basis, thereby enabling end users to efficiently leverage high speed fiber in Oman.

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Building a Team to Drive FTTH in the MENA Region

MEFC	MOSECO	ALCATEL-LUCENT	CISCO	OFS	ERICSSON
Dr Suleiman Al-Hedaithy Chairman	Faris Awartani Treasurer and Board Member	Gamal Hegazi Board Member	Danny Chami Board Member	Faiq Shahrouri Board Member	Ammar Sabbagh Board Member

The FTTH Council Middle East and North Africa is an industry organization with a mission to accelerate FTTH adoption by all broadband stakeholders through information and promotion in order to accelerate the availability of Fibre-based, ultra-high-speed access networks to consumers and businesses.

We are passionate about promoting FTTH because it delivers a flow of new services that enhances the quality of life, contributes to a better environment and boosts competitiveness. The economic benefits of both increasing broadband penetration and increasing the speeds of services have been examined in more than 100 studies and are widely accepted.

In line with this, our vision is a life enhanced by Fibre to the Home. In order to achieve this, we have brought together companies and individuals who see the importance of FTTH and have championed the adoption of the technology in a region that had traditionally lagged behind other areas.

Formed in 2011, the Council was formed by founding members companies: MOSECO, Prysmian Group, Alcatel-Lucent, MEFC and Cisco. Since that time, more than 50 members have joined the Council and the board has gained OFS and Ericsson, while Prysmian have departed. Since the launch, we have added four committees to support learning and adoption around FTTH. From the following snippets, you can see the complementary experience our board brings to supporting the region:

• Faris Awartani is in many ways the father of the FTTH Council MENA and now holds the post of treasurer as well as board member. He is the CEO of Moseco Group with operations in Saudi, Jordan, Palestine, Qatar and the UAE. This deep understanding of the real deployment issues in FTTH means he provides excellent insight into the practicalities of FTTH where the circumstances are not necessarily in your favor in terms of geography etc.

• Dr. Suleiman Al Hedaithy is the Chairman and board member of the Council. He is the president of Middle East Fibre Cable Manufacturing Co. (MEFC) in

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Saudi Arabia, which has expanded to be the largest producer of

> **Our vision is a life enhanced by Fibre to the Home**

optical Fibre cables and related products in Middle East. This means he is connected to the full range of deployments from small compounds to National Broadband Networks and can share this experience and acquired wisdom.

• Gamal Hegazi is a founding board member of the FTTH Council MENA and he continues to bring his expertise on deployment technologies to the board. He is currently CTO for the Levante Region for Alcatel-Lucent with broad responsibility across different technologies and projects, from incumbents to small alternative operators.

• Faiq Shahrouri is the Middle East Sales Manager for OFS. Mr. Shahrouri is an active member and a founding board member of MENA Council who brings his company's understanding of optimizing deployment quality, speed and longevity through the use of innovative components.

• Danny Chami is currently responsible for SP Segment Sales in Emerging Markets for Cisco; he can bring Cisco's global learning and experience to bear in the region.

• Ammar Sabbagh is the Principal Consultant for Smart Cities, having re-joined Ericsson

after working within a National Broadband Network project. He brings both Ericsson's experience and his own detailed knowledge of smart cities to support the Council's work in this important area.

"The adoption of FTTH technology resulting in high speed internet services as a result of high speed connection networks can be realized through well-developed infrastructures and national broadband strategies. In line with these requirements, we are constantly seeking new ways to support the industry and to ensure better communication services and networking solutions which are fundamental in creating a brighter tomorrow," said Dr. Suleiman Al-Hedaithy, Chairman of FTTH Council MENA. **TR**

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Minister of Transport and Communications of Oman

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The Impact of the NBN

Mr. Said Al-Mandhari, CEO of Oman Broadband

Company talked about the importance of applying the future National Broadband Strategy in Oman, its challenges and effects on the country.

What is your vision for the NBN?

The vision of the National Broadband Strategy in Oman is to drive national social and economic benefits through the provision of broadband to all people and businesses in Oman. The Omani government has developed a national broadband strategy, in sync with other national strategies in order to promote the spread of broadband and foster the economic and social returns.

The strategy is aimed at overcoming a number of obstacles in the current situation, such as:

• Low percentage of fixed broadband take-up and slow growth
• Various constraints on the expansion of mobile broadband coverage including spectrum limitations, provision of backhaul connectivity and securing rights of way for new towers.
• High cost of broadband compared to GDP per head - both benchmarked across the region and globally.
• Limited competition among broadband providers.
• High cost to reach rural areas which represent 23 percent of the total population.

The government of Oman is keen to achieve open access to telecommunications infrastructure for both current and future operators, with equivalence in access and transparent pricing. Having this infrastructure managed and owned by the government makes it easier for the operators to focus on competing and investing in high quality internet and other services. These reasons encouraged the Council of Ministers to approve the National Broadband Strategy, which entailed establishing a National Broadband Company.

The National Broadband Strategy has three pillars.

The first pillar is related to the changes needed in the regulatory framework to enable and stimulate the investment in broadband related infrastructure and services. This is related more to the Ministry of Transport and Communications and the Telecom Regulatory Authority.

The second pillar is stimulating take up of broadband, and this is mainly related to stimulating demand and encouraging e-services.

The third pillar is to enhance the broadband infrastructure and make it more affordable; this represents the main goal and focus of the Oman Broadband Company.

How extensive is the network today and how large will it be in the future?

In general OBC has three main plans when it comes to the implementation of broadband. These plans will run in parallel to expand the reachability and accelerate the rollout of the broadband across the Sultanate.

The first one is for the Muscat region, where Oman Broadband Company will be commercializing the existent Fibre implemented previously by Haya Water and then expanding the rollout to cover about 90 percent of Muscat by 2021.

The second plan focuses on the urban regions outside Muscat, where due to the lower demand and the geographical spread, we are steadily deploying fibre until 2030. Again in order to do this we are aligning with other utility projects across the country; therefore, lowering the civil works cost of the fibre deployment program.

In the interim period until the fibre reaches these areas, we are supporting operators in delivering mobile broadband by providing backhaul connectivity to their sites and supporting the deployment of new telecom towers.

The third plan is for the rural areas that are currently not covered and should be subsidized by the government. We are working with the regulator and operators to reach all areas by satellite or wireless and to provide basic broadband services.

How many connections are in service today and what is the target for 2020?

The footprint of Oman Broadband Network covers 100,000 premises ready for connection by end of 2015. We are offering these connections to the service providers as a wholesale offer, so that the actual services are provided by the licensed telecom providers. The target by end of 2020 is to cover 90 percent of Muscat which is equivalent to 350,000 premises.

What are the main challenges facing the roll out of this plan?

Oman is facing many challenges when it comes to geography and population distribution. Oman has a population of 10 people per square kilometer, which is very low compared to other regional countries. That means that any infrastructure projects that you carry out will only serve a few people at a high infrastructure cost against low return of investment.

What are the challenges in trying to harmonize the use of resources from different organizations?

Although we are considering the coordination with other utility projects as a golden opportunity to minimize the deployment cost, we are seeing on the other side a big risk of having most of our projects dependent upon other companies or government entities roll out. However, we always try to mitigate the risks by having redundant plans in order to be in the same rollout that was planned in the National Broadband Strategy.

What would represent success in this project?

The success in this project is linked to the understanding of the benefits that all stakeholders will gain from this coordination. Sharing infrastructure will provide better asset utilization and generate better returns.

What would the NBN project bring to the national economy?

It has been proven worldwide that any growth in fixed broadband reflects a direct impact on GDP. Statistics say that the GDP of developing countries grew by 1.38 percentage points for each 10 percent increase in national broadband penetration. This is the direct impact on the national economy, but there are other benefits of having more widespread broadband, one of them being the creation of a knowledge-based economy. We want to create job vacancies in the technology and ICT sectors and employ graduates. We will also assist in the creation of a platform for electronic services and the development of the content and cloud based service sectors.

How would you describe the difference between the wholesale and retail businesses?

We were created to complement the current licensed operators. Therefore, providing our services as a wholesale to the operators will push the operators to focus on providing better services on top of the physical infrastructure.

Based on the latest agreement signed between the 3 operators to share the national fibre network, how is the interconnection progressing technically and financially?

The Oman Broadband Network was designed technically to accommodate all current operators simultaneously. Since the Oman Broadband Network is utilized by three different operators, it makes it more feasible financially as the take up should be higher than for a single operator.

What are the lessons learnt which will help Oman launch a successful NBN?

Losing some of the opportunities to work with different utility projects previously was a big loss. Therefore, coordinating carefully with all utility projects will help lead to a very successful NBN implementation.

What advice would you pass on to a country facing a similar opportunity across their nation?

I would definitely advise them to take this opportunity to coordinate in sharing the implementation with other utility projects to expedite the roll out of the FTTH projects. I would also advise the governments to regulate and support these initiatives as it is mandatory to have the high authorities support to facilitate this coordination. **TR**

A Human Perspective on Smart Cities

In all the discussion about smart cities it is very easy to lose sight of the fact that residents care far more about the services that are delivered than the technologies that deliver these services. At a high level, a smart city or its development should be about enhancing the life of people who live and work there. Now obviously this can be broken down into a number of areas that connect together in a logical hierarchy.

Keeping safe and well
Firstly, we all have the need to feel safe and secure. That immediately prompts us to think about our physical security – a direction where smart developments are able to use the Fibre optic infrastructure very effectively.

We have applications that allow us to monitor what is going on in the environment. That may be CCTV cameras overseen by a security team to look for antisocial or inappropriate behavior. However, there are also extensive applications for residents to:
• Monitor common areas to make sure that their property, cars etc. are okay
• Watch over their children in the playground or at home
• Check availability of shared resources (e.g. queues in the laundry area)
• Show who is requesting access to the property

Once our physical security is assured, a related but more subtle priority is our health. This is an area where smart cities can excel, but where much of the hard work is actually hidden from the residents and workers. I say can excel because the smart city label itself is not enough to improve air quality and reduce pollution.

One smart city development in Malaysia is moving all the traffic underground, which will both improve the safety for pedestrians and the environment at street level.

Amsterdam has moved from diesel council vehicles to electric ones which improves air quality, reduces noise pollution and helps in moving the city towards its target of 20 percent of energy usage, being from renewable sources.

The fibre-optic network can help support these initiatives in a number of ways. Obviously sensors and other monitoring equipment can be connected to the network to provide real-time measurements and trigger remedial action.

This could be by limiting or rerouting traffic flow for a period of time or any number of other actions. We shouldn't forget that this could also be as simple as a car number plate recognition used to limit a car from entering into a city.

Ignorance is bliss
The ability to monitor and share information on some issues can also be a double-edged sword. Think about this for a second. Do you know the quality of the air where you're sitting right now? You probably have a bit of an idea. If it was very smoky or the air was particularly polluted, you might notice that you are coughing a little more and asthma sufferers particularly would be finding it harder to breathe.

I suspect we are unaware of minor variations in air quality; however, as soon as you can monitor noise, air, water pollution/quality in real-time, you have the chance to share that information with residents and workers. As soon as you do that, you may actually reduce people's satisfaction.

The stuff we don't see
The Fibre network itself is far more energy efficient to run than copper based networks. Years ago, it was suggested that a switchover from copper to Fibre would save the equivalent output of two nuclear power stations, therefore you can see this is not insignificant.

The network also supports services that we don't see and that we probably don't think about often. Smart metering and intelligent energy management in buildings will again be invisible to most residents, but are worthwhile initiatives for cities with ambitions to be truly smart.

Things like traffic management are interesting because people may be living with 20 percent fewer traffic jams, but it's entirely possible that they do not realize this fact. They may even still complain about the traffic, barely realizing how much worse it would be without the smart management approach.

In the background, smart logistics and supply chains will be keeping the city stocked up while minimizing impacts on traffic and avoiding shortages and outages.

Making life easier and better
For residents, the majority of applications they would recognize as part of a smart city are ones that are not essential, but which improve the normal experience of living in a city.

These are ones we discuss often such as residents enjoying a seamless fixed and wireless communication experience and simple booking of shared resources.

These could be termed as 'nice to have' rather than essentials. This means that, particularly where resources are scarce, there is the opportunity to select services that are perceived as more valuable by residents while delaying (or even postponing) those that have little perceived value.

The FTTH Council MENA Smart Cities committee will be exploring these choices in an upcoming paper that looks at some of the trade-offs that can be made in some smart cities. **TR**

By Richard Jones (Ventura Next), Chairman of Smart Cities – Operations and Applications Committee, FTTH Council MENA

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ERICSSON

FTTH Architectures and Evolution of Pon and Point-to-Point

Different access network architectures are being driven by ever more demanding applications. In the face of this, we are even seeing 2Gbps residential broadband enabled by Fibre to the Home (FTTH). Behind this are different architectures and it is worthwhile considering what is driving choices between these.

Ethernet-based point-to-point architectures

The requirements for rapid time to market an ultra-flexible service delivery have enabled network architectures based on Ethernet connectivity and switching. Ethernet transmission and switching equipment have become commodities, leading to attractive entry costs and rapid innovation cycles.

Deployments will evolve from 1Gbps to 10Gbps access point-to-point architecture to deliver a bandwidth that is likely to be shared by homes or across a local network.

PON-based GPON architectures

PON architectures are based on passive optical splitters to distribute bandwidth to each customer, using splitters that feed up to 128 ONTs (equipment at customer's premises). The fact that there is a dedicated optical interface per customer in a point-to-point scenario may imply that this architecture is inherently more expensive than an architecture sharing ports among a larger number of customers. However, experience with a large number of projects, has shown that dedicated Ethernet ports are price-competitive, given the greater expense of PON ports.

Also, assuming a 100 percent take rate, the point of presence for PON architecture would have less

> **Ethernet transmission and switching equipment have become commodities, leading to attractive entry costs and rapid innovation cycles**

equipment than Ethernet FTTH. However assuming realistic take rates, the differences disappear. This is because the first customer on a PON requires an optical line termination (OLT) port and thus, the number of OLT ports cannot be reduced based on a lower take rate.

Some key differences between PON and P2P architectures

• GPON provides 2.5 Gbps of downstream capacity to share with half that speed upstream. However, it can deliver the faster speeds based on a TDWDM upgrade that requires new wavelength splitters and active equipment in the network.

• Point-to-point has a direct migration path through the upgrading of electronics at the central office from 100Mbps to 1Gbps and then eventually to 10Gbps over the same Fibre pair. Active Ethernet FTTH (P2P) enables a service provider to guarantee bandwidth for each subscriber and to create bandwidth profiles in the network on a per-customer basis.

• PON networks cannot be unbundled physically and are sometimes preferred by incumbents,

wishing to protect their investment by only sharing via bitstream, VULA or access to a flexibility point.

• PON cannot also realistically support an open-access approach.

• GPON bandwidth is also upgradable and manageable via different tools where utilization can be monitored and bandwidth allocation is adjusted via dynamic bandwidth allocation. However, sometimes new cards will be required to achieve this or change to the splitting arrangements in the field.

• Power usage and space requirements are typically lower in a GPON network.

• Customers with a subscription occupy ports on the Ethernet FTTH access switch. As the customer base grows, additional Ethernet line cards and customers can be added at low incremental costs.

• In the PON architecture, the first customer connected needs a central OLT card just for them and the associated cost per subscriber is only improved by adding customers to the same PON tree. However, with more penetration and service uptake, the cost per port is divided across more subscribers.

Synopsis on deployment scenarios

Point to point is sometimes favored by challengers (and almost always for open access) for its ease of deployment and fast time to market in terms of the cost of equipment and OSP design. It is also well suited for commercial applications and large enterprise needs - having a separate physical layer and Fibre to guarantee throughput and data protection.

For mass deployments, GPON has shown traction and adoption, providing an advantage with increasing and rising take rates and resulting in improved network economics.

In reality, both architectures can exist in the same network with

point-to-point addressing large enterprise and Government services, with GPON for mass residential and commercial deployment building on scale and reach.

For gated communities both architectures have demonstrated success and good references although the space and power benefits of GPON are less important in this context, and the inability of P2P to carry multiple HD channels means open access in countries such as Sweden is 100 percent P2P.

There is no one-size fits all solution for FTTH, and deployments need to use the right architecture for the situation. The FTTH Council MENA has further information to support this choice and is happy to help support new deployments in the region. **TR**
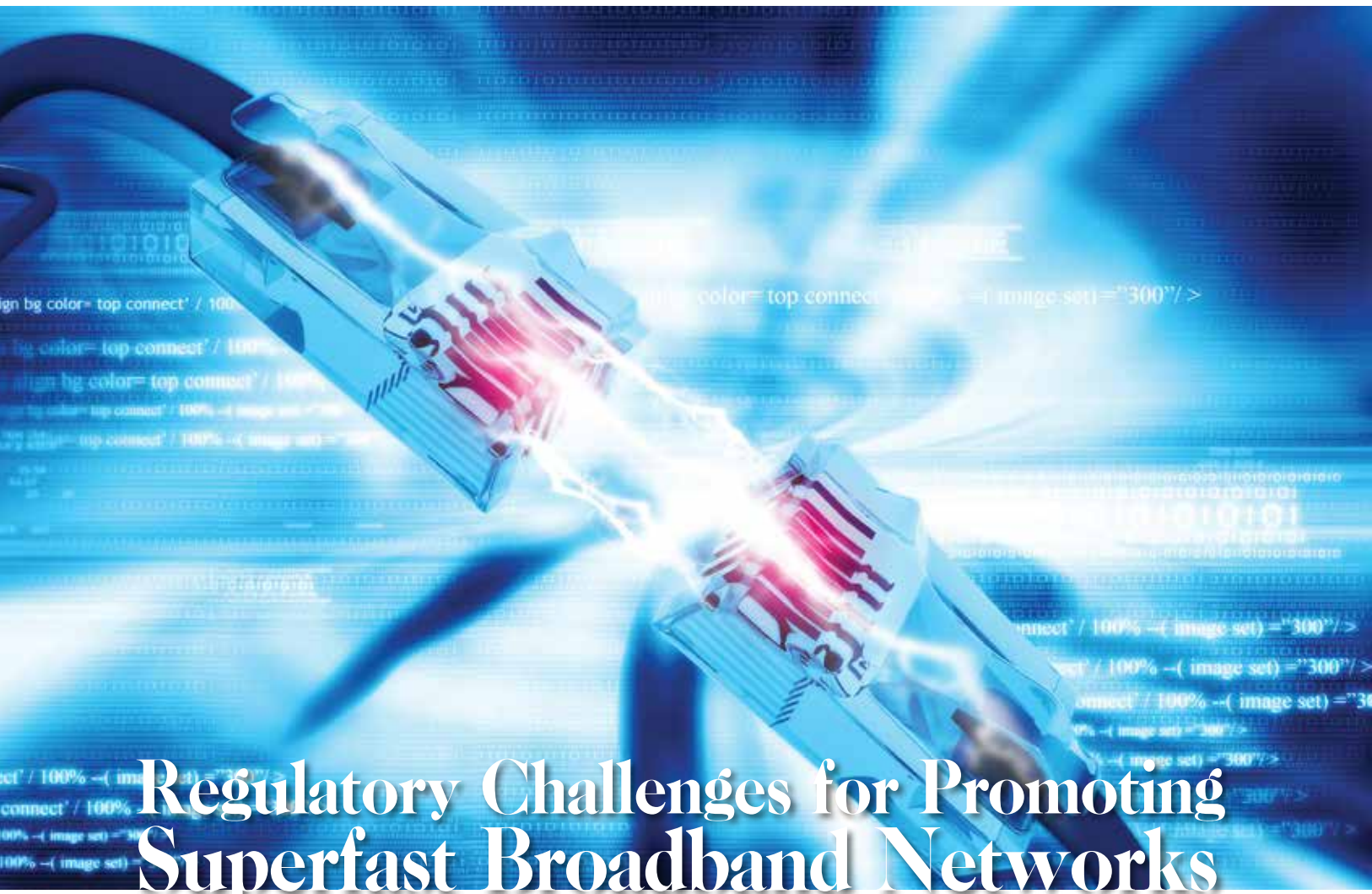
Gamal Hegazi (Alcatel-Lucent) T&T committee chair, and Richard Jones (Ventura Next) Smart cities committee chair

> **Deployments will evolve from 1Gbps to 10Gbps access point-to-point architecture to deliver a bandwidth that is likely to be shared by homes or across a local network**

Regulatory Challenges for Promoting Superfast Broadband Networks

It is not long ago that countries in the MENA region were liberalizing their markets by licensing multiple mobile service providers. Regulators spent the period after this liberalization on building the institutional basis for increasing competition. However, in the past few years, demands for promoting superfast broadband networks have forced policy-makers and regulators to act in new and different ways.

Fiber promises major economic benefits, but also requires major investment in a long-term infrastructure. The broadband far exceeds that of mobile, but so does the capital cost. As a result, many nations have found it necessary to tweak what had become the accepted regulatory "best practice". In fact, some changes conflict with past policy. For example, current best practice in licensing is for open entry with limitations only for scarce resources, e.g. spectrum. However, in an effort to support emergent open Fibre access networks, we often see policies that reduce investor risk by limiting entry, perhaps geographically.

There are many different options for government stakeholders to support national superfast broadband strategies. In a recent paper for the MENA's FTTH Council, nine key dimensions where identified along which national broadband network strategy should be developed.

Choosing which set of options will provide the best means of achieving national broadband objectives is a daunting task. It requires not only broad consensus over a wide range of stakeholders (or the means to force compliance), but an assessment and alignment of a number of often complex moving parts. Once chosen, elements of the broadband strategy are likely to require a comprehensive review and modification of existing regulatory practice.

Ideally, the process of regulatory review should form part of the development of the national broadband strategy. Unfortunately, this is not often the case. More typical is that the national broadband plan is developed without an appreciation of what has to change in the regulatory landscape to enable implementation.

An upcoming FTTH Council Paper discusses all the various components of the telecommunications regulatory regime that will have to be reviewed and potentially modified in order to comport with a nation's broadband strategy. In the figure we depict the four major levers at the disposal of national telecommunications regulatory authorities to promote national Fibre access roll-out and the positive outcomes expected.

With respect to licensing, the regulator will influence the business case of any existing or new NBN provider by defining the field of competition, winding down any restrictions on non-telecoms infrastructure providers to lease facilities to telecoms operators, increase traffic and service offering by encouraging retail service provision.

The access regime may be the most complicated area as it requires defining and detailing the practicalities of the role of the incumbent and other market entrants in network facilities provision. Regulators will also have to determine if there is any unfinished business in regulating bottleneck facilities in markets adjacent to broadband access networks, e.g., domestic backbone or international subsea cables.

National broadband network plans may also require the regulator to take the lead in coordinating rules and procedures outside

Source: FTTH Council MENA
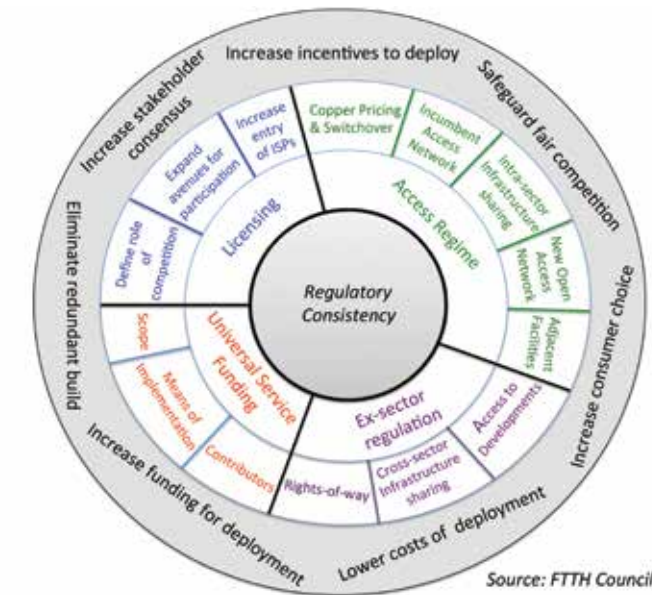
telecommunications (ex-sector), whether in terms of cutting down the bureaucracy and cost of gaining access to rights of way, facilitating infrastructure sharing across utilities or ensuring open access principles carry into localized markets such as real-estate megaprojects.

Finally, national broadband strategies offer an opportunity to regulators to completely rethink their universal access programs. The success of mobile network roll-outs have in many ways simplified the achievement of traditional objectives e.g voice connectivity for all citizens. These programs should now be repurposed to support more ambitious broadband goals.

For many years following the global liberalization wave, the philosophy of regulatory practice could be described as "set up the legal framework and get out of the way".

The new view of the state's role in promoting superfast broadband roll-out is more nuanced and complicated. Regulators have little choice than to re-engage and re-assess elements of the regime that they have worked so hard to put in place.

By Erik Whitlock (Salience Consulting) and Stefan Stanislawski (Ventura Team), Regulatory & Policy Committee members, FTTH Council MENA

Nine Key Dimensions of an NBN Policy

1. Geography: Competitive vs. Complementary
2. Copper Switch-Off/Incumbent Migration
3. Consistency of Regulation with NBN
4. Execute via Incumbent or New NBN Organisation(s)
5. Single v Multiple NBN Companies
6. Clear, accountable, stable governance
7. Degree of Structural Separation
8. Government v Private Finance
9. USO or other Ongoing Contractual Revenues

From "National Broadband Network Policies" Ventura Team, November 2014

FTTH Across the World

With more than 50 member companies and major partners since 2011, the FTTH Council MENA is fully committed to accelerate the deployment of FTTH in the Middle East and North Africa Region.

Furthermore, the Council is a member of the FTTH Councils Global Alliance (FCGA) which is a platform of the six global FTTH Councils, ensuring that regional learnings are always combined with the power of global cooperation.

The FCGA chairmanship rotates between the different Councils annually and is currently held by Christine Beylouni - Director General of the FTTH Council MENA. All the FTTH Councils share a common goal - the acceleration of Fibre to The Home adoption.

The Councils act as powerful and independent organizations in their specific markets. This regional focus gives the FTTH Councils a special strength in adapting their activities to the particular market situation in their area.

All the Councils are continuously working on widening the adoption of Fibre technology, spreading learning about the benefits as well as creating documentation to help those deploying FTTH.

You can find lots of interesting information at http://www.ftthcouncil.info.

FTTH trends and learning from around the world

The Middle East and North African region (MENA)
In the MENA region up to the end of 2014, we are proud to have the UAE leading the FTTH/B market with a 70 percent take rate of subscribers compared to homes passed. FTTH has grown to 1,500,000 homes passed in the Emirates with two operators connecting up homes and Etisalat currently leading in the market.

In Saudi Arabia, we see a total of 1,900,000 homes passed and 522,000 FTTH/B subscribers - a 27 percent

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take rate. Market growth has been strong with a yearly increase of +71 percent of subscribers between September 13 and 14. STC is the biggest FTTH/B player.

Qatar is another high flyer in the region for FTTH/B with 340,000 homes passed and 205,000 FTTH/B subscribers - a 60 percent take rate.

There are a number of drivers which will help propel MENA's FTTH/B market including:
• New housing developments
• National plans
• Smart cities
• Cloud services
• Higher competition
• Mobile backhaul
• Low quality of existing networks

Since 2014, the FTTH Council MENA has focused on special studies to help policy makers, governments and regulators make the best decision in matters of National Broadband Network policy for a successful Fibre NBN deployment and sustainable broadband development. As a result, generic recommendations have been provided where in any particular country the best policy will vary depending on local circumstances. NBN policies in MENA vary widely, ranging from the formative stage to high levels of maturity.

The Latin American region (LATAM)
In the LATAM region we have reached 2.66 million FTTH subscribers and more than 15 Million homes passed. Across these homes, the average take up rate is 17.7 percent and overall we see a growth rate of subscribers of +57 percent and for homes passed +45.6 percent (Dec 2014 – Source IDATE).

There are some interesting trends for FTTH in the LATAM region:
• The demographics represent a huge potential in LATAM with large cities providing the huge advantage of a high population density
• Low quality of existing copper:
- FTTH/B is a solution required to provide innovative services (TV, video…) and higher speed rates (1 Gbps)

• The competition between cableco's and telcos is a driver for FTTH/B
• Significant players deploying FTTH/B in LATAM are also involved in LTE: LTE backhaul needs Fibre
• National Broadband plans (Brazil, Chile) are clear incentives, but they need to focus quickly on FTTH/B
• Public telcos showed a strong drive in rollouts and migration in 2014

The biggest influence in FTTH in the LATAM region is the competition and more recently, FTTH has become the differentiator for small ISP's entering and competing with large telecom companies. This is because it has become cost effective for the implementation of a network as well as the ability to offer high bandwidth and the inability of major carriers to offer the service in all cities.

The new applications and services that FTTH is starting to enable include IPTV, but still only a few companies are offering the service. IPTV is still expensive and it is very difficult to get content from studios.

The North American region
The biggest change in North America is the rise of community based "gig envy". With the beginning of gigabit deployment by Google a couple of years ago, the upgrade of key muni networks and the desire of rural communities to provide

their citizens access to the global economy, community leaders are now thoroughly engaged in determining how to enable all Fibre networks. New Fibre builds are no longer looked at as another source of revenue; now they are viewed as an essential investment, one in which the community must participate.

The biggest influencer in FTTH in the United States has been Google. Its decision to build a gigabit community in Kansas Cities, coupled with its expansions plans, has created a buzz that has not been seen since Verizon rolled out FiOS and the Recovery Act founded rural Fibre buildout. This is sparking both competitive and copy-cat reactions. It creates competition because Google chose cities that already had incumbent broadband providers; those incumbents are being driven to upgrade their networks. Copy-cat as in other carriers understand they can deploy using the Google model to make the investment case more desirable.

We see this with C Spire Communications who is building out in ten communities in Mississippi. In Canada, it is the incumbent telcos that are primarily driving deployment, but in many cases spurred on by strong cable competition.

These high speeds are allowing for distance learning for high school

students in Chattanooga that are taking advanced biology with professors at UCLA. This is in addition to e-government and sophisticated telemedicine initiatives.

The European region

The creation of a future-proof Europe is challenging, but inevitably underway with a significant increase of Fibre subscribers over the last two years.

The number of Fibre to the home (FTTH) and Fibre to the building (FTTB) subscribers in Europe has increased by 50 percent over the 12 months ending December 2014.
There are now nearly 15 million FTTH/B subscribers on the European continent. Adding Russia and the Ukraine would add a further 14.8 million homes. There is a new momentum in Germany where alternative operators like Deutsche Glasfaser are pushing ahead with Fibre deployment and it will very probably enter the next FTTH Ranking by reaching the threshold of 1 percent of homes subscribing to Fibre.

Good progress was also reported in countries like Spain, Romania, France, Netherlands and Portugal. In Spain, incumbent Telefonica clearly played an important role, overpassing its initial objectives: overall the number of FTTH/B subscribers in the country increased by 137 percent year-on-year, reaching a total of nearly 1.4 million subscribers. Even though the momentum in Spain has recently been slowed down by regulatory decisions, Fibre deployment in the country is still impressive with 13.8 million homes passed at the end of 2014.
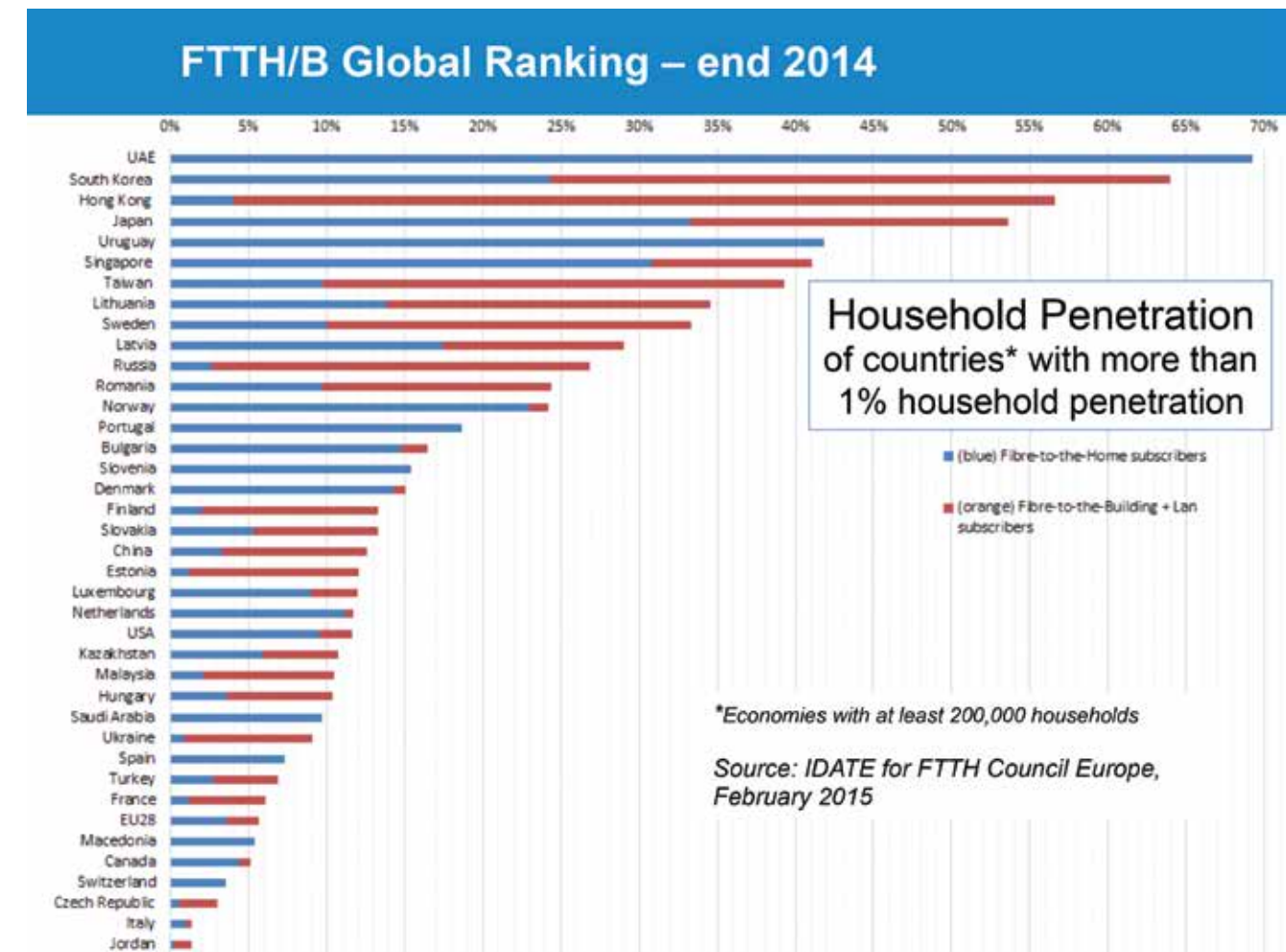
This is a phenomenal progress and it proves that FTTH/B is poised to become the mass-market broadband product in Europe. However, there is a risk that the EU will not be able to reach the 2020 Digital Agenda Target of 100 Mbps for 50 percent of Europe's households based on Fibre technology. It is therefore necessary that decision makers in the member states take strong measures today to ensure that future-proof broadband solutions are implemented to avoid a situation in which Europe reaches its 2020 broadband targets, but realizes then that it took the wrong decisions. Our goal is to create a future-proof Europe based on Fibre-access networks

available to as many European households as possible and we are confident that this is more achievable than ever.

The African region

In the South African market there is a big trend amongst communities to write and adjudicate their own tenders for the deployment of Fibre optic infrastructure. This has resulted in a market that is over-stimulated. For most communities it is all really about 2 things. The first thing is that communities want security and in order to do public video surveillance they need Fibre. Then, they capitalize on this deployment and leverage the Fibre to deploy FTTH. The second and probably most important aspect is that individuals want choice about what they want to watch and when they want to watch it. Choice comes with the access to high speed broadband, and this is very appealing to society especially in Africa.

Nowhere in the world is the need for eHealth and e-Education more evident than in Africa. Both applications will have the greatest impact on under serviced areas and in poorer areas.

FTTH/B Global Ranking – end 2014

Household Penetration of countries* with more than 1% household penetration

- (blue) Fibre-to-the-Home subscribers
- (orange) Fibre-to-the-Building + Lan subscribers

*Economies with at least 200,000 households

Source: IDATE for FTTH Council Europe, February 2015

FTTH/B Global Panorama end 2014 – total subscribers

Source: FTTH Global Councils, February 2015

Europe 14.8 M
Russia 13.4 M
Asia Pacific 115.8 M
Americas 14.1 M
Latin America 2.7 M
Sub-Saharan Africa 0.125 M
Middle East-North Africa 1.7 M

African governments are waking up to the benefits of these applications and how it can serve rural communities. Africa is a very big continent and often people need to travel vast distances to get to a medical clinic. Access to eHealth services can allow poor rural communities access to the best medical advice without having to spend money on travel and accommodation. Further access to broadband will allow for social inclusion, a very important aspect of rural development.

The Asia-Pacific region (APAC)

The FTTH Council Asia-Pacific just recently celebrated its 10th Anniversary in 2015 at the same time as the region surpassed a milestone of 100 million homes connected. At a recent market study initiated by the Council, we found that by end of 2014 there were 74 major FTTH players involved in the APAC region. Asia-

Pacific had 115.8 million subscribers with approximately 338 million home passed by end of 2014.
In Asia-Pacific, we see a trend away from IPTV delivery via 1550 and a movement to ServCo providers (OTT players like Netflix, iflix). Wireless service providers are now starting to use NG-PON2 (G.989) solution with PtP dedicated lambdas as an overlay to FTTH. New FTTH service offerings of 1 Gbps and 10 Gbps and more lambdas per Fibre core.

The biggest influencers on deployment are:
- Governments and regulatory agencies with infrastructure projects.
- Smart City Planners due to Open Access duct projects, providing shared infrastructure.
- Wireless service providers doing infrastructure planning for a common FTTH + FTTA coverage.
- The FTTH Council Asia-Pacific

with a focus on applications and solutions; an initiative which we are calling FTTH 2.0, starting to see FTTH enabled FTTA (quad play = voice + data + video + wireless), CCTV security surveillance with HD video, OTT (Over The Top) video, TV with apps (like AppleTV) and M2M applications.

It is clear that FTTH is advancing rapidly, but for different reasons and against different challenges around the World.

Sharing information is increasingly important to spread best practices and help avoid pitfalls in deployments. We believe the FCGA has an important role to play in supporting FTTH in this way. **TR**

By Christine Beylouni, Director General FTTH Council MENA- FCGA 2015 President
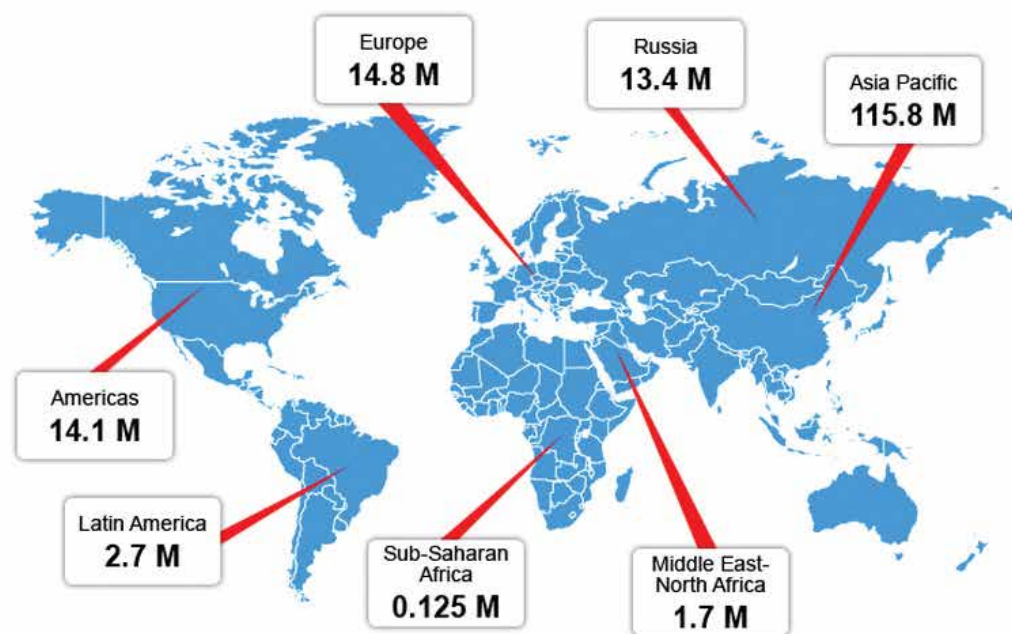
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The FTTH Council MENA is a non-profit organization with a mission to accelerate FTTH adoption by all broadband stakeholders through information and promotion, and to accelerate the availability of fiber-based, ultra-high-speed access networks to consumers and businesses. Since its creation in 2011, almost 50 members from vendors, operators, consultants and content providers joined the FTTH community. The members of the board and the committees are all committed to spread the FTTH message and encourage the technology which delivers a flow of new services to enhance the quality of life, contribute to a better economic environment and boost competitiveness.

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