

# THE YELLOW CABLE SYSTEM- DEVELOPMENT, IMPLEMENTATION AND POST PROJECT EXPERIENCE

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**Abstract:** Level 3 decided to lay the Yellow transatlantic cable system in May 1999, at a time when demand was heavily outstripping supply. The initial cost was relatively high for a single company, therefore the decision was taken to defray the large upfront project cost by entering into a strategic partnership. While reducing the upfront exposure, there was still a large cost to recover and in the years that followed, Level 3 was confronted with a rapidly deteriorating market. Level 3 had to adapt to the changing market conditions and the corresponding challenges, implementing a revised view of capital cost and approach to the market. This paper aims to discuss what value the transatlantic cable has really given to Level 3's network offering, in what is perhaps the most competitive transoceanic market in the world.

## 1 OVERVIEW OF THE MARKET IN 1999

In 1999 when Level 3 took the decision to lay the Yellow transatlantic cable system, the telecoms market was growing exponentially. Market demand for bandwidth was at an all-time high with significant revenues being reported by various telecoms operators. For these operators, an international network was the next obvious step to complete their service offering and at the time, demand for such services was outstripping supply.

The capital expenditure for submarine cables was initially very high and as such, a large infrastructure project required significant upfront investment. Due to the healthy market conditions at the time, and revenue expectations following strong demand, this outlay was however seen as both necessary and acceptable, with conditions indicating the initial investment could be recouped. Established telecoms firms were unable to supply the capacity to meet demand and were operating in a market that was changing faster than it ever had before. High margins remained constant and initial investments were being reclaimed with an acceptable profit.

The limited supply of bandwidth meant telecoms companies were operating in a sellers market. The required infrastructure couldn't be put in place fast enough and bandwidth was limited as capacity was already taken on cables before they were laid. To add to this, early fiber optic systems such as TAT 8 through TAT11, whilst being revolutionary at the time of construction, simply didn't have sufficient capacity to match demand.

Other cables in place at the time included AC1 and Gemini and the first cable to use a ring structure, TAT 12/13. To add to this, the construction and maintenance agreement for TAT14 had been signed, but the RFS date was not scheduled until late 2000. Other routes were also being planned by a variety of carriers, as more organisations sought to take advantage of the

boom and the opportunity to complete an international network.

In 1999, long term indefeasible rights of use (IRU) for STM1/OC3 was priced at approximately \$3 million and above. Coupled with this, the cost of ongoing operations and maintenance was in the region of \$150,000 per year per STM1/OC3. Because of up front sales of this capacity, cables were going into the water fully financed – with full recovery of capital seemingly a certainty. Operations and maintenance on non-consortium cables also provided an additional revenue stream. For a short while it seemed as if the market would continue to grow unabated.

## 2 LEVEL 3'S ATLANTIC PLAN – THE YELLOW CABLE SYSTEM

With the subsea cable market looking secure, Level 3 had the vision for the construction of the Yellow Cable System, seeking to replicate the silicon economics of its terrestrial builds. Following investment in TAT14, forecasts indicated additional capacity was required, and sooner than the TAT14 build would take to complete. Multiple SDH capacity was purchased on AC1 to provide the first link between Level 3's North American and European terrestrial builds. Level 3 forecasts also determined there was a need for a 10 Gigabit wave architecture to support the increase in demand across both continents, and it was with this in mind that the company decided to build Yellow.

This new cable system was to be the first 'building block', with further plans in the industry for more. Yellow was a unique step for telecoms operators at the time – breaking the mould from a protection perspective and returning to a point to point architecture. It was thought that this strategy would be followed by other point to point systems every 2-3 years, enabling the move to a mesh architecture in the future. Service protection would be from the city centre for all services.

### **3 MINIMISING UPFRONT INVESTMENT**

The initial cost was relatively high for a single company and it was important for Level 3 to reduce its exposure. At the beginning of the project a strategy was put in place to defray the large upfront cost. Whilst it seemed a logical next step to build Yellow, it was obvious that such measures were needed to spread the risk of this substantial investment.

Minimising investment exposure coupled with the fact that Level 3 did not require exclusive use of the entire cable, meant the company decided to search for a partner with similar requirements. The result was a co-construction agreement with Global Crossing. Operating in this environment meant Level 3 already recouped half the cost for Yellow before construction even began. Global Crossing marketed their half of the system as AC2. Additional capital was also raised when Level 3 signed an IRU on a fiber pair with Viatel. In this way approximately 70% of capital costs had already been recovered before the system even entered service.

### **4 2001 – 2004 – PRICING TO SURVIVE?**

When the technology bubble burst, the Atlantic market went into freefall and competitive prices as well as struggling customers eventually translated into overcapacity in the market. Prices tumbled to all time lows. Every telecoms operator became affected by the crash and market depression took a firm hold of the industry. The Internet bubble had well and truly burst with a significant and very adverse affect on the transatlantic market.

IRU sales were depleted because customers had little desire to become involved in a long term relationship with any transatlantic telecoms operator. The future of some operators became increasingly unsure and there was little interest by customers to enter into long term pricing commitments when the prices kept falling.

Level 3 had to adapt to the changing market conditions and the challenges that it presented. Perceptions of what constituted cost and recovery of cost had to be reformulated. A revised view of what constituted both sunk and incremental capital cost and the recovery of ongoing cost was taken, shaping a distinctive market approach.

Between 2001 and 2004 the answer lay in intelligent and flexible pricing in order to ensure as much traffic as possible was carried across the network, translating into an increase in revenues. Network development costs were written off across the entire carrier community and the value of the subsea networks were reduced to almost zero. The original TAT networks were not immune to this and most North American and European carriers followed suit in writing down the value of transatlantic investments.

Having arrived at the decision to write off the cost of the networks, and once operators had determined that the main aim was to recover incremental cost, the market determined the floor pricing. It is common knowledge that this subsequently became a period of ever reducing prices as competitors did battle to secure customers. This set the scene for what is perhaps the most competitive transoceanic telecoms market in the world today.

### **5 2005-2007 – A PERIOD OF RECOVERY**

Over the last two years, stabilisation has taken hold in the transatlantic market, as it has in the telecoms industry as a whole. Prices have remained firm, but still relatively low and the sector is now recording healthy usage, driven by a resurgent yet cautious growth in Internet Protocol (IP) based services. Customers demand continues to increase and they are increasingly route selective. Capacity constraints, or shortages of lit capacity, is now however an issue. Level 3 has taken steps to make sure it can offer a four route diverse networking solution to its customers across the Atlantic and has secured capacity to continue to meet customer demand into the future.

The transatlantic market is now at the stage where route augments are required in order to continue to meet a burgeoning demand driven by the growth of the Internet. This not only means augments to continue to support existing traffic, but also to meet demand for future capacity as usage grows and changes. To commit new capital however, telecoms operators must meet their corporate targets for capital returns. Further augments cannot take place without price rises to offset the costs. There will be no new cable builds in the Atlantic without drastic price rises. With a desire for increased capacity once again on the radar, prices are set to match this by rising for the first time in some years.

### **6 TAKING STOCK – WHO GAINED AND WHO LOST?**

On reflection, investors in the telecoms market between 2001 and 2004 lost in general, however market consolidation did allow for some genuinely good opportunities. TAT14 was broadly termed a success, recovering its investment. Gemini and AC1 owners also recovered their investment and made a profit.

Sometimes the 'value' is more subjective than objective and cannot be quantified in straight monetary terms. Success in today's market should be measured by capacity sold and margin above operating cost. If success is measured on traditional terms and by return on capital employed, then the transatlantic market has not met these criteria and perhaps won't for some time to come. Carriers have had to write off the value of their transatlantic investments and begin valuing their

networks in less traditional but generally accepted industry terms.

The reality is that many infrastructure developments, from railroads to pipelines, have required significant upfront investment on the basis of anticipated long term demand. Growing Internet usage rates are now demonstrating that this investment was required.

### 7 YELLOW IN 2007 – A STABILISED MARKET PLACE

In stricter metric terms, Level 3 had already recovered 70% of its Yellow transatlantic investment before the cable even hit the water. Although at continually decreasing rates, the margins made over incremental capital cost were initially high, and still meet acceptable benchmarks. As well as this, Yellow has been cash flow positive for its entire service history. In less quantifiable terms, the building of Yellow has put Level 3 in a strong position in what is now a re-emerging marketplace.

Level 3 built Yellow to ensure it maintained ownership of a vital link between its terrestrial networks. The company has control over its entire networking solution as a result. We control the wet capacity and the dry capacity on either side of the Atlantic. That gives our customers certainty, and they only have to deal with one entity for their networking and bandwidth needs. The ownership of Yellow has also placed Level 3 in a unique position in which to approach the market to acquire additional capacity- a strategy that Level 3 demonstrated in February 2006. Level 3 today has a network, not just a cable.

Today Level 3 offers its customers capacity on four diverse routes across the Atlantic. This includes the systems of Yellow, AC1 and both North and South routes on the Apollo cable system. The extensive North American and European ubiquitous terrestrial network, combined with transatlantic network, provides Level 3 customers with a truly end-to-end networking solution, built to scale.

Overall, building Yellow has created value for Level 3 and will continue to be an important asset for a company that operates one of the largest Internet backbones in the world.

