Exploring the Promise of a Bill and Keep Regime for Mobile Termination

Looking from an Evolutionary Perspective

GOALS A BILL AND KEEP REGIME HOPES TO FOSTER

- Economic- Reflect the right economic co relation of revenue to production or investment to ROI *i.e. to require operators to generate their revenues from their own subscribers/end users.*

- Political – public policy is to promote effective competition and suppress use of monopoly power. *remove exploitation of disinterested third parties.*

- Social – pursue the mandate of affordability, quality and choice on behalf of the public. *Reduce costs and support new conveniences of technologies*

Impact of technological developments

- Digitisation making circuit switch carriage obsolete or outmoded – steady progression to IP transmission
- Digital data is now the substance of mobile service carriage: voice/audio, data and audio visual converging into data compositions.
- Differentiation of services will lie mainly in content and content has its own value proposition.
- Digital traffic requires new costing model of non usage-sensitive assets, complex packet routing tables, costs comprising pools of fixed costs so as to utilise higher proportion of arbitrary cost allocation bases.
- Always- on transmission pipe is paradoxical to time sensitive circuit measurements i.e. per minute usage indefensible, unless pipe or core can be redirected to other usage purposes when not in use (Software Defined Networks(SDN and Network Function Virtualisation NFV
- Before the bottom falls out from standard service costing and regulatory models, changes are inevitable.

The path forward – business Objectives

- To stimulate more broadband investment to benefit more, economically and socially and to realise greater potentials of ICTs – funding by *PPP arrangements, Rate of Return regime vs. Price cap, Forbearance and ex post regulation vs. ex ante regulatory approach.*
- Conversion to a more technically compatible settlement regime, one that caters to the end game of predominantly data, traffic exchange.
- Preparing for next major growth era “Internet of Things” –NGN (mobile and fixed)expected to boom into profitable business models as IoT focus proposes to be more on domestically centric services.

Imminent Changes (some already acknowledged)

- Retirement of circuit switch/TDM transmission as main carriage of telecom traffic.
- Digital data as main carriage content, requiring IP based investments towards creation of NGN networks.
- What about bandwidth speed demand on the access network?
- Cost and price issues for services diverge based on delivery technology choices
- Mobile and fixed line network voice silos converging into NGN network model, which approach is uniquely voice standard, hard to classify under generic regulatory postulates when delinked from technology.
- OTT becoming capable of delivering all services of a network operator's retailing business, once subscriber buys internet access.
- NGN operator losing retail markets and reduced to seller of internet access, leading to strong and diverse competition at retail level
- Minutes of usage precluded by data bytes (volume-based over time-bases reflected in usage or bandwidth? True NGN costs per user, based on time measurement, very infinitesimal.
- Where is cost recovery business services model for NGN operators likely to come from –internet access, wholesaling facilities to content and application providers, VPN creation, retailing VPN for IOT business and home solutions
- Net neutrality and congestion management can there be compatibility between the two? Yes by decoupling from NGN busines revenue model

Termination rates not improving effective Competition

- Mobile Termination Rate (MTR) is a revenue paid directly to one network, indirectly, by the customers of another network. Because of this there is no incentive for the paid network or its own subscribers to reduce MTR. And competition/market forces have little impact
- Not reducing MTRs eventually affects the demand from other networks to call the paid network. Subscribers begin to favour the cheaper on-net calling engineered by their network operator. Buy two phones or a dual-sim phone and do on-net calling to each network in tandem. Is this the ideal we want? The most vulnerable subscribers (prepaid non smart phone users will be made to bear the cost of MTR

Termination rates not improving effective Competition (continued)

High administrative cost of computing and monitoring MTR, adjudicating disputes and rent seeking, both for operator and regulator.

Benchmarking not helpful because of existing disparities in MTRs even in cases where countries' conditions appear to be similar.

Optimal termination rate predicted by many to be approaching zero, in any case.

Caribbean markets show the traffic balance almost ideal for zero termination rate. 52% -48% in T&T, recent OECS broadband survey

GOOD ECONOMIC MANAGEMENT FOR TELECOM MARKETS

Twenty odd years of liberalisation and regulatory oversight has thought us some fundamentals:

1) Interconnection must be an imperative

2) apply economic theory of efficiency, cost effectiveness and economy in use of scarce resources – seek economies of scale and scope, avoidance of duplication by sharing scarce and costly resources where possible. 5G seems to hinge heavily on this premise (i.e.content location at cell site and PoI also at cell site)

3)Prices are more efficient and effective when they reflect costs and stimulates effective competition best.

4)Spectrum management is a critical facilitator and enabler for growth.

5)Regulation can assist in fostering effective competition by removing barriers to entry and protecting against abuse of market power

Transmission trends

- Both major networks in the Caribbean Region have already begun their migration to IP transmission via transition to Next Generation Networks (NGN) infrastructure.
- While mobile networks still maintain their voice circuit switched capability (2G) it is also already possible for alternate voice services to be accessed on these overlaid networks i.e. via the mobile internet VoIP application services.
- The regulatory distinctions for commendable voice service will need to be updated to account not only for a standard of carrier grade fixed line voice service. but for or these different ways and means of providing voice service

Regulatory determinations

1)A strong headwind blowing globally is one to eliminate per minute termination rates and move to a compensation regime that is compatible with the current settlement of IP based traffic.

2)Retirement of circuit switched investment may take another twenty years, long past its long run recovery period and it is prudent to begin framing the system for IP based voice which is already here. It is incumbent on regulators now to send the right signals about the future of voice services. If mobile and NGN VoIP is to be declared a substitute for carrier grade voice then the regulatory impositions must be homogenous and so too must the settlement regimes.

3)So it must stand that incremental costs derived for IP based voice termination will be the proxy that dictates the retail pricing of all voice calls, whether they be switched circuit or not, to avoid any price arbitrage.

This approach will require:

a)Encourage the steady conversion from circuit switch to IP based transmission

b)Use IP based retail prices as the floor prices so consumers can avail themselves of the best welfare the market has to offer, notwithstanding the prevalence of circuit switch.

Bill and keep attributes

1. It facilitates establishment of the most efficient locations and type of interconnect meet point(s)”. (This avoids abuse of near end hand off and fosters far end hand off). There should be a minimum single point of interconnection per network, per service area because defining the area is key to avoiding voluminous amounts of free- riding near-end hand off of termination traffic to recipient networks

2. “Assuming a logical set of rules regarding traffic exchange points, traffic terminators will seek the most efficient means of accepting and distributing traffic through their networks, rather than requiring methods that maximize terminating traffic revenue” (i.e. where the MTR removal is a surplus to the costs of transitioning to the new bill and keep regime, then networks can simply focus on generating more incoming traffic to further increase their profitability.

3. “Rules regarding traffic exchange points can be contentious, but there are practical solutions. For example:

4. Entry requirements to the bill and keep regime must specify that networks need to adjust their traffic hand off to the farthest possible point within their networks.

Some FCC guidelines for Bill and keep

- 1)The FCC has gone far enough to make the following proviso for Bill and Keep networks "Some parties have expressed concerns that bill-and-keep arrangements will encourage carriers to "dump" traffic on other providers' terminating network, because the cost of termination to the carrier delivering the traffic will be zero……. To help address this concern, we confirm that a LEC may include traffic grooming requirements in its tariffs. These traffic grooming requirements specify when a long distance carrier must purchase dedicated DS1 or DS3 trunks to deliver traffic rather than pay per-minute transport charges, a determination based on the amount of traffic going to a particular end office. We believe this accountability and additional information will deter concerns regarding traffic dumping .
- 2) "Should there be a default 'neutral' interconnect site (critical for low volume traffic exchange)? There should be.
- 3) Should traffic be allowed to be exchanged indirectly? Yes. It reduces the incentive for arbitrage.
- 4) 3rd party intermediary networks are only used when it make sense from a network traffic and topology standpoint not as a basis for 'masking' traffic origination or traffic classification.
- 5) Arbitrage may still exist if all traffic is not subject to bill and keep. It forces carriers to recover costs from users.
- 6) More of a "free market" exists as prices for all competing services reflect all costs. It eliminates costs from the network.
- 7). Traffic accounting and billing is vastly simplified

Regional mandates possible

- NGN Managed IP networks will gravitate to the role of special purpose networks that comprise ecosystems such as education, health, transportation, trade import and export facilities and agencies and there is need for efficient termination that does not lend itself to arbitrage.
- National broadband backbone networks are to comprise of market equivalent wholesale broadband facilities by large networks before they can be authorised as retail service providers. Bill and Keep will ensure low rates as the importance of connectivity become critical to maintaining social inclusion, production and entertainment businesses, without effective competition, such deepening dependence on ICT services can be used to exploit consumers and society at critical times.
- The FCC has taken a flexible approach to the “bill and keep” system’s implementation and the ways operators way choose to mitigate its impact, all in the general framework of having the implementation work the best it can.”Under current interconnection regime Carriers may choose to offset obligations in order to achieve “mutual recovery of costs” and are specifically permitted to waive mutual recovery

Regional mandates possible

- The Caribbean Telecommunications Union has consistently pursued the objective of formulating a "single rate space" for mobile calling across the Caribbean Region . The existence of asymmetric mobile termination rates among the islands has precluded any incidence for formulating a common voice termination rate, far less, a common retail per minute voice price
- The removal of termination rates settlement in favour of bill and keep opens the door for uniform retail pricing of on-net and off- net calling Since the cost of incoming traffic does not include charging another networks customers, network operators are free to recover all their calling costs from their subscriber customers.
- The current evenness of market share between the competing networks makes now the apt time to implement bill and keep.
- The issue of stranded interconnection billing systems and traffic monitoring costs will not be a major issue as most of these resources must remain to address incoming international call termination which countries may still wish to maintain. The favourable net settlement of international traffic need not be tampered with and bill and keep can apply to local and regional network traffic.

Regional mandates possible

- Cost savings will accrue from bill and keep due to the cut back in the interconnection billing and monitoring variable costs for the local traffic and regional traffic.
- The pending conversion to IP based transmission will allow digital voice and other digital services to be accumulated and directed to peering, which will form the end game of bill and keep for fully NGN mobile and fixed line networks.
- Fixed line termination because of the existing "access deficit" on the incumbent fixed line network which remains in place may have to remain, but stricter controls by regulators will have to ensue to prevent cross - subsidisation becoming an anti-competitive issue or one of advantage to the incumbent pricing on its mobile network.
- There is no imperative for international carriers from developed and developing countries to mandate bill and keep when the disparities of traffic between them and the region networks will not necessarily change.

Regional mandates possible

- Administration over Market Failure during Early Period of Bill and Keep implementation
- Since the single rate space is a politically drive objective, it is best for the Single Space to operate in coordination with a Universal Service mechanism that supports the Caribbean as a whole.
- Through the CTU, a regional Universal Service Fund may be established with the view to funding any country network that is being made to lose its normal cost recovery potential through the system of bill and keep.
- This way without holding on to the termination rate regime the region can move forward with the Single Space and Digital Agenda through a more economically suitable state of play.
- While the introduction of bill and keep may well work out for all networks a universal Fund will act as a backup support to allow plans to go forward with less resistance and provide more stable limits of economic certainty for private investment.(Connect America Fund)

Regional mandates possible

- \- The first milestone will be the transition to bill and keep as the new settlement regime along with a contingent regional Universality Fund to safeguard the stability of the regional networks.
- \- The termination rate regime for international calling i.e. outside of the Caribbean region would be optional and based on agreement for change with individual carriers (since this has a favourable benefit for all regional countries)
- \- The switch will not increase current billing and traffic monitoring costs and may even save on related variable costs.
- \- Networks are encouraged by bill and keep to invest in their transition to IP based or NGN networks, along with new rules for interconnection points to safeguard against traffic dumping.
- \- Networks able to increase incoming traffic balances as an outcome of bill and keep regime will also position the Region better for internet peering through consolidation of IP traffic via regional IXPs.
- \- Downstream benefits of affordability for internet and mobile voice services will redound to the Region within the context of the Single rate Space scenario.
- \- Single rate space will contribute greatly to the Regional Digital Agenda by facilitating greater access to; connectivity; information: skill development.