How To Use Erlang Table

I use *Telephone Traffic Theory Tables and Chart Part I*
By SIEMENS

I. Design Tables for Loss System : Infinite number of traffic sources and Full availability

N	A in Erl								
	B								
	0.01%	0.02%	0.03%	0.05%	0.1%	0.2%	0.3%	0.4%	0,5%
1	0.0001	0.0002	0.0003	0.0005	0.0010	0.0020	0.0030	0.0040	0.0050
2	0.0142	0.0202	0.0248	0.0321	0.0458	0.0653	0.0806	0.0937	0.105
3	0.0868	0.110	0.127	0.152	0.194	0.249	0.289	0.321	0.349
4	0.235	0.282	0.315	0.362	0.439	0.535	0.602	0.656	0.701
5	0.452	0.527	0.577	0.649	0.762	0.900	0.994	1.07	1.13

Examples :
[1] If we know B=0,4% and A=1.07, then N is 5.
[2] If we know B = 0,5% and A = 93.0 Erlang, then to find N :

N	A in Erl								
	B								
	0.01%	0.02%	0.03%	0.05%	0.1%	0.2%	0.3%	0.4%	0,5%
1	0.0001	0.0002	0.0003	0.0005	0.0010	0.0020	0.0030	0.0040	0.0050
2	0.0142	0.0202	0.0248	0.0321	0.0458	0.0653	0.0806	0.0937	0.105
	..	..	..	..	..	..	..	..	..
	..	..	..	..	..	..	..	...	..
112	79.4	81.1	82.2	83.7	85.8	88.3	89.8	91.0	92.0
114	81.1	82.9	84.0	85.4	87.6	90.1	91.6	92.8	93.8

We have to perform interpolation :
(114-112)/(93.8-92.0) = (114 – x)/(93.8 – 93.0)
x = 113.111
We have to round it up to 114. So we get N = 114 servers

II. Design Tables for Loss System : Infinite number of traffic sources and Limmitted availability

B=0.3%	A in Erl								
N	k								N
	..	3	4	..	..	90	110	k=N	
200	..	25.2	41.5	..	..	166.1	167.5	171.4	200
202	..	25.5	41.9			167.8	169.3	173.3	202
..	..			..	..	..	..	..	..
..	..			..	..	..	..	..	..
218	..	27.5	45.3			182.1	183.7	188.4	218
220	..	27.7	45.7			183.9	185.5	190.3	220

Until now, we have still made an assumption that the system is use full availability servers. So, to use the above table, we concern only on the column designated k = N. Where k is availability, and for full availability system (berkas sempurna) k is equal to N.

III. Overflow Tables : Infinite number of traffic sources and Full availability

A In Erl.	R in Erl D N 1	2	3	4	5	6	7	8	9
5.1	4.26	3.47	..	..	..	..	..	..	0.207
	0.502	0.856							0.164
5.2	4.36	3.57	..	..	..	..	..	..	0.229
	0.508	0.870	..	..	..	..	..	..	0.184
5.4	..	..	..	..	..	..	..	..	..
:	..	..	..	..	..	..	..	..	..
5.5	4.65	3.85	..	..	..	..	..	..	0.301
	0.525	0.911	..	..	..	..	..	..	0.254

D is *variance coefficient* (it is a measure which shows how much the number of simultaneously existing call fluctuates around its average value). D = 0 in the case of pure-chance traffic.
From the above table, we can compute loss traffic (R/rejected traffic/overflow traffic) if we know A and N. To compute the variance of R we sum R to D.
Example : If we know A = 5.1 Erlang and N = 2, then R = 3.47 Erlang = mean of rejected/loss traffic. The variance of rejected traffic is 3,47 (R) + 0.856 (D) = 4.326

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