



ITU-BDT Regional Network Planning Workshop with Tool Case Studies for the Arab Region

Cairo, Egypt, 16-27 July 2006

SUMMARY REPORT

1. Objectives

The main objective of the workshop was to move a step forward in the transfer of the know-how on actual Telecommunication Planning to the countries of the Arab Region with practical applications of tools and case studies, following the mandate of ITU and program by the ITU-BDT and to provide and present in-depth information on the following topics:

- Role of planning in the current network architecture scenario (case studies illustrating business feasibility and solution mapping with benefits);
- Integrated planning process and related activities (Service and traffic forecasting, Network design and dimensioning, Plan documentation and delivery to the next phase; Implementation);
- Specific network planning per layer and multilayer (Service and application matrix forecasting, Transmission planning);
- Supporting network planning tools (Objectives, Inputs and outputs for most frequent tools: Exel, PLANITU, STEEM, NetQuad, NetWorks, VPI, etc.).

The other objectives of the Seminar were to address the countries towards the correct strategies to be chosen when evolving to NGN and to present respective planning tools. Also to familiarize the participants with two ITU documents under development: Network Planning Handbook and Network Planning Tools Specifications.

Three different domains of network planning were addressed as: Business planning, Mobile planning and Fixed networks planning considered as the most frequently needed today. Following the partnership between the ITU-BDT and the tool owner houses, tools were delivered during the workshop to the participants for their direct training on the job and use in typical planning problems.

2. Place

The ITU-BDT Regional Network Planning Workshop with Tool Case Studies for the Arab Region took place in the National Telecommunication Institute (NTI), Cairo, Egypt.

3. Time

July 16th to 27th, 2006.

Working time:

Sunday - Monday: 9:00 - 13:00, 14:00 – 18:00

Tuesday - Thursday: 9:00 - 13:00, 14:00 – 16:00

Friday: 9:00 - 12:00

Monday - Thursday: 9:00 - 13:00, 14:00 – 16:00

4. Attendees

50 attendees from 15 countries (Algeria, Djibouti, Jordan, Kuwait, Libya, Mauritania, Oman, Palestine, Saudi Arabia, Sudan, Syria, Tunisia, UAE, Yemen and the hosting country- Egypt) and five speakers from four countries. Participants show very wide profiles and background, covering all areas of telecom as: Regulation, Network planning, Switching, Transmission, Data communications, NGN, Radio access technology, Broadcasting, Satellites, Mobile, IT and Outside plant.

5. Summary

The following list of topics was dealt with during the Workshop:

- New network architectures and traffic cases
- Strategic Planning and new Technologies
- Long-term Planning and Long cycle Investments
- Short/Medium term Planning and Service/Network Deployment
- Data Gathering
- Traffic characterization
- Network Design
- Network Costing and Optimization
- Q.O.S.
- Documentation (Network Plan and deployment)
- Business Oriented Needs (customer segments to address, service building, reduce capital cost, etc.)
- Network Oriented Needs(forecast of service and traffic demands, network topology and routing, evolution, protection level)
- Network Planning Tools (different problems/cases, different tools)
- Partnership

The workshop was organized in a series of modules covering a common part on network planning fundamentals including tools description and a specific part with the definition of 15 teams to work on the tool application to case studies in the domains of Business, Mobile and Fixed networks. Applied tools were STEM from Analysys Ltd. Cambridge, Multilink from LS Telcom and Access maker from VPISystems.

- The common module consisted of the following sessions:

Session 1: Opening with the welcome address by NTI and ITU regional, Introduction by Riccardo Passerini on the ITU-BDT approach to planning with workshop objectives and presentation of all participants, their professional profile and topics of major interest

Session 2: ITU-BDT Activities on Network Planning

- ITU-BDT Manual on Network Planning for Evolving Network Architectures: Overview
- ITU-BDT Network Planning Tool Specifications (NPTS) for Developing Countries: Overview

Session 3: Role of Planning in the current Network Architecture Scenario

- Requirements for decision making in Network evolution, Strategic planning and new Technologies. Solution mapping for geo-scenarios
- Network planning at different time scales, long, medium and short term
- Network layers for Planning, architectures and technological alternatives. NGN: What and How
- Service and traffic forecasting
- Business and investment plan

Session 4: Supporting Network Planning Tools

- Role of the planning tools within the Operational Support Systems and tool categories
- Scope and capabilities of the Strategic Techno-economic tools. View on STEM: Strategic Telecom Evaluation Model
- Presentation of Network Planning tools, features, inputs/outputs for radio and mobile related needs
- Presentation of Network Planning tools, features, inputs/outputs for access and fixed networks needs - VPI

At the end of the generic sessions 15 working teams were defined with size between 2 and 4 members in order to allow each team to work with a computer and distribute teams among the different parallel sessions.

In the following days of the workshop, the planned tools were applied to typical cases with simplified configurations in order to allow participants their direct involvement and use

Specifically, in the case of STEM business planning, the following activities were carried out directly with the tool for a strategic techno-economic evaluation of DSL solutions as compared to WiMAX solutions in an area of low density.

- Familiarization with STEM editor, modelling, input handling and results analysis
- Exercises for demand forecasting of DSL ports, calculation of Capex, Opex, depreciation and geographical deployment
- Calculation of associated yearly volume-driven traffic for voice circuit mode, peak driven traffic for data and video stream flows
- Dimensioning of WiMAX sectors and base stations with the use of internal transformations and sensitivity to video penetration rates and bandwidth per channel
- Calculation of key financial factors like cash flow, profit, NPV, IRR, operational charges, etc. and grouping results by affinity of network resources in clusters

- Performing sensitivity and what-if analysis to the more important or more uncertain variables with automatic result production and analysis of impacts for the decision making

Thanks to the high interest of teams and the progressive organization of sequential exercises, the performance of teams was really good and higher than the average as most of them were able to use the functionalities of the tool in two days when in a regular seminar four days are normally needed.

6. Questions highlights

The following provide a summary of questions reflecting interest of attendees in the topic of the workshop:

- Status of tools today: in phase of evaluation or already approved? -> Partnership already agreed and continuous evaluation is permanent in order to incorporate new functionalities of the tools or new tools
- Capability of ITU to support countries in actual planning? ->Yes, following the regular request procedures within the region
- Is OPNET in the set of tools? -> It is already selected for the more detailed planning activities and partnership agreement as a function of house response
- High interest of most members on the migration to NGN, planning process, tools related and recommendations based on benchmarking from other countries
- Who is the first contact when purchasing tools by a country? -> Final contract directly to tool house but request in copy to ITU Geneva. R. Passerini in order to benefit from agreed special conditions for ITU-BDT members

7. Outcome

- As a result from the workshop, a good transfer of know how has been delivered to the attendees on the latest methods for design and planning current technologies matching today's requirements and facilitating the operators the way to take the most appropriate decisions on their environment.
- In the case of STEM, the same set of applications were delivered at the end of week to all attendees by R. Bailey in a Demo version to be able to explore all flows, input changes and result analysis at their locations with the constraint of maintaining the same set of network resources and interrelations.
- A number of delegates were interested in further analysis for planning activities at the country, tool acquisition, special conditions, etc. It has to be mentioned the high involvement of Algeria, Telecom Egypt, NTI, Mauritania, Yemen and Syria.

8. Recommendations

Due to the fact that this was the first regional ITU Workshop on Network Planning with Tool Case Studies, the following could be recommended:

- To relate the session structure with the corresponding chapters of the ITU-BDT Manual on Network Planning.
- To collect pool with network's data from different countries and to select for the Workshop subset of data reflecting the region of the participating countries.
- To select participants far in advance, so that they will have sufficient time to prepare for the Workshop, including with presentations for the status of the Network Planning in the corresponding country.