ITU-BDT Regional Network Planning Workshop

Cairo – Egypt, 16 - 27 July 2006

Session 4.4
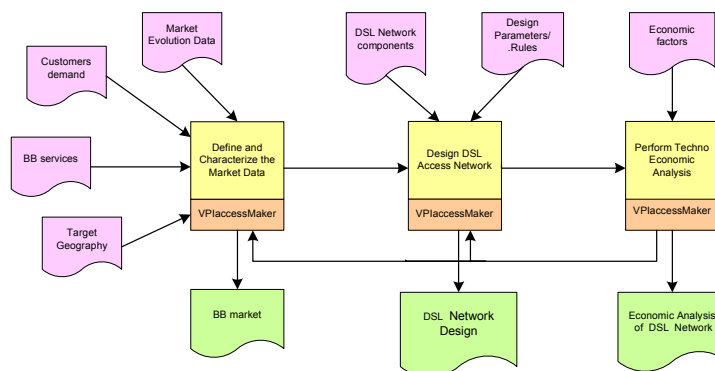
Presentation of Network Planning tools, features, inputs/outputs for access and fixed networks needs - VPI

VPIaccessMaker™

Tool used for modeling business plans and feasibility studies for the deployment of access technologies

Planning tools - VPIaccessMaker Markets

Market definition
- ✓ *Define services classes (service nature, bandwidth, SLA)*
- ✓ *Create customer classes (service mixes, tariffs, lines)*
- ✓ *Define density classes (as mixes of customer classes)*
- ✓ *Define planning period*

Evolution forecasting
- ✓ *Tariffs*
- ✓ *Market penetration and traffic prediction*
- ✓ *Component costs*

Demand mapping
- ✓ *Import maps*
- ✓ *Define service areas (sub urban, down town, etc)*
- ✓ *Geometrical modeling of service areas & site locations*
- ✓ *Model in-building networks*
- ✓ *Define outside plant cost regions for accurate cost modeling*
- ✓ *Import/ export market demands*

Geomarketing results
- ✓ *Extensive and flexible user defined query system*
- ✓ *Results are displayed on the GIS (selected year)*
- ✓ *Results are displayed on annual tables & charts*
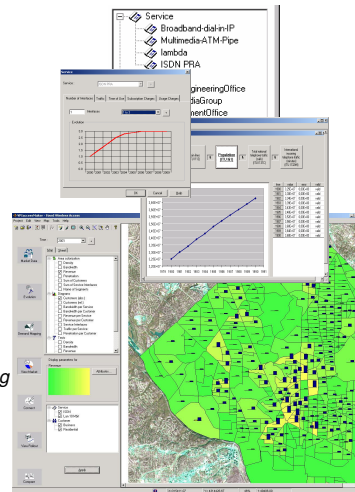
Market capture for a service provider

Planning tools - VPIaccessMaker Technologies

Technology modeling
- ✓ *Specification of network infrastructure*
- ✓ *Specification of network elements*
- ✓ *Specification of interfaces (upstream, downstream)*
- ✓ *Planning rules (bandwidth, distances, topology)*
- ✓ *Chains of nodes and links for topology modeling*

Network design optimization
- ✓ *Optimize clustering to satisfy bandwidth requirement*
- ✓ *Support of multiple technologies and constraints*
- ✓ *Cost regions*
- ✓ *Support of star and tree network topologies*
- ✓ *Considers legacy infrastructure*

Roll-out results
- ✓ *Calculate automatically all network costs*
- ✓ *Each element has its own set of results*
- ✓ *Multiple roll-out with different technologies*
- ✓ *Bill of materials*
- ✓ *Results are displayed on the GIS and tables / charts*
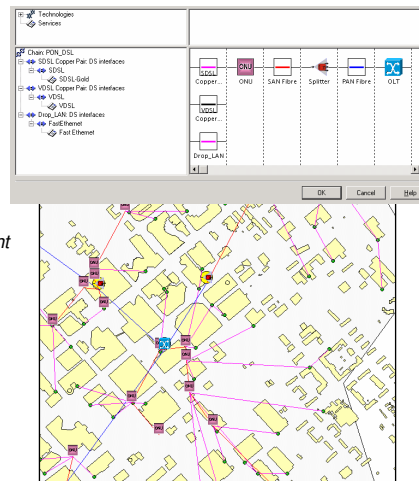
*Modeling a PON network
deployment in a city center*

Planning tools - VPIaccessMaker Economics

Financial calculations
- ✓ *Project revenues*
- ✓ *Project cost structure*
- ✓ *Project cash-flows*
- ✓ *Project net present value*

Scenario analysis
- ✓ *Full geographical visualization of the business case*
- ✓ *Specification of network infrastructure*
- ✓ *Various scenarios can be compared in terms of the main economics indexes*
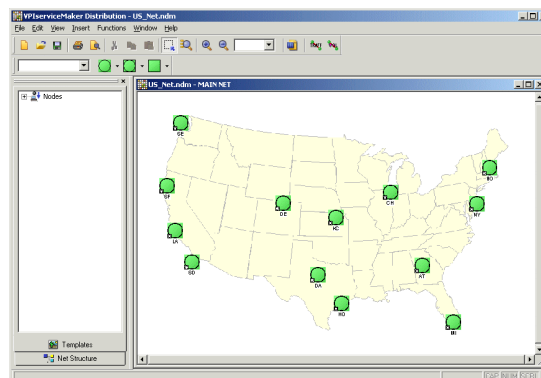- ✓ *All data exportable to Excel*
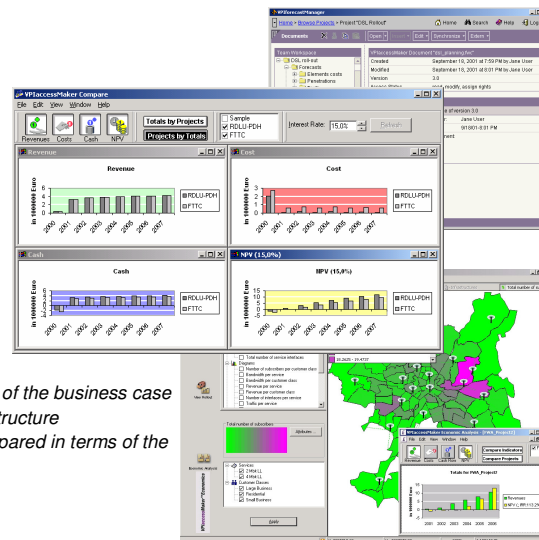
Return on investment from a deployment in a metro area

VPIserviceMaker™Distribution

Used to generate point-to-point traffic matrices based on various demographic and geographic assumptions

VPIserviceMaker™Distribution

This tool can be used to estimate unknown traffic for the next planning period based on certain traffic growth assumptions

No.	node name	no. of traffic entities	average traffic per entity	percentage of originating traffic	percentage of terminating traffic
1	AT	500000	0.10	50.00	50.00
2	BO	100000	0.10	50.00	50.00
3	CH	600000	0.10	50.00	50.00
4	DA	200000	0.10	50.00	50.00
5	DE	200000	0.10	50.00	50.00
6	HO	500000	0.10	50.00	50.00
7	KC	100000	0.10	50.00	50.00
8	LA	700000	0.10	50.00	50.00
9	MI	200000	0.10	50.00	50.00
10	NY	800000	0.10	50.00	50.00
11	SD	100000	0.10	50.00	50.00
12	SE	100000	0.10	50.00	50.00
13	SF	500000	0.10	50.00	50.00

VPIserviceMaker™Distribution

This tool offers an excellent means of generating an initial traffic matrix from uncertain data and offers various controls to perform what-if analyses
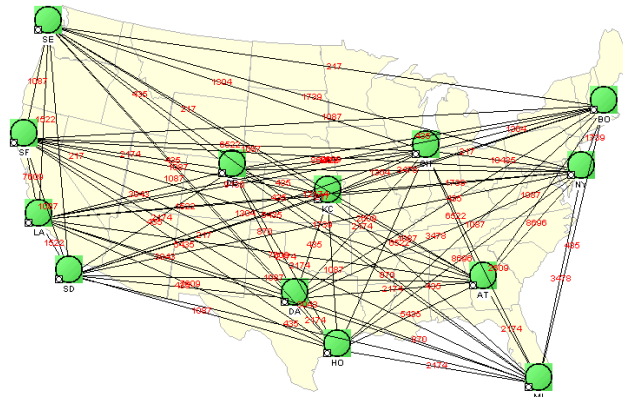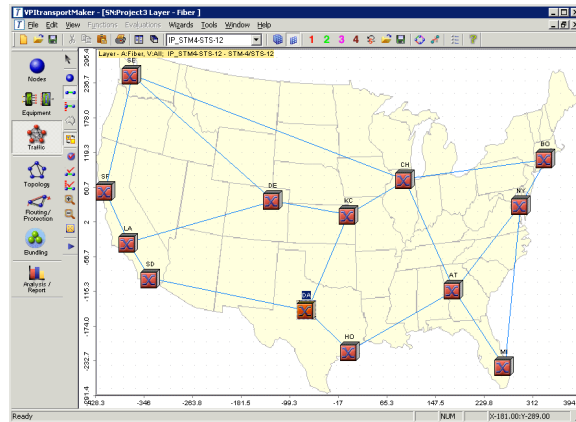
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VPItransportMaker™

This tool supports transport network design based on PDH, SONET/SONET, and optical networking technologies. VPItransportMaker™ can be used for planning metro and long-haul networks.
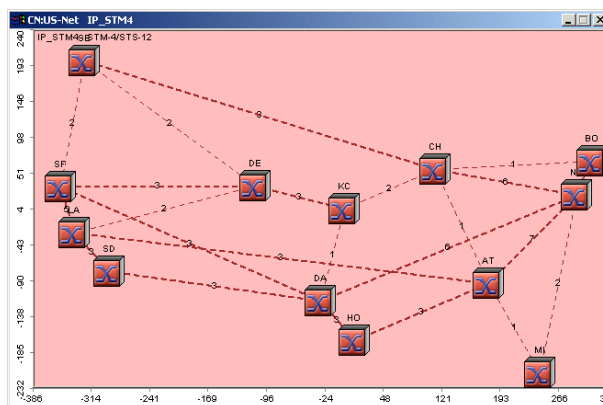

Physical network topology

VPItransportMaker™

It covers a wide range of network architectures, including ring, mesh, and ring–mesh hybrids.

IP bandwidth (STM4)

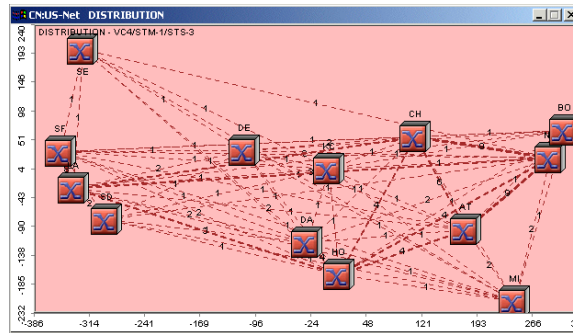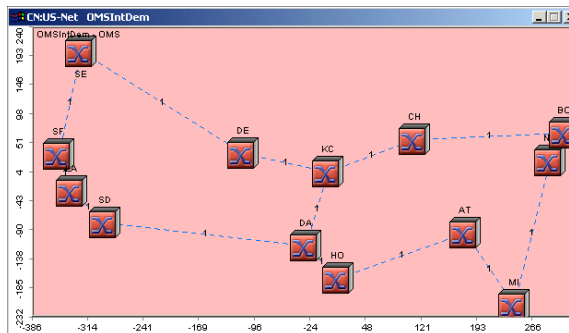# VPItransportMaker™

Using VPItransportMaker™, a planning engineer can optimize the network topology and determine the appropriate routing, protection, restoration, and equipment

Distribution bandwidth (leased STM1 lines)

VPItransportMaker™

Allows you to define a variety of technology, architecture, and network constraints that must be explicitly honored during the design. The tool also supports an analysis module for checking design results and for performing what-if analyses.

DWDM layer deployment