Iraq Submarine Cables and Backbone Challenges

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1.0 Introductions

Submarine cable is one of the most modern methods of transport and delivery information between countries and continents.

Submarine cables is one of the most important achievements. In the field of data Transfer around the world, eighty percent of the total communication and data transfer are made through these cables, due to the speed. where the data flow, and the enjoyment of a high degree of security, high accuracy in signal transmission, and the lack of Costs compared with satellites and Terrestrial cables.

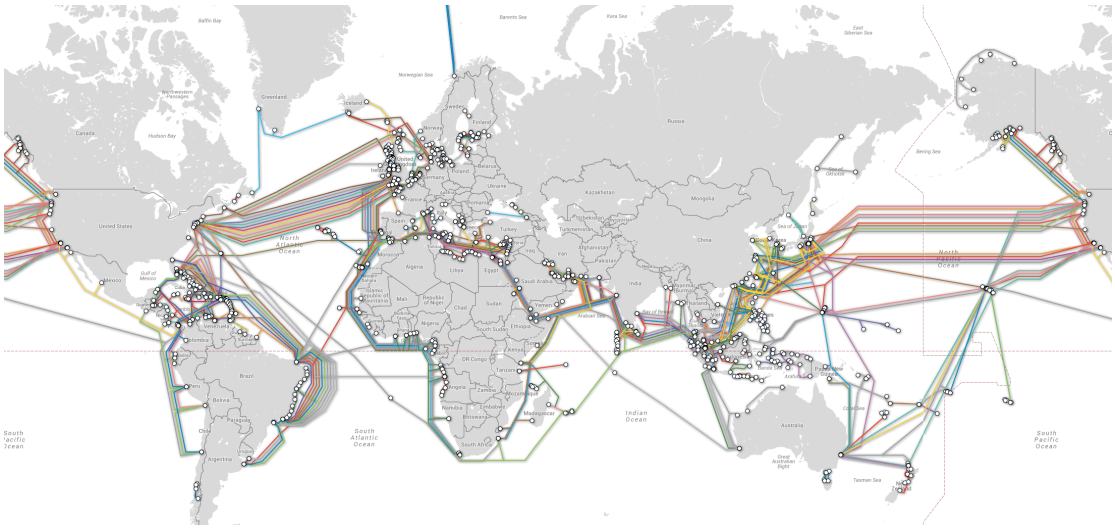
Some of subsea cable show the design changes depending on the depth. The nearer to the surface you get, the more protection—armour—you need to withstand potential disturbances from shipping. Trenches are dug and cables buried in shallow waters coming up onto shore.

At greater depths in the sea which is almost three miles from the surface, there's no need for armour cables, as merchant shipping poses no threat at all to cables on the seabed.

As of 2006, overseas satellite links accounted for only 1 percent of international traffic, while the remainder was carried by undersea cable.[1] The reliability of submarine cables is high, especially when (as noted above) multiple paths are available in the event of a cable break. Also, the total carrying capacity of submarine cables is in the terabits per second, while satellites typically offer only 1000 megabits per second and display higher latency. However, a typical multi-terabit, transoceanic submarine cable system costs several hundred million dollars to construct.(2)

As a result of these cables' cost and usefulness, they are highly valued not only by the corporations building and operating them for profit, but also by national governments.

There has been an increasing tendency in recent years to expand submarine cable capacity for example, between 1998 and 2003, approximately 70% of undersea fiber-optic cable was laid in the Pacific. This is in part a response to the emerging significance of Asian markets in the global economy.[3]

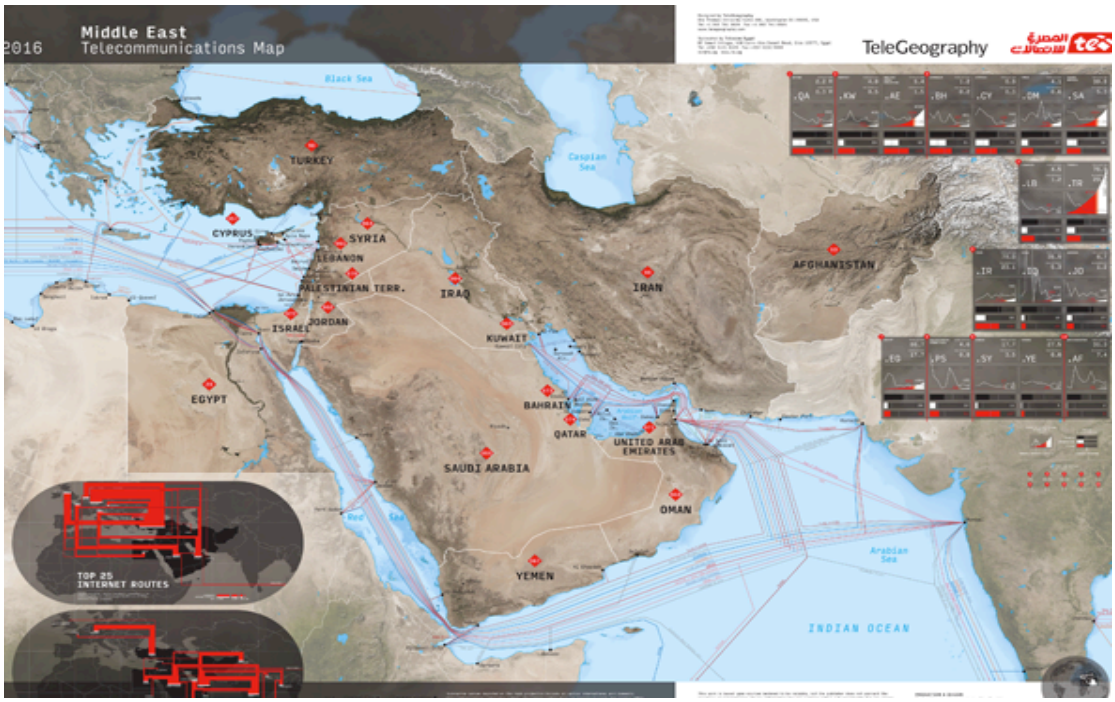


Most government officials and the public have no knowledge about the appearance, scale, or components of undersea cables.
Most assume that undersea cables resemble pipelines used to transport oil and gas. Unarmored undersea cables have the diameter of 17-21 mm (roughly that of a garden hose) and consist mostly of materials designed to protect the optical fibres at the core or conduct power.

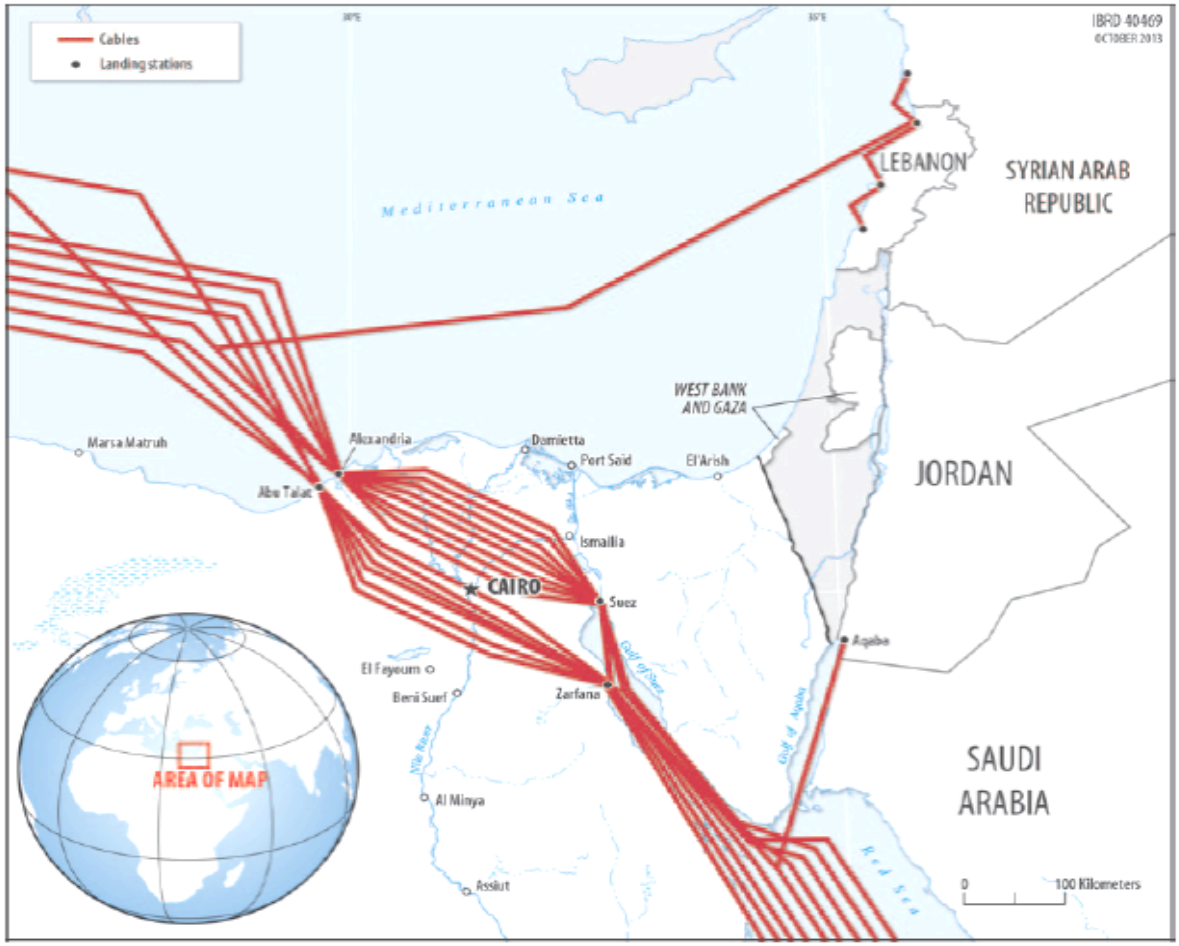
2.0 Regional Submarines Cables

Most countries in the Middle East and North Africa (MENA) are in the emerging and developing phases, and broadband markets are expected to grow significantly in the near future given the strong and increasing demand for broadband service. According to Cisco,1 from 2012 to 2017, Internet traffic in the Middle East and Africa (excluding South Africa) is expected to grow at

the highest rate when compared with other regions, a compound annual growth rate of 39 percent. Moreover, peak Internet traffic will grow 5.5-fold from 2012 to 2017, a compound annual growth rate of 41 percent.. This growing traffic has direct implications in terms of the capacity requirements for the underlying broadband infrastructure. All three network components of this broadband infrastructure, that is, international (and regional) connectivity, national backbone, and access networks, have to be in place and optimally used to meet increasing demand in the most cost-effective way).



Middle East Submarine Cables



Egypt Transit Submarine Cables

2.1 Submarine Networks

Since 2010, IMEWE, Europe-India Gateway, Hawk, TE North, TGN-Gulf, Gulf Bridge, Jonah, and Loukkos have all boosted the amount of submarine cable capacity serving North African and Middle Eastern countries

February 2012, Tata Communications' TGN-Gulf cable links Saudi Arabia, Bahrain, Qatar, Oman, Saudi Arabia, and the U.A.E. to a branching unit on the SEACOM/TGN-Eurasia cable

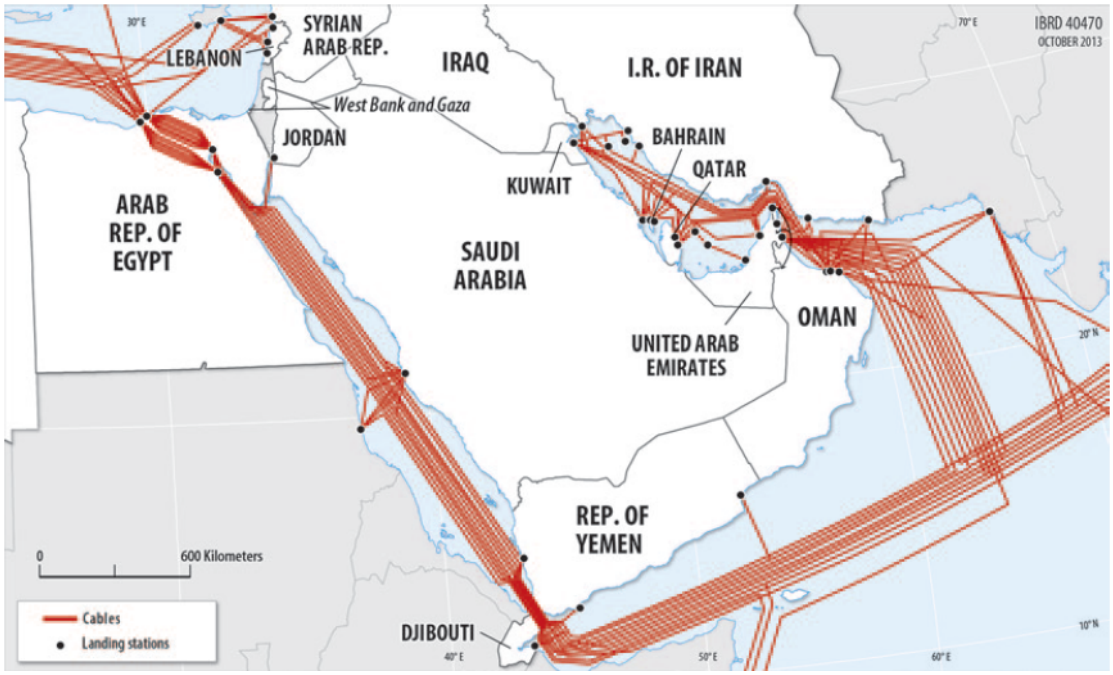
Early 2012, Gulf Bridge International extended a leg of its cable to Al-Faw, Iraq. This extension represents Iraq's first direct connection to an international submarine cable.

Juy 2012 Reliance Globalcom landed the older Falcon cable in Al-Faw – Basra.

SeaMeWe-5 cable - essentially spanning similar ground as SeaMeWe-3 and SeaMeWe-4, from Southeast Asia to the Middle East and Western Europe

Bay of Bengal Gateway (BBG) cable would avoid Egypt. BBG would run from Malaysia to Oman via Sri Lanka and India and connect in Oman to the terrestrial EPEG system. EPEG would then provide a diverse route to Europe,

Regional Submarine Cable Map



Country	Number of cables
UAE	13
Saudia Arabia	12
Oman	9
Iran	6
Kuwait	4
Syria	3
Iraq	2

UAE: SMW-3, SMW-4, IMEWE, TW1, Jask-Fujairah, TGN-GC, FOG, FEA, Das-Halul, TEAMS to Keny, GBI, EIG, FALCON.

Saudia Arabia: SMW-3, SMW-4, IMEWE, EIG, Orascom-MENA, SAS-1, SAS-2, FEA; GBI, FALCON; TGN-EA; TGN-GC;

Oman: SMW-3, EIG, GBI, Pishgaman, EPEG, TW1, FALCON, Orascom-MENA; TGN-GC.

Iran: FALCON, GBI, Kuwait-Iran, Iran-UAE (Jask-Fujairah), EPEG, Pishgaman cable.

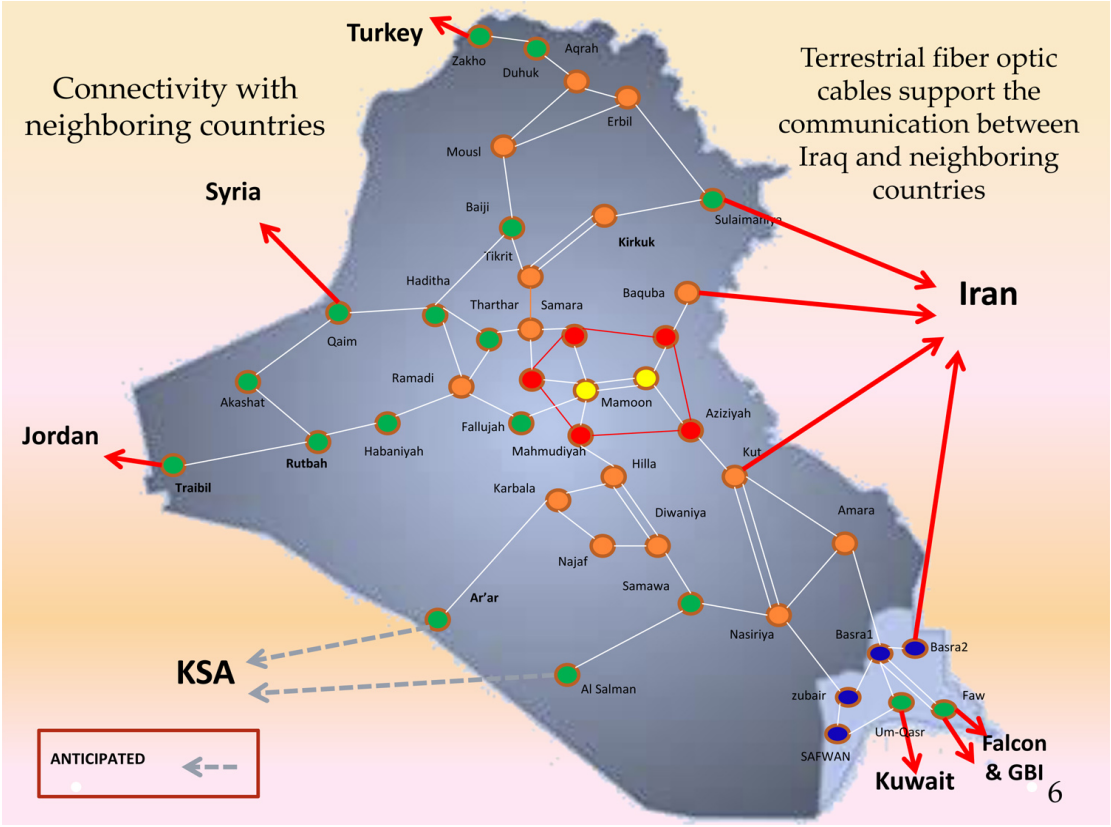
Kuwait: FOG, FALCON, GBI, Kuwait-Iran;

Syria: Ugarit to Cyprus; Berytar to Lebanon; Aletar to Egypt;

Iraq: GBI, Falcon


Bandar Abbas
Tata TGN-Gulf
FLAG FALCON
GBI
FOG
Al Khobar
Al Hidd
Manama
AIN
Al Daayen
Halul Is.
Arabian Gulf
Khasab
Diba
Jask
Chabahar
974
Doha
Das Is.
Dubai
QATAR-UAE
Fujairah
971
QATAR
Sitaa
Abu Dhabi
UNITED ARAB EMIRATES
OMRAN/ EPEG
POI
EIG
SRG-
Al Seeb
Muscat
Barka
Al Bustan

3.0 Iraq backbone and Submarines Cables



ITPC build a total of 5000Km fiber cable on a nationwide coverage, over 2200Km fiber cable repaired since 2003 and over 3000Km fiber cable built since 2003 and still building i.e. under construction about 1500Km.

Full meshed fiber connecting with main cities with at least 4 route directions in the main cities like Baghdad, Basrah and Mosal and at least 3 route directions in smaller cities like Karbala, Kut and Najaf.

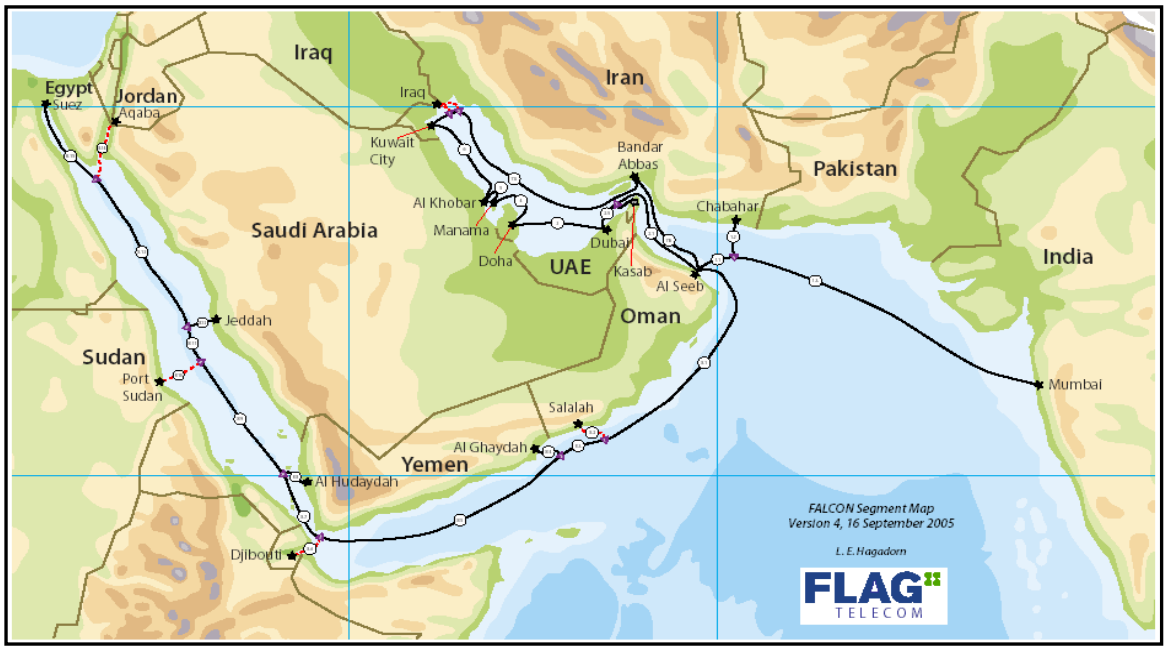
ITPC need to focusing on building a stable & reliable, future-oriented network to provide End to End domestic leased line bandwidth and international gateway (IGW) with perfect SLA and QoS.

Gulf Bridge International ITPC purchase 144 STM1.

The Gulf Ring cable network designed to be highly resilient, employing double landings at the major terminals of Qatar and Fujairah (UAE) with branched landings in Iran, Iraq, Kuwait, Saudi Arabia and Bahrain. The Gulf Ring cable 'self-healing'– i.e. if the cable is cut, it will continue to work by re-routing the traffic in the other direction round the ring.

The GBI Cable, provide direct connectivity to Europe. This connection, the West Route passing through the Red Sea to Egypt to Europe, landing at Sicily in Italy with onward connection to Milan. This will allow connectivity to be provided direct from the Gulf to major European telecoms hubs (e.g. in Milan) where a full range of wholesale voice and data products can be purchased. As part of the MENA transaction, GBI plans to acquire a direct connection from Fujairah to Oman over GBICS and the MENA Cable.

GBI also include a link to India, the East Route, which built branching off the MENA Cable via a submerged at sea interface off the coast of Oman. This connection enable GBI to provide its customers with wholesale connectivity between the Gulf and India.



Falcon project Iraq purchased 7 x STM64 as a capacity with the landing station in Basra.

Falcon constructed with high-capacity (64 wavelengths per fibre pair) Submarine Cable System connecting Mumbai, India to Suez, Egypt and also providing the first self-healing loop in the Arabian Gulf region. The Network provide multiple landings throughout the Gulf region and the Red Sea. FALCON enable seamless interconnectivity with India's domestic networks, including Reliance's 80,000 km high-speed domestic infrastructure, as well as the FLAG Telecom's Global Network.

The FALCON Cable System is operated by the FLAG Global Network Operations Centre (GNOC**).**

FALCON provides submarine connections between all the landings allowing connectivity to FLAG's other Cable Systems (Flag Europe Asia, Flag Atlantic-1, Flag North Asian Loop) and global network.

4.0 Conclusions

In recent years there has been an increased effort to expand the submarine cable network to serve the developing world.

One driver for this development was that the capacity of cable systems had become so large that it was not possible to completely back-up a cable system with satellite capacity, so it became necessary to provide sufficient terrestrial back-up capability.

Operators may have the operational requirement to construct another Submarine cable Landing station and then a ring network interconnecting these two to connect a Landing Station with a data centre located elsewhere.

As a result of these important submarine cables cost and usefulness, they are highly valued not only by the corporations and private sector as well as the GSM and ISP operators for profit, but also by national governments.

5.0 References

1. http://europe.newsweek.com/undersea-cables-transport-99-percent-international-communications-319072?rm=eu

2. Gardiner, Bryan (2008-02-25). "Google's Submarine Cable Plans Get Official" (PDF). *Wired*.

3. Lindstrom, A. (1999, January 1). Taming the terrors of the deep. America's Network, 103(1), 5-16.