Telecom Wholesale Billing: Lessons from the Financial Markets

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Abstract

At a time when telecommunications companies are under enormous pressure to increase their operational efficiency to improve margins, carrier wholesale billing operations are expensive and remain very difficult to manage. A full service exchange allows the telecom industry to emulate other established markets not only by providing a way to trade and deliver traffic, but also as a way to manage the commercial settlement process, by outsourcing the expensive wholesale billing function.

Wholesale Billing: Meeting the Realities of Today's Marketplace

After years of unprecedented expansion, the telecommunications industry is facing a far more rigorous stage in its growth. Shareholders are demanding that telcos deliver the profits promised in their business plans at a time when customers are cutting spending as a result of a cooling global economy. In this environment, carriers must explore all avenues to reduce costs and focus scarce resources on growing revenues. Wholesale billing is a large cost center fraught with inefficiencies, and most telecom companies perform this process in-house.

One widely discussed way that telecommunications companies can streamline their operations is by buying off-net traffic (calls that must leave a carrier's own network in order to reach their ultimate destinations) on a trading exchange. For example, exchange members can use a web site to post buy and sell orders which, when matched, trigger market transactions. An exchange's members agree to trade under the terms of one standard contract and are pre-provisioned via trunks of varying sizes to the exchange switch, where a central software engine manages the physical routing of the calls. Finally, the system drives the billing and settlement process for all exchange members.

Administrative and Overhead Cost Reduction

One of the most obvious but often overlooked benefits of trading on an exchange is the conservation of billing resources and reduction of administrative and overhead costs. The nature of telecom wholesale billing - in the absence of an exchange - is administratively complex and time consuming. Termination is bought and sold with numerous corresponding carriers across multiple destinations. The agreements governing these transactions typically don't allow for the netting of traffic bought and sold with a particular carrier, requiring even more commercial transactions. The burden of generating invoices and manually verifying the accuracy of bills is administratively time consuming. After checking the bills for accuracy, the carrier must then pay out to and collect from all the corresponding carriers in the appropriate currency and in a timely fashion. The collections process alone for a global base of carrier customers exhibiting differing levels of financial sophistication can be an overwhelming burden. Until now, the cost of this process has been accepted as unavoidable, because there has been no alternative.

Today, real savings can be realized by outsourcing this process to an exchange. Most carriers exhibit the 80/20 rule of traffic routing in which 80% of the off-net traffic volume flows to 20% of their interconnected carrier base, and the bottom 20% of the volume requires 80% of the carrier agreements and associated administrative burden. One way to reduce these requirements would be to source this low-volume, high burden off-net traffic through an exchange, eliminating 80% of the wholesale billing requirement and associated costs.

Not only does the billing operations burden shift to the exchange, but a centralized process also eliminates a host of persistent sources of disputes that have bedeviled billing to date. The result is that wholesale billing costs are removed from a company's general and administrative (G&A) expense and key staff are freed from the necessity to manage a complex administrative task and can focus on their core responsibilities.

The Triad of the Billing Apocalypse

There are three main factors that drive expensive inaccuracies in wholesale billing: discrepancies between carriers in rates, destination definitions and call duration.

Rate Discrepancies

Since 1996 the number of telecom carriers in the world has mushroomed from 396 to more than 2,800. This explosion in the number of international carriers has been accompanied by an increase in new services, calling rates and the opportunity for expensive mistakes. As a result, carriers are pressured to allocate more resources to decipher increasingly complex rate plans. This involves tracking the proliferation of calling rates generated by the roll-out of mobile, premium and alternative services. Moreover, monitoring frequent rate adjustments due to shifts in competitive market pricing adds an enormous and costly burden on in-house billing departments. It's not uncommon for a Tier 1 carrier to receive and issue as many as 10,000 rate changes a week. See Figure 1 below for an example of the effects of a rate discrepancy.

Figure 1

Wholesale managers from two carriers negotiate and agree to new rates. The new rates will go into effect on the 1st of the month. The manager at the buying carrier will get the new routing implemented into the switch's least cost routing (LCR) table at the first of the month. The manager at the selling carrier will have the new rate go into effect in the billing system as of the 1st of the month. The process derails as follows:

1. There is an internal breakdown in procedures within the seller's company and the new rates are not entered into the billing system.
2. The buyer receives the bill at the end of a 30-day billing period and reviews the bill 20 days after that prior to making a 30 net 30 payment on the invoice per agreement. He finds that he has been overcharged for the destination, as he did not receive the new lower rate.
3. The buyer lodges a billing dispute with the seller and pays the undisputed amount of the bill.
4. The seller researches the Call Detail Records (CDRs), but finds that the bill has been generated accurately according to the data in the system.
5. The buyer subsequently faxes the seller the rate amendment with the effective due date that specified a lower rate. The seller now agrees that a lower rate should have been in effect and credits the disputed amount to the buyer.
6. The seller needs to correct all subsequent bills and balances to reflect the change and make the required rate adjustment in its system to prevent additional errors.

The impact of the error described here is that much time was spent reconciling, disputing, researching, sending support documentation, rebilling and crediting accounts. Ultimately the carriers may have to open their books and revise revenues and expenses from prior periods. Each of these manual adjustments is an opportunity for additional errors. Meanwhile, new business between the two companies was hindered due to the time spent resolving an old mistake rather than unearthing new potential opportunities.

A sophisticated exchange automatically captures changing rates as they are loaded into its trading system by the buyers and sellers themselves. The matching engine and route plan generator can, in turn, load this information multiple times daily. Thus, rate updates are automatically entered into the billing system and the buyer's traffic is routed to its destination by the most economical route. A state-of-the-art system does not allow a call to be passed without referencing the correct rate and incorporating it into the Call Detail Record (CDR) at the switching point. Exchange members receive bi-monthly transaction reports, showing call volumes with the associated rates for traffic between the various trading partners. State of the art exchanges even make this information available online in real-time. Buyers cannot be charged a higher rate or sellers be paid less than agreed, because all transactions are governed by data held in a neutral central repository.

Destination Discrepancies

Beyond offering countrywide or proper rates to various destinations, international carriers compete by offering competitively priced termination to various detailed destinations such as specific cities, regions and premium service codes. Routinely, discrepancies exist in the definitions of these breakouts. For example, one carrier may include an area or set of area codes that differ significantly from another carrier's definition of the same destination or market. Additionally, hard-to-track codes associated with expensive mobile and other premium services are proliferating and layering an additional variable onto the complexity of assigning codes to destinations.

Confusion and conflict over bills is increasing as carriers disagree with each other about what constitutes a specific destination, its associated calling codes and the resulting rate to terminate traffic. Figure 2 shows the financial result of one of these discrepancies.

Figure 2

One carrier agrees to buy Japan, Tokyo at a rate of $0.0290 per minute from another carrier. The buyer sends the seller 10 million minutes of traffic over the course of a month. When the buyer receives its invoice, it is surprised to see that 3 million minutes went to a destination called Japan, Tokyo-Military, which is priced at $0.0490 or $0.02 higher than the Japan, Tokyo rate. The buyer was unaware of the more detailed destination breakout behind Tokyo and has incurred an unexpected $60,000 in cost for this traffic. The buyer did not agree to pay for this more expensive destination, and disputes the amount on the invoice. After a two-month negotiation, the two carriers agree to split the difference. In this example, the selling carrier has lost $30,000.

Destination	name	Dial Codes	Rate
Japan,	Tokyo	813	$0.0290
Japan,	Tokyo-Military	81311	$0.0490

These disputes are eliminated by an exchange, where the list of all the included codes for each defined destination as well as the termination rate are clearly posted. Buyers and sellers view this information before posting their buy and sell orders ensuring they have mutually agreed upon the destination before traffic can be routed. A sophisticated exchange can alert buyers and sellers when a code change threatens an active buy or sell order. Figure 3 below illustrates a common way that managers mask problems that arise from a destination discrepancy.

A Mistake the CFO Never Sees

Some billing discrepancies never hit the books but can be a significant cost of doing business nonetheless - call them opportunity costs. They are part of an estimated $1B the industry loses annually in disputes.

Figure 3

In the frequent case where two carriers agree to amicably resolve a misunderstanding about the rate at which traffic was sent, it's common for them to cover up the mistake by exchanging additional traffic at either lower cost or no cost at all. Here's how this occurs, out of view of the chief financial officers of the two companies.

1. A buyer, believing a seller's rate for France Mobile is $0.18 per minute, sends 2 million minutes in a month. The buyer, through a back office breakdown, is unaware the seller had sent a rate notification earlier, increasing the price to $0.20 per minute.
2. The seller bills the buyer $400,000 for the France Mobile traffic. Meanwhile, the buyer is expecting an invoice for $360,000.
3. When the discrepancy is uncovered, it becomes a dispute - until the buyer realizes its back office breakdown caused the problem.
4. The carriers negotiate, and then agree to split the $40,000 difference.
5. To avoid booking a $20,000 adjustment to revenue on its P&L, the seller offers to supply additional minutes at less than its current market price the following month until the $20,000 settlement amount is extinguished.
6. The transaction results in lower margin for the seller as he had intended to sell this traffic for $0.20 per minute and only received $0.19.

   Margin evaporated before it could be recorded on the income statement.

Call Duration Discrepancies

Carriers often disagree on the duration of calls. Buyers and sellers record differing call lengths, again triggering a lengthy CDR reconciliation process.

A state-of-the-art, neutral exchange again resolves this issue. This accurate and independent body switches the traffic and has no incentive to alter the length of the calls. Its impartial call timing records eliminate disagreements.

Outsourcing the Entire Billing Process to a Clearinghouse

Centralization helps telecom exchanges resolve three specific billing challenges-discrepancies in rates, destinations and call duration. However, the clearinghouse process in which the telecom exchange nets transactions and then pays out to sellers and collects from buyers, adds other significant value to the exchange proposition. Carriers not only unload the actual billing to the exchange, but also the crucial collections and credit risk management functions. A resulting benefit is that the tightly managed settlement process accelerates cash flow between the trading carriers.

Credit Risk Management

Best-in-class exchanges recruit strong financial partners that can help manage and underwrite credit risk. This is crucial in today's turbulent industry that has witnessed a series of high profile bankruptcies impacting other carriers in the market with a domino effect. A best in class exchange uses a process that combines receivables insurance with cash collateral to secure any exposure resulting from the net of a member's buy and sell positions. Sophisticated systems can then warn and subsequently shut down a member's ability to buy as they approach and then reach this preset exposure threshold. Traditional carrier interconnection agreements do not allow the netting of transactions resulting in large exposures for sellers that cannot be offset or managed by their legacy billing infrastructure in real-time. When these positions are compounded by the lack of visibility into the receivables stream inherent in the traditional 2-3 month telecom collections cycle, the potential losses can be staggering. Figure 4 below details some examples of the enormous amounts of money that have been lost recently under the existing system.

Figure 4

	STAR TELECOM	RSL COM LLC	VIATEL COM, INC.	VIATEL, INC	TELIGENT	GLOBAL CROSSING	TOTAL
Wiltel (WorldCom)	65,531,937		970,000	1,900,000	1,165,454		69,567,391
Global Crossing	4,844,840	1,562,664	37,644,000	3,600,000			47,651,504
Lucent Technologies Inc.				7,041,000		31,357,050	38,398,050
Verizon		1,220,359	1,153,000		378,554	23,936,607	26,688,520
Nortel Networks PLC			2,800,000		5,111,304	13,802,224	21,713,528
Qwest	1,638,970	2,120,781	9,800,000			6,930,864	20,490,615
AT&T	11,578,010	3,707,216				3,916,049	19,201,275
Sprint Corporation	8,725,165	4,423,468	1,424,000			2,891,535	17,464,168
Concert Global Network		9,416,209		6,600,000			16,016,209
WorldAccess	9,055,568		5,102,000	1,821,000			15,978,568
Level 3 Communications				2,900,000	2,109,686	10,112,149	15,121,835
Teleglobe USA, Inc.		3,106,595	2,640,000	2,200,000			7,946,595
Broadwing Communications		5,410,413					5,410,413
Global Connect Partners	2,974,139						2,974,139
ITXC	2,228,365		560,000				2,788,365
Electric Lightwave Inc.			1,967,000		406,878		2,373,878
AT&T Canada			2,336,000				2,336,000
RSLCOM	2,312,299						2,312,299
Total	**108,889,293**	**30,967,705**	**66,396,000**	**26,062,000**	**9,171,876**	**92,946,478**	**334,433,352**

- Source: Bankruptcy Court Filings

- Figures listed are in US dollars

In contrast, exchanges have insulated many carriers selling to these companies against such losses.

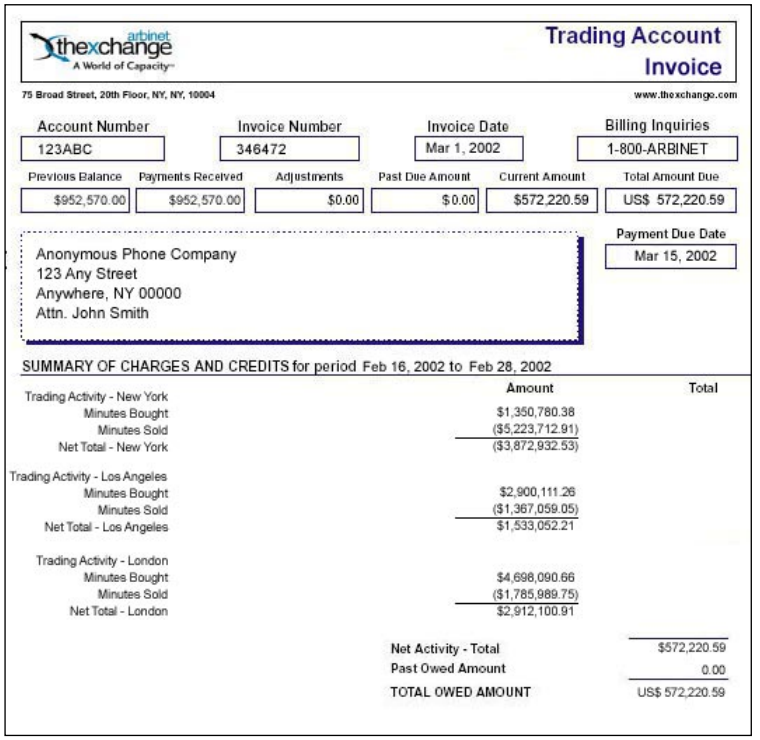
Accelerated Cash Flow

In today's capital constrained telecom industry, cash flow and cash control issues are critical. The cost of call termination typically represents about 80-85% of the cost of a wholesale telecom business. Collecting account receivables promptly can mean the difference between profitability and bankruptcy in today's environment.

Most carriers are buyers of off-net and sellers of on-net capacity. Unfortunately, there is not an exact overlap of terminations bought and sold between carriers. Rather, a carrier will frequently buy from several carriers and sell to several others, creating a complex cash flow scenario. If one buyer fails to pay on time, the delicate balance of payments is upset. A cash flow problem is created for the seller of those minutes, who remains obligated to pay his upstream supplier in a timely fashion.

Using an exchange improves cash flow because all bills due to the exchange and all payments from the exchange are netted. Buyers receive one timely payment or invoice that covers any credit or balance due from their trading activity. Any revenue buyers generate from selling has been netted resulting in an immediate reduction in the size of the cash payments they need to send to other parties. Sellers receive full payment in a timely manner. It is important to note that an exchange is not a carrier; its core service involves making accurate payments to sellers that are on time, every time. Moreover, best-in-class exchanges make these payments as frequently as every 15 days, compared to an average 74 days sales outstanding for the industry in the first half of 2001. These accelerated payments eliminate the economic risk of a working capital crunch caused by the misalignment of payables and receivables. Telecom exchanges bring the benefits of the type of rapid financial settlement available in the securities industry to the world's telecommunications carriers. Figure 5 below contains detail from an exchange bill, illustrating the netting process.

Figure 5



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Trading Account Invoice

75 Broad Street, 20th Floor, NY, NY, 10004 — www.thexchange.com

Account Number	Invoice Number	Invoice Date	Billing Inquiries
123ABC	346472	Mar 1, 2002	1-800-ARBINET

Previous Balance	Payments Received	Adjustments	Past Due Amount	Current Amount	Total Amount Due
$952,570.00	$952,570.00	$0.00	$0.00	$572,220.59	US$ 572,220.59

Anonymous Phone Company
123 Any Street
Anywhere, NY 00000
Attn. John Smith

Payment Due Date: Mar 15, 2002

SUMMARY OF CHARGES AND CREDITS for period Feb 16, 2002 to Feb 28, 2002

	Amount	Total
Trading Activity - New York		
Minutes Bought	$1,350,780.38	
Minutes Sold	($5,223,712.91)	
Net Total - New York	($3,872,932.53)	
Trading Activity - Los Angeles		
Minutes Bought	$2,900,111.26	
Minutes Sold	($1,367,059.05)	
Net Total - Los Angeles	$1,533,052.21	
Trading Activity - London		
Minutes Bought	$4,698,090.66	
Minutes Sold	($1,785,989.75)	
Net Total - London	$2,912,100.91	
Net Activity - Total		$572,220.59
Past Owed Amount		0.00
TOTAL OWED AMOUNT		US$ 572,220.59

Summary: Wholesale Billing in the 21st Century

Highly efficient, centralized, high volume trading systems are nothing new. The financial markets have all but perfected them. A new breed of telecommunication exchanges uses business approaches, processes and systems that are modeled on those used in the financial markets, tailored for application to the telecommunications trading environment.

The best exchanges have formed partnerships with top technology partners and financial services companies to ensure they streamline the commercial billing and settlement transactions that result from the sale and purchase of off-net minutes termination. These systems are now replacing the current expensive wholesale billing process and disputes that add cost to an industry experiencing unprecedented margin pressure.

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