

Unitate Centre

Unitate / Timp	O0	O1	O2	O3	O4	O5
C0	0	0	0	0	0	0
C1	1	1	1	1	1	1
C2	2	2	2	2	2	2
C3	3	3	3	3	3	3
C4	4	4	4	4	4	4
C5	5	5	5	5	5	5

Unitate / Timp	T0	T1	T2	T3	T4	T5
C0	0	0	0	0	0	0
C1	1	1	1	1	1	1
C2	2	2	2	2	2	2
C3	3	3	3	3	3	3
C4	4	4	4	4	4	4
C5	5	5	5	5	5	5

$$\min \sum_{i=1}^n C_i(x_i) = C_0 + C_1 + C_2 + C_3 + C_4 + C_5$$

$$\begin{cases} C_i(x_i) \geq P_i + (1) & i = 0, \dots, 5 \\ C_i(x_i) \leq C_i(x_i) + P_i & i = 0, \dots, 5 \\ C_i(x_i) \leq C_i(x_i) + P_i - M \cdot x_i & i = 0, \dots, 5 \\ C_i(x_i) \leq C_i(x_i) + P_i - M \cdot x_i & i = 0, \dots, 5 \end{cases}$$

Timp total minim: 58 minute

Unidade Computar

cliente/telefone	Q0	Q1	Q2	Q3	Q4
C0	1	0	4	3	2
C1	0	3	4	2	1
C2	3	4	1	2	0
C3	1	0	4	4	3
C4	0	3	2	1	4
C5	1	2	4	0	3
C6	3	4	1	2	0
C7	2	0	1	3	4
C8	3	1	4	0	2
C9	4	3	2	1	0

cliente/telefone	T0	T1	T2	T3	T4
C0	27	53	95	55	34
C1	27	52	16	26	77
C2	39	98	42	31	12
C3	77	55	79	66	77
C4	83	34	69	19	57
C5	54	43	79	92	82
C6	69	77	87	87	93
C7	38	60	41	24	83
C8	17	49	25	44	98
C9	77	79	41	75	96

$$\text{min} \sum_{i=1}^9 C_i(m) = C_{02} + C_{11} + C_{20} + C_{39} + C_{44} + C_{53} + C_{60} + C_{74} + C_{82} + C_{90}$$

$$\begin{cases} C_{i,j}(1) \geq P_{i,j}(1) & \lambda = 0, \dots, 9 \\ C_{i,j}(K) \geq C_{i,j}(K-1) + P_{i,j}(K) & \lambda = 0, \dots, 9, K = 0, \dots, 9 \\ C_{i,j}(K) \geq C_{i,j}(K-1) + P_{i,j}(K) - M \cdot X_{i,j,K} & \lambda = 0, \dots, 9, K = 0, \dots, 9 \\ C_{i,j}(K) \geq C_{i,j}(K-1) + P_{i,j}(K) - M \cdot X_{i,j,K} & \lambda = 0, \dots, 9, K = 0, \dots, 9 \end{cases}$$

$C \in R^{m \times n}, X \in B^{m \times n \times n}$

Tempo total mínima: 2387