

Caplan 3.02[®]

by



AirTel Communications Spin-off of Prestige Telecom



For the careful use of your resources

Web site: <http://www.prestige-tel.com>



The Right Solutions

*Planning without acting
is futile – Acting without
planning is fatal!*



Caplan 3.02[®]

Welcome to the most efficient and versatile telecommunication network optimisation and dimensioning tool available today!



In the planning of a telecommunication network, there are five essential steps:

1. Traffic forecasting
2. Site location
3. Routing
4. **Dimensioning**
5. Circuit routing

Caplan is an optimisation & dimensioning software therefore the three first steps must be completed beforehand.



The Network Dimensioning Problem...

The classical telecommunication network dimensioning problem can be stated as follows: given a network structure, a demand matrix and a routing method, *compute the size of the links that minimize network cost under given grade of service constraints.*

The sizing or dimensioning of the number of trunks per group is a major task of the systems engineer.



The well known ECCS method, which selects the grade of service as a constraint, is useful in solving the classical dimensioning problem.

In cases where capital is not readily available the budget becomes a constraint on the dimensioning, we must therefore approach the problem differently. In this case the grade of service constraint is replaced by a budget constraint.



Caplan is unique in that it calculates the optimal dimension of the network, relative to either grade of service constraints or budget constraints (budgets known in advance) and make possible an evaluation of the grade of service while taking into account the available financial resources. Caplan also facilitates the effective diagnosis of the grade of service of an existing telecommunication network.

Caplan (CApacity and PLANning) is a software based tool for optimizing and dimensioning telecommunication networks, designed to respond to the particular needs of telecommunication network operators with limited capital resources.

Caplan is based on an exact algorithmic approach offering optimal solutions for any size network



CAPLAN

Planning Makes All the Difference

- CAPLAN, CApacity PLANning
- The solution to efficient traffic flow
- Highly useful diagnostic tool
- A winner with cellular system
- A simple way to maximize savings (CAPEX and OPEX)





Input data

Editor: of Exchanges

Click Here

Name	Type	Higher level transit	Number of subscribers
01	Local exchange	CTN	425
02	Local exchange	CTN	1122
03	Local exchange	CTN	760
04	Local exchange	DB	340
05	Local exchange	CT2	8
06	Primary center	CT2	1020
07	Primary center	CT2	430

Use of these features will allow you to enter and process data in a fraction of the time normally associated with the size of national networks.

Insert a circle Passover selected banks Automatic matrix generation

OK Cancel

The Calculator Click Here

Input data

Editor: of Exchanges

Click Here

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OK Cancel

The Calculator Click Here

The Calculator is an advanced tool which you can use to make accurate calculations based on established telephone traffic models.

Calculator

Erlang (Traffic Circuits)
Erlang (Circuits Blocking)
Erlang (Traffic Blocking)
Offered traffic (Carried traffic, Circuits)
Offered traffic (Rejected traffic, Circuits)
Carried traffic on the final circuit (Traffic, Circuits)
Erlang Wizard

The Calculator simplifies the very complex and time-consuming calculations required to link teletraffic parameters such as circuit, traffic and blocking.

The built-in special functions can save you from otherwise long mathematical calculations...

Erlang Wizard

Enter two known values and then press compute

Offered traffic: 30.00 Erlang
Circuits: 75.0
Blocking rate: 1.7 %
Carried traffic: 1.78 Erlang
Rejected traffic: 1.22 Erlang
Carried traffic on the final circuit: 1.14 Erlang

Compute Reset

Erlang Wizard helps you find the other values easily with any two known values

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Network status

Cost of links: 5,700,000.00 \$
High usage: 4,848,000.00 \$
Final: 17,716,000.00 \$
Cable: 32,194,000.00 \$
Total: 60,458,000.00 \$

- Circuits
Sum of circuits: 4,320.00

Total traffic: 108.00 % of total offered traffic
16.67 % of total offered traffic

- Trunking efficiency
High usage: 50 %
Final: 5 %
Cable: 8 %
Total: 6 %

After entering data or any time during the process, Caplan can display the exact topology and architecture of your network. More over, it is possible to modify or adjust the properties of your nodes and links from here... You have access to every exchange and trunk data just by clicking on them with your mouse! The Network status windows gives you instant traffic and financial information that guides you in decision making.

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Allow us to demonstrate how easy it is to use Caplan's zooming, dragging or scrolling capabilities...

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Functions of Caplan

Input

- Investment
- Demand forecast
- Grade of service
- Network topology
- Traffic matrix
- Routing matrix
- Cost matrix

Caplan

Output

- Traffic separation
- Blocking rate per link
- Ratio of traffic lost
- Number of circuits per link
- Total cost of dimensioning
- Traffic flow
- Traffic lost per link
- Total traffic lost
- Status of exchanges (traffic & circuits)

Dimension of the scenarios

Traffic flow on the actual network.
 Dimensioning with ECCS classical method with a blocking rate of 1% on the final links.
 Dimensioning with ECCS BUDGET method with a budget of 0.
 Dimensioning with ECCS-MBT constraint with a maximum traffic lost of 1%.

Ignore circuits already installed at the time of dimensioning

The results obtained by using the ECCS method will be in accordance with the grade of service (GOS) required (constant and weak blockage on the final links). This function reduces the total cost required to satisfy the GOS constraint.

Add Done

Results editor

Classical ECCS with 1.00% blockage (passed 1)

Traffic: 34 15 Erlang lost
0.2% of the total demand

Investment in local customer on the transmission network: 502 080 000
 Cellular expenses: 13 276 000 000
 High usage links: 27 324 000 000
 Total links: 42 702 080 000

Size of circuits: 3 904

Origin	Destination	Type	Cost	Demand	Circuits	Offered traffic	Circuits available	Blocking rate
00	00	High usage	8008	315 267	308	315 267	339	0.99%
00	019	Final	8008	0	0	780 529	917	0.99%
00	0000							0%
00	019							0%
00	00							0%
00	019							0%
00	00							0%
00	019							0%
00	00							0%
00	019							0%

Very often, this result can be superior to the capital available for the building of a transmission network.

Summary Traffic distribution Report on exchanges selection

Dimension of the scenarios

Traffic flow on the actual network.
 Dimensioning with ECCS classical method with a blocking rate of 1% on the final links.
 Dimensioning with ECCS-BUDGET method with a budget of 20,384,000 \$.
 Dimensioning with ECCS-MBT constraint with a maximum traffic lost of 1%.

Ignore circuits already installed at the time of dimensioning

By using the ECCS-B method, the results (number of circuits and total cost) obtained will be compatible with a previously known budget. The ECCS-B method enables you to obtain, in general, a better grade of service than the ECCS when the budget considered is equal to the cost of dimensioning by the ECCS method.

Add Done

Results editor

ECCS-BUDGET method with a budget of 20,384,000 \$

Traffic: 1,795 68 Erlang lost
5.7% of the total demand

Investment in local customer on the transmission network: 284 000 000
 Cellular expenses: 13 832 000 000
 High usage links: 5 360 000 000
 Total links: 20 384 000 000

Size of circuits: 6 540

Origin	Destination	Type	Cost	Demand	Circuits	Offered traffic	Circuits available	Blocking rate
0000	0000	High usage	6080	315 267	380	315 267	339	0.99%
0000	019	Final	6080	0	0	780 529	907	0.99%
00	00							0%
00	019							0%
00	00							0%
00	019							0%
00	00							0%
00	019							0%
00	00							0%
00	019							0%

The ECCS-B method allows to determine, by sensitivity analysis, the minimum budget required to satisfy a desired grade of service, whether this grade of service reflects a state of overload or of non-overload of the network.

Summary Traffic distribution Report on exchanges selection

Creation of the scenarios

Traffic flow is the actual network.
 Dimensioning with ECCS (classical) method with a blocking rate of 1 % on the real links.
 Dimensioning with ECCS-BUDGET method with a budget of 0.
 Dimensioning with ECCS-MXT constraint with a maximum traffic lost of 25 %.

Ignore circuits already installed of the type of dimensioning.

With the the ECCS-MXT method, the results (number of circuits) obtained will be compatible with the constraint of maximal amount of traffic lost in relation to the traffic offered.

Add Delete Creation of the added scenarios

Results editor

Edition of the scenario: ECCS-MXT method with a 25.0% of traffic lost
 Traffic: 831 805 ting lost
 21.0% of the total demand
 Date of results: 8.314

Investment (in local currency) on the transmission network:
 Cellular expenses: 0.000
 High usage limit: 17 168 300.000
 Total: 28 312 000.000

	A	B	C	D	E	F	G	H	I	J
1	Origin	Destination	Type	Cost	Demand	Circuits	Offered traffic	Circuits calculated	Blocking	
2	Orléans	SO	High usage	2080	315.267	308	31 4.267	330	0.99%	
32	Paris	Paris	Free	0	0	0	0	0	0.00%	
33									24.92%	
37									0.99%	
27									0.00%	
28									0.95%	
29									0.96%	
40									0.96%	
41									0.96%	

Total: 813

Summary Traffic distribution Report on exchanges selection Delete current scenario

Scenarios summary

	A	B	C
1	Description	Total expense	Total traffic lost
2	Carried traffic (period 1)	0	2030.11
3	Classical ECCS with 1.00% blockage (period 1)	4 3752e+007	58 1 552
4	ECCS-BUDGET method with a budget of 0 (20 304 000.000)	2 0694e+007	17 16.41
5	ECCS-MXT method with a 25.0% of traffic lost (period 1) 2 441 2e+007	531.6	

With this time-saving option, you can quickly compare as many scenarios as you wish. For each scenario, know accurately what is the total traffic lost on the network and your total investment.

OK Cancel

Graphical Comparison

Lost revenues due to blockage in relation to investments with the use of Caplan at different stages of network development.

The graph plots 'Annual lost revenue due to blockage' on the y-axis against 'Investment (\$)' on the x-axis. A dashed blue line represents a 'High blocking rate: continue without use of Caplan', showing a gradual decline in revenue loss as investment increases. A solid red line represents 'Using Caplan from the initial planning stages of network', showing a much steeper decline in revenue loss. A vertical dashed line marks the 'Point where operator chooses to use Caplan or not'. A pink shaded area between the two curves is labeled 'Involved earnings with use of Caplan'.

Advantages of Caplan

- Assists in the early stages of network design by determining the most cost-effective configuration.
- Assists in the diagnosis of the network.
- Improves QoS while maintaining the possibility of diversifying resources.
- Facilitates decision making (study of various scenarios).
- Determines how much, when (time period) and where to invest in the network in relation to demand forecast.
- Determination of lower and upper limits of investment to maintain a satisfactory QoS.
- Minimizes traffic lost... Increases revenue.
- Improves rate of return on network investment.

Caplan Training

Prestige Telecom is committed to provide the highest level of training to ensure that clients make the most of their investment in Caplan and other network planning and management tools.

Thank you for viewing this demo.



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