

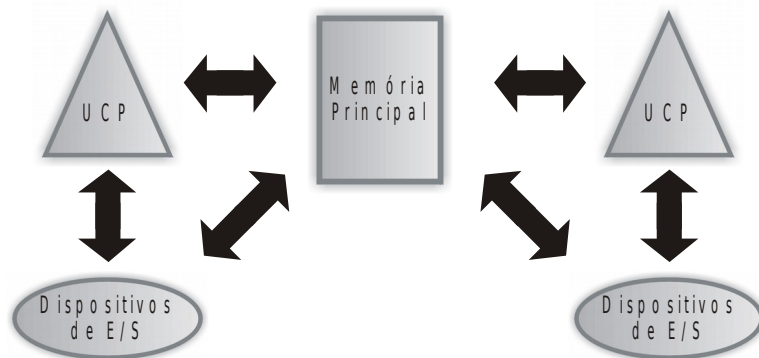
Arquitetura de Sistemas Operacionais

**Francis Berenger Machado
Luiz Paulo Maia**

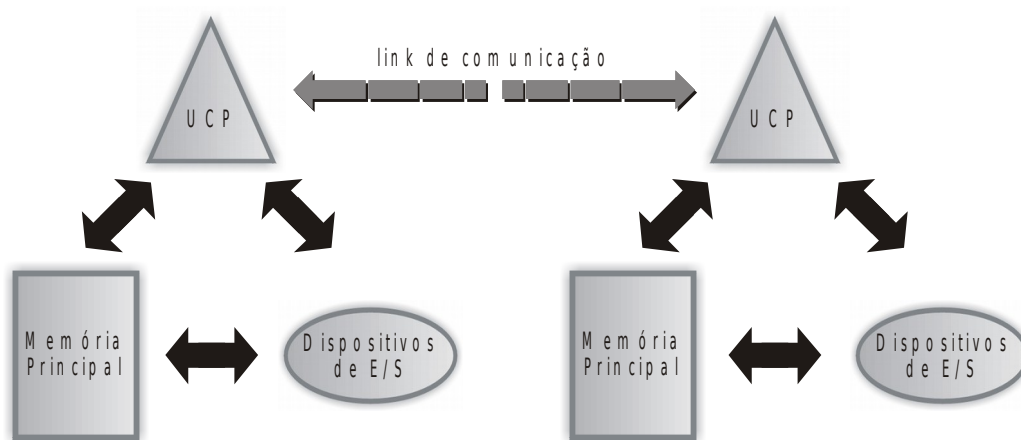
Capítulo 13 Sistemas com Múltiplos Processadores

Sistemas Fortemente e Fracamente Acoplados

- Sist. fortemente e fracamente acoplados



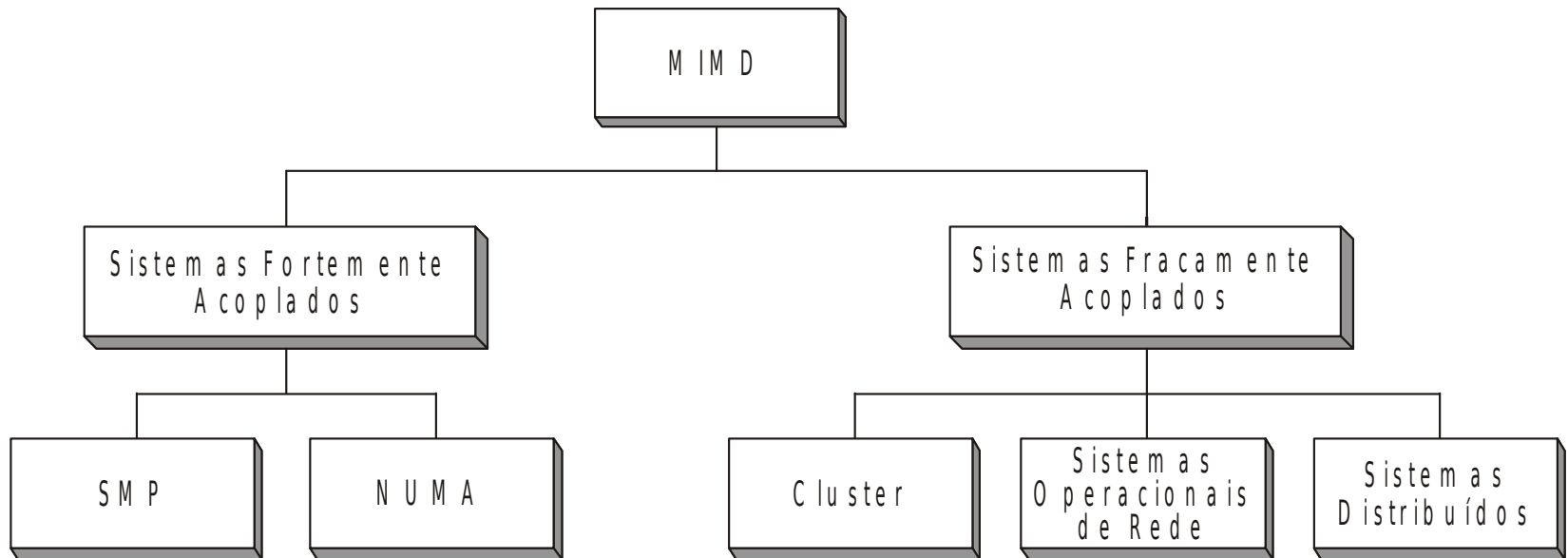
(a) Sistemas fortemente acoplados



(b) Sistema fracamente acoplados

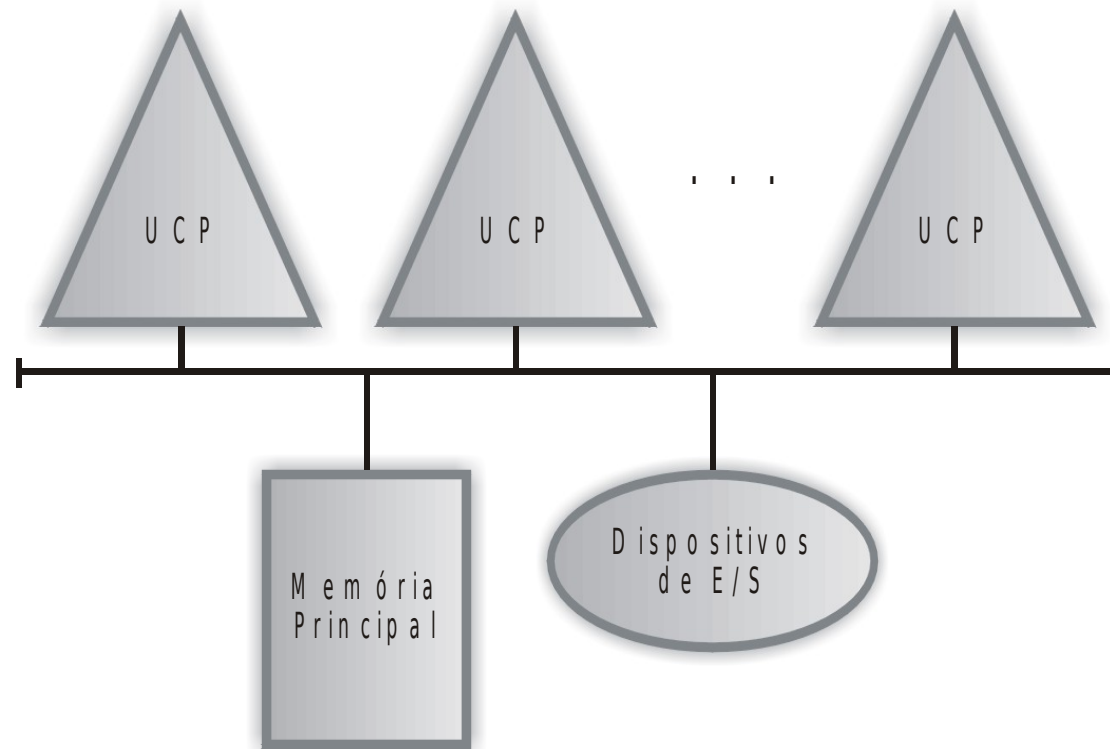
Sistemas Fortemente e Fracamente Acoplados

- Sistemas com múltiplos processadores



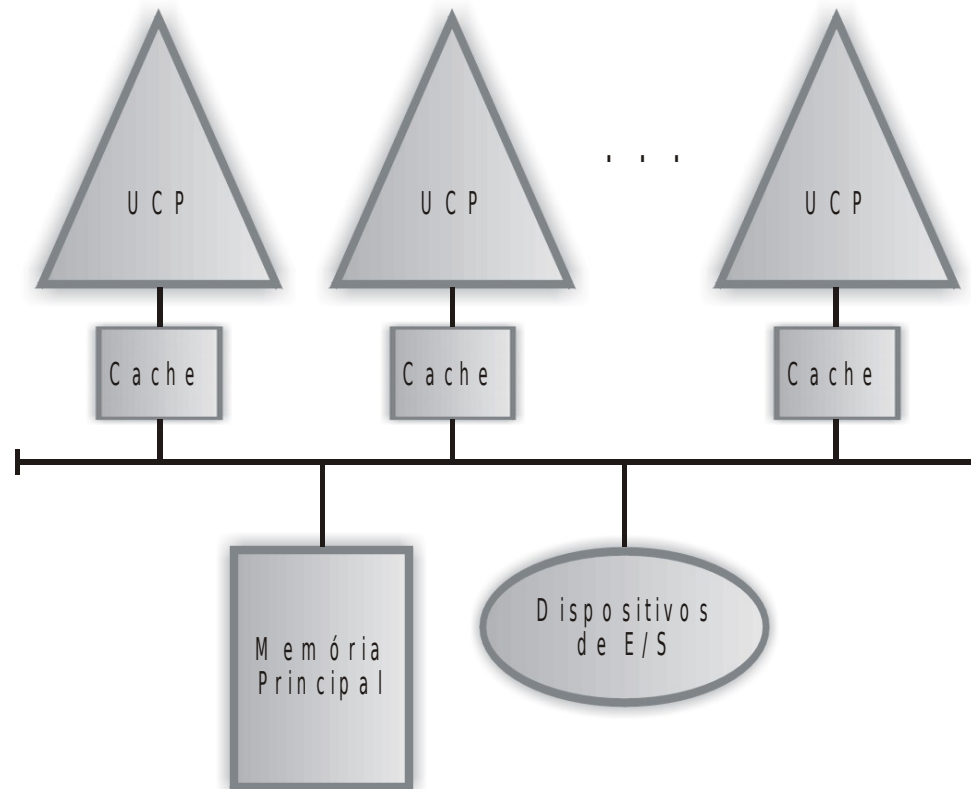
Arquitetura dos Sistemas Simétricos

- Barramento único



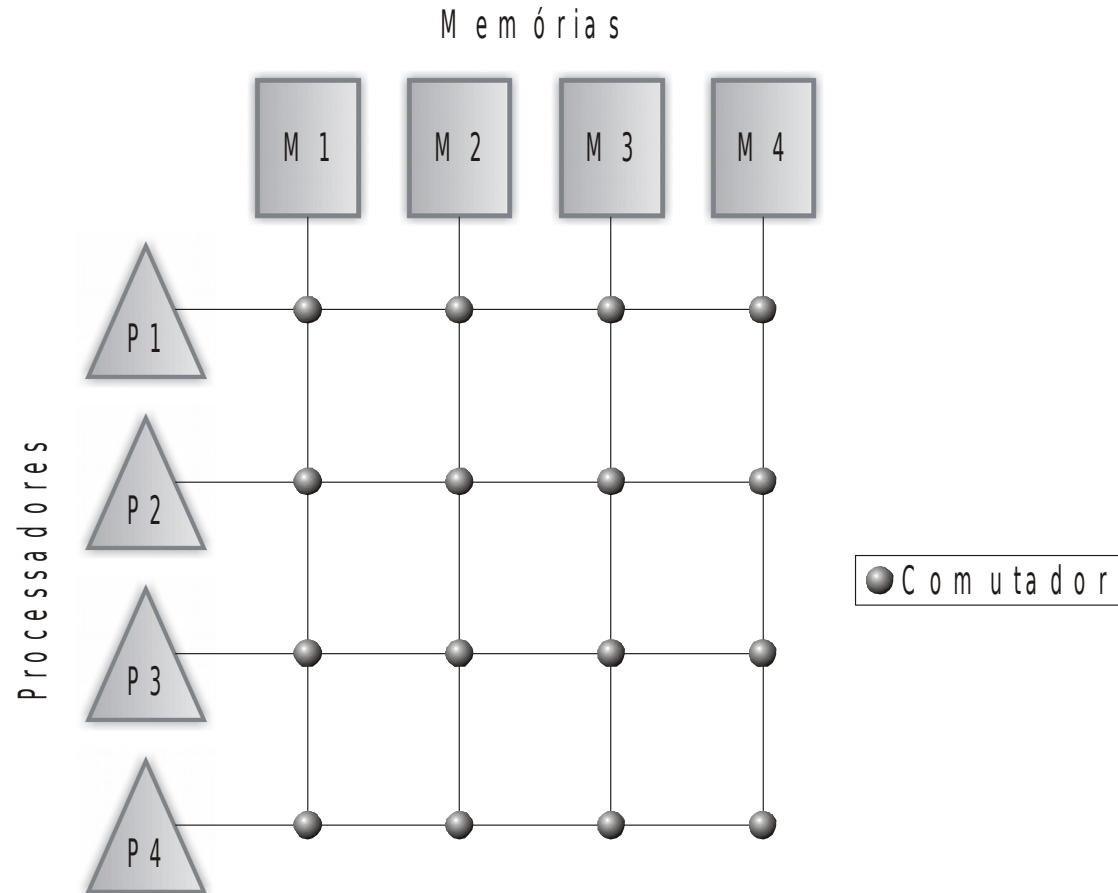
Arquitetura dos Sistemas Simétricos

- Barramento único com cache



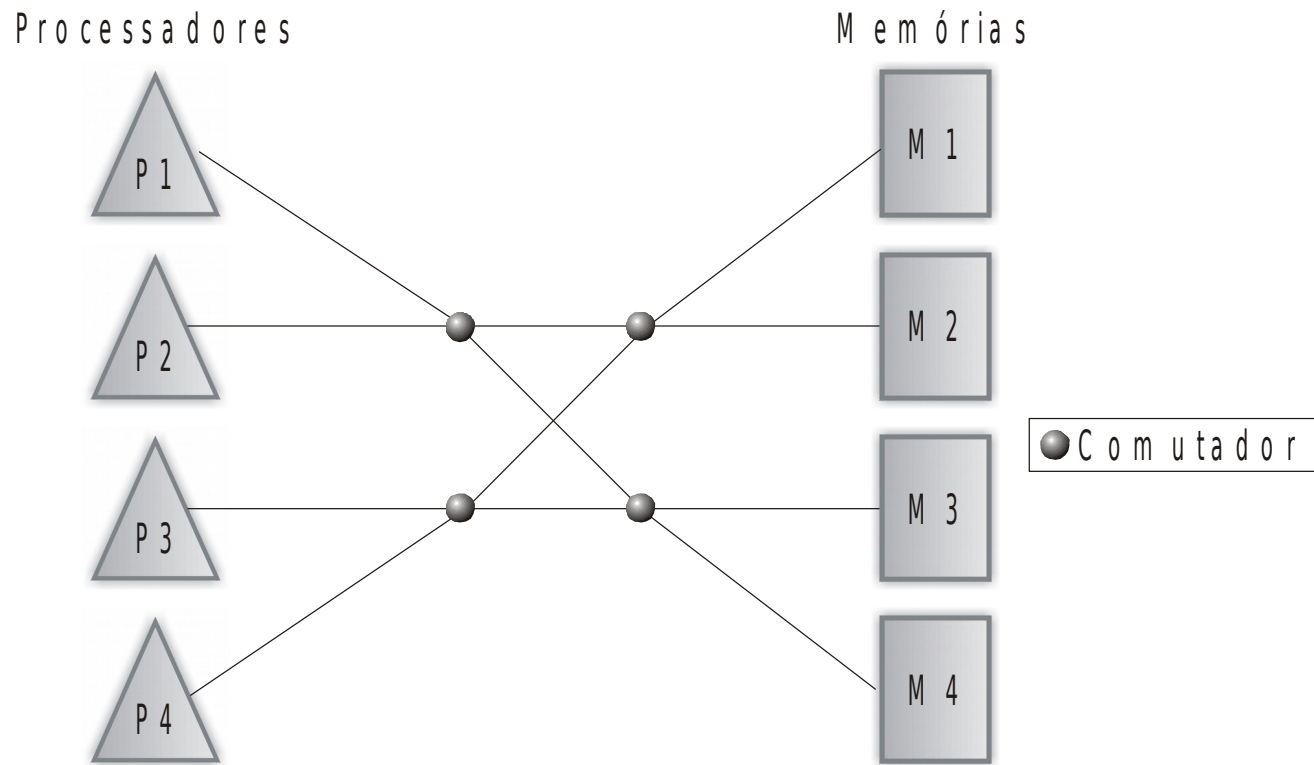
Arquitetura dos Sistemas Simétricos

- Barramento cruzado comutado



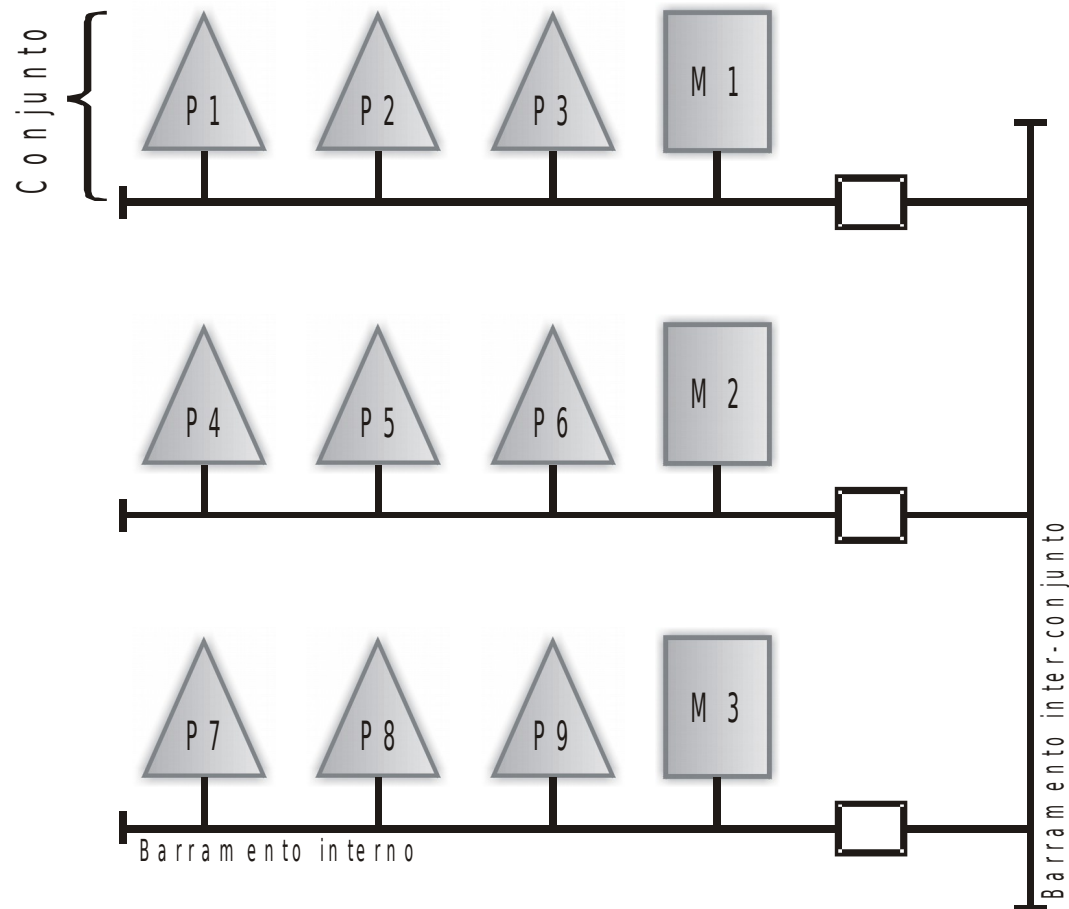
Arquitetura dos Sistemas Simétricos

- Rede Omega



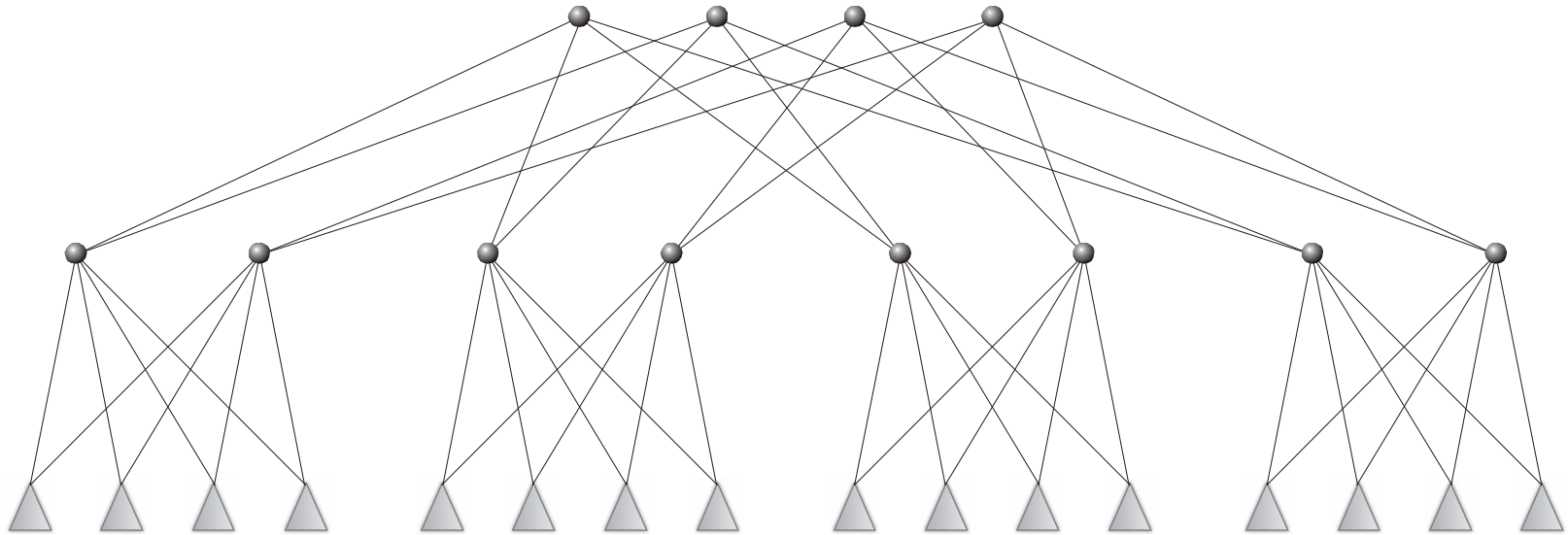
Sistemas NUMA

- Exemplo de arquitetura NUMA



Sistemas NUMA

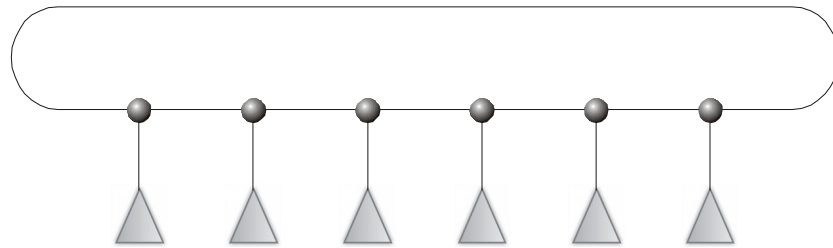
- Topologias NUMA



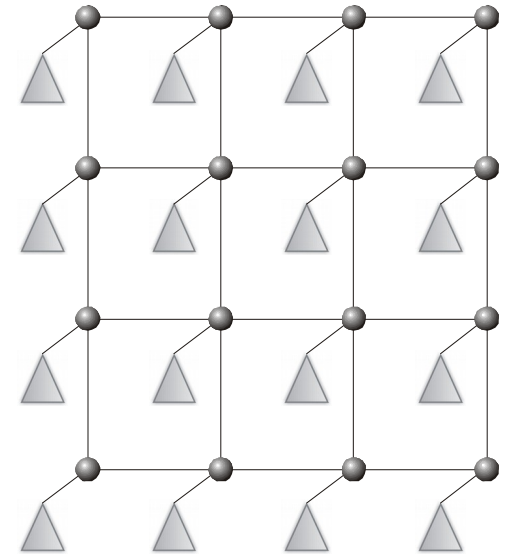
(a) Fat-tree

Sistemas NUMA

- Topologias NUMA



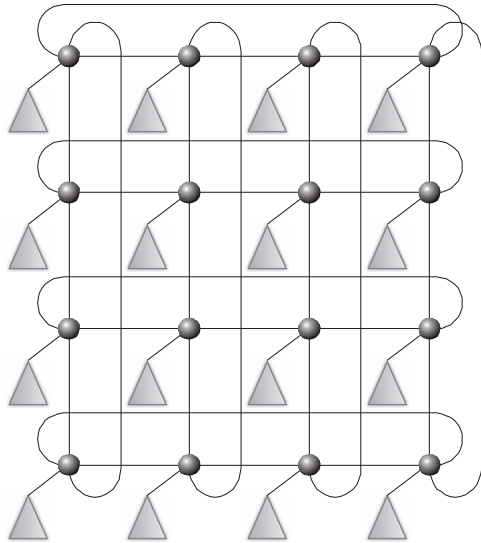
(b) Anel



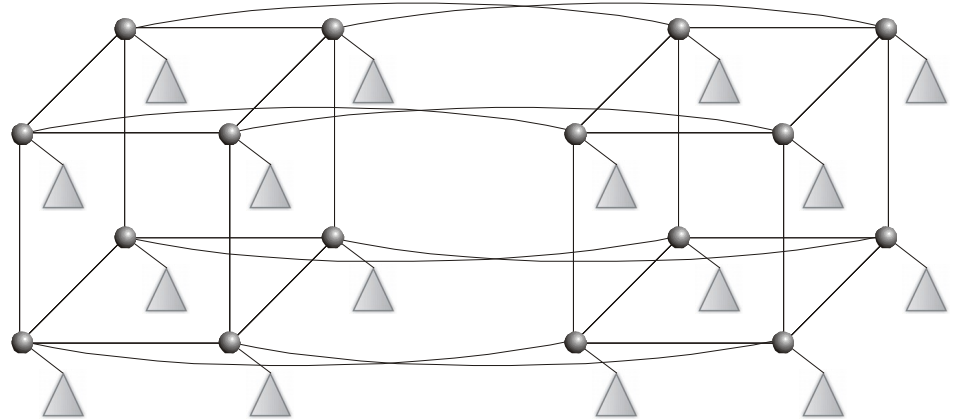
(c) Grid 2D

Sistemas NUMA

- Topologias NUMA



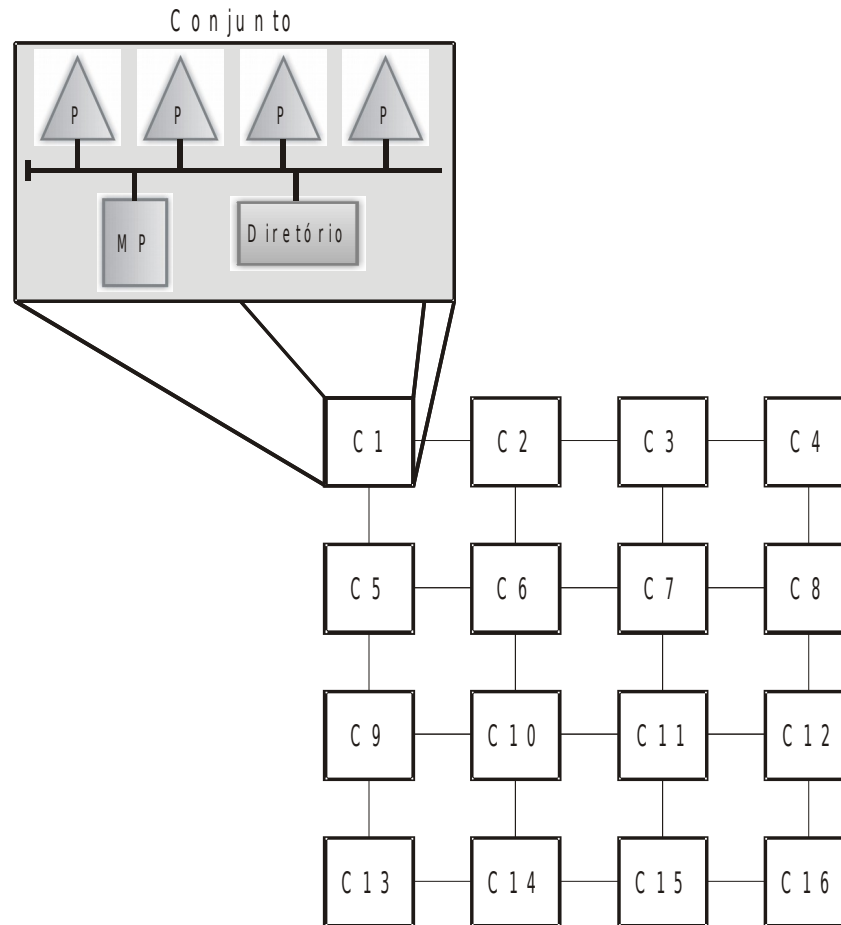
(d) Torus 2D



(e) Hiper cubo

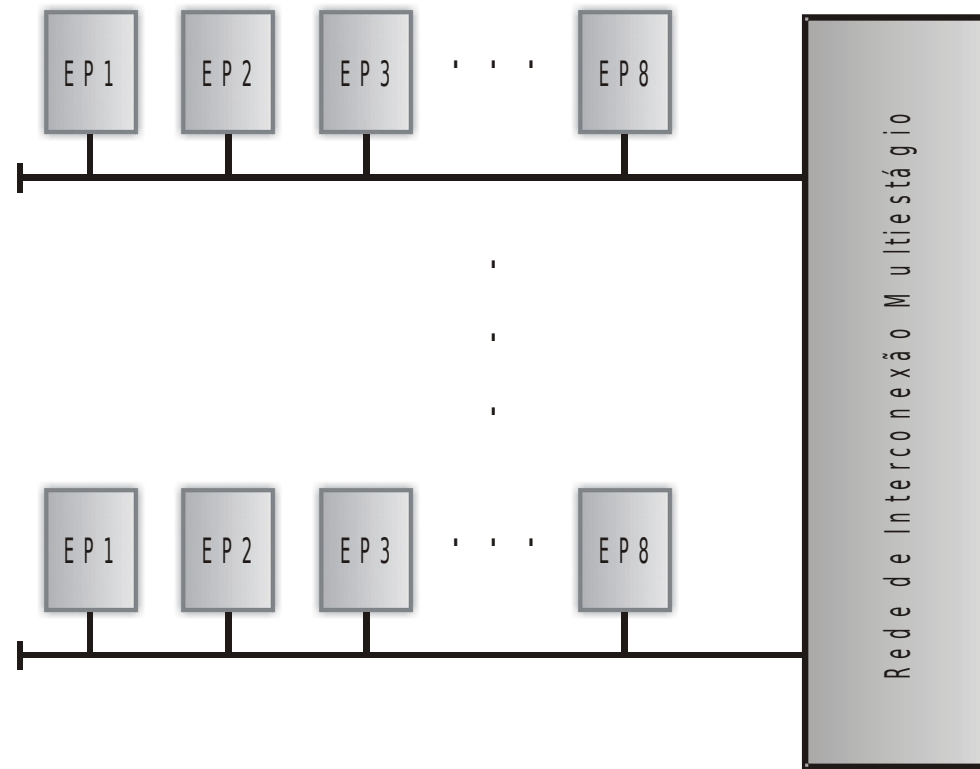
Sistemas NUMA

- Arquitetura DASH



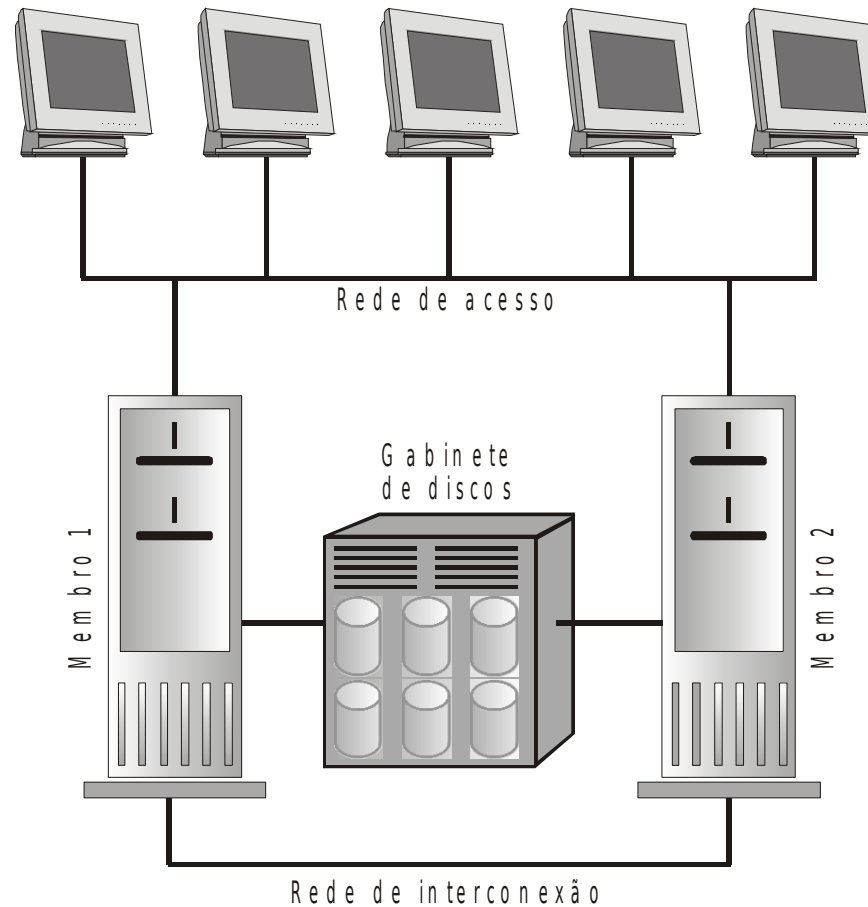
Sistemas NUMA

- Arquitetura do Multiplus



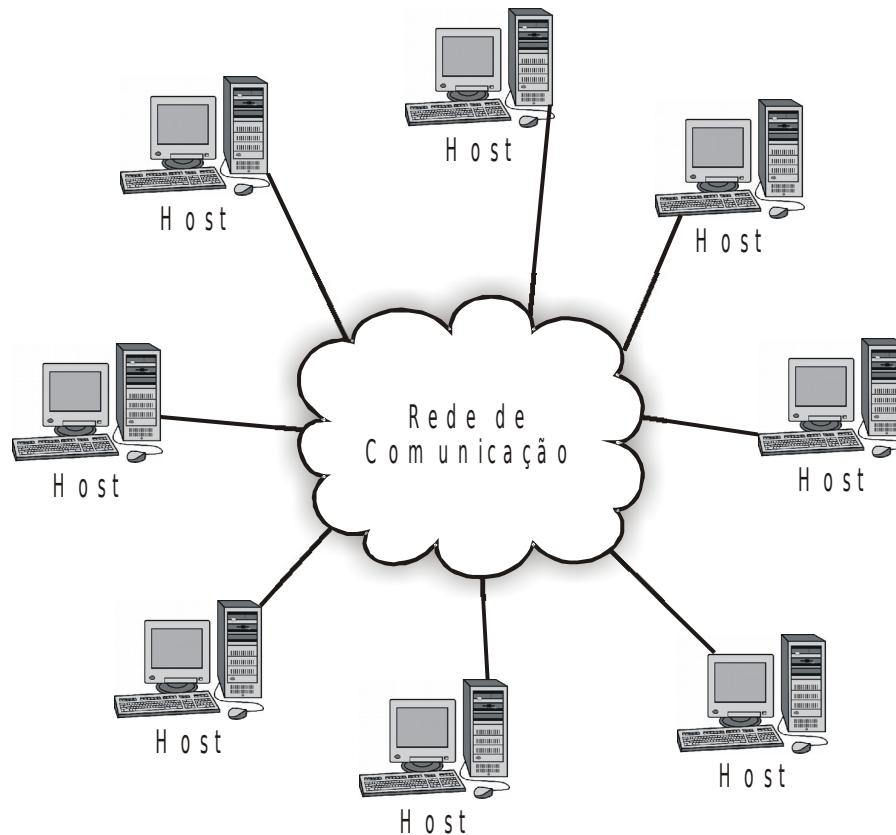
Clusters

- Exemplo de cluster



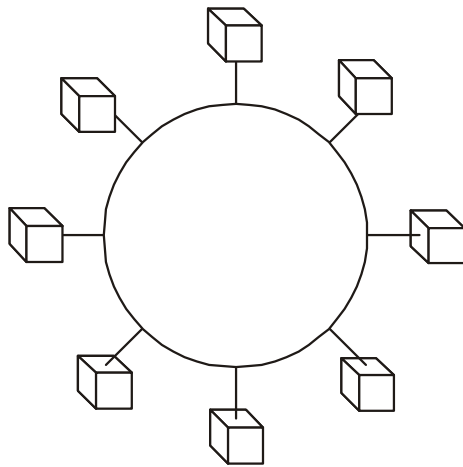
Topologias de Redes de Computadores

- Rede de computadores

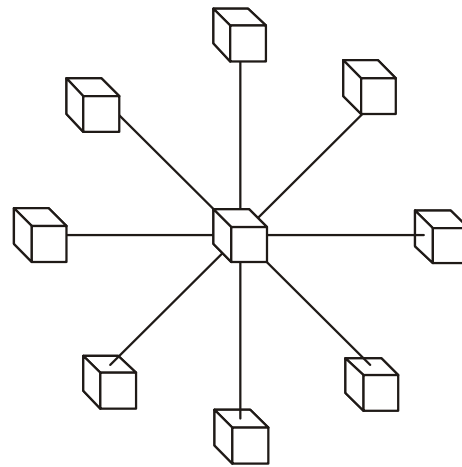


Topologias de Redes de Computadores

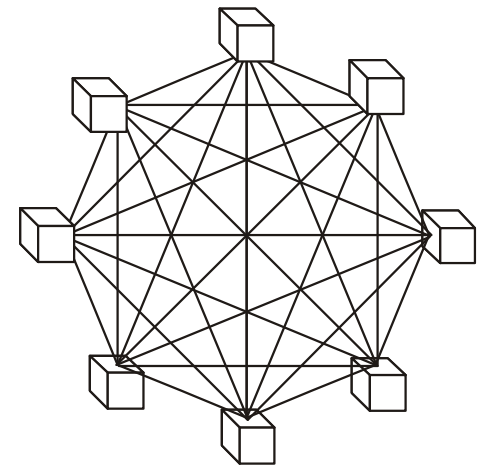
- Topologias de redes de computadores



(a) Anel



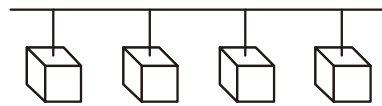
(b) Estrela



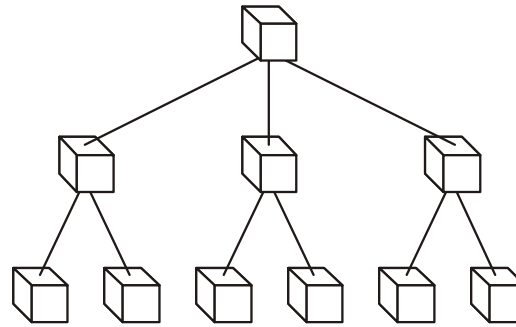
(c) Totalmente Ligada

Topologias de Redes de Computadores

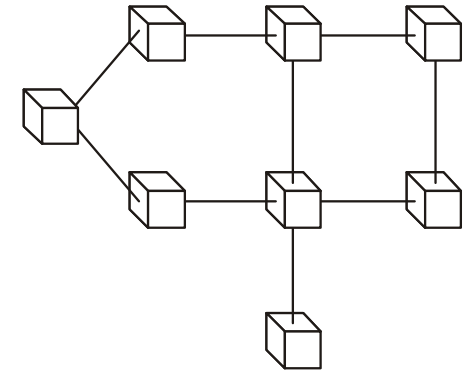
- Topologias de redes de computadores



(d) Barramento



(e) Árvore



(f) Parcialmente Ligada

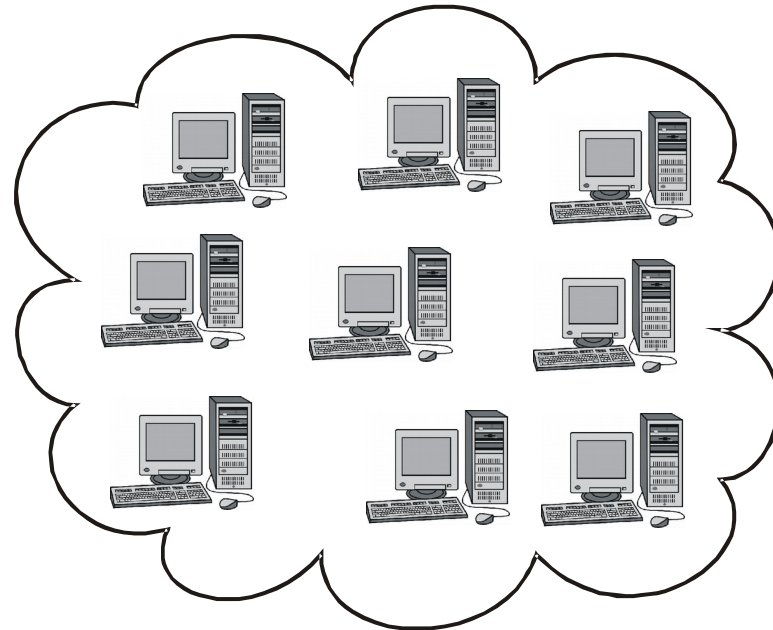
Sistemas Distribuídos

- Sistema distribuído



U s u á r i o

Imagem única
do sistema s



Rede de Computadores