

After the Flood: the View from Mount Ararat

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"Don Quixote"

At the point when Noah's ark actually touched the peak of Ararat, it must have been a pretty scary moment. Were the waters really subsiding? And what would he see when they did? I am sure his feelings must have been like ours today. Have we landed on terra firma? Without it we have nowhere to land cables!

In this paper I will deal with two basic questions. When will the recovery come? And what will the world look like when it does?

The scene today is one of chaos and devastation. There is overall a huge surplus of submarine bandwidth, carriers are losing money because the bandwidth they have is under-utilised and the market price is well below cost. As a result many well-known names are in bankruptcy or Chapter 11. Thus they have little need for investment, and even when they have they do not have the ability to finance it. As a result the factories of the submarine cable industry are silent and a large proportion of the marine assets are laid up.

In effect, our food chain is empty. Our recovery will only come when that chain has filled up again, and we need to examine all the stages to see what conditions have to be met along its length before our factories are busy again and ships are laying new cables as well as maintaining the existing ones. We must therefore examine each stage of our food chain in turn, decide what conditions must be met before fill is achieved and then try to put a time scale on this.

The sequence is driven by demand for bandwidth. This must first grow to fill up the surplus capacity. In the case of submarine cables this is a two-stage process. The use of DWDM from 1997 onwards has resulted in systems being installed at well below their full potential, so that filling up the currently lit capacity will trigger a demand to light up the full economic potential of systems. It is only when that has been achieved that new systems will be needed. The next requirement is for carriers willing and able to invest in new systems to meet that demand. The key word here is "able". Even today there are routes where a clear capacity shortfall exists. But where are the carriers with the cash to buy systems or the balance sheets that will support borrowings? A (very) few carriers have the ability to invest, but with the potential of a lot of distressed assets looking for buyers, and fire sales everywhere those carriers with spare resources are not going to commit themselves to major new submarine investments. In any case partners are needed for major systems and one willing carrier is not enough. So this stage of the food chain will only be filled when either carriers are generating cash and have cleaned up their balance sheets or the financial community is once again willing to invest in communications infrastructure.

At the first stage of the chain the omens are good. Underneath the storms, Internet traffic continues to grow at rates estimated at between 75% and 100% per annum. This might seem a paradox: with this growth rate why do we have a problem? Simply because the business models that were behind the expansion of the late 90's assumed growth rates in the hundreds of per cent per annum, and the market shares on which the individual investments were based came to well over 100% of even that market. So what will be the growth rate in the future? Three main factors have to be considered - the state of the global economy, the speed with which the market will saturate and the price elasticity of demand.

The general outlook for the global economy is not good. The American economy has been sustained by consumer expenditure, and that has shown signs of weakness recently. Most of the major European economies are showing signs of weakness, with the major eurozone economies

unable to use fiscal strategies to inflate their economies without breaching the Stability and Growth Pact built into the Maastricht Treaty and the Euro. In Asia there are some strong economies, but Japan remains a basket case. The outlook overall is uncertain: however it will require a major global recession to make a significant dent in the growth of traffic. The market to provide Internet services is highly competitive, and in a recession the providers will be competing hard on price to fill their existing capacity.

With or without a recession, we are seeing, and will continue to see the roll out of new services. The price of broadband access is dropping in many markets, and in addition the premium for broadband over a 56k modem is narrowing even faster. Behind this is the arrival of 3G mobile that will (hopefully) provide a significant stimulus to Internet use. And these come on top of relatively low penetration of low speed access in many countries.

A major factor will be the price elasticity of demand. Underlying the present situation is the fact that prices in general are below cost, as carriers and service providers struggle to fill their surplus capacity. The consequence of this is that new investment cannot be justified at current price levels, above all in most of the long haul routes. Thus it is inevitable that prices will have to rise before any new investment can be justified, and this will only happen when the surplus capacity has disappeared. The issue is then the effect on demand growth of those inevitable price increases. In fact the impact of bandwidth price increases over cables is likely to be small, as the full cost of a circuit is small in relation to the total cost of a connection. A comparison with low cost airline flights is interesting. On short flights in Europe, the airport fees can easily come to more than half the price of the actual flight. When you examine the total cost door to door, the actual flight can be less than 25% of the total journey cost. Thus a significant percentage increase in the flight price becomes small when set against the total cost. The same is true for bandwidth over submarine cables. There may be an issue with other elements of the cost of a connection, but there is still the underlying truth that a very high proportion of the cost of a telecommunications connection is fixed.

Taking all these factors into consideration, I believe we are reasonably safe in assuming that traffic will still continue to grow at annual rates of between 75% and 100% per annum in the next few years. This will fill up most of the existing lit capacity over the next two to three years. However for the market to restart requires there to be carriers who are in a position to invest and in the present climate this means also that the financial community is willing to invest new money into the industry. At this stage I will limit my comments to the general shape of the industry at the moment and see how it might evolve to a point where investment in new systems becomes likely. A look at the likely structure will be made in the second part of the paper. What is clear is that there will be a major restructuring of the carrier industry, and it may well be that the companies that have succeeded in avoiding failure find themselves at a disadvantage when things improve. The assets of the failed carriers are still in the water and likely to be available. There are four possible fates for these assets: their owners may succeed in restructuring their balance sheets via some form of debt/equity swap, in which case they will be highly competitive. This has already happened to Pangea and most recently Williams (now WilTel). A second fate will be for a vulture fund or a financially strong carrier to buy up the distressed assets and sell them off to the highest bidders - possibly even holding some of them for a year or two while the market recovers. It will be interesting to see what the new owners of Global Crossing do with their newly acquired assets. A third will be for individual systems to be abandoned. If a vulture fund can make a profit by selling off the major assets it will have no qualms about abandoning an uncompetitive system, especially on an oversubscribed route. We must not forget that for a system to be kept in operation calls for a significant level of O&M cost. The fourth (and rarest) will be for an injection of capital from an investor prepared to gamble on the recovery. Level(3) has already had a \$500m injection from Warren Buffet - well known for staying out of high tech till now, but also not noted for throwing his or his investors money away.

My view is that by the time that the existing capacity has been filled up, and bandwidth prices have come back to an economic level, the burden of debt will have disappeared. There will be a

much changed carrier industry, with cleaned up balance sheets ready and able to make major investments again. This will not be an overnight process. What we will see is a gradual recovery led by upgrades and small regional systems. There are already pinch points on some routes, and some routes that are already running out of capacity. This will start at a low level very soon, possibly even this year. The build up will however be slow, and full recovery to a (new) "normal" level will not be seen till 2005.

The next question is therefore what constitutes a "normal" level, and what will the landscape look like? As I have already indicated the structure of the market will be very different from the market which had developed before the flood. The process of privatisation and deregulation which is now more or less complete in the West will continue globally, and as a result we can expect to see one or two carriers with a true global reach. These will be backed up by a number of strong regional carriers. Both types of carrier will handle intra-regional traffic. Inter-regional traffic will be carried by the global carriers and by inter-regional alliances set up between the various regional carriers. Within this structure the acquisition of submarine cables will generally be on the basis of small consortia operating through special purpose vehicles. It seems unlikely that there will be the appetite for major systems built by carriers' carriers with little or no presales, nor will carriers be too enthusiastic about buying capacity in systems that could finish up in a fire sale. The model for the next few years is likely to be a consortium of three or four global and/or regional carriers, which provides capacity for them and sells or leases to smaller carriers, normally on a city to city basis. One would envisage that the smallest unit of investment would be a wavelength, with anything less being handled by distributors.

The structure of the supply industry presents a more intriguing prospect. The first point to recognise about the industry is that with DWDM the breakdown of the cost of a fully equipped system has already shifted dramatically towards terrestrial equipment. The first transoceanic optical systems had 10% of their costs represented by terrestrial plant and services and 90% by the submerged plant. Now the figure for a fully equipped system is less than 40% and falling. And for short and medium haul systems the percentages are even less. Add to that the potential to move the system termination well inland and the submerged plant starts to look like a highly specialised but nevertheless small element in the system.

To speculate how the supply industry will look, we have to start with the present structure, and recognise the heterogeneous nature of the system supply houses. ASN was fully integrated submarine systems suppliers with its own cable manufacture and latterly its own marine assets. But Alcatel is primarily a telecomms equipment supplier and has already started to integrate ASN into the main structure of the business. KDDI-SCS was basically a system designer and integrator, buying in its hardware from outside. NEC and Fujitsu are, like Alcatel, suppliers of terrestrial equipment who buy in cable and marine services. Tyco, post the acquisition of AT&T-SSI, was an integrated supplier, but also the subsidiary of an industrial conglomerate with no particular bias towards telecomms. Hence its attempt to become a carrier' carrier, the action of a conglomerate seeking investment opportunities rather than the action of an equipment/system supplier. The latter would in general not try to upset its customers by going into competition with them.

A further key element in the future structure of the submarine cable industry is the short-term evolution. With the large amount of unlit capacity on the seabed, the major investment in submarine cable systems in the immediate future will be in the upgrade of existing systems. Recovery in the submerged plant side of the business will have to wait until the existing capacity has been more or less fully lit. This gives a clear advantage to those suppliers who are basically telecomm equipment suppliers, while the worst placed will be suppliers such as Tyco with no other telecomm equipment interests, or independent cable suppliers such as OCC.

The combination of the decline in the proportion of system cost represented by submerged plant and the tendency of systems to become city to city rather than beach to beach will lead to the evolution of a submerged plant subset of the telecomms industry. All the skills required for the

submerged element of a cable system will tend to concentrate in specialist companies or in specialist departments of the major equipment suppliers. The complex fibre skills already called for in current DWDM systems, and even more critical when 40G arrives means that cable cannot be a commodity item, and in turn the marine companies will also need transmission skills, especially when repairs are made. We can already see Alcatel evolving towards this model: they already have all the elements in house. One could envisage groupings of cable manufacture and marine assets and skills coalescing, with an ultimate destiny of acquisition by the major equipment suppliers that survive through the present turmoil. They would then become specialist departments of those suppliers. I do not propose to speculate on which of the major equipment suppliers will survive to make those acquisitions. A major rationalisation of the supply industry has to take place first. My scenario is several years down the road.