A NORTH AMERICAN SERVICE PROVIDER ANALYZING THE FEASIBILITY OF ADDING A VOICE NETWORK TO ITS EXISTENT NETWORK

Organization Overview

This case involves an American data communication service provider with more than four hundred points of presence (POP) across North America providing HDSL and ADSL. The company had an ATM network interconnecting its POPs and a complete infrastructure of routers and DSLAMs. Almost all of its POPs were located inside the ILEC's CO (co-location system), using the ILEC wire pairs to connect users to DSLAMs. The interconnection circuits between nodes were provided by three carriers (MCI/WorldCom, AT&T and Qwest).

What triggered the process

The service provider was unable to provide voice services. Therefore, each time a new user decided to use its ADSL service, the company had to ask the local ILEC to provide a second pair (the existent one was used for the ILEC POT line).

The problem was that the ILECs weren't very anxious to provide this second pair because they had their own data services. Consequently, they usually postponed the request until they reached the limit imposed by law (FCC regulations). In addition, research conducted by the service provider showed that most users wanted only one company providing both services (voice and data) and charging them together.

These facts were strongly hampering the company's ability to increase market share. To make things worse, the service provider had to pay the equivalent of three months of its monthly charge just to cover the ILEC second pair fee.

Consequently, if the service provider could provide voice access, it would improve installation speed, reduce costs and be able to provide only one bill to clients. Furthermore, the company knew that the peak data and voice traffic weren't coincident. Therefore, there was some room in its ATM network to transport voice.

At first, the company wasn't even considering transporting voice through its own ATM network. The main idea was to maximize the pairs and send the voice calls back to the ILEC in the node. After verifying that these costs wouldn't be much lower than implementing the whole solution and seeing the revenue possibilities, they decided to address the whole issue (Access and Transport).

Results achieved

We created a model where the service provider could analyze the correlation between the percentage of clients using voice and the cost to provide voice service. The model showed that the company had to have at least 2% of all clients in their points of presence (COs) to make the service feasible. This task was relatively difficult because the company's market share was, on average, exactly 2% (a little bit more on the East coast area but less in the West and Central areas). Therefore, implementing the voice service would be feasible as long as the company could convince all its clients to switch their voice services from the local ILECs. If more than 2% of existing clients and all new users took both services, the cost curve would remain below the revenue curve though it would oscillate in ranges of 25,000 users. That means in each 25.000 new users they had a peak of profitability.

The fact that the company couldn't implement the infrastructure in parts created an additional difficulty. If it did, the network would be unable to take some of the calls and, consequently, most of the revenue wouldn't be achievable, annulling the benefits of a gradual implementation.

Another interesting conclusion was that although the company could maximize its existing ATM network, if it added voice service this infrastructure would be able to handle less than 10% of the additional traffic generated by users. Therefore, if just 10% of its actual clients (ADSL) decided to use the voice service, the existing ATM network would be able to handle this additional traffic without an increase in the available bandwidth. This doesn't mean the configuration would be profitable. Even though the company would not need to increase bandwidth, they would still need to build an expensive voice apparatus (class five switches, SS7 integration, voice management, billing etc).

Having a tool like Ariete® is what allowed us to calculate these structures fast and opened the possibility to make many calculations using several traffic volumes. Through these analyzes we established the correlation between volume and cost.

The possibility to set many volumes scenarios is extremely useful because it allows us to see how the infrastructure cost changes depending on the volumes transported. Therefore, it made us able to simulate the business case and identify the ROI and the breakeven point of the project.

Summarizing we were able to build the service provider business model and consequently simulate all volumes scenarios