ASIA-PACIFIC TELECOMMUNITY

The Eleventh South Asian Telecommunications Regulators' Council (SATRC-11)
24 – 26 November 2009, Colombo, Sri Lanka

Document
SATRC-11/INP-02
24 November 2009

IMPLEMENTATION REPORT OF THE SATRC ACTION PLAN PHASE II

by

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SATRC ACTION PLAN PHASE 2 IMPLEMENTATION REPORT

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Views expressed are of the presenter and do not necessarily reflect the opinions of APT or SATRC or its members

11th SATRC Meeting, 24 to 26 November 2009, Colombo, Sri Lanka

The SATRC Action Plan Objective

The SATRC Action Plan (SAP) aims at addressing the regulatory issues and challenges of common concern to its members that arise due to technological changes, market dynamic, innovations and developments in services in the field of information and communications so as to harness their full potential in a harmonious manner for the benefit of all by utilizing the expertise and financial resources available from within its member countries.

SKH/11th SATRC/2009/Colombo   2

SATRC Action Plan Phase 1 (2005 – 2006)

The SATRC Action Plan, during the Phase 1 period 2005 – 2006 delivered the following outputs:

Working Group Reports
–   **Licensing;**
–   **Cellular Roaming;**
–   **Quality of Service;**
–   **USO;**
–   **Intelligent Network Services;**
–   **Numbering, Number Portability;**
–   **Interconnection; and**
–   **Spectrum Management.**

SKH/11th SATRC/2009/Colombo   3

SATRC Action Plan, Phase 1 (2005 – 2006)

Consultation/Information/Study papers:
–   **Information paper on Gray Market in International Long Distance Services,**
–   **Technical Status Report on ENUM,**
–   **Study report on Intelligent Network Services for presentation in a workshop,**
–   **Discussion paper on Asymmetrical Call Charging,**
–   **Comprehensive Study Report on Licensing for Convergence,**
–   **Discussion paper on Regulatory Developments,**
–   **Review Paper on Regulatory Issues concerning IP based services,**
–   **Discussion document on Improving Network Connectivity within the region.**

SKH/11th SATRC/2009/Colombo   4

SATRC Action Plan, Phase 2
2008-2009

Working Groups were constituted for:
- **Regulatory Aspects of NGN including Interconnection;**
- **Spectrum Allocation and Pricing;**
- **Billing & Tariffs for IP based Services;**
- **Network Security;**
- **VoIP Regulation including Termination and Interconnection charges, Numbering, Access to emergency nos., VoIP Billing;**
- **Mobile Services (3G, Mobile/Fixed Convergence, Advanced Wireless Services;**
- **Best Practices in Rural Connectivity;**
- **Roaming in SATRC Countries; and**
- **Regional Network Connectivity.**
  It was envisaged to prepare a SATRC Policy & Regulatory Compendium subject to budget.

SKH/11th SATRC/2009/Colombo

5

Reconstitution of WGs and inclusion of two workshops at the 10th SATRC Meeting

- On a review of the progress of tasks assigned to the various WGs, the 10th SATRC Meeting decided to merge some of them and make them more broad based with representatives from four or more countries in each so that the WGs were able to take into account different views, country scenarios and diverse experiences for a comprehensive analysis and meaningful output. The interaction by electronic means also had to be more frequent among the WG members.
- Revised ToRs were formulated for each of the reconstituted WGs.
- There was unanimity in the selection of Lead Experts and associate experts of the respective reconstituted WGs.
- Workshops on IP based Services.. and Regional Connectivity and Tariffs were approved in SAP-2 activities during 2009 and were accordingly held at Kathmandu in June 2009 and at New Delhi in October 2009 respectively.

SKH/11th SATRC/2009/Colombo

6

Regulatory Aspects of NGN including Interconnection

- Composition (original) of the Working Group: Lead Expert from Pakistan with one more expert from Pakistan and 2 Experts from Nepal;
- ToR was prepared on time;
- Interim report was presented at the thematic session at the 10th SATRC Meeting for further deliberations.
- In accordance with the decision of the meeting, in order to broad-base participation in the WG so as to reflect the ground realities and issues in a holistic manner, experts from Bhutan, India and Iran also joined the WG.
- Further work by the enlarged WG, taking into account the deliberations at the SATRC Meeting and the Proceedings of the NGN Workshop held from 16 -17 October 2008 at New Delhi was undertaken and the WG report has now been completed for presentation during this meeting in the designated session.

SKH/11th SATRC/2009/Colombo

7

Spectrum Allocation & Pricing

- WG was originally constituted with lead Expert from Bangladesh and other experts associating with him from India, Nepal and Pakistan.
- The ToR was prepared on time.
- WG had held a meeting at Dhaka in August 2008, besides communicating electronically and presented its comprehensive report at the 10th SATRC Meeting.
- In view of the common decision to enlarge the WGs, experts from Bhutan and Iran also joined the WG.
- The WG has completed its task and would be presenting its report in the session earmarked for the purpose.

SKH/11th SATRC/2009/Colombo

8

IP based services, Billing & Tariffs, Network Security, VoIP Regulation including Termination and Interconnection, Numbering, Access to

Emergency nos.

- The originally constituted three Working Groups formed at the 9th SATRC on
    - Billing & Tariffs for IP based Services;
    - Network Security;
    - VoIP Regulation including Termination and Interconnection;
  who could not complete their deliberations and reports except for the interim report of WG on VoIP regulation, were merged into one WG as decided at the 10th SATRC meeting and renamed as above with lead expert from Nepal and other experts from Bangladesh, Bhutan, India, Iran, Nepal, Pakistan, and Sri Lanka.
- The revised ToR of the merged WG was prepared in time.
- A seminar as provided for in the SAP-2 was held from 2 – 4 June 2009 at Kathmandu. This seminar included deliberations on Network Security and Billing and tariffs, VoIP Regulation, including Termination, etc.
- WG has finalized its Report taking into consideration the deliberations of the Workshop, which would be presented at this meeting during the thematic session.

SKH/11th SATRC/2009/Colombo 9

REGIONAL NETWORK CONNECTIVITY AND TARIFF ISSUES

- The two WGs on Regional Connectivity and Roaming constituted at the 9th SATRC Meeting were merged into one due to commonality of several issues, with lead Expert from Bhutan at the 10th SATRC Meeting.
- Revised TOR was cast and WG membership enlarged to include India, Iran, Nepal and Pakistan.
- The WG has completed its task and shall be presenting its report at this meeting in the designated session.

SKH/11th SATRC/2009/Colombo 10

Termination of certain WGs

By the decision of 10th SATRC, the term of the WGs on the following was not extended.

- **Mobile Services (3G, mobile/fixed convergence, advanced wireless services)**
- **Best Practices in Rural Connectivity including USO**

SKH/11th SATRC/2009/Colombo   11

WG Recommendations – NGN1

- Most of the developed countries adopted light-touch regulations for promotion of investment in NGN, being very high and involved industry throughout the thought process starting from preparation of regulatory policy to its implementation. **The working group will study solutions being implemented in different countries and will propose detailed solutions keeping in view regulatory and business environment in SATRC countries.**
- Given current status of VoIP services in many SATRC countries, timeframe for implementation of regulatory policies will play a vital role in their success. Involvement of industry in formulation and implementation of regulatory policy may be appropriate. Some of the regulatory bodies have already established organizations for industry cross collaboration on various issues starting from technical specifications to implementation of regulatory framework.

SKH/11th SATRC/2009/Colombo   12

WG Recommendations – NGN2

Actions at Country, SATRC and APT Levels

- Asia Pacific countries have diversified demography and economic conditions resulting in different business environments. Therefore, every country needs to formulate its NGN regulatory policy suitable for its environment;
- Regional organizations like APT can help decide macro issues by evolving a consensus on various macro technical and regulatory issues.
- The inherent features of NGN/IP based networks being independent of national boundaries necessitate increased cooperation of regional regulators and SATRC can play a vital role in AP Region.
- SATRC countries can implement more competitive NGN Interconnect tariffs among SATRC counties based on mutual cooperation and understanding.

SKH/11th SATRC/2009/Colombo 13

WG Recommendations –Spectrum1

Spectrum Allocation and Pricing

- The spectrum allocation and pricing policy has to meet the national objectives and goals. Accordingly, the spectrum management is always country specific.
- Rebalancing the demand for spectrum and its supply, for maximizing economic efficiency requires the development of new spectrum management methods. Economic methods to establish a regulatory framework allowing market forces to play a greater role in spectrum management, by introducing market oriented allocation processes should be adopted.
- Although new standardized technologies permit the Spectrum Allocation in terms of which frequencies should be used for which applications, while assigning those frequencies to individual users, it is important to do so in a way that provides incentives to use the finite spectrum resource as efficiently as possible.
- Blocks of frequencies in different bands may be auctioned in a sequential process on the basis of geographical areas, with each licensee being allowed to bid only for a certain block, for use in a particular licensed area, and to achieve prescribed roll outs within a certain limited time, failing which the Spectrum licensing authority should be free to reclaim it.

SKH/11th SATRC/2009/Colombo 14

WG Recommendations – Spectrum2

- The Government/ Spectrum Regulator should announce reserve price for spectrum auction based on the estimated business potential of the geographical area, such as Metros / States/ Provinces/ Zones as classified with rural habitations, or based on international benchmarks, or from initial offers/ shadow price, or past experience.
- Spectrum currently set aside for public safety use should remain subject to the command-and-control model to ensure provision of essential life-and-safety services. Such spectrum can be allowed to be used for public telecom services which are not critical and which can be pre-empted. At the same time, if so required, because of the variability of public safety use, public safety users should have flexibility to lease spectrum capacity during lower-use periods to commercial users.
- The spectrum allocated exclusively for broadcast services, should remain subject to the current regulatory model, which is based on public interest objectives. It recognizes the fact that a large part of the spectrum used for broadcasting services is shared with other radio-communication services. Over the longer term, the regulator should periodically review and amend its broadcast spectrum policies.

SKH/11th SATRC/2009/Colombo   15

WG Recommendations – Spectrum3

- Economic efficiency should be promoted by providing spectrum users with flexibility of spectrum use and ease of transferability, assuming that the relevant spectrum has been allotted through auction, in order to allow maximization of the value of the services provided.
- Recognizing that the emerging IP Network platform is enabling the delivery of information, communication and entertainment (Radio, TV, Video on demand, etc.) services, the demands for converged services, are likely to be met over broadband wireless networks which may employ technology such as for example IEEE 802.11x, 802.16x, etc. This needs consideration at the country level by the respective spectrum regulators with a view to maximizing spectrum utilization and efficiency.

SKH/11th SATRC/2009/Colombo   16

WG Recommendations – Spectrum4

- International experience has shown that co-ordination becomes easier to achieve between neighbouring countries that tend to follow similar practices in their spectrum use than would otherwise be the case. Nevertheless differences in use do occur. In these circumstances each spectrum regulator should consider a trade-off between the spectrum efficiency and equipment cost/availability advantages of harmonization vis-à-vis the economic and social advantages of supplying non-harmonized services that are more highly valued in its own country than in the neighbouring country.

- **Formation of a Forum on regional basis that includes the policy makers, regulators, vendors, technology developers for exchange of information on spectrum planning, flexibility and standardization of uses on regular basis in order to ensure and build up confidence in spectrum management may be considered.**

SKH/11th SATRC/2009/Colombo 17

WG Recommendations – Spectrum5

Type Approval
- Traditionally, all customer equipment for use with the PSTN had to be type approved primarily to ensure that no harm was caused to the network by connecting the device and it posed no hazard to the user. With advances in technology and mass manufacturing methods together with ISO and self certification by the manufacturers, it may not be mandatory to subject the customer equipment to rigorous Type Approval procedures. However, this is up to the decision of each country's Regulator to mandate type approval or not for customer equipment.
- The type approval from spectrum aspects is to ensure that the spurious radiations - harmonics and out-of-band emissions – are within specified limits as well as to take care of their receiver filter characteristics. It is an important requirement. In practice, this can be achieved either through testing within the country or by mutual recognition of 'Type Approval Certificates' of other organizations like FCC, ETSI, EU, etc.

SKH/11th SATRC/2009/Colombo 18

WG Recommendations – Spectrum6

Spectrum Trading
- The ownership of the spectrum allocated by auction for use to provide service during the license period is normally considered to vest with the successful bidder (Operator) for specific use, unless it is reclaimed by the regulator for violation of any of the license conditions.

Periodic Review
- The Spectrum Regulator should adjust its regulations on a periodic basis to prevent rules that are calibrated to older technologies from inhibiting access by newer, more efficient technologies that develop over time. Such reviews may be made at sufficiently spaced intervals (5-10 years) so as not to undermine the stability of current spectrum users' business plans and investment. Besides, the existing users who are likely to be affected, should be allowed reasonable time period to change over to new regulatory regime.

SKH/11th SATRC/2009/Colombo   19

WG Recommendations – Spectrum7

- Monitoring is important for ensuring that emissions are within the limits which do not cause harmful interference or health effects. Spectrum Regulator must devote sufficient resources to monitoring spectrum use and enforcing the spectrum management rules.

Capacity Building

Best Practice Guidelines for Spectrum Management to Promote ICT
- Under the SAP Phase 2, Guidelines for Spectrum Management based on this WG report intended to be the Reference Paper may be evolved. These Guidelines would help in human capacity building in some member countries of the SATRC with relatively less experience.

Exchange of Experts and Training
- The SAP II plan may include Technical cooperation among SATRC countries comprising Exchange of Experts and Training with a view to capacity building.
- The above activities may be considered for implementation in the member countries by SATRC.

SKH/11th SATRC/2009/Colombo   20

WG Recommendations – IP based services…1

- **The VoIP should be categorized and the scope of VoIP services should be well defined. Light touch regulation can be adopted for PC-to-PC or IP-to-IP Voice Communication whereas Phone-to-Phone or Phone-to-IP Device VoIP may be treated at par, in terms of interconnection, with PSTN/PLMN services.**

- **Pure VoIP (PC-to-PC voice) can be considered as application service on the Internet and may not be required to contribute for USO fund, whereas IP device (PC)-to-Phone or Phone-to-IP Device (PC) VoIP could be treated as telecommunication service similar to PSTN/PLMN and should contribute to the USO fund. However, as the situation regarding USO regime is not uniform in SATRC countries, it should be left to the member state to take a specific decision based on its market.**

SKH/11th SATRC/2009/Colombo   21

WG Recommendations – IP based…2

- VoIP Operators may be provided geographic or non-geographic numbering resource. The numbering scheme for VoIP may be same as being used for PSTN/PLMN. Alternatively possibility of using ENUM may be considered, after looking at all aspects in relation to national/ network security. National standardization body or regulator may review the allocation of numbering resources to VoIP operators depending on country specific issues like availability of numbering resource, growth of VoIP subscribers etc.

- The VoIP operators must also be allowed to have interconnection with the PSTN/PLMN operators and interconnection guidelines may include provisions for volume based, bandwidth based and SLA based IUC mechanisms for local, national and international calls.

- In the short-term, existing billing mechanisms as in PSTN/PLMN may continue for inter-operator/inter-carrier reconciliation and subscriber billing, which requires generation of CDR/IPDR records.

- In the long term, interconnect billing may be based on various other parameters such as   bandwidth used, requiring alternative record keeping mechanisms which would depend on the methodology adopted for Inter Carrier settlement.

SKH/11th SATRC/2009/Colombo   22

WG Recommendations – IP based..3

- VoIP Service providers may be encouraged to facilitate access to emergency number calls; however they may not be mandated to provide such services at present. It must be mandatory for service providers to inform the consumers accordingly. Emergency number dialing from IP telephony subscribers may be mandated at appropriate time; however, methodologies of such implementation are left to the service providers.
- The VoIP operators must also maintain privacy and must provide sufficient lawful interception and traceability features for security concerns.
- The Regulators must also closely watch the development of standardization and interoperability issues and take necessary measures to ensure the full interoperability of the systems in coordination with international standardization organizations.

SKH/11th SATRC/2009/Colombo   23

WG Recommendations – IP based …4

- The regulators are required to prepare regulatory frameworks so that the potential new services and existing services based on IP networks such as triple play and quadruple play services could be deployed to the benefit of the consumers without delay.
- There may be a need to have Interconnect Exchanges for exchange of IP traffic. However, the modalities for such an exchange may be decided on country specificities on the basis of parameters like point of interconnection, geographical area covered by license, etc. It is recommended that
  - The establishment of IP based Interconnect Exchange (IE) may be facilitated.
  - Details for establishment of such an IE may be worked out through consultation on country specific situations.
  - In the initial stage, interconnectivity through IE may not be mandated and peer-to-peer interconnections may be permitted. However, if an operator desires to have interconnection with another operator through IE it may not be denied.
- Authentication of Calling Party and Called Party Identification may be mandated, however, its implementation methodologies may be left to individual service providers.

SKH/11th SATRC/2009/Colombo   24

WG Recommendations – IP based..5

Conclusion
- VoIP is the major and most revenue generating application in IP-based network.
- VoIP also provides a cheaper option to the consumers for making long distance and international calls.
- However, due to certain restrictions for VoIP, there have been the issues for ILD call bypass resulting in a huge loss per year both to the telecom operator as well as to the government. Therefore, the SATRC member countries must make necessary provisions in their regulatory framework to implement VoIP.
- While implementing VoIP, the issues of VoIP classification, interconnection, numbering, emergency call service, privacy and security, interoperability and standardization have to be well addressed.
- The approach of light touch regulation can be adopted for PC-to-PC voice communications whereas PC (or IP phone)-to-Phone or Phone-to-Phone VoIP can be treated similar as voice telephony. Phone-to-Phone VoIP may require low entry barriers and little flexibility for its implementation.

SKH/11th SATRC/2009/Colombo   25

WG Recommendations – Regional connectivity and tariffs

- During the recent SATRC workshop on "Regulatory Challenges in Emerging Telecom Scenario" held in New Delhi from October 12-14, 2009. The following issues were highlighted:
- There was an urgent need to improve the regional network connectivity
- The cost of making international calls depend upon three components[1]: (a) cost from caller to international exchange; (b) cost of hauling the call from the international exchange of Country A to a destination exchange in Country B; and (c) cost of terminating the call, i.e., costing of hauling the call from destination country's international exchange to the recipient's phone.
- Since both (a) and (b) tend to decline with the increase in volume of traffic, the main component which influences the cost of an international call is the termination charge and this cost could only be brought down with the increase in the level of competition. Monopoly market will maintain high margins even if the cost of termination is reduced.

[1] Rohan Samarajiva, Lirneasia, " Options for lowering intra-SAARC international voice telephony tariffs"

SKH/11th SATRC/2009/Colombo   26

WG Recommendations – Regional connectivity and tariffs

- It was recommended that India should take a lead role in establishing cost based inter connection regulation regime. India's position is as follows.
- The termination charge for international incoming call is fixed at Re.0.40 per minute (approximately 1Cent per minute) in India. It is worth noting that this termination charge for international incoming call was Rs. 4.85 during 2003 comprising an element of Access Deficit Component of Rs.4.25. The Access Deficit Charge component has been gradually reduced and made zero in 2008. Thus for international incoming call, there is substantial reduction from Rs.4.55 to Re.0.40 today. It will be an effort in the right direction if the regulators of other SATRC countries explore the possibility of reducing the termination charges for international incoming calls on similar lines.

SKH/11th SATRC/2009/Colombo   27

WG Recommendations – Regional connectivity and tariffs

This Samarajiva study recommends the following options for reducing the international (regional) call prices:
- **Option 1:** Individual regulators to fix the termination charges for all the incoming international calls at par with that of the domestic calls.
- **Option 2:** Individual regulators to fix per minute charges for tariffs for international calls to SATRC destinations same (equal or less than) as that of non-SATRC destinations.
- **Option 3: SATRC** to benchmark the termination charges for the international calls within the region and regulatory authority in each country mandate respective operators to charge as per the benchmarks.
- **Option 4:** Give timeframe for individual operators to negotiate among themselves and bring down the cost

SKH/11th SATRC/2009/Colombo   28

WG Recommendations – Regional connectivity and tariffs

- Group would like to recommend undertaking a detailed technical feasibility study as a follow up activity for implementation of the regional Information Superhighway network with APT providing a Consultant for conducting this feasibility study.
- Having a common regional network will have a great impact in bringing about regional economic integration like that of East African region through the abolition of mobile cellular roaming charges.
- Direct exchange of traffic within the SATRC region would help in fostering regional economic integration and will reduce the existing barriers that hinder the activities of economic agents within the region.
- Access to terrestrial international network fiber-optic submarine cables through the regional network would reduce international band width costs to land locked countries.
- Regional connectivity should be viewed in the long term interest and economic prosperity of the people of the countries of the SATRC sub-region, to achieve which a harmonious, coordinated and collaborative approach at the regulatory policy level is required.
- Direct connectivity will bring down the cost of doing business within the region and thus promote more trade and commerce within the region.

SKH/11th SATRC/2009/Colombo   29

CONCLUSION

The review of the SAP-2 implementation status reveals that:

- The Working Groups have done a thorough and excellent job meeting the requirements of the respective ToRs. Experience shows that besides the interaction electronically, face-to-face interaction as that obtained at the Spectrum WG members meeting in Dhaka and that at the Workshops has been very beneficial.
- The Workshops on NGN (New Delhi), IP based services (Kathmandu), and Emerging challenges including Regional Connectivity and Tariffs (New Delhi) have been highly successful with participation of industry, government representatives, regulators, and other stakeholders.
- There is need to continue the WGs on NGN, Spectrum, and Regional Connectivity and for the APT to consider providing technical assistance in planning and design of the SATRC (South-Asian) Information Superhighway, creation of a Focus Group for Spectrum coordination, etc., as recommended by the respective WGs.

SKH/11th SATRC/2009/Colombo   30

Thank You for your attention please!

SKH/11th SATRC/2009/Colombo

31