

MENA to Europe Infrastructure diversification

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Agenda



- Submarine cable global scenario
- Focus on the Mediterranean basin
- Marseille: from a landing gateway to a large continental hub
- Concentration vs Diversification
- What can we learn from other regions? The USA East coast case
- Reshaping the Med basin outlook

MENA to Europe Infrastructure diversification: is Marseille becoming a SPOF?



Submarine cables: what is the global scenario?







Big OTTs are the largest investors

Used International Bandwidth, 2008 - 2018



2016-2020 Average Investment: 2,7 B\$/y approx. +6 times vs 2013-2015



Content proximity to eyeballs & Cloud proximity/data localization



Source: TeleGeography



Submarine routes in the Mediterranean: today outlook



The Mediterranean basin is crossed by a number of submarine cables, most of which are consortia cable and connect Asia to Europe through Middle East (SMW 3-4-5, IMEWE, EIG, AAE-1), but there are also a number of private ones (FLAG-FEA, Hawk, TATA TGN Euroasia, Seacom, MENA/GBI).

There are also a number of regional cables, both bilateral and private (**MedNautilus, TE North, Atlas Offshore**).



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Submarine Cable Systems in the Med Basin



How much international connectivity from/to M.E.?





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... and where to?





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Marseille from Landing point to primary interconnection hub 👘 🌍 🛡 🛡 🔍

- Marseille development was driven by **submarine cable** followed by **terrestrial** and **data center** development
- In **2005 SMW-4** (0.6Gb) with 2 Landing Stations in Marseille did bust the need of backhaul solutions to the main European hubs of that age: London, Paris, Frankfurt.
- SMW-4 is soon followed by **Atlas Offshore**, **IMEWE**, **EIG**, **Hawk** and **TE North**, together bringing the capacity lit there to increase tenfold in a few years.
- Marseille grew to a gateway to Europe and then to a primary IXP, competing with the main European hubs: London, Frankfurt, Paris and later on Amsterdam and Milan

Submarine Network Name	RFS Year	Length (km)	Lit Capacity (Gbps)	Max Capacity (Gbps)	Marseille
SeaMeWe-4	2005	20.000	10.720	16.900	75%
Atlas Offshore	2007	1.634		320	100%
IMEWE	2010	12.091	8.220	16.200	60%
Europe India Gateway (EIG)	2011	15.000		24.000	100%
Hawk	2011	3.400	1.780	17.200	100%
TE North/TGN-Eurasia/ SEACOM/Alexandros	2011	3.634	3.710	32.000	100%
SeaMeWe-5	2016	20.000	8.000	24.000	75%
Asia Africa Europe-1 (AAE-1)	2017	25.000	5.000	50.000	80%

Sources: TeleGeography, Maroc Telecom

The design dilemma: Concentration vs Diversification



Concentration	Diversification		
Economy of scale/cost efficiency	Network resiliency		
Ease of Traffic mgt/interconnection	Customer/Traffic segmentation		
Marketplaces creation	Competitive leverage		

And what about the latency?

- Latency is "mission critical" to a growing number of applications: gaming and gambling, to financial trading, IoT applications
- The effort to reduce it causes the convergence on the most direct routes available between two points, pushing for concentration.
- But for the same applications above, network availability and reliability is "mission critical", which brings in the need for diversification.
- Is it a deadlock we cannot exit out of?





What can we learn from other regions? The USA East coast case



Transatlantic routes show an interesting recent trend in landing development

- 1. NYC Area, as a major center of business and connectivity, used to attract most of the transatlantic cables
- 2. In the recent past, the need to bypass the congested and expensive NYC area promoted a new open CLS model in Wall, NJ
- 3. Today, other new cables (OTT driven) are planning to land further South in Virginia, regardless the lack of terrestrial infrastructure. Also new DC's are planned there, where content can be stored, to keep latency low.



So, is Marseille becoming a SPOF....?



- All submarine cables from Africa, Middle East and Asia to Europe are laid West of Sardinia.
 - They follow, north of Sicily, exactly the same path
 - Most of the capacity on these cables is deployed into Marseille





Reshaping the Mediterranean outlook....





The need of diversification and resiliency:

- The Tyrrhenian corridor, passing East of Sardinia, guarantees complete diversification to the overcrowded west corridor
- Genoa offers a diversified gateway to Europe thanks to the close and rich Milan ecosystem.
- Accessing to Palermo Sicily Hub, for content/cloud improved latency

... with a new corridor through the Tyrrhenian Sea



Several new projects in Med Basin may see the light



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BlueMed: Sparkle new Palermo-Genoa-Milan route





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Shùkran!

