Is the Maintenance Market Economically Viable for Service Providers over the Long-Term?

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1. SYNOPSIS

The Maintenance Market for subsea telecommunications cables exists for a single purpose: To ensure that when cables and related equipment fail, they can be repaired and returned to service in a timely and effective manner. In recent years, largely due to the reshuffling of the telecommunications industry itself, the economics of the Maintenance Market no longer reflect the importance and value this service provides. Given the extreme downward pressure on price and the increase in vessel costs, maintenance service providers are understandably questioning the future viability of the market itself.

Assuming subsea telecommunications maintenance services continue to be seen as playing a critical role in the operations of communications networks, the Industry is in need of an economic maintenance model that gives service providers and ship owners an impetus to invest in the ships, equipment and intensive skills training needed to support cable owners with the levels of service they expect.

2. SUMMARY

For well over a century, Global Marine Systems, in its various forms, has been committed to providing high level of service to our maintenance customers. This is a commitment which remains a priority for our business today. Advances in both technology and the market itself have both improved the quality and redundancy of subsea telecommunications networks and put pressure on budgets at all levels. While the increasing resilience of subsea cable systems, increased route kilometers and the increasing abundance of mesh technologies has improved overall network performance significantly, cable owners still want high levels of maintenance ship availability in the event that a repair is needed. This is despite the fact that for many of the world's Tier 1 and Tier 2 carrier's networks, a single cable outage, even undersea, has little or no impact on network quality or the end customer experience.

In many ways the maintenance operation has not evolved to reflect the sophistication of modern networks but we have witnessed significant changes in the market.

The move from incumbent-owned cable ships to a model closer to a true supplier-customer relationship has resulted in supply-chain and other efficiencies driving lower costs. However these savings have often been offset by factors such as advances in IP technology which have eliminated the value of legacy voice-only networks. The increase of global

competition along with digital networking capabilities has created market pressures in telecommunications which have continued unabated, driving wholesale and retail return down for Telcos in general, forcing them to forever invest in additional value-added services to stay ahead of the competition. This market pressure has resulted in pressure for a continued decline in both real and absolute terms, in the amount paid for the maintenance vessels.

For better or worse, this dynamic has moved the maintenance industry to a point where the economics of the business may no longer represent long-term financial sense.

Consider vessels: Ships in the cable market are getting old; new ships have become very expensive. Due to limitations on current returns available in maintenance, it is not currently viable to invest in the building of new maintenance ships. While there is no correlation between a ships age and its ability to do repairs, like all equipment, ships get to a point where they can no longer be economically maintained.

The age profile of the current maintenance fleet is a ticking bomb. With 1/3 of fleet beyond its design life and the replacement cost escalating the industry must face up to supply-side issues.

Are cable owners aware that maintenance is increasingly carried out by older ships from a diminishing pool of available resource?

Is this something which rises to some level of priority within their planning cycle, or is it simply a case of letting the traditional maintenance market deteriorate to such a point that either a replacement can be found or it is re-built at an unnecessarily high cost?

Will free market economics or the availability of vessels from other markets resolve the issues?

What are the alternatives?

In short, the industry needs to recognize that subsea maintenance is a necessary priority and at the same time develop an economic model that gives ship owners a reason to invest to stay in the business.

Global Marine Systems is looking at various options to provide vessels including life extension and buying older vessels from the Oil & Gas and other markets as well as reviewing ways to get more from the existing ships. However we believe that scope exists to create a more effective market structure and as always, we welcome the opportunity to work across the industry to support the design of a comprehensive maintenance service model.

3. RECENT MARKET EVOLUTION

Considering that some of the basics of cable repair go back to the first days of Global Marine 160 years ago, the achievement of the cable owners in managing the marine maintenance supply chain over the last 10 to 15 years have been staggering.

The price paid for a cable ship on standby has often dropped by more than 40% in real terms and the performance of the vessels in key, closely monitored processes have been improved dramatically with jointing times from GMSL, for example, speeding up by 35% since 2000 with an overall improvement in quality and the number of right first-time joints (up by 18% to >90%) .

These improvements have been achieved by suppliers with huge investment in fixed assets, long pay back periods and with no single identifiable step change in technology to provide the impetus to drive

the performance improvements. These improvements in price and performance have been primarily as a result of competition and the creation of independent service providers, (i.e. those not owned by telcos,) which has created a customer-supplier relationship and reduced the desire of telcos to tolerate inefficiencies in support of a marine subsidiary. As in other industries, the removal of subsidy and the creation of a true market drives improvements.

Cable owners have been increasingly willing to set performance goals through KPIs and other measures, and to introduce financial penalties for non-performance. Pricing competition over the last 7 or 8 years has been particularly aggressive as a result of the over-supply of cable ships created by the TMT boom-bust. Ships originally built to install, or for dedicated private maintenance of large systems have been used to offer maintenance (often in competition to a zone) at low price in anticipation of an improving market in installation.

So, for cable owners choice has improved, service quality has improved and the price paid for a ship has reduced significantly. This reduction in vessel cost has not always resulted in a similar reduction in the cost per km in all regions as more ships are present with a private model competing with a zone (i.e. customers could be paying less per km but now have choice).

Customers have realized this benefit due largely to a one time oversupply of assets due to the over-supply created around the turn of this century, an oversupply which is coming to the end of its cycle.

4. CHALLENGES

What has been less noticeable is that hand-in-hand with these improvements in price and quality, the vessel age profile has increased dramatically and the transition to non-telco ship operators has stopped. Furthermore, during the downturn, any vessel which could be used effectively in alternative markets was transferred resulting in the numbers of ships in the telecom market dropping from more than 120 to less than 50 (refer to Appendix 1).

This year more than 1/3rd of the gobal cable ship fleet will be over 25 years with the ships dedicated to maintenance making up the majority of the older ships (approximately 14 out of the 19 ships over 20 years are in maintenance).

With 160 years of experience and a telecom cable ship fleet that once exceeded 30 ships, Global Marine is happy to advise that there is no significant correlation between vessel age and its performance during a repair. However, twenty five years is significant and, like all aging infrastructure nearing the end of its design life the costs to maintain the asset no longer justify operating the asset. Specifically in the case of these vessels, there comes a point every five years (when new certificates of seaworthiness are issued) when a decision on major capital expenditure must be made or the vessel is classed as being uneconomic or too technically challenging to re-certify. In general, extending from 25 to 30 years is often possible if the vessel has been well maintained throughout its life but subsequent extensions to 35 years and beyond become increasingly difficult and economically unfeasible.

Looking at the number of cable ships remaining in the world fleet and assuming typical retirement age at 30 years, we predict that market forces, particularly the use of old, heavily depreciated tonnage, will allow prices to be squeezed further and held at these levels for perhaps 3 or even 5 years. Indeed, this squeeze is already evident in some current contract renewal discussions.

However, given that the current maintenance market environment is not conducive to investment, independent operators are unlikely to take the risk further depleting the fleet available to do the necessary work in the future.

Looking further out, it could be argued that those same market forces which have driven down prices and forced service improvements will ultimately reverse themselves and move towards an increase in market price for a vessel due to supply-demand which will encourage new investment. This view has two contrary issues. Firstly, when a ship leaves the market and is not replaced, the experienced marine staff leave and cannot be replaced in the same 2-year lead time in which a ship can. Secondly, based on a comparison today, the standing charge for a purpose built maintenance ship would need to increase by 100% in order to offer the same returns that are achievable by building a vessel for the oil and gas or offshore power markets. Such a shift is not something the market could tolerate.

The huge build program that has occurred in support of oil and gas could result in older vessels becoming available at a more realistic price and we are happy to meet the challenges of converting these having done so in the past. However, this would need an overshoot on the vessel supply side in this market and would not address the skills gap associated with the loss of people and key skills. This still poses the question as to whether the industry is happy to see maintenance provided by ships that are too old or unsuited for oil and gas or installation. If an environment is not in place for the independents to invest, it will fall to the telco-owned ship operators to invest in new ships. Many of these telcos held the incumbent position in their home markets when they decided to invest in cable ships. With continued de-regulation and increased competition in their core market, are telcos likely to divert capital to an investment in assets that might be considered non-core and which have life-cycles and payback periods well beyond much of their network infrastructure? It is interesting to note that the countries in which de-regulation first occurred were also the first to see the incumbent telcos divest of their marine assets (i.e. AT&T, BT and Cable & Wireless).

As an industry we still have the challenge to find ways to get more from the existing fleet through efficiency improvements and to look at the global maintenance footprint and see how it needs to develop in order to serve new cables in previously under-served regions.

Theoretically, better route engineering and installation should result in a lower fault rates. However, the preponderance of faults globally during 2009 would indicate that we cannot rely on fault incidence giving us cause to reduce vessel coverage. The ability to be able to respond to multiple simultaneous breaks, resulting from natural disasters or human misadventure remains.

5. THE FUTURE

Looking beyond the next SubOptic and assuming a continuation in the market dynamics of the last 10 years, we may find that an essential element in our network risk management has become significantly more expensive without an evolution in service. This is an unnecessary, but increasingly probable result. As operators, when asked to step up, we may wonder where the ships have gone. On a “cost per km” basis, the price of maintenance can continue to reduce if the cable owners find a model to share ships more effectively. A region in which resources are pooled and ships are dedicated to maintenance is likely to benefit with lower prices “per km” for everyone and more importantly a greater capability to react when multiple failures

occur in one area risking the performance of multiple networks.

If the 10 years of performance improvements are to continue, the ship operators, particularly the independents, need to have confidence of a reasonable long-term return in order to invest in new, or at least n*ewer* ships and to continue to invest in the levels of training and technology development that are required.

We can continue to improve the speed at which cables are repaired and reduce the variable costs associated with the repair operation by reducing the days required. Improved records management using systems such as GeoCable serves to ensure that cable location is tracked accurately as the as-laid positions change following repairs. In addition once on site, there remain opportunities to improve cable recovery operations through better application of technology.

The Universal Joint represents a great example of what the industry can achieve through a collaborative and forward looking approach. Whilst there have been considerable improvements in jointing times in recent years, we also believe that scope exists to significantly improve the Universal Joint and it's variants through the application of more modern technologies. In addition we are continuing to move forward in developing technologies that provide customers better information in real-time during the repair and for cable storage operations.

The need to provide maintenance coverage to regions previously under-served presents a challenge as well as an opportunity to share ships amongst a wider customer base for example, providing better coverage to new cables in West and East Africa or to use the technical challenge of maintaining cables in difficult environments such as areas of extensive shallow water or even in the polar regions of the globe.

The sharing of a cable ship by multiple cable owners can happen through a zone arrangement (in which price of the ship is fixed but cost per km can change) or private (in which cable owners pay a fixed price for their cable). Global Marine has provided maintenance under both models and we do not take lightly the often polarized views that customers hold with respect to the benefits of each and the reluctance to move towards a middle ground.

In our view, a ship-sharing arrangement with a long-term commitment for the ship operator provides an environment conducive to investment, risk-sharing and continued goal-setting for performance improvements. However, it is clear that in order to attract the volume of cables needed, that the solution needs to be flexible, offer multiple levels of service and having a charging mechanism that results in owners who have more repairs absorbing a bigger proportion of the fixed cost (standing charge) of the ship. Ship operators should be willing to assist in the evolution of the service offering and be prepared to share the risk and benefits of its success.

APPENDIX 1 – *ACTIVE* CABLESHIPS - VESSEL AGE PROFILE 2010

Our research has identified a total of 115 vessels with 15 more suitable DP ships being built which have the capability to be used. Of these vessels, those listed below have undertaken some telecom cable activity in the last 5 years and are known to have retained cable installation/ maintenance equipment onboard. Of the remainder, many have undergone significant conversion work mainly to undertake oil and gas related activities and it is considered that significant work would need to be undertaken for these ships to return to the telecom cable market.

	NAME	OPERATOR	CABLE LIFT	ACTIVITY	BUILT	Age 2010
1	Tyco Decisive	Tyco	5,466	Maintenance	2003	7
2	Tyco Durable	Tyco	5,466	Inst/Maintenance	2002	8
3	Tyco Dependable	Tyco	5,466	Maintenance	2002	8
4	Tyco Resolute	Tyco	5,466	Maintenance	2002	8
5	Fu Hai	SBSS	5,500	Inst/Maintenance	2002	8
6	Asean Explorer	Asean Cableship Pte	5,500	Maintenance	2002	8
7	Ile de Batz	Alcatel Lucent	5,000	Installation	2002	8
8	Ile de Brehat	Alcatel Lucent	5,001	Installation	2002	8
9	Ile de Seine	Alcatel Lucent	5,000	Maintenance	2002	8
10	Tycom Reliance	Tyco	5,466	Inst/Maintenance	2001	9
11	Tyco Responder	Tyco	5,466	Maintenance	2001	9
12	Rene Descartes	France Telecom Marine	5,000	Installation	2001	9
13	Team Oman (note 1)	Global Marine Systems	5,000	Installation	1999	11
14	Subaru	NTT W E Marine	6,280	Maintenance	1999	11
15	Segero	KTS	3,900	Inst/Maintenance	1998	12
16	Cable Retriever	Global Marine Systems	2,475	Maintenance	1997	13
17	Teliri	Elettra Tlc Spa	2,500	Installation	1996	14
18	Cable Innovator	Global Marine Systems	7,500	Installation	1995	15
19	Wave Sentinel	Global Marine Systems	2,720	Maintenance	1995	15
20	Asean Restorer	Asean Cableship Pte	2,100	Maintenance	1994	16
21	KDD Pacific Link	KDD	4,500	Installation	1993	17
22	Teneo	Tyco	1,095	Installation	1992	18
23	KDD Ocean Link	KDD	2,300	Maintenance	1992	18
	NAME	**OPERATOR**	**CABLE LIFT**	**ACTIVITY**	**BUILT**	**Age**
24	Sovereign	Global Marine Systems	6,300	Maintenance	1991	19
25	Global Sentinel	Tyco	6,098	Maintenance	1990	20
26	Niwa	E Marine	6,098	Inst/Maintenance	1990	20
27	Etisalat	E Marine	760	Installation	1990	20

28	Interceptor	International Telecom	2,000	Maintenance	1988	22
29	Intrepid	International Telecom	1,700	Installation	1988	22
30	Fjorkabel(note 2)	Seaworks	184	Maintenance	1985	25
31	Lodbrog	Alcatel Lucent	5,040	Maintenance	1985	25
32	Pacific Guardian	Global Marine Systems	1,700	Maintenance	1984	26
33	Vega	NTT W E Marine	250	Maintenance	1983	27
34	Wave Mercury	Global Marine Systems	2,300	Installation	1983	27
35	Raymond Croze	France Telecom Marine	1,474	Maintenance	1983	27
36	Leon Thevenin	France Telecom Marine	1,304	Maintenance	1983	27
37	Ile de Re	Alcatel Lucent	5,040	Maintenance	1983	27
38	Wave Venture	Global Marine Systems	2,300	Maintenance	1982	28
39	Peter Faber	Alcatel Lucent	600	Installation	1982	28
40	Telepaati	Primatel	350	Maintenance	1978	32
41	Chamarel	France Telecom Marine	6,000	Maintenance	1974	36
42	Umm Al Anber	E Marine	4,200	Installation	1972	38
43	Nordkabel (note 3)	Seaworks	120	Maintenance	1969	41
44	Certamen	Elettra Tlc Spa	1,200	Maintenance	1965	45

Note 1: vessel on charter to GMSL undertaking HV power cable installation. Has not worked in telecom installation for several but is capable of coastal installation.
Note 2 & 3: these small vessels remain in the market but we have not been able to ascertain the activities undertaken.