



RAO Services Benchmark for Arab Countries

مقارنة عروض النفاذ المرجعية
في البلدان العربية

TELECOMMUNICATIONS REGULATORY AUTHORITY (TRA), LEBANON

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The purpose of this project is to benchmark among Arab Countries, the different services that can be offered on NGN networks, their prices and terms and conditions as usually determined in the Reference Access Offer (RAO) issued by the incumbent operator



With the uptake of new technologies and the ever increasing popularity of new bandwidth hungry services, countries are facing more and more an increase in the demand for national bandwidth to deliver the requested data to end users.

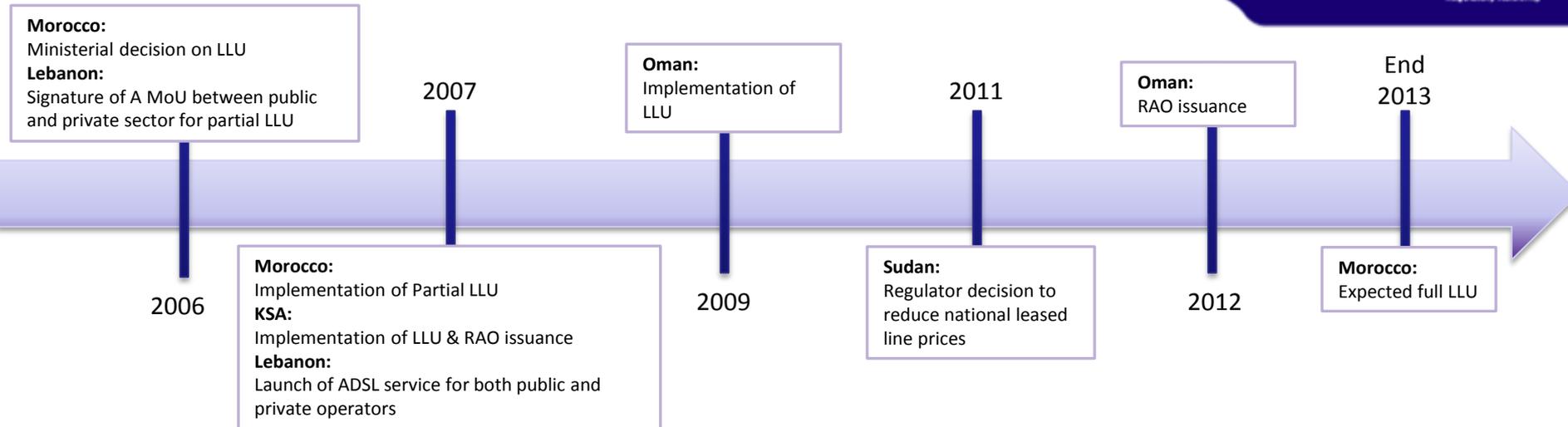
As a result, nations/incumbent operators have been investing large amounts to develop and install national fiber optic networks as the backbone for national transmission. Considering the sunk costs invested to cover all the country, this kind of network is not usually replicated (except for redundancy purposes) but has a national target in terms of bandwidth capacity so that other operators can rent the needed capacity at wholesale prices.

For a good and knowledgeable comparison, the benchmark has been divided in 3 main parts as listed below:

- 1- Regulatory Framework: this part tackles the main regulatory milestones along with the decision triggers. It aims at highlighting the main steps undertaken to liberalize data markets and the evolution stages of the benchmarked countries
- 2- RAO Services: this part tackles NGN services definition and differentiation parameters such as speed or other specific features
- 3-Operational Aspects: this part tackles the main components of the SLA such as time to respond, access to information, penalties, forecasts etc

TRA Lebanon has launched the benchmark request among AREGNET members and only 5 countries have responded: Oman, Morocco, KSA, Sudan and Lebanon

Regulatory Framework: main regulatory milestones and decision triggers



Morocco:

In Morocco, the information provided on the Regulatory Framework is limited to the Local Loop Unbundling. It started in 2006 with a Minister's decision and a partial unbundling in 2007. The full unbundling was expected to be operational by end of 2013. Nothing was mentioned about regulating access and wholesale services on NGN networks

Oman:

As for Morocco, the initial information provided was about Local Loop Unbundling (2009) and Interconnection regulation (2007). An additional document was sent about RAO services (2012) and their tariffs mentioning services like Leased Lines, colocation and Bitstream

KSA:

For KSA, the submitted information shows that they implemented the LLU in 2007. The Reference Offer for Data Access was also issued in 2007 and relates to services like Bitstream and Line Sharing

Sudan:

In April 2011, the Regulator in Sudan issues a decision to reduce national Leased Line prices based on LYRIC cost estimation of the national fiber optic network. The drop in price is staged over year 2011

Lebanon:

In 2006, the Ministry of Telecommunications, and the private sector signed a MoU for partial Local Loop Unbundling. ADSL services were launched on November 2007 by the private and public sectors simultaneously

Main RAO components and connectivity services

The table below displays the pricing information of submitted RAOs for bundled high capacity national connectivity:

	Set up Fee (USD/PPP)					Monthly Rental Fee (USD/PPP)												
	Within exchange premises		Outside the exchange			Uncommitted								5 years				
	Oman	KSA	Oman	KSA	Lebanon (<20Km)	Oman		KSA		Sudan		Lebanon		Oman		KSA		
						Short Distance	Long Distance	Short Distance	Long Distance	Short Distance	Long Distance**	Short Distance	Long Distance	Short Distance	Long Distance	Short Distance	Long Distance	
64Kbps	217	-	217	-	-	564	1,410	-	-	13	130	-	-	482	1,202	-	-	
512Kbps	-	-	-	-	977	-	-	-	-	52	520	391	261	-	-	-	-	
1Mbps	-	-	-	-	1,303	-	-	-	-	86	860	586	391	-	-	-	-	
2Mbps	260	-	868	2,000	1,955	1,975	4,939	3,021	6,459	146	1460	782	521	1,758	4,396	2,266	4,844	
34Mbps Access*	-	-	2,604	-	-	4,904	6,093	-	-	-	-	-	-	4,366	5,425	-	-	
34Mbps Transport	-	-	2,604	-	-	3,580	10,511	-	-	-	-	-	-	3,185	9,357	-	-	
155Mbps Access*	-	-	2,604	15,835	-	11,800	9,543	-	-	-	-	-	-	10,502	8,493	-	-	
155Mbps Transport	-	-	2,604	15,835	-	10,233	20,901	54,278	116,508	5,581	55,810	-	-	9,105	18,601	39,297	84,352	
STM-4	-	-	-	25,003	-	-	-	162,868	349,349	-	-	-	-	-	-	138,438	296,947	

* Oman uses a specific pricing formula where the final price for 34Mbps and 155Mbps links can be derived by adding 2 Access fees and 1 Transport fee. The Access fee for short distance reflects a connection within the exchange premises while the Long distance reflects a connection up to 3km from the exchange

** Sudan's tariffs are per 100Km; for long distance links an estimation of 1000Km has been calculated to compare to the offers in KSA and Oman

For comparable speeds, set up fees in Oman are much lower than in KSA

For uncommitted monthly rental fees, KSA had the highest prices across the board. For 5 years commitment contracts KSA prices are 10% to 137% higher than in Oman

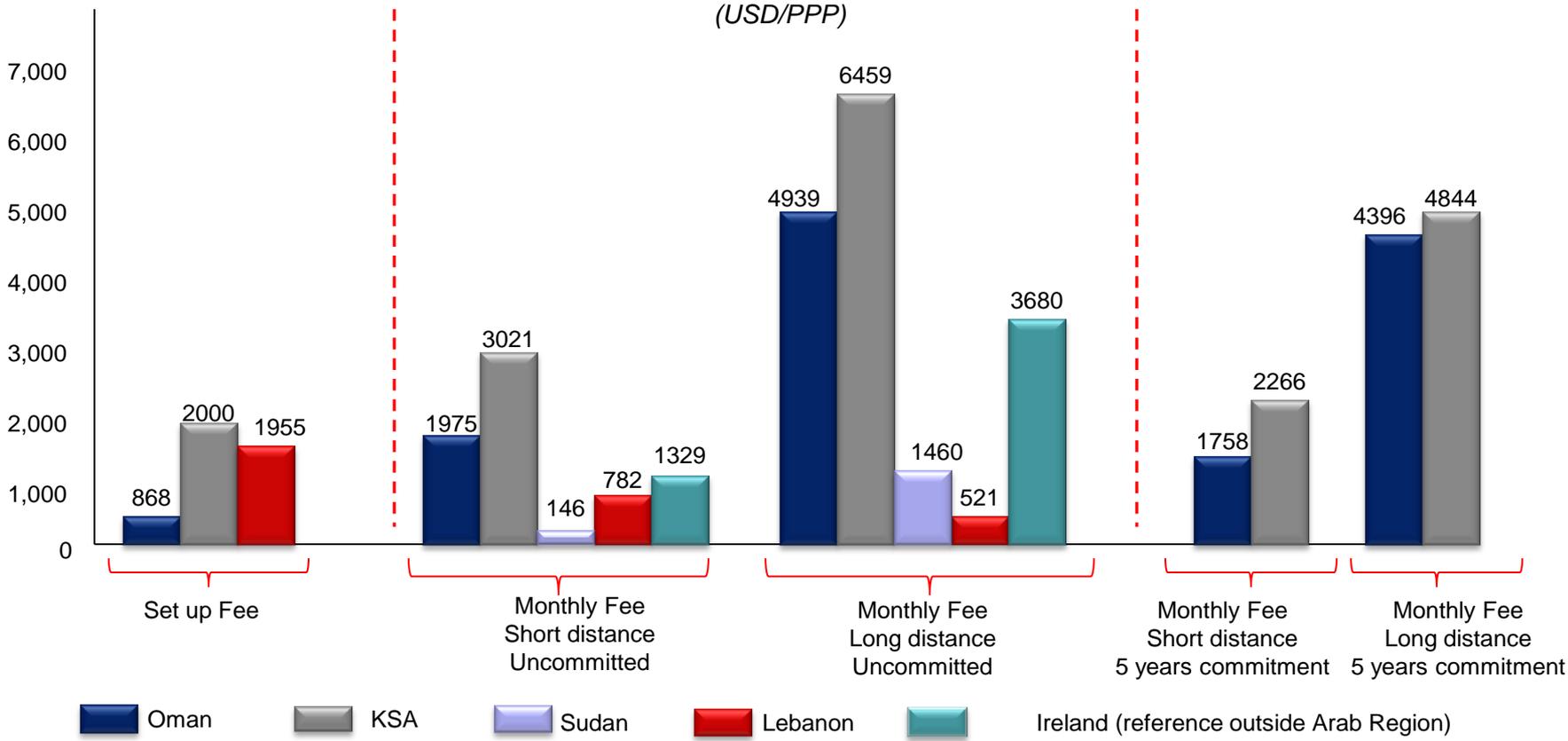
It is worth noting that Oman offers commitment contracts of 24, 60, and 72 months while KSA proposes a minimum of 1 year, or 3 years or 5 years commitments. For KSA, the uncommitted monthly fees represented in the above table have been derived by dividing the yearly fee by 12. Sudan does not propose any discounted values for long periods

For high speed connectivity, KSA and Oman offer very long distance links that can go up to 900 and 1000km

Lebanon lacks bundled high speed offers

Benchmarking the 2Mbps national leased line service among the respondents shows that, overall, prices in KSA are the highest among benchmarked countries

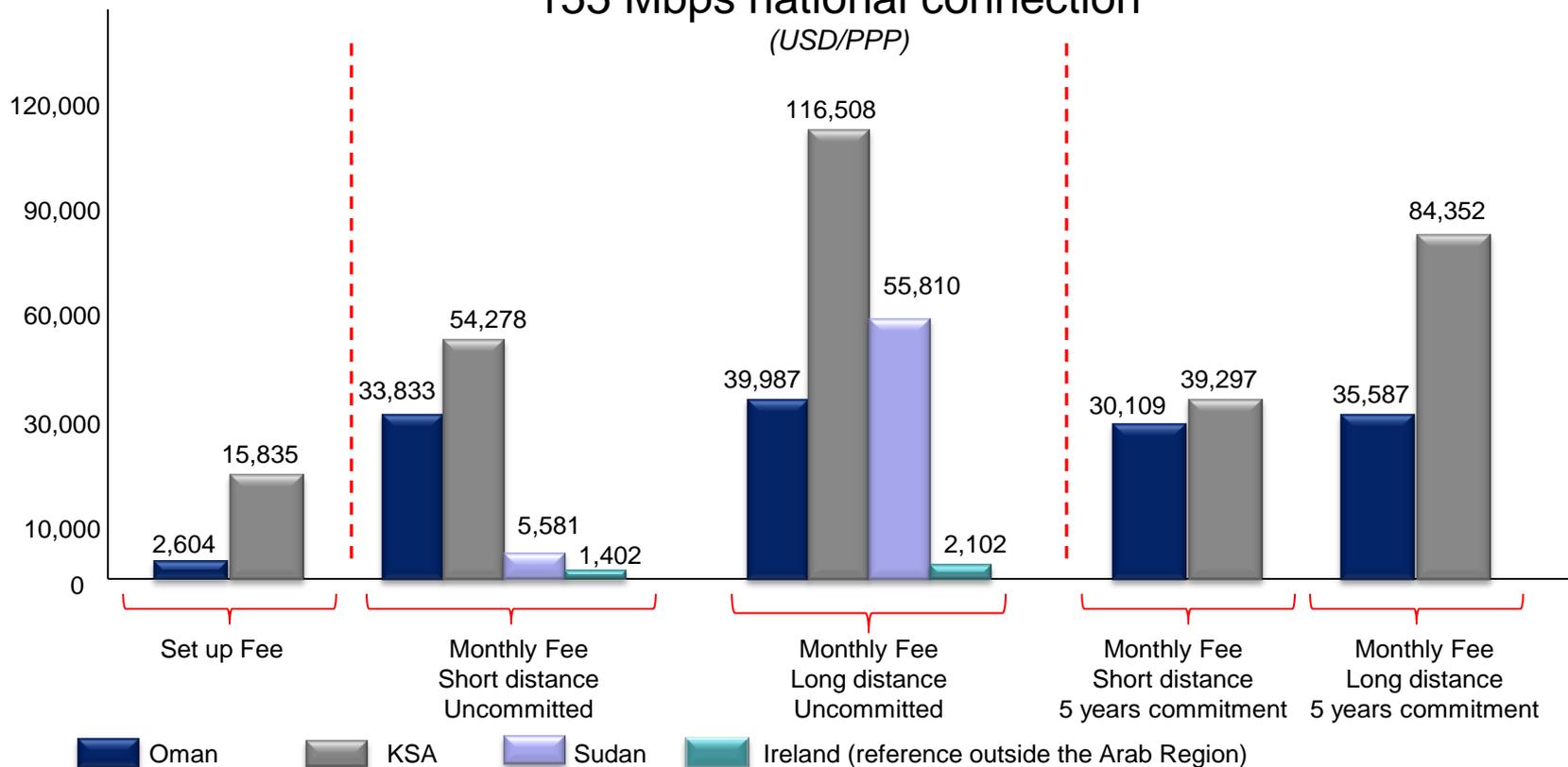
2 Mbps national leased line (USD/PPP)



For uncommitted subscriptions, Lebanon’s long distance prices are very competitive when compared to KSA, Oman and Sudan.
 For 5 years commitment contracts, prices in KSA are very close to the ones observed in Oman
 The 2Mbps leased line service is a legacy service in Ireland and they rank 3rd among benchmarked countries

Benchmarking the bundled 155Mbps national link shows that prices in KSA are, the highest when compared to other countries

155 Mbps national connection (USD/PPP)



For 5 years commitment contracts and for short distance links, prices in KSA are very close to the ones observed in Oman. Sudan has very low prices for short distance uncommitted links

For short distance links in Ireland, the selected option was the Wholesale Symmetrical Ethernet Access (Logical) – Same Region Handover (Medium Density) Conveyance while for log distance links it was the Wholesale Symmetrical Ethernet Access (Logical) – Different Regions Medium Density to Medium Density Conveyance

The very low price levels observed in Ireland clearly show the market maturity in terms of available wholesale bandwidth offers than can go up to 10GB/s

Operational Aspects: main SLA components

	Oman	KSA	Sudan
Service Level Agreement	<ul style="list-style-type: none"> The service level is defined and agreed by parties in a separate Service level agreement No details are specified on the SLA regarding the monitoring hours, the time to respond and the committed service availability levels 	<ul style="list-style-type: none"> Service availability 98-99% ,which is the amount of time over one quarter Service Affecting fault: the repair time is 80-85% repaired within 10-24 hours Non-service affecting fault: the repair time 80-85% within 36hours 	For all corporate services: <ul style="list-style-type: none"> 24x7 fault reporting and monitoring 30 minutes response time Service availability level of 99.8%
Forecasts	Depending on the service type, three types of forecasts can be requested from the customer (knowing that for high capacity orders, only capacity forecast are requested): <ol style="list-style-type: none"> Traffic forecast Capacity forecast Customer forecast Forecasts are to be provided for a period of 4 quarters covering 1 year and delivered 10 working days before the start of the quarter	<ul style="list-style-type: none"> Short term: OLO shall supply forecasts of the service by STC exchange site, to STC every six months on 1ST of December and 1ST of June of each year For long term it is 18 months 	Customized as per negotiation
Penalties	<ul style="list-style-type: none"> No penalties apply to the Operators for delays in service delivery Cancellation of orders by customer prior to the agreed delivery date is subject to a cancellation fee of 12.5% of the value of the order which is calculated as the sum of the first 6 months payment(s) 	STC will accept 15% variation of the forecast provided by OLO and STC has the right for compensation when the variation is exceeded	N/A

Note: Morocco did not provide any information on RAO services' operational aspects and **KSA** information only showed Bitstream and Line Sharing services (No operational info on High Speed National connections)

Wholesale connectivity services available in Ireland: the market looks mature with offered speeds that go up to 10GB/s



Digital Wholesale Leased Lines (WLL) :

Speed ranges from 9.6 Kb/s to 2Mb/s. Tariffs are per local end and include main link access charges, additional local loop charges and distance charges

Wholesale Channelised Leased Lines :

Speed ranges from 9.6 Kb/s to 2Mb/s. Tariffs are per local end and include main link access charges, additional local loop charges and distance charges

Ethernet Aggregation Links :

These links are of 100Mb/s. The fees are based on the aggregation link access length

Uncontended Ethernet Access Circuits :

Speed ranges from 512Kb/s to 10Mb/s. Fees are based on the local access length, the main link access length and the main link distance

Contended Ethernet Access Circuits :

Speed ranges from 512Kb/s to 10Mb/s. Fees are based on the local access, the main link access length and the main link distance

Regional Ethernet Aggregation Links :

These links are of 1000Mb/s. Tariff is based on an access fee and a distance fee per 100m

Regional Ethernet Access Circuits :

Speed ranges from 10Mb/s to 1000Mb/s. Tariffs are based on an access fee (premium or standard) and a distance fee per 100m

Dublin Ethernet Aggregation Links :

These links are of 1000Mb/s. Tariff is based on an access fee and a distance fee per 100m

Dublin Ethernet Access Circuits :

Speed ranges from 10Mb/s to 1000Mb/s. Tariffs are based on an access fee (premium or standard) and a distance fee per 100m

Wholesale Ethernet Interconnect Link :

Speed ranges from 1000Mb/s to 10Gb/s. Tariffs are based on density parameters (urban, provincial, rural)

Wholesale Symmetrical Ethernet Access :

Speed ranges from 10Mb/s to 10000Mb/s. Tariffs are based on the class of service, the handover point (in building, same node...) and the region density

Wholesale Ethernet Interconnect Link :

Speed ranges from 1000Mb/s or 10Gb/s. Tariffs are based on density parameters (urban, provincial, rural)



Overall, the number of respondents to the questionnaire is very limited. We have missed the bulk of Arab countries that could have enriched this study by sharing their experience

Among the 5 respondents, Morocco submitted information focused on the regulatory framework showing Implementation of unbundling access to the local loop. No high speed services, prices or SLA were submitted

Oman, KSA and Sudan have provided information on bundled high speed connectivity services showing that, overall, KSA has the highest prices among the benchmarked countries

On the SLA level, the documents provided by Oman show that the SLA contents are not predefined, and that the penalties apply only to the service demander in case of order cancellation. For Sudan, all Corporate services are equally treated with high service availability levels and quick response time. The information submitted by KSA is mainly about bitstream and line sharing services and do not mention high speed national connectivity services

Finally, the Irish study case shows that the benchmarked countries still have margin to develop their wholesale connectivity offers in terms of capacity scale (up to 10Gb/s), the complexity and variety of the proposed services (Class of service, region density, point of interconnect) and in the refining of special offers for specific sensitive areas like the capital coverage