

Seminar on Costs & Tariffs for the TAF Group Member Countries



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The Evolution of Inter Carrier Settlements

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Agenda



- ◆ What is Interconnect?
- ◆ History of Interconnect
- ◆ Current and Emerging Interconnect Practices
- ◆ Future of Interconnect (IP/WAP/GPRS/UMTS)
- ◆ Differences between Retail & Wholesale Billing

Definition of Interconnect



“Interconnect is the process of handling calls for other operators”

‘The opening of networks to allow the customers of one network operators to communicate with the customers of another’

Why Interconnect is important?



Interconnect can represent

- ◆ the largest single operating cost
- ◆ the second largest source of revenue

“To some operator, interconnect costs represent approximately 30% -50% of their revenues”

Computer and Telecommunications Law Review April 1997

History of interconnect



- ◆ International calls
 - Between National Incumbent Operators
 - Rules defined under ITU
- ◆ Mobile operators
 - National
 - International roaming
- ◆ De-regulation
 - Mobile
 - National Long distance and International
 - Internet
 - Special services
 - Fixed local loop

ITU Interconnect Rules



- ◆ Multilateral agreement
 - Agreement negotiated within ITU
- ◆ Prices agreed based on route
- ◆ Monthly statements
- ◆ Reconciliation based on Incoming accounts
- ◆ Dispute resolution process governed by ITU
- ◆ Quarterly Settlement

Types of international interconnect agreements



<u>Type of Agreement</u>	<u>Geographical area</u>	<u>Characteristics</u>
Accounting Rate (ITU)	Traditionally Worldwide	Multi-lateral agreements Used by Incumbent Operators Governed by ITU Migrating to Hubbing
Cascade	Outside North America	Bi-lateral agreements. Wide variation in requirements.
Direct	Worldwide	Multi-lateral agreements between operators participating in the call. Wide variation in requirements.
Re-filing, Hubbing	Various	Offers better rates Illegal in some countries
Reseller, Re-origination	Various	Illegal in some countries For specific destinations

ITU Pricing Rules (1)



- ◆ Traditional ITU Route Based Pricing (TAR)
 - International Transit and Terminating Traffic
 - ITU Accounting and Billing
- ◆ Special deal option for transit traffic
- ◆ ITU Direct and Cascade Accounting
- ◆ Operator Assisted Calls
- ◆ Telex/Telegraph Traffic

ITU Pricing Rules (2)



- ◆ Refile
- ◆ Hubbing
- ◆ Re-origination
- ◆ Voice and Data Traffic Processing
- ◆ International Special Services
 - Freephone
 - Premium rate services

De-regulated Interconnect Rules



- ◆ Bi-lateral agreement
- ◆ Prices based on
 - bilateral negotiations
 - public catalog
- ◆ Invoicing
- ◆ Reconciliation based on invoice
 - seldom standardised
- ◆ Contractual Dispute resolution process
- ◆ Settlement based on invoice

Types of De-regulated interconnect agreements



<u>Type of Agreement</u>	<u>Geographical area</u>	<u>Characteristics</u>
Handshake Sender Keeps All Bill and Keep	Various	Original form of interconnect agreement Cheap to manage / Does not support transit call Disliked by PTTs / Very scarce now.
Revenue Sharing	Asia Pacific	Based on PTT retail rates Inhibits innovation / Disliked by new entrants Unfair settlement of real traffic
Cost Based / Cascade Distance Based Element Based	Rest of world outside North America	Bi-lateral agreements between operators Wide variation in requirements
Access Billing (CABS) Equal Access	United States Parts of Asia Pacific	Involves widespread use of bureau services to manage agreements Highly standardised
IP / Data – QOS Based Revenue Sharing	Primarily in Europe	Diff from Asian revenue sharing Uses packet, IP, session ID Not usage/time sensitive

De-regulated Pricing Rules (1)



- ◆ Precision Billing (Accurate to Hundredths of a second)
- ◆ Pulse and Unit Billing
- ◆ Multiple Currencies (with Euro Support)
- ◆ Flat Rate
- ◆ Stepped Rates
- ◆ Minimum Charge
- ◆ Zero Duration and Call Attempt Charge
- ◆ Calculation accuracy down to six decimals

De-regulated Pricing Rules (2)



- ◆ Discounting
- ◆ Cascade Billing
- ◆ Direct Billing
- ◆ Distance or Destination
- ◆ Element Based Conveyance (EBC)
- ◆ New products with multiple rating rules
- ◆ Time Based Pricing versus Content Based Pricing

Key Differences



- ◆ Negotiation process
- ◆ Rating structure
 - bi-lateral vs route based
- ◆ Invoice versus statement
- ◆ Standardised versus De-regulated reconciliation
- ◆ Settlement process
- ◆ Dispute handling within ITU rules

International Roaming



- ◆ Bilateral agreements
- ◆ Prices
 - Retail price + commission
 - Inter Operator Tariff (IOT)
- ◆ Invoicing
- ◆ Reconciliation
 - Do Nothing
 - Verification
 - Re-pricing

International Roaming (Contd)



- ◆ Daily exchange of CDRs
 - TAP files
- ◆ Settlement
 - Clearing House
 - Net payment
 - Invoice payment

IP Interconnection



- ◆ Complex rating capabilities – new parameters
 - QOS, Session ID
 - Usage based on Bytes, Packets, Hits, Transactions
 - Duration based billing can be irrelevant
- ◆ Emerging requirements
 - “not been done before”
 - Will involve more service establishments
 - New pricing models required
 - Value chain revenue sharing
- ◆ Evolution of business practices
 - Complexity of content going through the roof
 - Cost to deliver falling through the floor
 - Limited opportunity for pure telecom margins

Retail versus Interconnect Billing



Retail Billing

1. Retail traffic
2. Low risk of errors
3. Low rate of dispute
4. Competitive system
5. Decreasing complexity

Interconnect Billing

- Interconnection traffic
- High risk of errors
- High probability of dispute
- "Partner" system
- Increasing complexity



1 - Retail vs Interconnection traffic

Retail Billing

Invoice is the only purpose

Invoice = company image
(requires a lot of effort and costs)

Outgoing traffic only

Single currency

Invoice detail by call

Use of A & B number only for rating

Unsuccessful calls are ignored

Generalised usage of different systems for retail and interconnection billing in the deregulated market and for international settlements

Interconnect Billing

Invoice and expected incoming invoice

Invoice must primarily justify interconnection charges

Outgoing, incoming and transit traffic needed

Multiple currencies (even on one invoice)

Invoice detail by summaries

Use of A, B and network elements for rating

Unsuccessful calls can generated charges

2 - Low vs high risk of errors



Retail Billing

Once database is set up, CDR pricing errors are seldom

No effort needed to insure revenue

Big margin

No need for error management

Errors put to trash

No billing directive set by Legal authority

Interconnect Billing

The constant changes on network, rate, etc lead to errors which need to be corrected to insure revenue

Constant effort needed to insure revenue

Low margin (revenue sensitive)

Need for sophisticated error analysis

Errors saved for reprocessing

A dedicated Interconnect billing system is often required by the Regulatory Authority or the incumbent operator

3 - Low vs High probability of dispute



Retail Billing

Many customers

Low amount

Dispute on small amounts

No need to prove good faith but
but to print detailed calls
or analyse fraud (other system)

No notion of network elements

Call based Reconciliation

Sophisticated payment tracking

Interconnect Billing

Few operators

Big amounts

Dispute on big amounts (even invoice total)

Need to prove good faith
Need for a process to differentiate
disputed traffic from agreed one

Network elements are key to differentiate
disputed from agreed traffic

Sophisticated reconciliation (process based on
multiple level summaries)

Standard payment tracking

4 - Competitive vs "partner" system



Retail Billing

Very often customised

Bespoke maintenance

High implementation costs

High maintenance costs

High operational costs

Competitive advantage

Closed

Not designed to be audited

Interconnect Billing

True product

New releases (new functionality)

Low implementation costs

Low maintenance costs

Low operational costs

"Partnership" with Interconnected operators

Open

Auditable (separate system)

5 - Decreasing vs Increasing complexity



Retail Billing

Trend to simplify offer (time based packages, few rates, few time bands,

Single (and simpler) pricing model

Few rate changes

Marketing driven discounts

Mass marketing

Free market rules

Interconnect Billing

Complexity due to finding a balance between margin (based on retail offer), cost based logic (enforced by the Authority) and competition

Variety of pricing models (time based, content billing, ...)

Frequent rate changes

Volume based discounts

Bi-lateral agreements

Rules defined by the Regulatory Authority

Summary



- ◆ Interconnect is mission critical
- ◆ Ever evolving
- ◆ Will change further with IP/WAP/GPRS
- ◆ There is a need for complete suite of applications
- ◆ A telco must manage/lower Cost of Ownership
- ◆ Interconnect is key to Profitability