



UFRPE

Universidade
Federal Rural
de Pernambuco



Arquitetura de Sistemas Operacionais

Classificações

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Infra-Estrutura de Software

Agenda

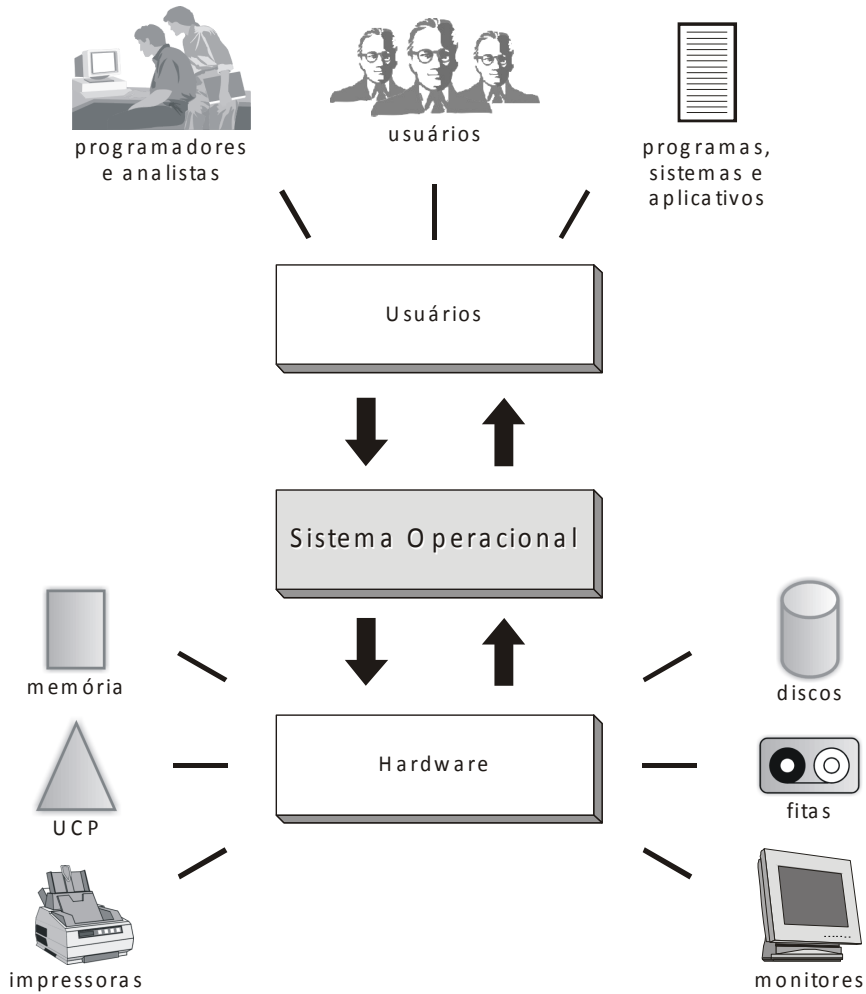
- Sistema Operacional
- Funções Básicas
- Máquinas de Camadas
- Tipos de Sistemas Operacionais
 - Sistema Monoprogramáveis/Monotarefa
 - Sistema Multiprogramáveis/Multitarefa
 - Sistema com Múltiplos Processadores

Visão Geral

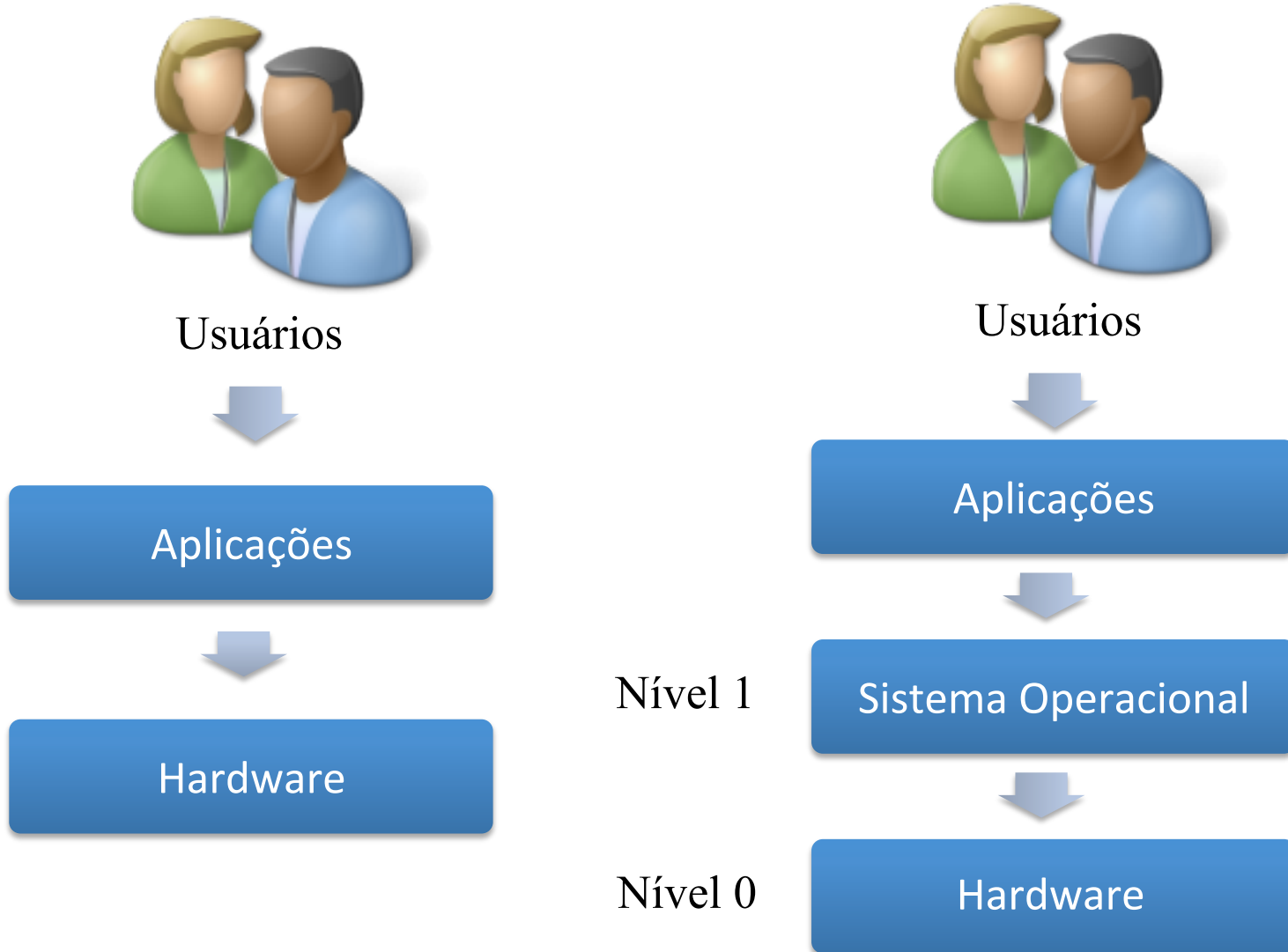
Sistema Operacional

- O que é Sistema Operacional?
- Funções Básicas
 - Facilitador de acesso aos recursos do sistema
 - Compartilhamento de recursos de forma organizada e protegida

Visão do Sistema Operacional

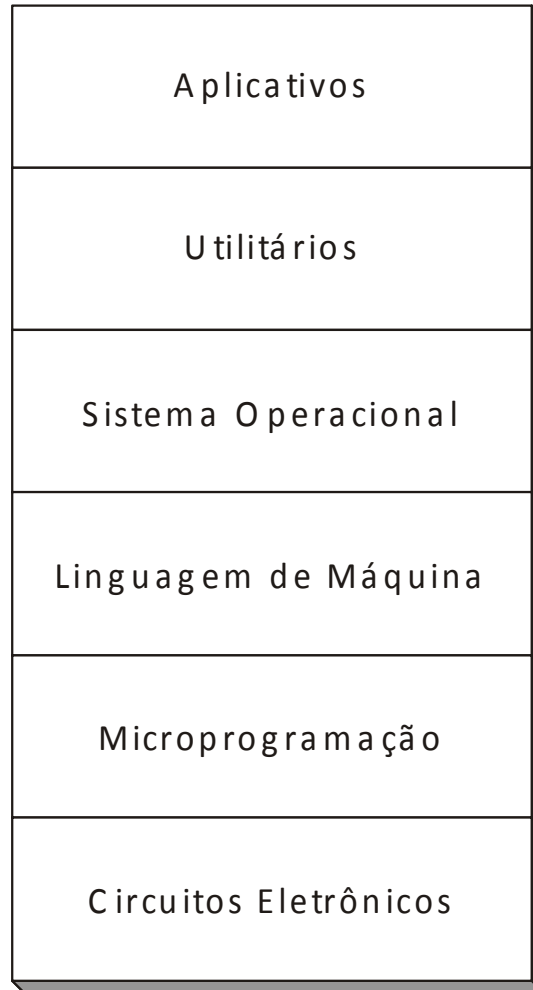


Máquina de Níveis



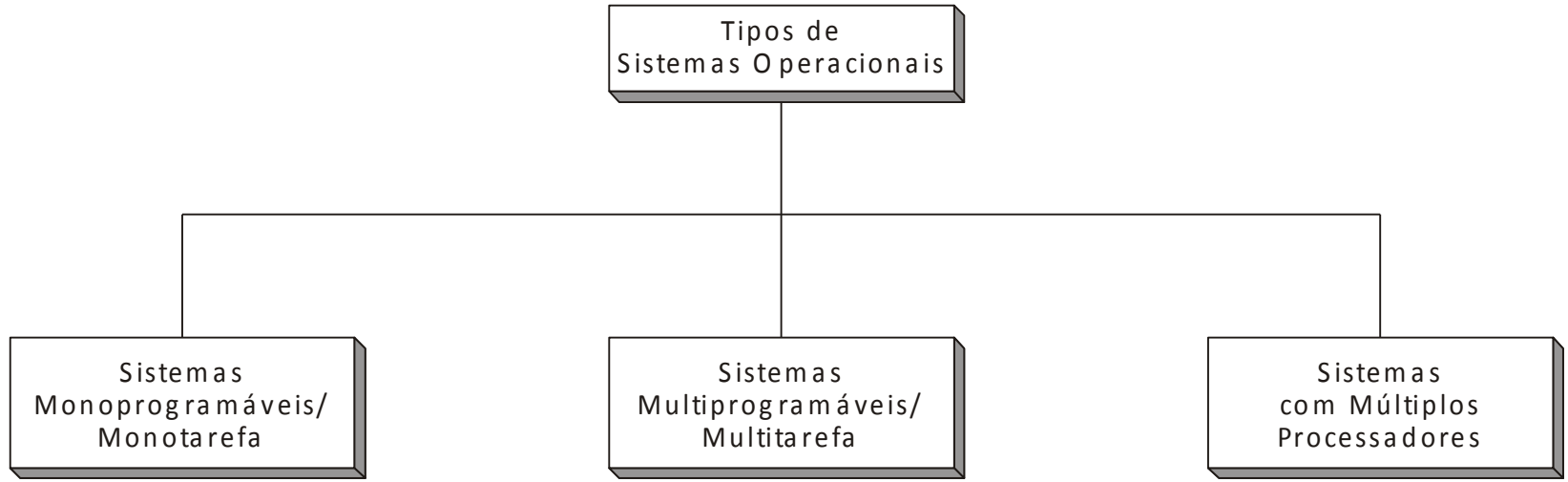


Máquina de Camadas



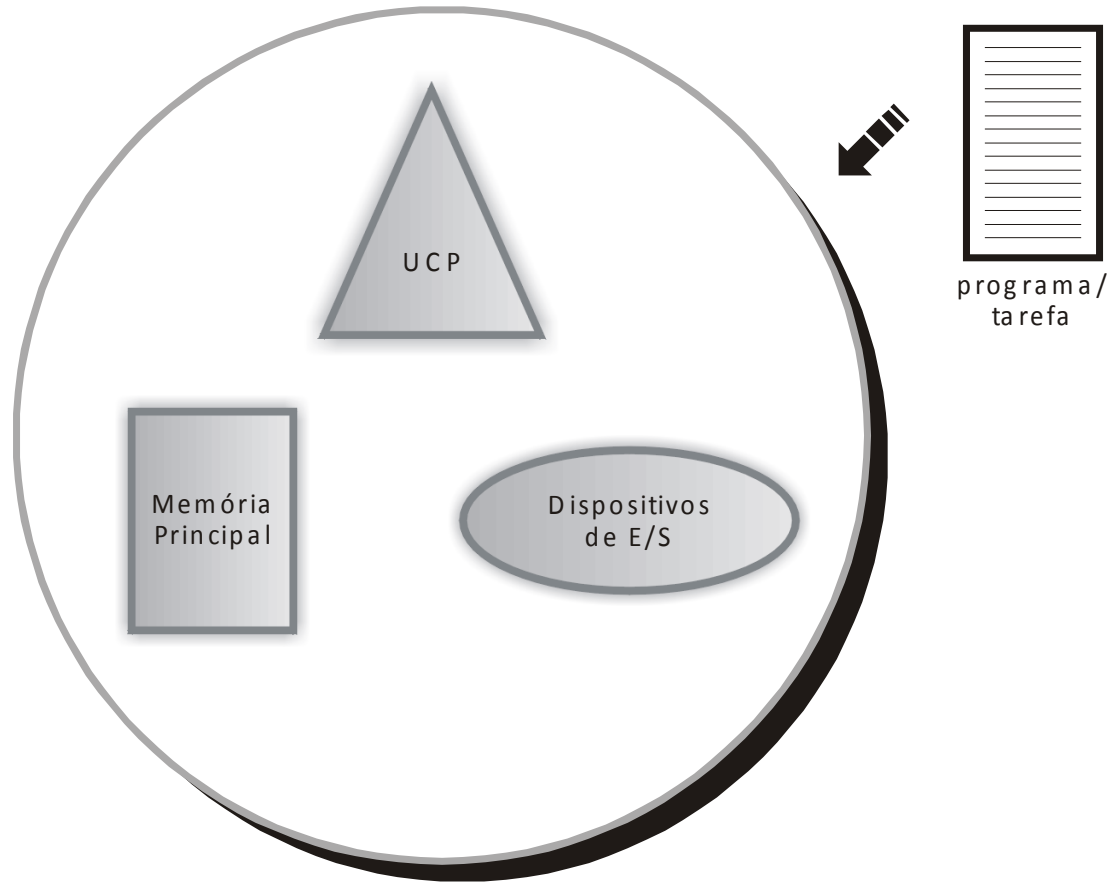
Tipos de Sistemas Operacionais

Tipos de Sistemas Operacionais



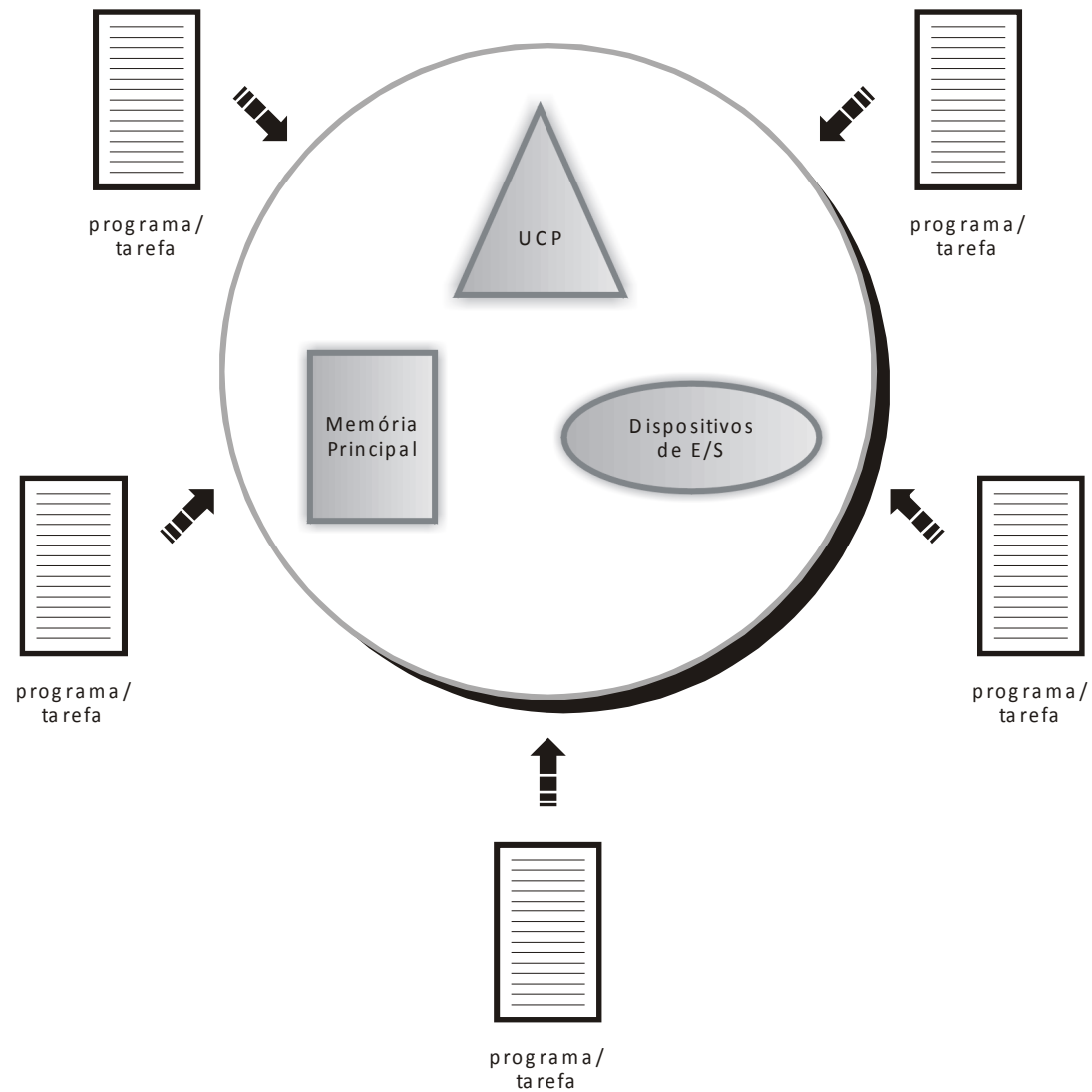


Sistemas Monoprogramáveis/ Monotarefas



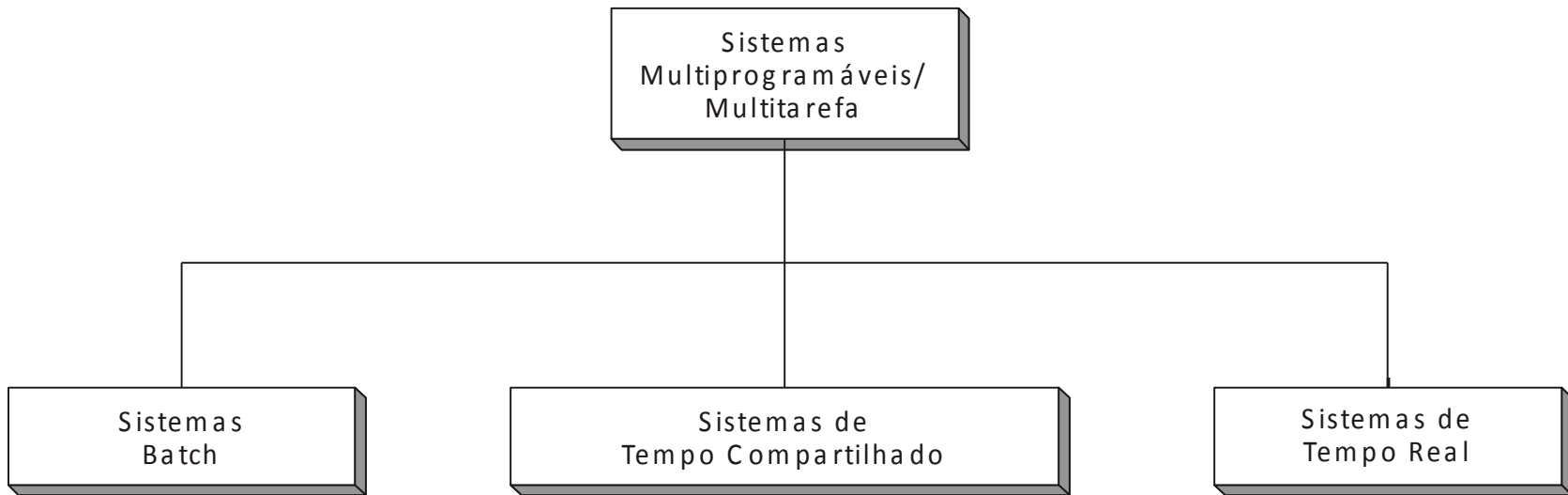


Sistemas Multiprogramáveis/ Multitarefa

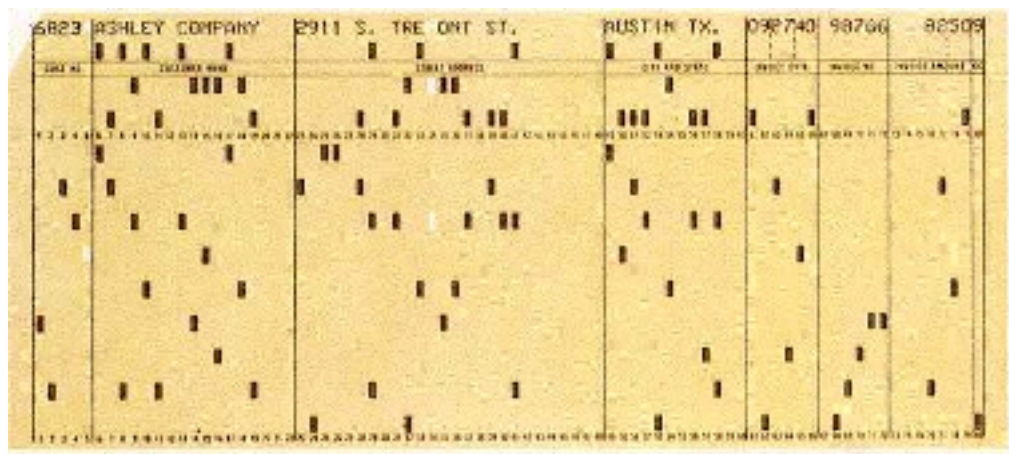
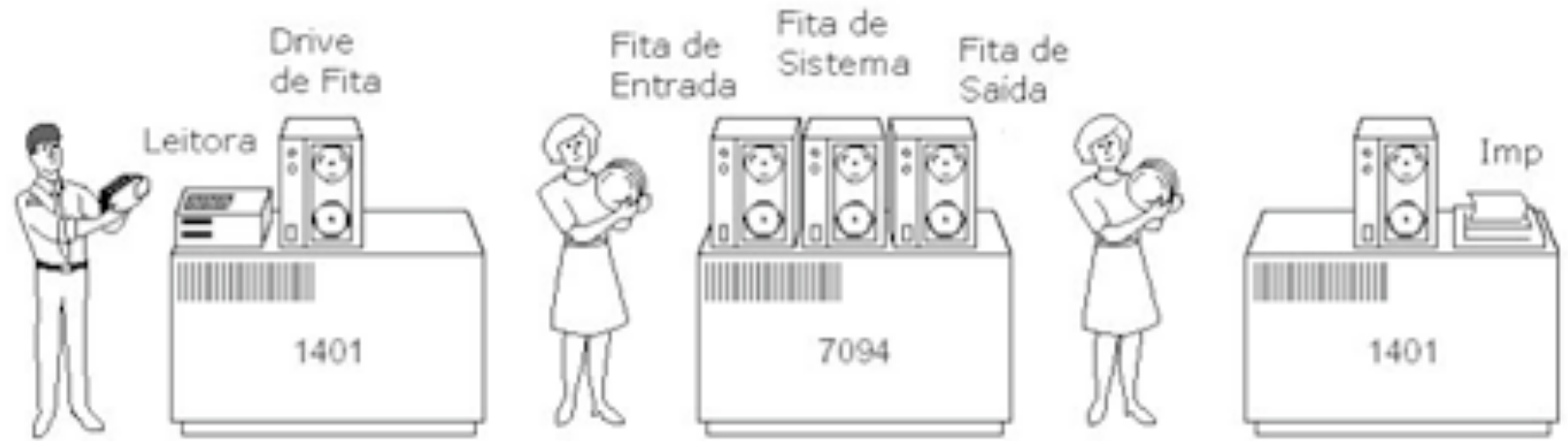




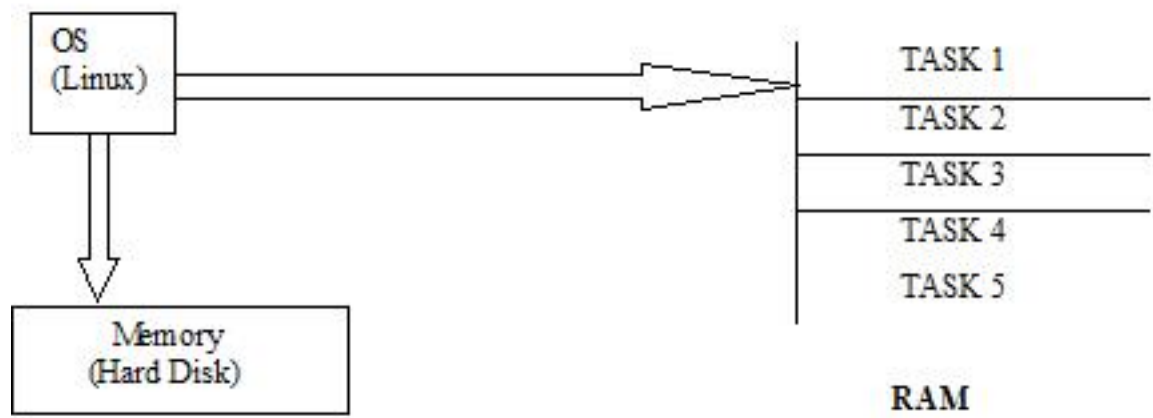
Sistemas Multiprogramáveis/ Multitarefa



Sistema Batch



Sistema de Tempo Compartilhado



Sistema de Tempo Real



Sistema de Tempo Real

Windows Task Manager

File Options View Help

Applications Processes Services Performance Networking Users

Image Name	Working...	Peak Working S...	Working...	Memory (...)	Commit Size	Threads	I/O Reads	I/O Writes	I/O Other
db2syscs.exe	1,053,496 K	1,063,496 K	0 K	1,041,856 K	1,056,520 K	40	2,715	7,65	3,495
explorer.exe	84,012 K	87,964 K	0 K	46,496 K	54,256 K	32	266,502	187,951	3,995,828
svchost.exe	46,412 K	151,616 K	0 K	29,112 K	37,108 K	32	577,165	482,986	2,966,125
lsass.exe	24,072 K	24,108 K	0 K	14,184 K	14,968 K	10	23,032	20,156	66,380
java.exe *32	22,364 K	22,460 K	0 K	17,240 K	15,300 K	17	74,740	25,110	1,104,177
svchost.exe	19,808 K	20,260 K	0 K	9,624 K	15,240 K	19	63,574	62,403	339,361
db2mp64.exe	19,716 K	19,716 K	0 K	9,804 K	14,652 K	6	228	0	4,671
darlstar.exe	18,750 K	19,804 K	0 K	9,048 K	11,120 K	5	36,818	3,299	2,690
svchost.exe	17,460 K	23,816 K	0 K	9,412 K	10,148 K	8	1,868	5	191,354
LogonUI.exe	15,956 K	22,620 K	0 K	7,536 K	9,040 K	6	223	0	606
spoolsv.exe	15,540 K	15,568 K	0 K	7,212 K	9,696 K	19	39	2	2,043
SMagent.exe ...	15,144 K	16,956 K	0 K	8,880 K	23,600 K	17	1,906	1	15,555
db2.exe	14,612 K	14,776 K	0 K	8,012 K	18,392 K	3	14	109	670
services.exe	14,424 K	16,468 K	0 K	6,284 K	8,452 K	10	12,017	57,895	99,171
db2up.exe	14,296 K	14,296 K	0 K	7,376 K	9,096 K	3	15	0	462
abd_server.e...	14,258 K	14,268 K	0 K	3,100 K	3,876 K	8	255	7	2,195
svchost.exe	14,248 K	14,740 K	0 K	8,740 K	11,208 K	14	8,731	12,391	19,226
ProtectionUI5...	13,196 K	13,236 K	0 K	3,932 K	4,456 K	8	1,171	0	2,776,737
svchost.exe	12,048 K	12,304 K	0 K	5,844 K	7,328 K	13	250	52	11,729
csrss.exe	11,136 K	15,600 K	0 K	4,794 K	5,704 K	12	30,000	0	66,471
svchost.exe	11,072 K	11,156 K	0 K	5,184 K	6,372 K	14	4	0	7,505
taskmgr.exe	10,790 K	10,824 K	0 K	3,732 K	4,108 K	8	3	0	73,605
svchost.exe	10,224 K	10,254 K	0 K	4,128 K	4,820 K	15	1,912	1,184	9,385
svchost.exe	10,000 K	10,296 K	0 K	4,200 K	8,728 K	11	101	1	675
svchost.exe	6,740 K	8,812 K	0 K	4,240 K	4,920 K	9	131	0	2,360
ccredmgr.exe...	8,204 K	8,204 K	0 K	2,516 K	3,876 K	9	5	0	567
WynDrv64.exe	7,980 K	7,984 K	0 K	3,736 K	4,776 K	8	0	0	3,723

Show processes from all users

End Process

Processes: 64 CPU Usage: 0% Physical Memory: 12%

Sistema de Tempo Real



Crítico/Rígido – Sistema ABS



Sistema de Tempo Real



Sistema embargado - Caça

Sistema de Tempo Real



Monitor Cardíaco

Sistema de Tempo Real



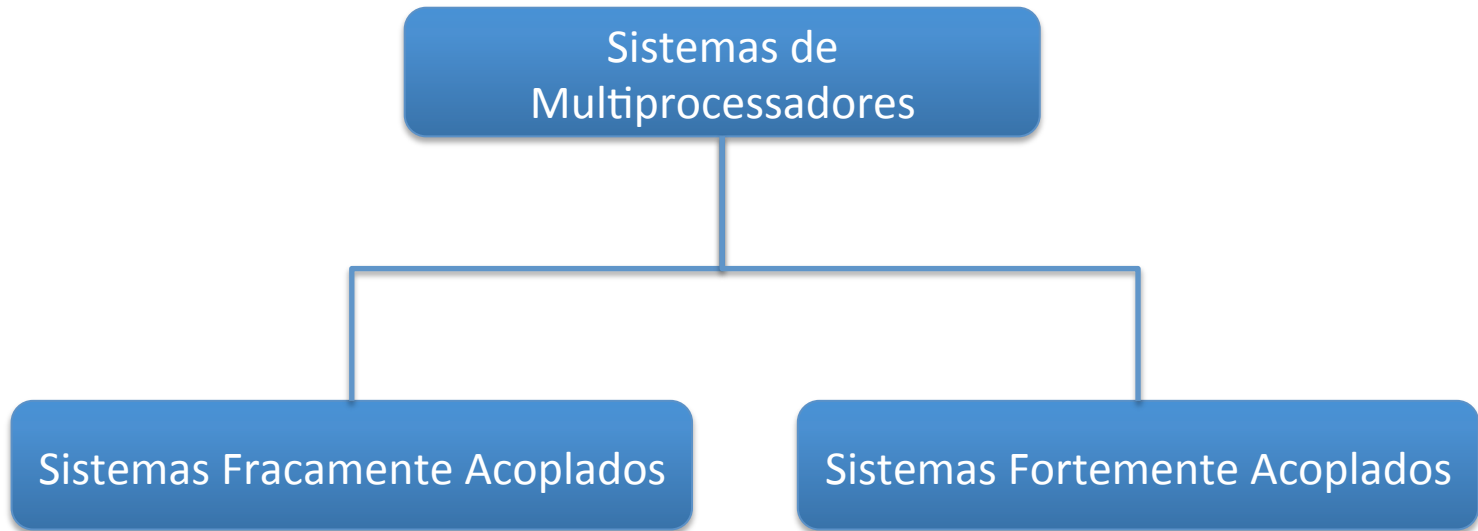


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Sistema de Tempo Real



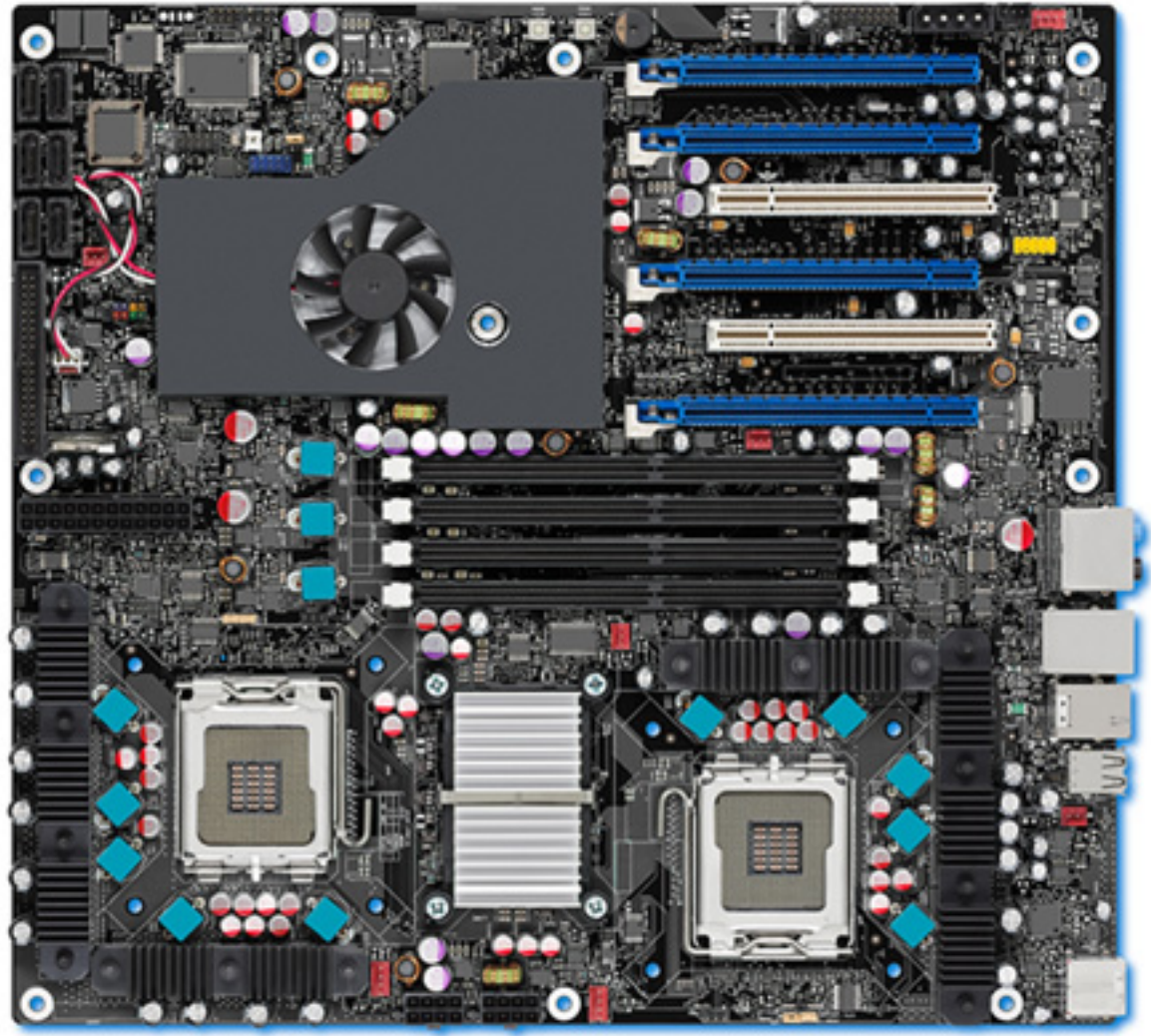
Sistemas de Multiprocessadores



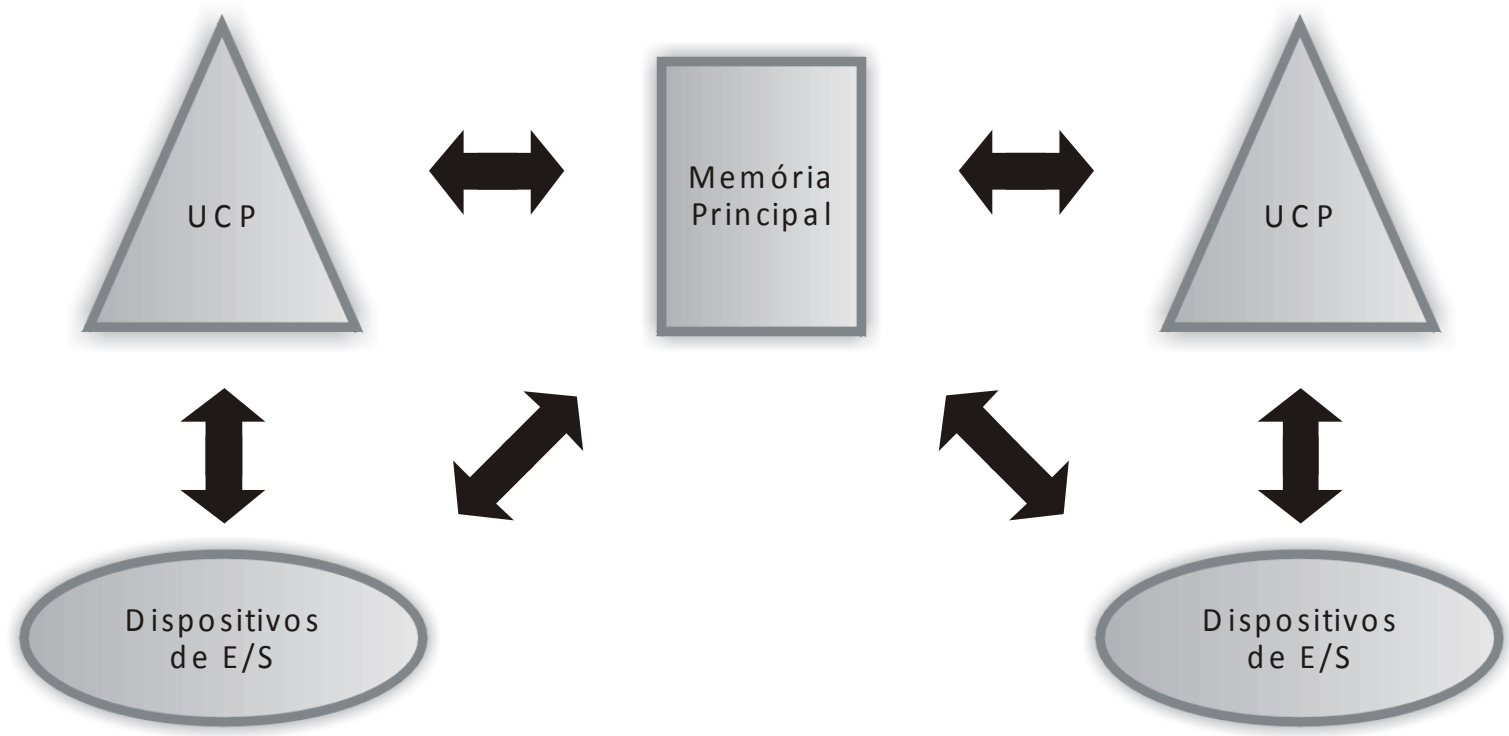
Sistemas de Multiprocessadores

- Escalabilidade;
- Disponibilidade;
- Balanceamento de Carga;

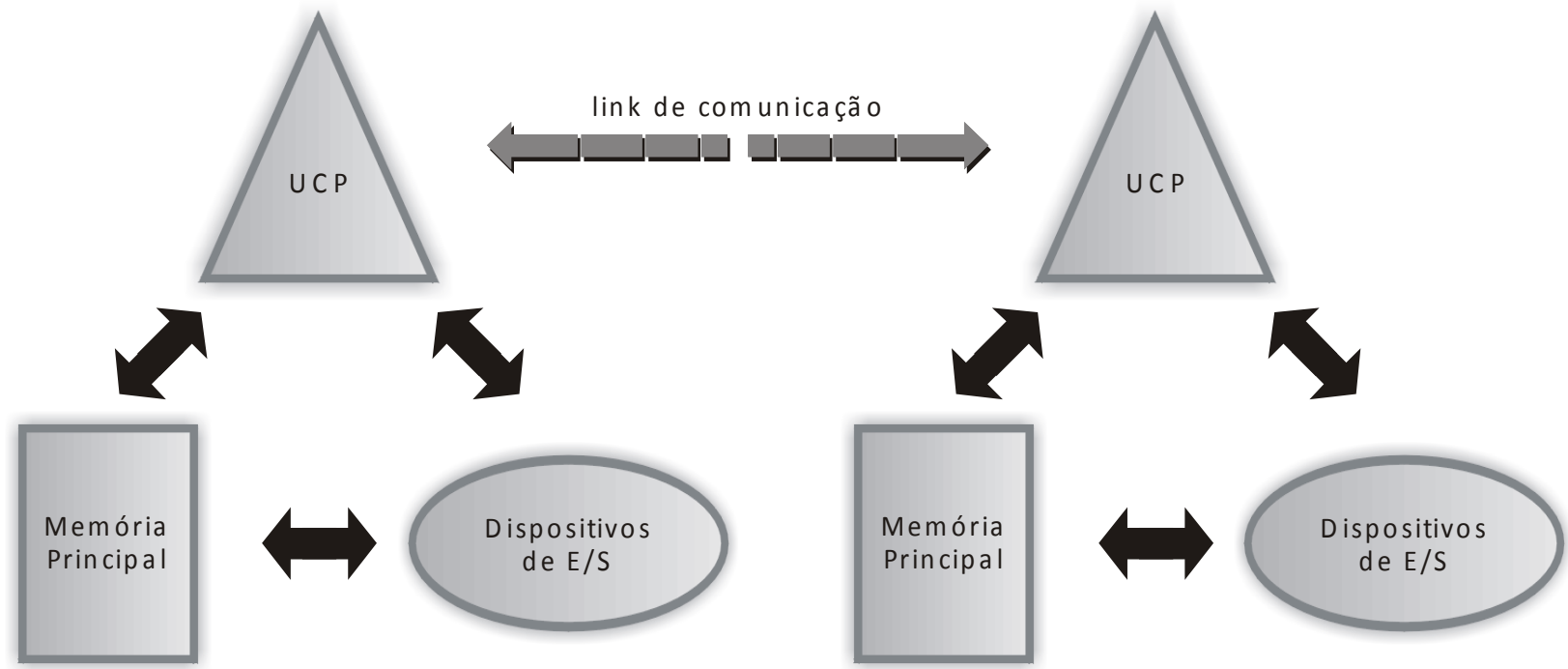
Sistemas de Multiprocessadores



Sistemas Fortemente Acoplados



Sistemas Fracamente Acoplados





Sistema Operacional de Rede (SOR)



Sistemas Distribuídos

Clusters



Referências

- Arquitetura de Sistemas Operacionais – Francis Berenger Machado / Luiz Paulo Maia – Capítulo 1



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