Interconnect Market Trends & Challenges - Changing Role of Interconnect

Interconnect represents a large part of most carriers business. Interconnect is a dynamic business area with ever changing factors of competition. There are many new entrants to the market as deregulation is common place and barriers to entry lower. The market has long ceased being one where the incumbent operator could sit back and delight in fat margins. The interconnect voice minute is now a commodity – leaving carriers with a problem - how do you make money from a commodity? Margins can be wafer thin and managing what often turns into a spot market takes business expertise and a carefully managed and tightly integrated system stack.

Interconnect is ‘suffering’ or perhaps benefiting from disruptive technologies. POTS are the legacy transmission medium. Carriers are moving to next generation IP networks capitalizing on the reducing costs of technology. New products and services abound and there’s a mobile / content explosion. Interconnect CSPs now need to manage the proliferation of products and suppliers. This is in addition to managing what has now become standards in interconnect, ever changing destination breakouts, the dial codes which support them, and the multi-currency rates used to purchase them. The volume of data which needs to be managed and understood has exploded.

Carriers need to have certainty that their OSS/BSS is capable of meeting the challenges these issues pose.

In this paper we discuss the generic challenges carriers face. We have chosen to look at every type of CSP from very small to Tier1 and highlight what issues we see affecting their business operations.

Generic Issues

Rates explosion

One of the most notable features in recent years has been the move from long term profitable rates to a spot market. Once rates were a gentleman's agreement – that day has long passed. In today's competitive scenario, new entrants constantly challenge incumbents by offering cheaper routes, resulting in rates being renegotiated and offers being made at least once per month and in some cases weekly. Spot Rates are highly dynamic. Managing the rates explosion and selecting the right supplier becomes a time critical activity if the carrier is to buy at best cost.

Long term trade rates, so essential in a carrier’s business may take several months to agree upon and are often only converted into being contractual rates long after the traffic has flown. Back dated rate changes, the retroactive rate change, has long been the torment of many a billing unit. In this environment it becomes critical for CSPs to be able to re-rate and refresh their revenues/costs accurately quickly to achieve an accurate bill and a timely settlement.

Accurate billing

Sadly, one of the major revenue leakage areas continues to be rating inaccurately and misclassification of traffic. We believe that the research carrier out by Communications today, Jan 2003 still holds true and that rating and bill production inaccuracies can be as high as 11% of the total revenue.

Given the complexity of the rating Interconnect, it is little surprise. Consider the many rating regimes / principles in Interconnect. There’s distance based, destination based (larger carrier can have 600+ destinations), element Based
Conveyance charging (EBC), route based, then overlay a bi-lateral or corporate trade (from anywhere to anywhere), penalties, exclusions, percentage delivery, caps. It’s little wonder that some carriers struggle to ensure that rating and settlement production is accurate. Good interconnect results in the production of an accurate bill, one where there is no disputes raised, where amounts are verifiable and demonstrable and one which results in on time payment by partners. Inaccurate billing and rating leads to protracted settlement cycles (and many of them), dissatisfaction, re-stating accruals and affecting revenue realization and cash flow problems.

Cost Management – Identifying overcharged Invoices: Reduce costs
The other side of Interconnect is payments and sometimes partner bills aren’t correct. They too face the 600 destinations in multiple currencies and long running complex trades. Overcharges on incoming bills from partners directly translate to costs to the carrier. Researches state that the average error rate in complex telecom bills could be between 7-12% (OSS Observer, 2007). CSPs understand the need to have a good reconciliation mechanism as it can help them identify over charging, claw back revenue and protect their margins.

Identifying the errors in an invoice is a complex challenge. The challenges as we see them are

- How do we identify errors in an invoice?
- How are these errors recorded? Do we have dispute mechanisms in place?
- How do we track these disputes and manage the dispute lifecycle to resolution?
- How easy is it to provide supporting data (lease contract details, summaries, event records) for a dispute?

Quite often in minutes of use billing there's a high probability of low level errors in an invoice – but cumulatively they can add to be large sums. Invoices can run into hundreds of lines, the final amount payable can be based on complex agreements and discounting schemes. When the number of such invoices runs into several hundreds of lines, verifying every invoice, clearly indicating the nature of the problems, tracking every dispute identified, providing supporting data for the disputes and taking them to resolution is a huge challenge. Most CSPs understand the need to have invoices validated but often it's a clerical task or semi-automated at best. What is required is a fully automated capability – one which is painless to run.

Managing Bilateral relationships profitably.
Bilateral trading agreements constitute a large part of the Interconnect Business. These Trades can be highly complex and are often very individual. At their base there is usually a volume threshold agreed by CSPs and their partners. The rating complexity is not limited to volume thresholds. Typically, Partners are penalized when these commitments are not met. Further complications are introduced by volume check/ caps that limit traffic to a destination or a time of day tariff. So clauses in a trade may stipulate -not more than 20% of traffic should be routed to destination X; not more than 25% of the traffic should be sent at a specific time of day (peak) to a combination of destinations. This can also extend to setting volume caps for the minimum traffic that should be exchanged; so it could be -At least 20% of the traffic should be for a particular destination.

The challenges involved in maintaining bilateral agreements centers on defining what a profitable trade may be and then monitoring the current state of any trade in directions, checking commitments and profitability. True margins are reflected
when these agreements end and any rebate is calculated but carriers must be able to check profitability as the trade is in progress. Margin analysis becomes difficult with such complex agreements in place. Most billing systems use an accounting rate but the real rate paid – the difference between the base rate and the accounting rate may be quite different (particularly in a back to the first minute deal). Carriers need to be able to monitor and analyze the profitability of the deal at any stage using the accounting and the operational rate (the rate most likely to be paid if all goes well). During the trade any financial data analysis would require accruals & estimations to be financially prudent and to understand profitability.

**Operational efficiency**

One of the simplest means of improving operational efficiency is by reducing manual intervention. Operational efficiency is about streamlining complex processes. Interconnect crosses many functions – product management, network, billing, finance, commercial negotiations, least cost routing. The co-operation and collaboration between these functional units can make a huge difference to business efficiency. Although most CSPs have automated systems in place, very few of them have everything integrated as one framework. CSPs need to concentrate on bringing different functions together by designing sleeker processes which have an ‘order to cash’ approach to interconnect processes. Many operators have Silo systems. A multiplicity of single function systems invariably leads to data integrity/accuracy issues. This frustrates users and hinders efficient business. Central data storage, clear, exception escalation based on thresholds and clear, meaningful managerial / operational dashboards which present the relevant data to the operations professionals are essential if the carrier wishes to be agile and efficient.

**Which challenges do you face as a carrier?**

Not every CSP faces the same challenges. Below we have profiled the CSP world in an attempt to show the challenges each profile faces. It’s a simplistic view; challenges might vary depending on factors such as geographic region, market sector or business maturity. For example, we have categorized invoice reconciliation as a level 5 problem but a CSP with 40 partners might also see reconciliation as a huge value-add depending on the percentage of losses they perceive in their supplier invoices.
Level 1 – New Market Entrant

CSP profile – New Entrant

Very few partners say 1 or 2; Minimal traffic load.

Challenges
- Recording and capturing traffic accurately & effectively
- Accurately rating traffic
- Accurately billing partners

Level 2

CSP’s profile

Not many partners, say around 20-50. High volume of traffic, mainly voice based.

Challenges
- Handle high traffic loads which include processing, storing & monitoring data
- Traffic needs to be rated quickly for near real time monitoring
- Routing challenges related to choosing best possible route

Level 3

CSP’s profile

CSP has interconnection with several partners, around 50-300. High traffic volumes, mainly voice based services. CSP provides services to several resellers.
Challenges

- Faster translation of services offered into revenues which means settling with partners in time
- Maintaining ever changing rate plans
- Managing complicated bilateral agreements
- Maintaining rate plans for several products (like transit, terminating etc) for all the partners.
- Suspense Management is always a challenge with several agreements, products and rate plans
- Traffic from resellers need to be recorded/rated accurately as the CSP might have to provide rated/unrated traffic to the resellers.
- Routing challenges related to choosing best possible route, driven by several factors like quality, least cost, bilateral agreements

Level 4

CSP’s profile
CSP has agreements with several partners. Partners include other CSPs, content partners, Advertisers etc. Supports traditional voice based services and several content related services

Challenges

- Content related services are so diverse that the content ownership has issues managing volatile prices and revenue share – this is a new area and represents a real challenge for most CSPs.
- Market competition makes it essential for CSPs to provide next generation services; this increases the number of partners that CSPs have to deal with. Services are complex, partnerships equally in the form of content partners, content aggregators etc
- Content introduction into telecom market also introduces complex revenue sharing scenarios increasing the complication in accurately rating traffic
- Although content presents a huge revenue potential for CSPs, effective management of partners and accurate billing becomes essential to actually realize revenues.

Level 5

CSP’s profile
CSP deals with a large number of partners, say greater than 500. Number of partner invoices also increase accordingly and could be greater than 500. CSP provides voice related services, data services, content related services, reseller services etc.

Challenges

- Reducing revenue losses is no longer confined to accurately rating and billing partners
- Partner invoices need to be verified accurately to identify incorrect billing thereby reducing costs. Verifying 500 partner invoices accurately presents a huge challenge to CSPs
- Rapid identification of issues and root cause identification becomes essential. Managing the dispute life cycle becomes critical to ensure a timely settlement
- With a huge number of partners, choosing the best possible route becomes essential in maximizing margins
- QoS becomes an imperative for customer satisfaction
Choosing an Interconnect Billing System

Given the many challenges facing carriers we will examine what we believe to be functional features of an interconnect billing system and how they help to overcome the challenges and issues carriers face. ROC Partner Settlement, Subex’s interconnect billing system, is designed to help communication service providers in tackling existing challenges in the telecoms business and also future proof them from challenges envisioned for the future.

Here we are discussing the wider Interconnect domain explaining how a functionally rich Interconnect can advance the business and alleviate some of the pain points.

Requirement # 1 Adaptable, Data driven Solution solving problems now and in the future
Interconnect is not a static business area. New products and services are introduced regularly. The introduction of a new product or service should not be a trauma. Any interconnect product should be flexible and allow rapid introduction of products and services. One of the most important criteria for any system should be the ease with which it can be configured making the carrier adaptable to change.

Requirement # 2 Comprehensive Solution with full coverage
A functionally rich interconnect should be able to provide an integrated platform to drive the Interconnect Business. It will meet the business needs from order to cash. Operational efficiency is not just limited to having automated systems in place. Any interconnect product or platform should add value not just by rating and billing traffic, but by providing high quality information to helping take the correct commercial decisions and drive profitability.

Interconnect billing systems are data rich, the byproducts of billing hold vast amounts of information about how the Interconnect Business is performing. Carefully managed, the data provides view of the ‘state of the nation’ showing traffic flowing through the network in near real time. Good Statistic analysis will help choose who to do business with and answer the much asked questions such as ‘what traffic is this partner carrying and at what cost?’; ‘Is my partner misusing a bilateral agreement?’; ‘Is my agreement with the partner on track?’; ‘What is the net cash flow settlement for this partner as of today?’ Correctly configured workflow ensures that any KPI violations are highlighted quickly and remedial action can be taken.

There is much more to interconnect than call processing, billing and rating.

Requirement 3 - Light Touch, Intelligent Automation
Interconnect should require as little intervention as possible. All processes should be automating and self correcting. Let’s look at an example, the back dated rate change.
Once rates are changed, the system should be capable of identifying these changes, and follow the process through to completion. Interconnect should re-price the affected, identify any bills and invoices affected, update or re-issue them, clearly mark the areas of change. The invoices should then be distributed as supplementary invoices or at the next bill cycle according to customer preference. The system should then proceed to automatically updating the net settlements in which the affected invoices/statements have been included. The rate change should be notified to customer account managers and to billing operatives. Accruals need to be amended in line with the rate changes.
The Interconnect Product should bring data to you. Any changes should cascade through the process. There should be very little need for manual intervention or correction.

**Requirement # 4 – Full support for Agreement Management**

Support for configuring bilateral agreements is a standard offering in most interconnect billing systems. However, agreement management does not end with configuring agreements and rating traffic based on it. The system should provide the capability to effectively monitor these agreements on a near real time basis. Deals are complicated and the parameters of the deal, actual volumes against expected volumes, exceeding thresholds, potential grooming should all be monitored. Any circumstance which could possibly jeopardize the deal should generate an alert. This particularly applies to high cost of delivery destinations and any ‘deal tracking’ should be able to define what the ‘problem’ is and watch it closely as importantly for commercial managers is negotiating profitable deals. Here commercial managers should have access to good quality traffic metrics per route, destination, product, tariff and quality of service which allows them to they stay profitable.

**Requirement # 5 - Cost Management and the Dispute Lifecycle.**

Any interconnect offering should be able to quickly validate the invoices and declarations to the carrier and identify differences between the carrier view of the world and its suppliers’ view. The system should be able to compare the invoice line items with data recorded by the carrier which may be for access circuits or for minutes of use. Invoices are non standard in layout, formats can vary from partner to partner and the level of information contained in them can vary from invoice to invoice. Reconciliation is not about having a fixed process catering only to specific types of invoices - any invoice reconciliation tool must be sufficiently flexible to adapt to changing formats. The system should also allow multiple levels of data summarization as the granularity of data on the invoice and the data recorded in house might be different.

Once the discrepancies on the invoice are identified a dispute may ensue. The interconnect system should have the capability of defining the dispute process and support the dispute with a workflow that will help CSPs resolve the dispute efficiently. CSPs generally face issues when sending supporting data to partners (disputed CDRs, summary data, leased line detail etc). This can introduce delays in the process. Extracting supporting data for a dispute can be cumbersome, time consuming and error prone. Interconnect system should be able to extract supporting data with ease, compare the outputs and close disputes quickly.

**Requirement # 6 Margin Analysis**

Any interconnect billing system should be capable of tracking and presenting true margins for a CSP. Margin analysis algorithms should take bilateral agreements into consideration as only then true margins can be presented to users. The system should also be capable of providing a comparison of the revenue/cost for traffic with or without taking agreement rates into account. This helps the CSP understand the actual value of an agreement.

**Requirement # 7 Accruals Provisioning**

Producing prudent accruals is demanded by any business. Accruals calculations should go beyond just using successfully rated data for revenue/cost estimations. By examining the payment history of the customers and suppliers, the accruals can use the ‘recorded versus declaration’ ratio and produce prudent accruals. The system should provide users the ability to include error records in suspense so that they can contribute to the total accrual. There could also be cases where due
to early accounting period closure, the complete accrual for the month would not be available. In such cases the system should be to estimate the accrual for the rest of the days in the month based on traffic received on one of the previous days. Accruals should have full transparency of the accruals history and the latest accruals should be available throughout the month to any financial ERP.

**Conclusion**

In times of reducing margins, it becomes imperative that a CSP looks deeper and identifies areas that will help them thrive in a highly competitive market.

In our opinion the key focus areas for the CSPs are

- Cost Reduction
- Revenue Maximization
- Operational Efficiency

Although these are very obvious areas, it is very important that CSPs review their processes periodically to identify areas of improvement.

Choosing the right interconnect billing system is an important factor in remaining competitive, in reducing costs and in maximizing revenue - an important factor in driving business efficiency. When selecting an interconnect system, it is important to choose one with advanced features and to choose one which allows you to improve your business processes. You add value to your interconnect business through deployment of a functionally rich product and through the skills and expertise of the people managing the carrier relationships. Look for breadth of functionality and domain expertise – working with the correct supplier will significantly improve the ease with which you can adapt and maintain high levels of profit and achieve competitive advantage.

Choosing the right interconnect billing system such as ROC Partner Settlement, Subex’s interconnect billing system is an important factor in remaining competitive, in reducing costs and in maximizing revenue - an important factor in driving business efficiency.
About Subex

Subex Limited is a leading global provider of Business Support Systems (BSS) that empowers communications service providers (CSPs) to achieve competitive advantage through Business Optimization - thereby enabling them to improve their operational efficiency to deliver enhanced service experiences to subscribers.

The company pioneered the concept of a Revenue Operations Center (ROC®) – a centralized approach that sustains profitable growth and financial health through coordinated operational control. Subex’s product portfolio powers the ROC and its best-in-class solutions such as revenue assurance, fraud management, credit risk management, cost management, route optimization, data integrity management and interconnect / inter-party settlement.

Subex also offers a scalable Managed Services program and has been the market leader in Business optimization for four consecutive years according to Analysys Mason (2007, 2008, 2009 & 2010). Business optimisation includes fraud, revenue assurance, analytics, cost management and credit risk management. Subex has been awarded the Global Telecoms Business Innovation Award 2011 along with Swisscom for the industry’s first successful Risk Reward Sharing model for Fraud Management.

Subex’s customers include 28 of top 50 operators worldwide* and 33 of the world’s 50 biggest# telecommunications service providers. The company has more than 300 installations across 70 countries.

*GTB Carrier Guide, 2011
#Forbes’ Global 2000 list, 2011