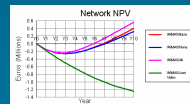
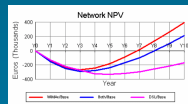


STEM case studies

The business case for WiMAX vs DSL in rural areas



Robin Bailey – Head of Decision Systems Group
21 June 2006 – Algiers

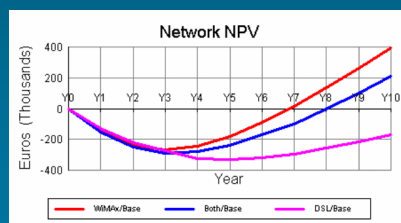
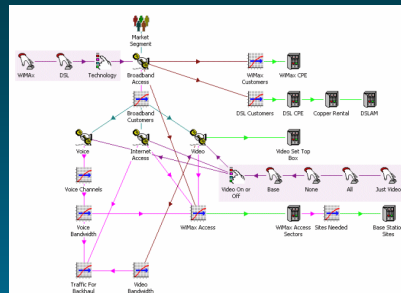
WiMAX and DSL modelling with STEM

The economics of rural access

- Operators are considering broadband FWA technologies such as WiMAX as a more cost-effective solution for delivering IP-based services in low-density subscriber areas
- We present a quick and easy model which compares the economics of WiMAX and DSL for the provision of voice, Internet and video services in rural areas
- The model effects a basic WiMAX/DSL comparison and then measures the impact of possibly limited reach with DSL

Quick and easy model

- The model is built on the STEM business-modelling software for networks
- Graphical user interface facilitates rapid and team-oriented editing of the model structure and assumptions
- STEM handles the structure and execution of the calculations



The basic model structure can be established within an hour, and generates revenue, capex and opex results which can be readily compared across the various scenarios defined

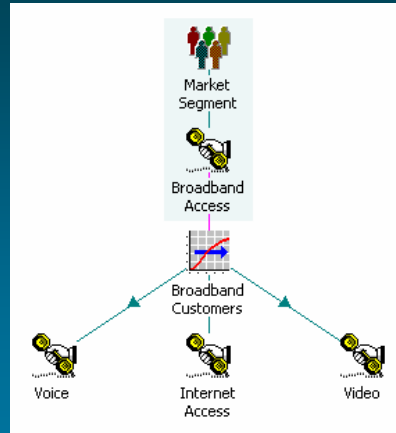
Robin Bailey will demonstrate the process of creating this model in Algiers ...



The following slides illustrate the steps

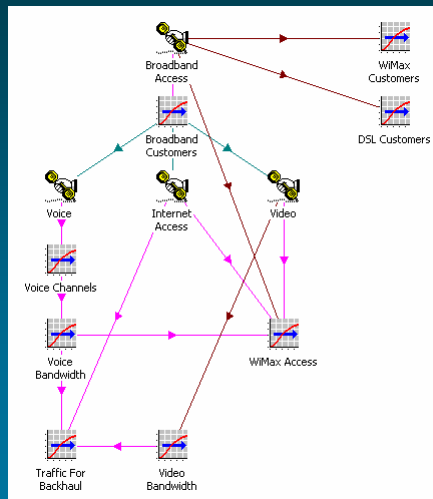
Market and service structure

- Target market for broadband access (BBA)
- Estimated take-up rate
- Optional services and associated tariffs:
 - voice
 - Internet access
 - IPTV



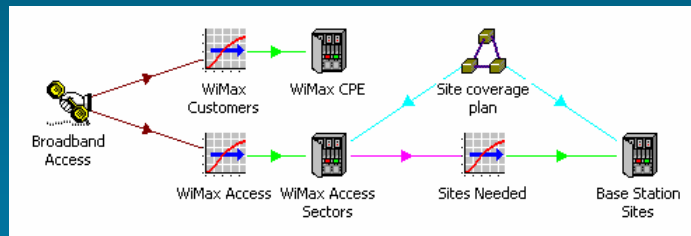
Connections and bandwidth

- BBA customers drive DSL ports
- Busy-hour Erlangs drive channel-based voice bandwidth
- Voice, Internet and video access bandwidth drive WiMAX capacity
- Voice and Internet plus video-feed bandwidth drives backhaul



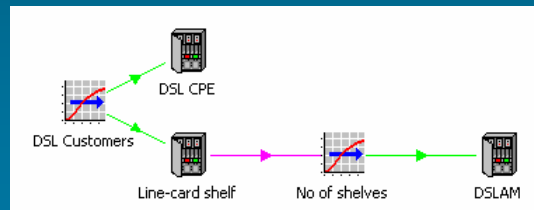
WiMAX architecture

- WiMAX CPE per BBA customer
- Calculate WiMAX access sectors (30 Mbit/s capacity) ...
- ... and sites (maximum 3 sectors per tower)
- Independent site plan to allow for coverage constraints



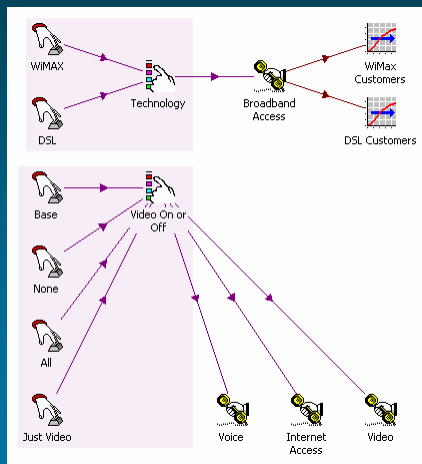
Simplified DSL architecture

- Each BBA customer requires a DSL modem and splitter
- Line-cards supplied in unit of packed shelves with 250 ports
- DSLAM chassis can accommodate up to four shelves
- DSLAM backplane throughput capacity assumed to be 'enough'

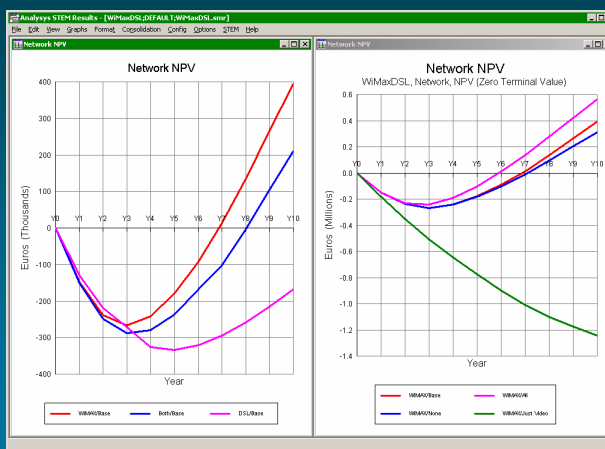
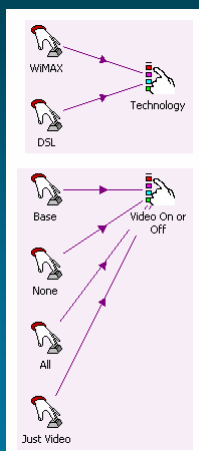


Technology scenarios

- WiMAX–DSL choice splits demand between the two technologies:
 - increased market reach with WiMAX
- Video on/off choice varies proportion of customers with video:
 - WiMAX case is sensitive to overload from video bandwidth



Business evaluation



Working smarter with the STEM business-case modelling software for networks



STEM business-modelling software for networks

Analysys STEM®

- Strategic Telecoms Evaluation Model*
- A consistent language and flexible framework for evaluating investments in telecoms business
- A high-level communication tool which uses icons to represent the key drivers in a business plan
- A time-based revenue, capex and opex calculator which supports network roll-out and investment decisions
- A tailored package of software, training, consultancy and support services

* developed over 20 years with the emerging telecoms economy



Operators and vendors using STEM

- BT Global Services
- Cable and Wireless
- China Telecom
- Korea Telecom
- Mobifon (Connex)
- Mobitel
- Swisscom Mobile
- Telecom New Zealand
- Telkom Indonesia
- Telkom SA
- Alcatel
- Ericsson
- Fujitsu
- Huawei Technologies
- Iskratel
- Juniper
- Marconi
- Motorola
- Nokia
- Siemens

Established modelling process

- In a constantly developing technology environment, there is a real business imperative to perform rapid and reliable evaluations of new service concepts
- Business cases must be readily adapted to changing market conditions and emerging vendor solutions
- STEM manages a complex structure of calculations to help focus on the financial impact of strategic choices
- CANTV (Venezuela), Telkom SA, and leading vendors, including Siemens and Alcatel, are performing detailed NGN studies with STEM
- T-Mobile is using STEM to evaluate the financial impact of technology choices for national and international networks
- BT Global Services uses STEM to calculate direct and fully-allocated unit costs for all the services provided on its regional networks in Europe

Professional modelling tool

Create business elements from a toolbar Access instant technical and financial results

Drag and drop to link elements

Follow prompts for inputs from menus:

Service elements capture demand and tariff assumptions which drive revenue

Connection, traffic and location-based dimensioning rules are shown as graphical links

Resource elements represent unit costs and build constraints for hardware, software, licences, buildings and human resources, and drive capex, depreciation and opex

Capacity and Lifetime
Unit Costs
Requirements
Capital Cost Structure
Cost Trends
Deployment
Cost Allocation
Other Details
User Data

Service Demand - Connections
Thousands
Year

Resource Utilisation Ratio
%
Year

Revenue, Capex and Opex
EUR (Thousands)
Year

Net Present Value
EUR (Thousands)
Year

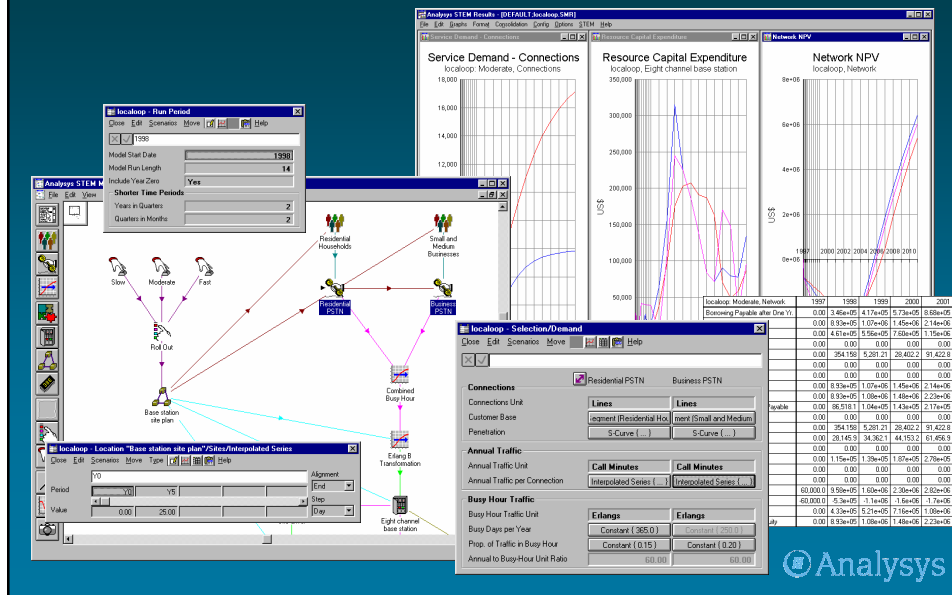


Consistent financial framework

- Service elements capture demand and tariff assumptions → REVENUE
- Resource elements represent unit costs and build constraints for hardware, software, licences, buildings and human resources → CAPEX, DEPRECIATION and OPEX
- Connection, traffic and location-based dimensioning rules are shown as graphical links → PROFITABILITY and BALANCE SHEET



Intuitive graphical interface



STEM integrates communication with calculation

- Provides a brainstorming and presentational tool for rapidly developing network business models
- Automatically generates demand / cost-allocation formulae, geographical variants and scenarios
- Calculates annual, quarterly and monthly service connections, traffic and revenues, equipment installation and replacement, capex and opex
- Delivers hundreds of built-in results through an integrated charting interface which can drill-down into individual elements, revenues and costs



Business cases by design

- Business-case models are typically built from the bottom-up each time in Excel:
 - laborious re-working of basic calculations
 - scope for copy errors; slow handover
- STEM wraps up core elements of telecoms business planning, enabling rapid and reliable, same-day development of business cases
- Consistent structure and graphics act provide a common language across business groups

STEM User Group Meeting

- 20–21 September 2006, Clare College, Cambridge, UK
- Interactive sessions on business planning for convergent services and product-profitability analysis
- Master classes for established users in parallel with fast-track training for newcomers
- Guest presentations from operator and vendor clients





STEM® business-case modelling software for networks
www.analysys.com/stem/

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