

i-conXpress

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The International Newsletter for Interconnect Billing



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i-conX Solutions Ltd.

20 The Courtyard, Kilcarbery Business Park, Dublin 22

T: +353 1 529 1700 E: info@iconxsolutions.com

www.iconxsolutions.com

Quality Counts

robin.booth@iconxsolutions.com
Head of Product - Routing Optimisation



The Quality Problem

Many telcos have been using Least Cost Routing (LCR) systems for several years now, either in the form of stand-alone applications, or as an adjunct to their interconnect billing systems. These LCR systems have generally been very effective in helping the telcos to push down their interconnect costs, but operators are increasingly finding that to some extent you get what you pay for: cheap interconnect rates often equate to poor call quality.

In theory, modern digital telecommunications networks have the potential to offer near perfect speech quality on every call. However, in real life the performance of a voice telephony call is often degraded from the theoretical ideal because of cost cutting measures taken by some carriers in an attempt to squeeze additional traffic carrying capacity out of their expensive international circuits. For TDM networks, this might include the use of satellite links and/or Digital Circuit Multiplication Equipment (DCME), which is designed to interleave four or more calls onto a single voice channel. The use of these techniques can often lead to degradation in call quality, manifested by excessive echo and clipped or distorted speech. For VoIP networks, the potential for quality degradation is if anything greater than for traditional TDM networks, with excessive delay or dropped speech being common symptoms of poorly implemented VoIP interconnects.

So telcos need to tread carefully when selecting carriers that offer interconnect rates that seem to be too good to be true. This is where the use of a good Routing Optimisation (RO) system can be of considerable benefit to the commercial routing manager. A fully featured RO system will make recommendations for configuring a telco's switch routing tables based not only on the selection of low cost carriers, but also by taking into account the quality performance of those carriers.

Sources of quality data

Information about call quality can potentially be gathered from a number of sources, including network probes that monitor the signalling channel (or a sample of the speech channels) on interconnect trunks, test call systems, or from analysis of switch CDRs. Many operators feel unable to justify the considerable cost of the hardware associated with the first two of these options, and hence tend to rely on CDR analysis as their main



source of call quality data. Depending on the switch type, and the number of data fields that have been defined in the switch CDR, it is usually possible to extract a significant amount of useful quality data from CDR analysis:

- **Answer Seizure Ratio (ASR)** – this is the most commonly encountered 'quality' measure used by operators when comparing the respective call quality offered by different carriers. The simple (though not strictly accurate) definition is the proportion of successfully connected calls as a percentage of total call attempts to a particular destination.
- **Network Effectiveness Ratio (NER)** – this is similar to ASR, but in principle much more relevant as a measure of network quality, since it measures the percentage of call failures that can be ascribed to network problems, whereas ASR includes call failures that may simply be due to the B-end subscriber not answering. In order to calculate NER, it is necessary for the CDR to include a data field that contains the call clear cause code.
- **Mean Holding Time (MHT)/ Average Duration of Call (ADC)** – average call duration can be a useful substitute for more sophisticated call quality measures, based on the assumption that call durations will be lower if the quality of the call is poor. This measure can be derived directly from the call duration information contained within each CDR.
- **Short Call Percentage** - this measure is similar in principle to MHT/ADC. Counting the percentage of short duration calls, where the duration is user definable (e.g. < 10 seconds), gives an indication of calls that terminate early, possibly due to quality problems.

Quality optimisation

Each RO system will have its own algorithms for including quality criteria in the carrier selection process. Some of the more commonly encountered methodologies include:

- **Threshold cut-off** - with this methodology, the quality manager defines a minimum acceptable quality level for each telephony product or service they are offering, and for each call destination. The RO system will compare the actual quality levels being achieved by each carrier, based on analysis of historical CDR data, against the threshold values set up in the system. If a carrier's call quality to a particular destination falls below the defined threshold level then that carrier will be excluded from the set of carriers that are selected for the final routing table.
- **Price modulation** – this technique is more subtle than the yes/no outcome of the threshold method. It involves modifying the price offered by each carrier according to the quality offered by that carrier in comparison to a benchmark level. For quality that exceeds the benchmark level, the effective cost used for ranking carriers in the routing table will be decreased. Conversely, for carriers whose quality is below the benchmark level, their effective cost will be increased in proportion to the difference between the benchmark and the measured quality value. The outcome is that poorly performing carriers are not necessarily excluded from the final routing table, but will be ranked lower than a carrier with a similar price but better quality.
- **Figure of Merit (FoM)** – this concept is an elaboration of the basic cost modulation methodology described above that is particularly applicable when it is necessary to take into account a number of different quality measures in the final carrier selection process. The figure of merit is a single measure of carrier call quality on a 1-5 scale that combines several individual quality measures into an overall quality value. The process converts raw quality data into a FoM value, taking into account the subjective impact of each call quality parameter on a caller's perception of overall call quality. The final FoM value is used to modulate the effective routing rate for each carrier, as described above.

Summary

Telcos are increasingly turning to RO systems to manage the quality of their international interconnects. Used intelligently, these systems allow the operator to achieve lower interconnect costs without unduly sacrificing call quality, and allows them to deliver against the quality undertakings that they have made to their customers.

For more information about i-conX Routing Optimisation please contact us to discuss and arrange a demo.

Ensuring accuracy & efficiency : i-conX introduces Autoloader

kunal.dave@iconxsolutions.com
Product Manager Interconnect



Interconnect Billing Managers and their teams face a broad range of challenges on a daily basis. Increasingly, the frequency of changes to rate and code reference data is changing from what was once a monthly task to weekly and in some instances daily! With the added pressure of having a large number of interconnect partners to manage, this is a task that needs to be undertaken quickly, efficiently and more importantly accurately to ensure the correct rating of interconnect traffic.

Not updating rates and code changes swiftly can result in inaccurate invoice production and cause avoidable problems when trying to reconcile supplier carrier invoices.

With this in mind i-conX developed the world's first truly accurate automated rate uploader. The i-conX Autoloader allows users to enter and update reference data such as rates and dial codes with ease. It is intuitive, extremely flexible and can easily import any delimited text file in any format including comma and tab separated. Files are imported in a "pending" status, so users can then verify and authorise before committing, allowing an accurate and efficient way to enter reference data that in the past was extremely time consuming. It also mitigates the risk of human error due to volumes of data being entered or changed. A full audit trail is kept of all imported data via the autoloader making the process fully SOX compliant.

“ The i-conX Autoloader module allows users to load rate and code changes within i-conX in a matter of minutes with a user friendly GUI and ‘memory’ function. ”

Being the only interconnect billing solutions provider that has our own Interconnect Billing Managers, as well as close relationships with our customers, one of the major issues identified is that each carrier has its own format of sending rate and code list to other carriers.

Using a manual process whilst reconciling carrier invoices, carrier codes and destinations can mismatch with your own codes and destinations set up in the Interconnect Billing System. Trying to force match the destination and pricing during the reconciliation process can prove to be a very frustrating and time consuming process.

With the i-conX Autoloader, each operator's rate and code list can be easily configured and then settings saved, meaning every time a carrier sends rates or codes, configuration is not required. Selecting the rate or code sheet and then uploading really is a simple process!



With the i-conX Autoloader, since the rates and codes are uploaded in the other carrier's breakout destinations and codes, when reconciling the carriers invoices, there is no need to try and force match the destinations and codes.

Using the Traffic Reports within i-conX, the destinations match with the carrier invoices making invoice reconciliations an easier and quicker process.

Enhanced functionality of the i-conX Autoloader include:

- Easy to use GUI
- Saving Settings per Carrier within i-conX Memory
- Individual Destination, Code and Time Period Set up per Carrier
- Intuitive loading, highlighting any errors, duplication or destination mismatch
- All Rates and Codes loaded in a pending state for final check before committal to the system

“ With the use of the i-conX Autoloader, rates and codes can be entered into i-conX, improving efficiency; ensuring changes are made in time, reducing human error and improve invoice reconciliations further down the process flow. ”

This feature has been gratefully received by our customers who believe that such a feature streamlines their processes, results in fewer carrier disputes and more importantly allows them to focus on other crucial areas of their interconnect business. By having the i-conX interconnect billing system, our other unique features enhance efficiency and focus even further.

For more information about the i-conX Autoloader and any of our other product features please contact us to discuss and arrange a demo.

In the next issue of i-conXpress we will take a look at other areas of functionality that have been introduced based on customer feedback.

Ryan is new COO at i-conX



i-conX solutions has appointed Ger Ryan as its new Chief Operations Officer (COO). Ryan, who has worked at i-conX since 2005, previously held the position of Senior Business Analyst at the Dublin-based software house. He assumes the COO role following the promotion of former incumbent Brendan Rogan to CEO in February 2009.

As COO, his role will be to lead the Customer Service, Software Development and IT and ASP Infrastructure teams based in the Dublin HQ with responsibility for driving through a range of innovation projects to maintain i-conX's position as one of the world leaders in delivering state of the art software and hosted solutions.

Prior to joining i-conX, Ryan held a number of key positions within the interconnect billing domain, variously working for blue-chip telcos, solutions vendors, and in consultancy.

In the 1990's, Ryan was instrumental in the development of the Prospero interconnect billing solution, managing a 10-strong development team and guiding the interconnect product through market launch and growth, until its acquisition by ICL.

Ryan subsequently designed and implemented a major IS (Information Systems) strategy for UK cable broadband provider Telewest, before joining leading UK telecoms consultancy firm Cartesian in 2004.

At Cartesian, he designed and developed a new interconnect billing solution for international carrier Cable & Wireless, delivering a single harmonised solution to the group, which had previously supported a number of disparate solutions internally. His move to i-conX in 2005 coincided with the company's expansion from its European customer base into new territories, including the Middle East, Africa and the former Soviet Union.

Speaking on behalf of i-conX, Chief Executive Officer Brendan Rogan commented, "We are delighted to announce the promotion of Ger Ryan to be our new COO. Ger is one of the most highly respected figures in the worldwide interconnect domain, and he brings to us a unique perspective spanning interconnect, business and technical mindsets."

“As i-conX accelerates its plans for growth, so our responsibility to provide consistently high standards of operational delivery is magnified yet further. In Ger Ryan, we are proud to have an experienced and sure hand on the wheel”

Earlier this year, i-conX, which has a global customer network spanning 18 countries, announced the opening of a dedicated Asia Pacific operation in Sydney, Australia, to complement its existing operations in the Middle East, Europe and Russia.

The company was recognised as a "Deloitte Fast 50" technology company in both 2008 and 2009, and earlier this year i-conX was recognised by the Irish Government as "an inspiration to other software and high technology companies seeking to export their products and services".

New Starters



Database Administrator **Paul Ralph** joins i-conX from Dell where he spent 10 years in the management and maintenance of all manufacturing SQL Server production environments in the EMEA region. Winning many awards internally at Dell for building solutions, stabilising environments and global excellence, Paul is responsible for maintaining and upgrading all of the i-conX production database, one of the largest online SQL Server databases in Europe. Paul advises and implements the strategies and best practices to best leverage the new SQL Server technologies to provide optimal customer solutions.



Jonathan Keaveney joins i-conX as Support Applications Developer enabling i-conX to provide continual investment in the development of our applications based purely on user experience. The appointment of Jonathan will allow i-conX to respond efficiently to customers feedback in order to improve the day-to-day user experience. Jonathan has spent a number of years working in a similar capacity at companies including Fujitsu Ireland.



Kunal Dave joins i-conX as Product Manager and Subject Matter Expert (SME) for our interconnect product. Kunal has previously worked with Subex Azure, Colt and Hutchinson 3G and brings a valuable perspective from both telco and vendor sides. Kunal will be responsible for managing the company's roadmap development, and providing presales support and clarifications across the group.



Faisal Saifullah joins our Dubai office to head our regional sales operation for the MENA territory. A certified engineer in WIMAX, WLAN and other network technologies, Faisal is also a graduate in Computer Information Systems, and brings 15 years business development experience within the telecoms sector to his new role with i-conX.



Piotr Gora also joins us as Network Engineer along with **Martin McDermott** who joins as IT Administrator, both are to assist with the implementation of our IT Strategy. Utilising the latest technologies and practices they will support the delivery of our best of breed infrastructure to customers worldwide. Both have an Honours degree in Computing and graduated with distinction.



Theresa Cahill joins i-conX's finance department as Team Leader Finance and Admin. Theresa is a qualified accounting technician (AAT) and has a wide range of accounts and admin experience. Theresa will support our accounting processes across the group.

Signed, Sealed, Delivered

Canar Telecommunications Company of Sudan is the latest telco to complete successful deployment of the i-conX interconnect billing solution.



Canar, a subsidiary of UAE telco group Etisalat, will use the i-conX system to rate and bill its interconnect traffic for both domestic and international scenarios. The operator selected

i-conX as part of a strategic review to replace its previous interconnect billing system.

Canar provides voice, data, internet and satellite services to consumers, organisations and telecom providers in Sudan and the region. Originally launched in 2005 as Sudan's second fixed-line operator, the company has achieved impressive market gains to acquire 58% of the fixed line market. Canar also became one of the first telcos in Africa to deploy an NGN base, via the deployment of a state of the art 3500km fiber network across Sudan.

Announcing the news, i-conX CEO Brendan Rogan commented: "The entry into live operations of the i-conX system is the culmination of a delivery project which originally commenced in 2007 with the deployment of i-conX project managers on-site in Khartoum, Sudan"

"We are proud to be associated with Canar, one of the region's most forward-thinking and technically progressive telcos, and we are confident that the i-conX system has the capabilities to meet the advanced challenges posed by Canar's interconnect business".

The third largest oil-producer in sub-Saharan Africa, Sudan is regarded as one of Africa's most potentially lucrative markets, and exhibits strong competitive conditions in the telecoms sector, with a choice of three mobile operators alongside fixed operators Canar and incumbent Sudatel.

Speaking on behalf of Canar, Chief Executive Officer Ali Bin Jarsh commented :

“As the Sudanese market becomes more competitive, so the implementation of a modern interconnect billing solution is recognised as a key requirement for Canar to maintain its leading status. The i-conX solution has been thoroughly tested, and found to provide a capable platform to support the continued growth of our wholesale business.”

Canar joins the growing list of i-conX regional customers in Africa and the Middle East, which includes EITC du, Paltel, Jawwal, and Africell.

i-conX Head of Sales & Marketing Gavin Stewart commented, "With the entry into live operations of Canar, i-conX now has a sixth customer in the Middle East, one of the world's most dynamic telecoms markets. In an area recently noted for the growth of its mobile sector, it is gratifying to see such successful growth for a fixed-line carrier".

Vodafone Qatar:
rapid launch = rapid deployment



Qatari second mobile operator Vodafone Qatar recently celebrated its first anniversary as an i-conX customer, having implemented the full i-conX

solution in concert with its live network launch in March 2009.

The deal provides Vodafone Qatar with an end-to-end, fully integrated interconnect billing solution which facilitates the accurate rating, charging and settlement of its interconnect business both domestically and internationally.

Alongside its core v9 interconnect billing software, i-conX also delivered its enhanced file collection software module (FCAD), plus a range of complex interfacing solutions, as part of the 11-week project.

Vodafone, which received the second mobile licence for Qatar in June 2008, selected i-conX as a key partner in its quest to achieve a rapid launch schedule and meet challenging go-live milestones in 2009.

To meet its deadlines, the i-conX project team worked closely with Vodafone to devise an accelerated project plan, capable of delivering to a faster than average timescale. i-conX Head of Product & Delivery Sacha Jones explains : "The Vodafone project required some innovations to our usual approach. Chief amongst these : the project had to be completed in 11 weeks as opposed to our more usual 4 month turnaround"

On behalf of Vodafone Qatar, Brian Hunter said :

“i-conX has been successful in providing a fast-track solution which successfully met the challenging timeframe requirements of the Vodafone Qatar business. The cycle from initial implementation to live use was extremely rapid, and has enabled the business to address its interconnect business with full confidence.”

i-conX On The Road

i-conX Solutions' international marketing team has been busy in the first quarter of 2010 with a high profile presence at some of the industry's most informative conferences and events.



1 Capacity Asia – Kuala Lumpur 4 – 5 November 2009

Our first time exhibiting at Capacity Asia resulted in a new customer for the i-conX a-s-p solution... more details to follow in the next issue!

2 Capacity Middle East – Dubai 22 – 23 February 2010

The Middle East continues to be a prime market for i-conX, with record delegate numbers in attendance demonstrating the ongoing robustness of the ME carrier market, and the prime status of Capacity ME as the place to network. Making their event debut were Regional Sales Manager, Faisal Saifullah and Product Manager – Interconnect, Kunal Dave.

3 Billing & Revenue Assurance – Bangkok 4th – 5th March 2010

Held in Bangkok, Thailand and a market whose focus is on Routing Optimisation rather than interconnect allowed i-conX to showcase our RO development. Vice President AsiaPac - Veronica Shum led the team of i-conX representatives.

4 Mobile World Congress - Barcelona 15th – 18th February 2010

Our first time exhibiting at the world's largest exhibition for the mobile industry, i-conX COO -Brendan Rogan, CFO – Francis Donnelly and other key i-conX personnel attended. i-conX exhibited alongside other high profile Irish software vendors on the Enterprise Ireland stand, the only stand to host a reception serving Guinness!

Quiz

In recognition of our expansion to the AsiaPac region, we decided to dedicate this issue's quiz to finding out a little bit more about our AsiaPac customers culture and customs.

What is the former capital of Fiji:

- a) Lautoka
- b) Nausori
- c) Levuka

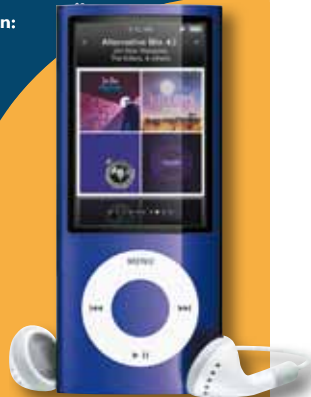
What does the Fijian word "Bula" mean:

- a) Thank You
- b) Goodbye
- c) Hello

What is the famous Fijian cooking method called, cooked on hot stone buried in soil (earth-oven):

- a) Sokuro Bitu
- b) Lovo
- c) Kokoda

Email your answers to info@iconxsolutions.com to be in with the chance of winning an iPod Nano!



Winner

Congratulations to Peter Whelan, at Vodafone Ireland, who won our Russian themed quiz in the last issue. Peter correctly identified Babushka as an old lady, Kalinka as a dance and that the festival of Kolyadki is celebrated by making a snow lady.

Diary Dates

Diary Dates 2010

- 24 - 26 May: International Telecoms Week (Washington)
- 9 - 11 June: World Telemedia (Malta)
- 15 - 18 June: CommunicAsia (Singapore)
- 16 - 17 June: WiMAX Global Congress (Amsterdam)
- 20 - 21 July: South East Asia Com (Kuala Lumpur)
- 21 - 22 September: Capacity Africa (Nairobi)
- 4 - 5 October: Capacity Russia & CIS (Moscow)
- 2 - 3 November: Capacity Asia (Kuala Lumpur)
- 15 - 17 November: Capacity Europe (Amsterdam)

For more information, or to arrange a demonstration of our solutions, please contact:

katrina.cliffe@iconxsolutions.com



Vincent's Diary

Here we see Vincent in Fiji practising bowls in Suva, Fiji.

i-conX recently sponsored Litia Tikoisuva (Planning Officer, Fintel) who is participating in the 2010 World Cup Indoor Championship in Sydney, Australia. Good luck Litia!



CTO, David Morgan has resigned from i-conX solutions to take a career break and pursue other interests after over eight years with the company.

David was responsible for IT functions within the company including software development, release management, database administration, system implementations, technical support and shaping our growing IT infrastructure.

During his tenure, David's accomplishments include developing the software for our flagship interconnect billing product at both a management and technical level. He was responsible for designing and coding the system architecture including the selection of programming and platform technologies. He also oversaw the technical delivery, training and support of the system for numerous implementations.

"It has been rewarding to participate in the growth of this company over the years" said David. "The future of the company is extremely positive. With the outstanding people, technologies and processes that we have put in place over the years, i-conX is in a great position for increased growth and success in the future. I wish all of our customers, partners, vendors and my co-workers the very best."

The Board of Directors, Management and colleagues would like to thank David for his hard-work, commitment and many contributions to the company's development over the years and we wish him the very best of success and good wishes for the future.

David, a founding member of i-conX solutions also served as a member of the Board of Directors since the company was founded in 2001.