

INOVA

2ª Semana de Inovação

25 a 29
Novembro

Oracle Exadata na Prodemge: Visão Geral, Benefícios e Desafios

André Elias de Leles Vilaça - GBD

Cleber Hostalácio de Melo - GAC

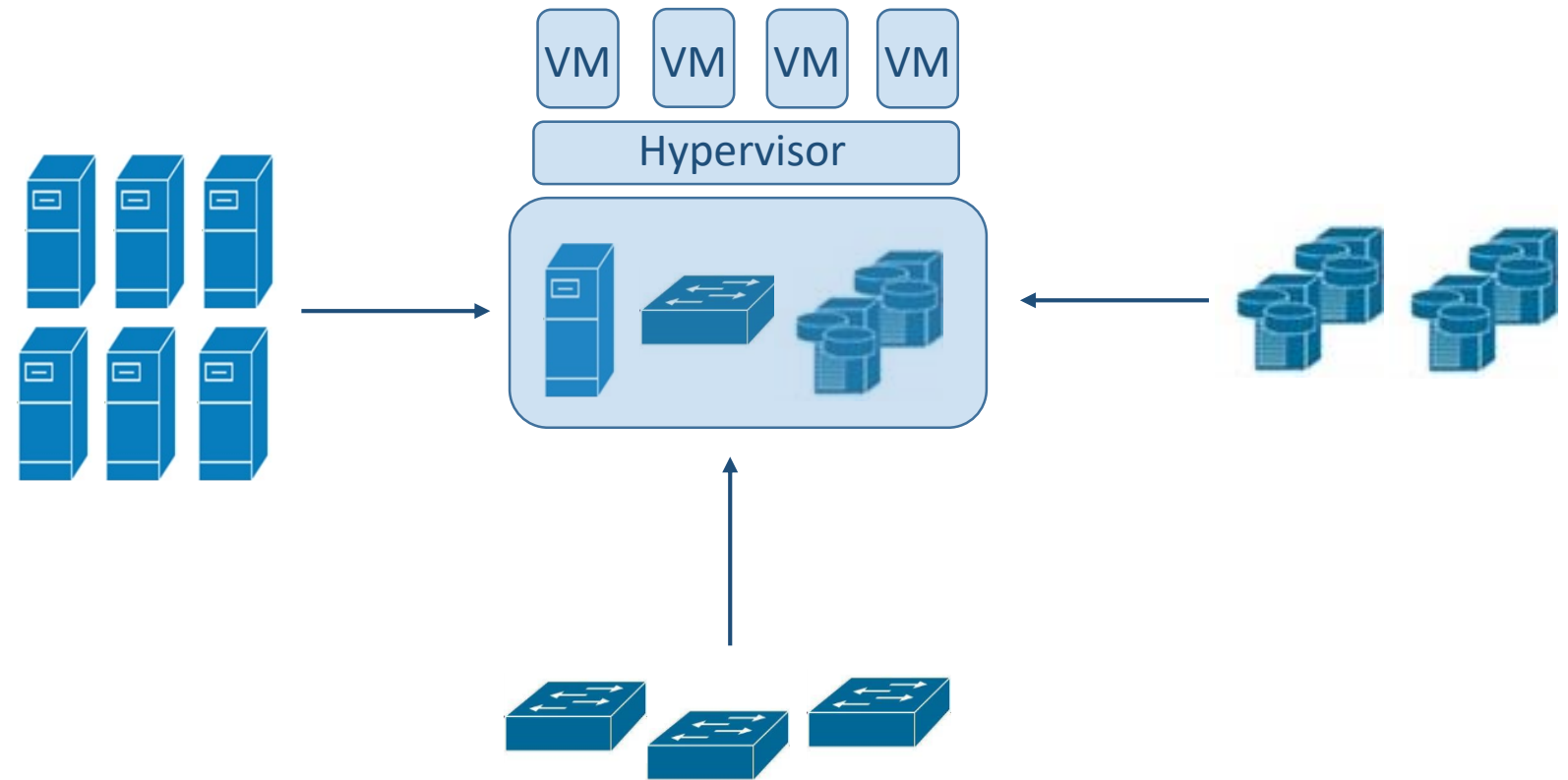
Euler Ribeiro Lemes - GBD

Oracle Exadata Database Machine

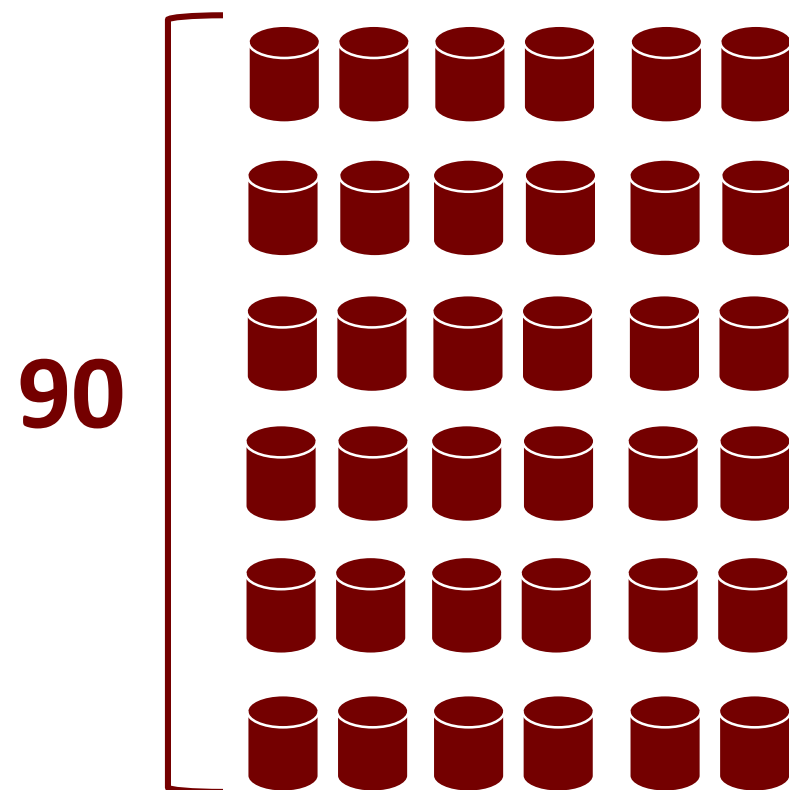
Hiperconvergência



Hiperconvergência



Cenário Atual



1.818 esquemas

Licenciamento Variado

Enterprise Edition

Standard Edition

Standard Edition One

Oracle 9, 10 e 11

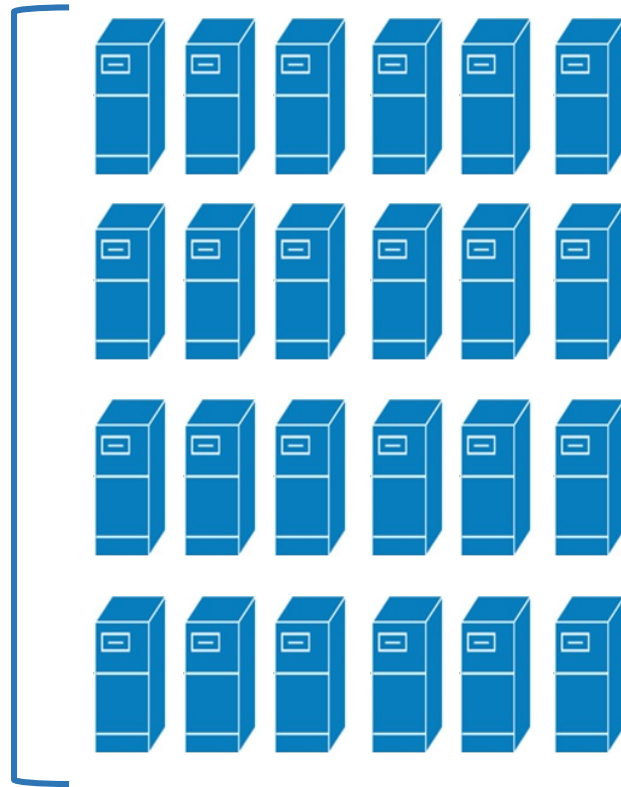
Configurações

STANDALONE

CLUSTER

Cenário Atual

55



Diversidade

Fabricantes: Dell, Sun, HP

Porte e Configuração

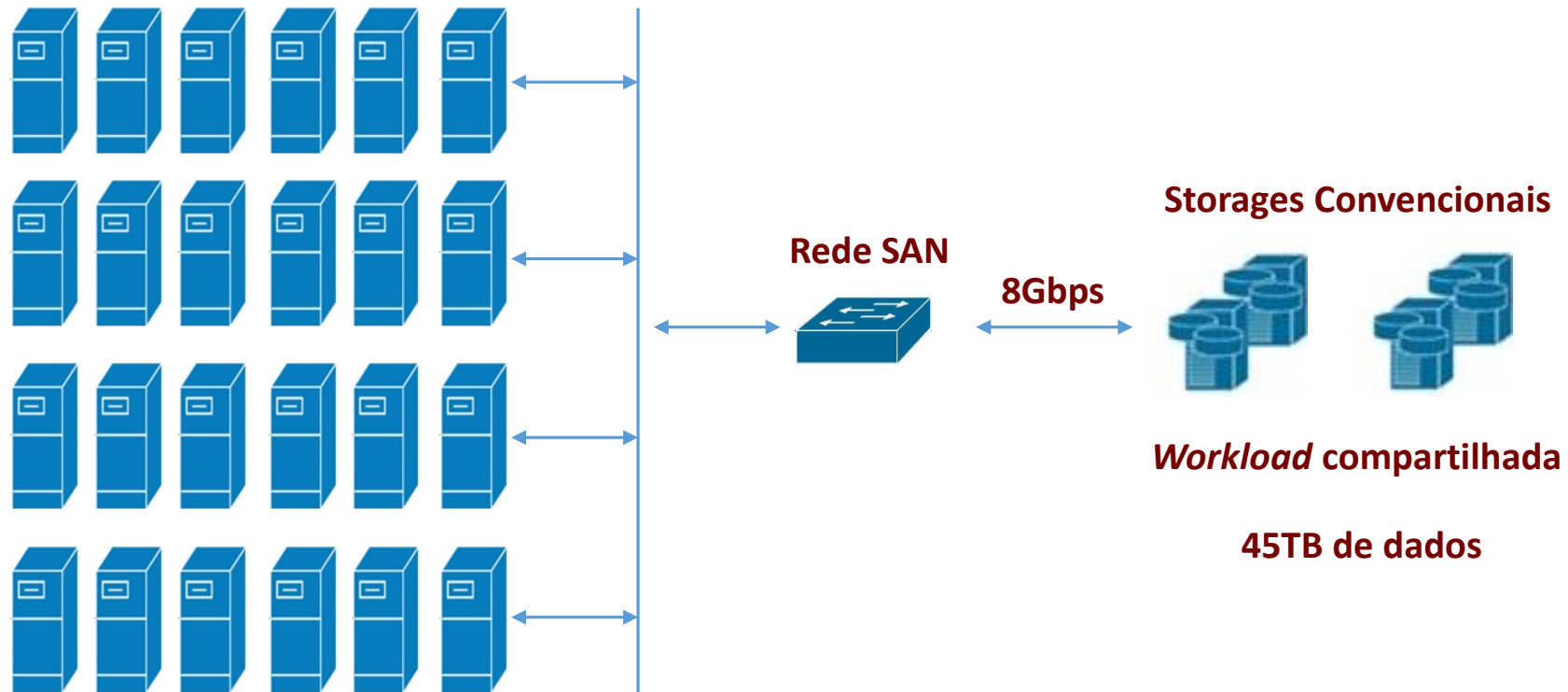
Tempo de aquisição

478 cores

2.500 GB RAM

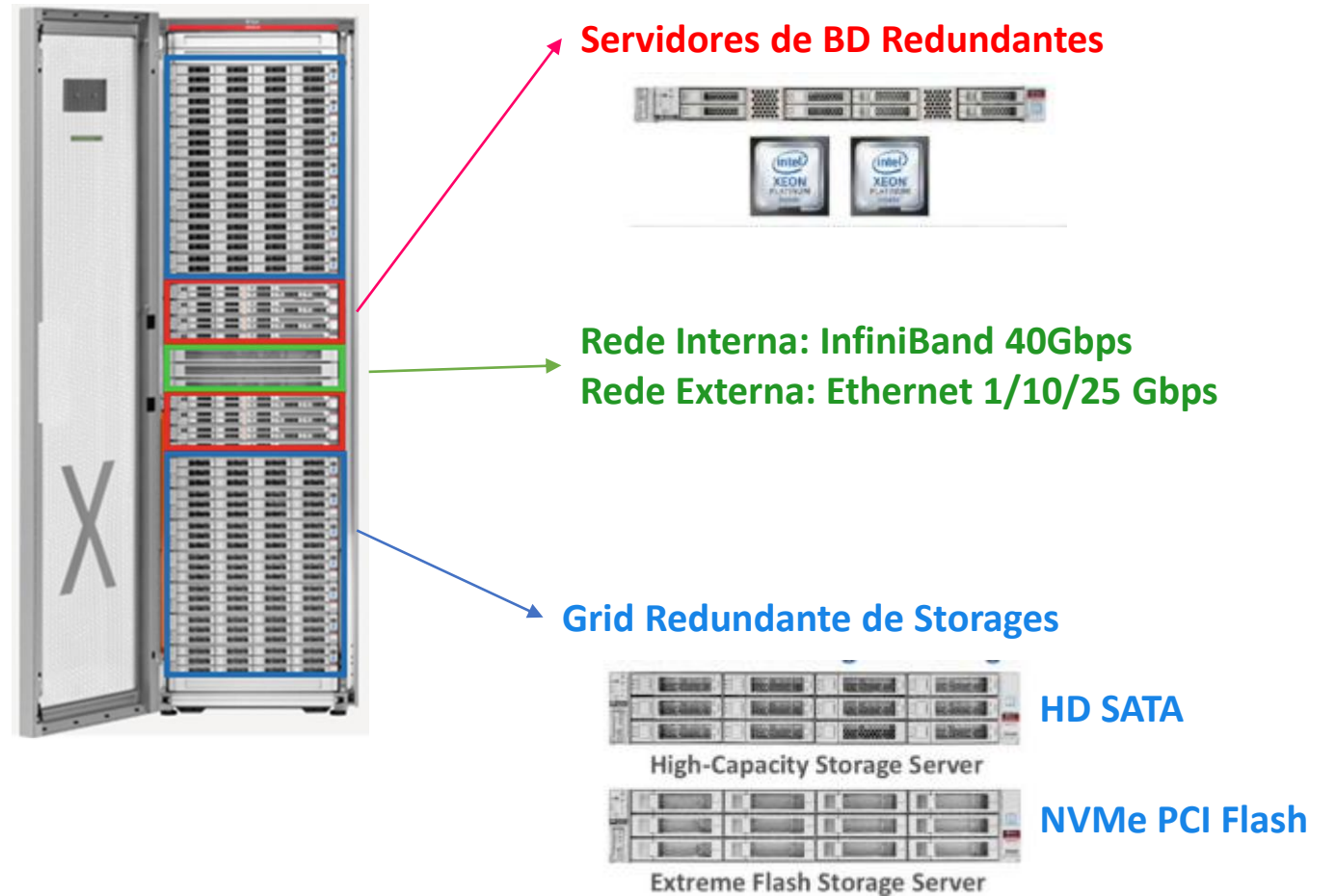
37% - média de utilização de CPU

Cenário Atual

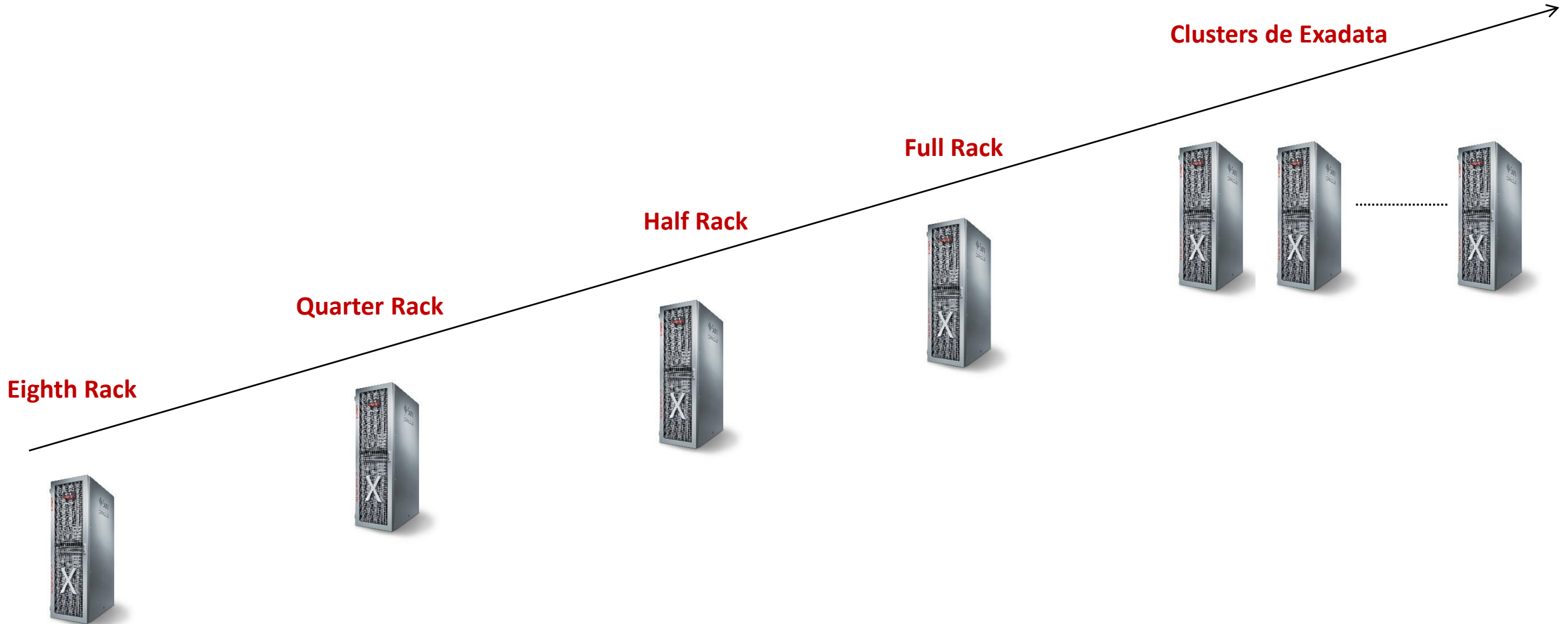


Convergência no Oracle Exadata

Exadata X7.2



Escalabilidad



Comercialização Escalonável



Eighth Rack



Quarter Rack



Half Rack

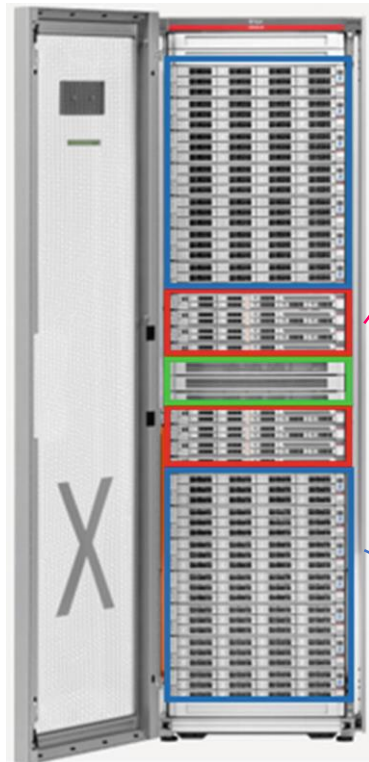


Full Rack

Servidores BD	2	2	4	8
CPU cores	44	92	184	368
RAM (GB)	480	1.440	2.880	3.760
Servidores Storage	3	3	6	12
Raw Disk Storage (TB)	144	360	720	1.440
Raw Flash Storage (TB)	19,2	76,8	153,6	307,2
Líquido (TB)	42,7	106,9	213,8	427,6

Oracle Exadata X7.2

Half Rack



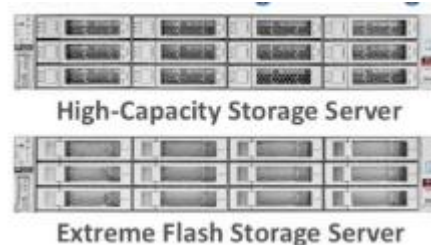
Servidores de BD Redundantes



4 x 2 cpu x 24-core Xeon 8160 2.1GHz
184 cores
2.880 GB RAM

Rede Interna: InfiniBand 40Gbps
Rede Externa: Ethernet 1/10/25 Gbps

Grid Redundante de Storages

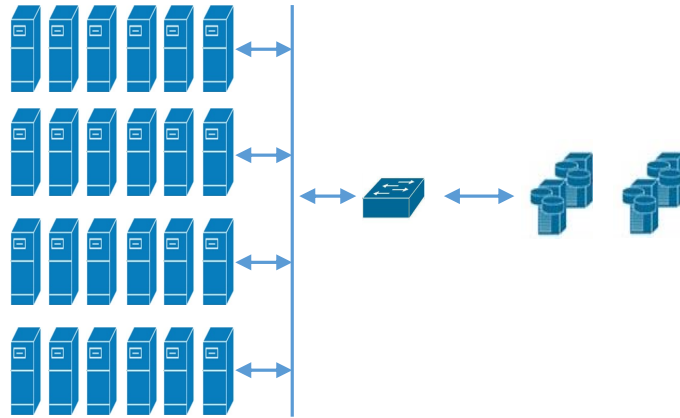


HD

Flash

6 x 2 cpu x 10-core Xeon 4114 2.2GHz
6 x 192GB RAM
213,8 TB

Comparando...



Servidores: 55

Cores: 478

RAM: 2.500 GB

Storage: 2 – 45TB

SAN: 8 Gbps

Servidores: 4

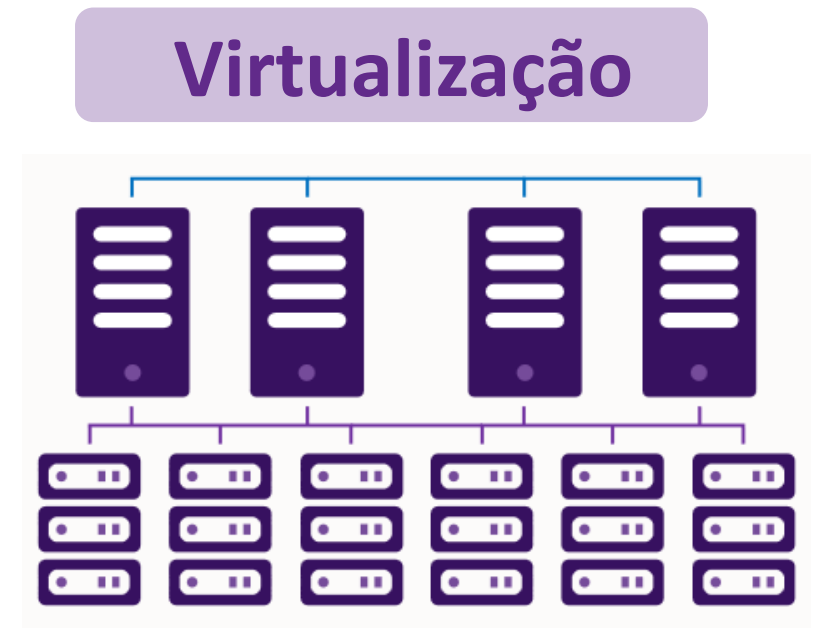
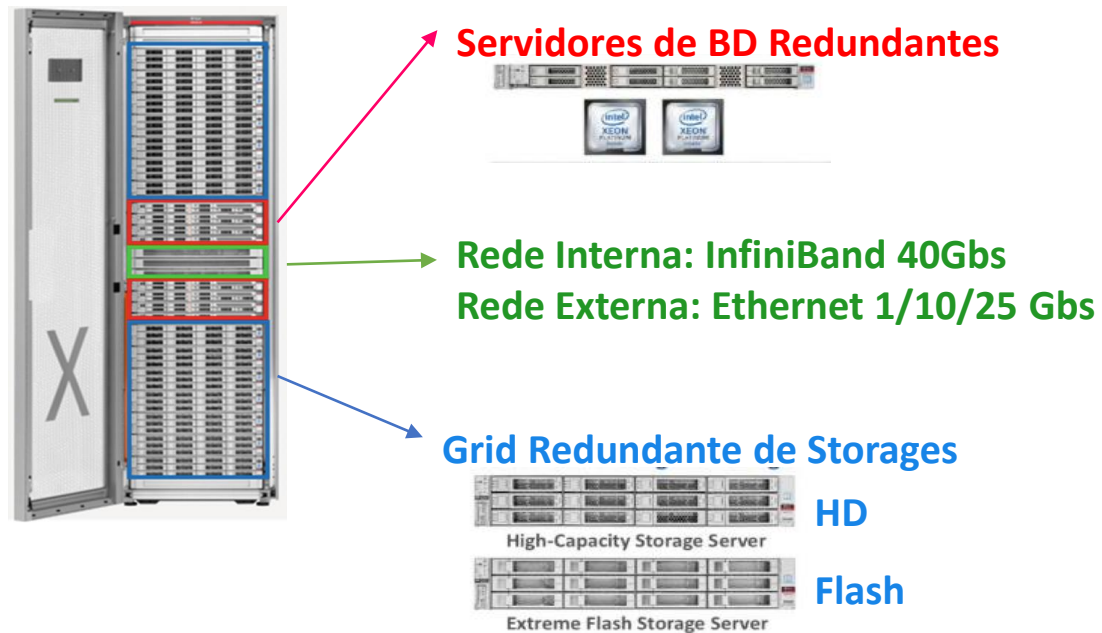
Cores: 184

RAM: 2.880 GB

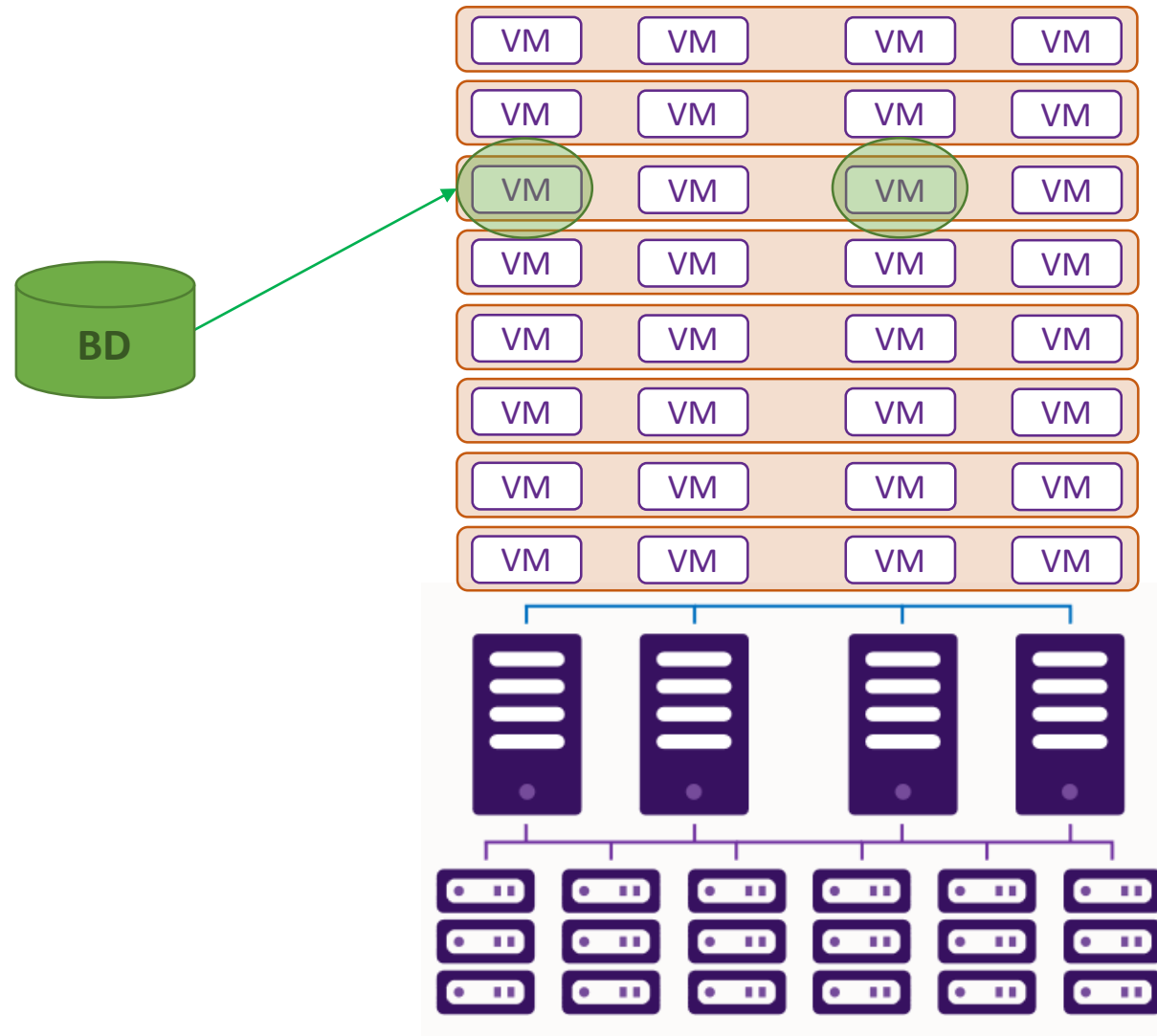
Storage: 6 – 213 TB

InfiniBand: 40 Gbps

Por enquanto só convergência...



Virtualização no Exadata



8 Clusters

4 VMs

O que ganhamos até agora?

Benefícios gerais da Hiperconvergência

Redução da complexidade e diversidade do ambiente computacional

Otimização dos processo de gestão deste ambiente

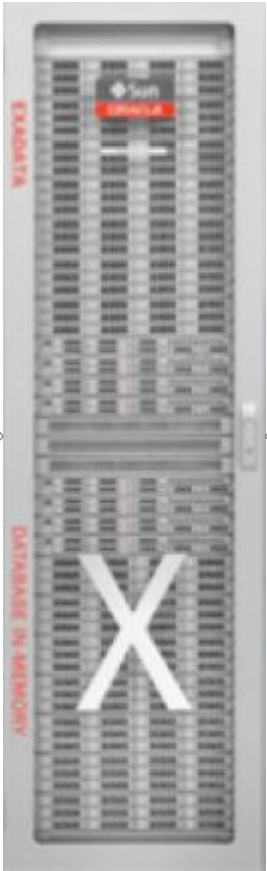
Aumento da escalabilidade

Melhor aproveitamento dos recursos computacionais

Redução de custos

Exadata - Recursos e Benefícios

Offload SQL to Storage	
InfiniBand Fabric	
Smart Flash Cache, Log	
Storage Indexes	
Columnar Flash Cache	
Hybrid Columnar Compression	
I/O Resource Management	
Network Resource Management	
In-Memory Fault Tolerance	
Exafusion Direct-to-Wire Protocol	

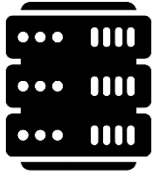


	Multitenant
	In-Memory DB
	Real Application Clusters
	Active Data Guard
	Partitioning
	Advanced Compression
	Advanced Security, Label Security, DB Vault
	Real Application Testing
	Advanced Analytics, Spatial and Graph
	Management Packs for Oracle Database

Engineered Systems



Engineered Systems



Sistemas de Hardware e Software



Integram componentes de diversas funcionalidades



Projetados

Construídos

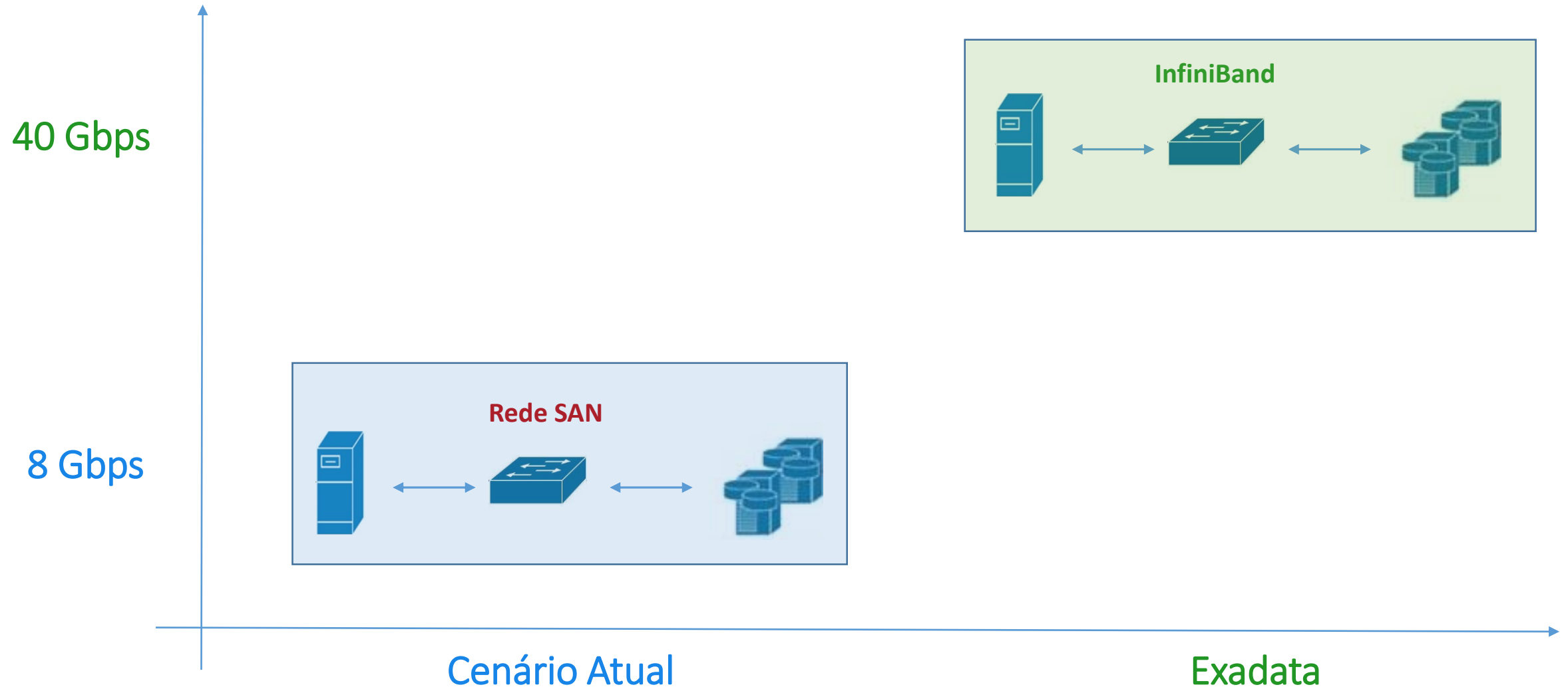
Configurados

Ajustados



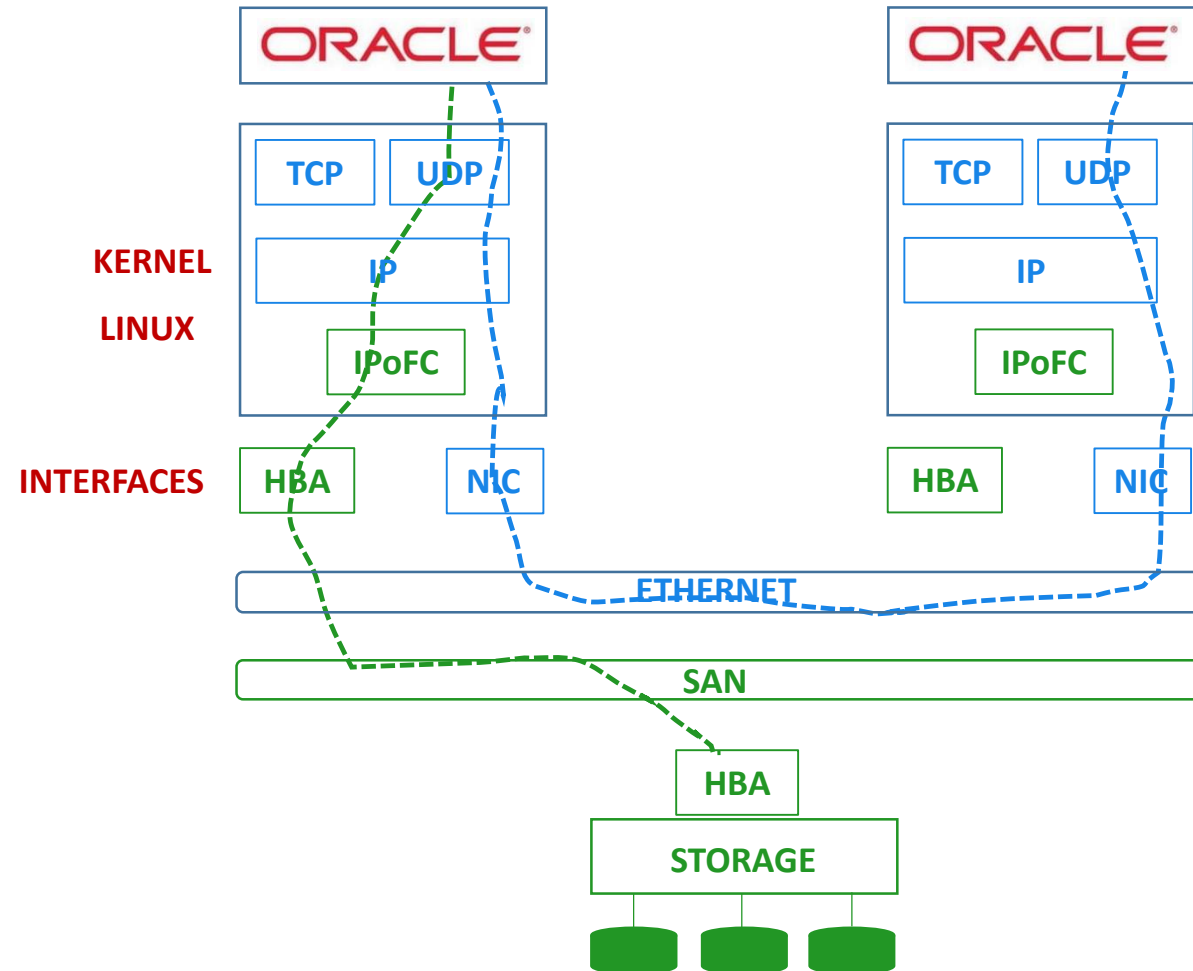
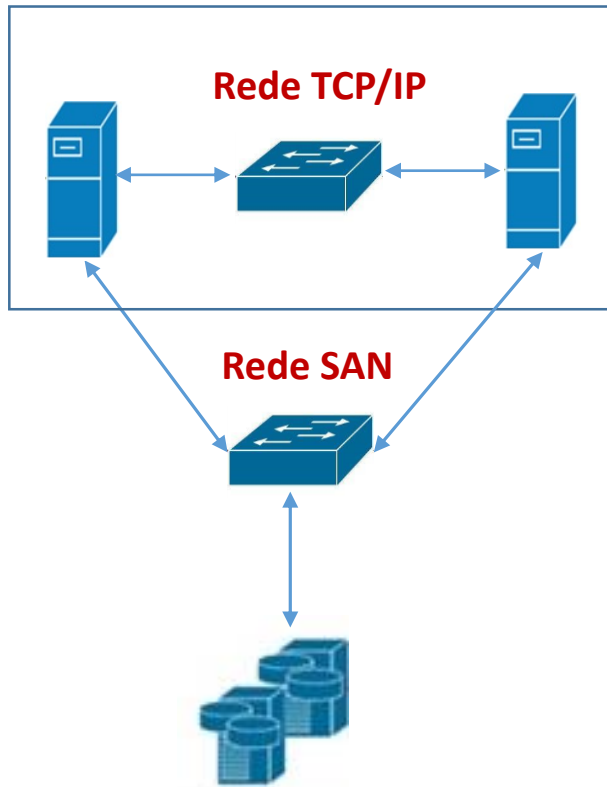
Rede InfiniBand

Rede InfiniBand



Cenário Atual – Tipos de Conexão

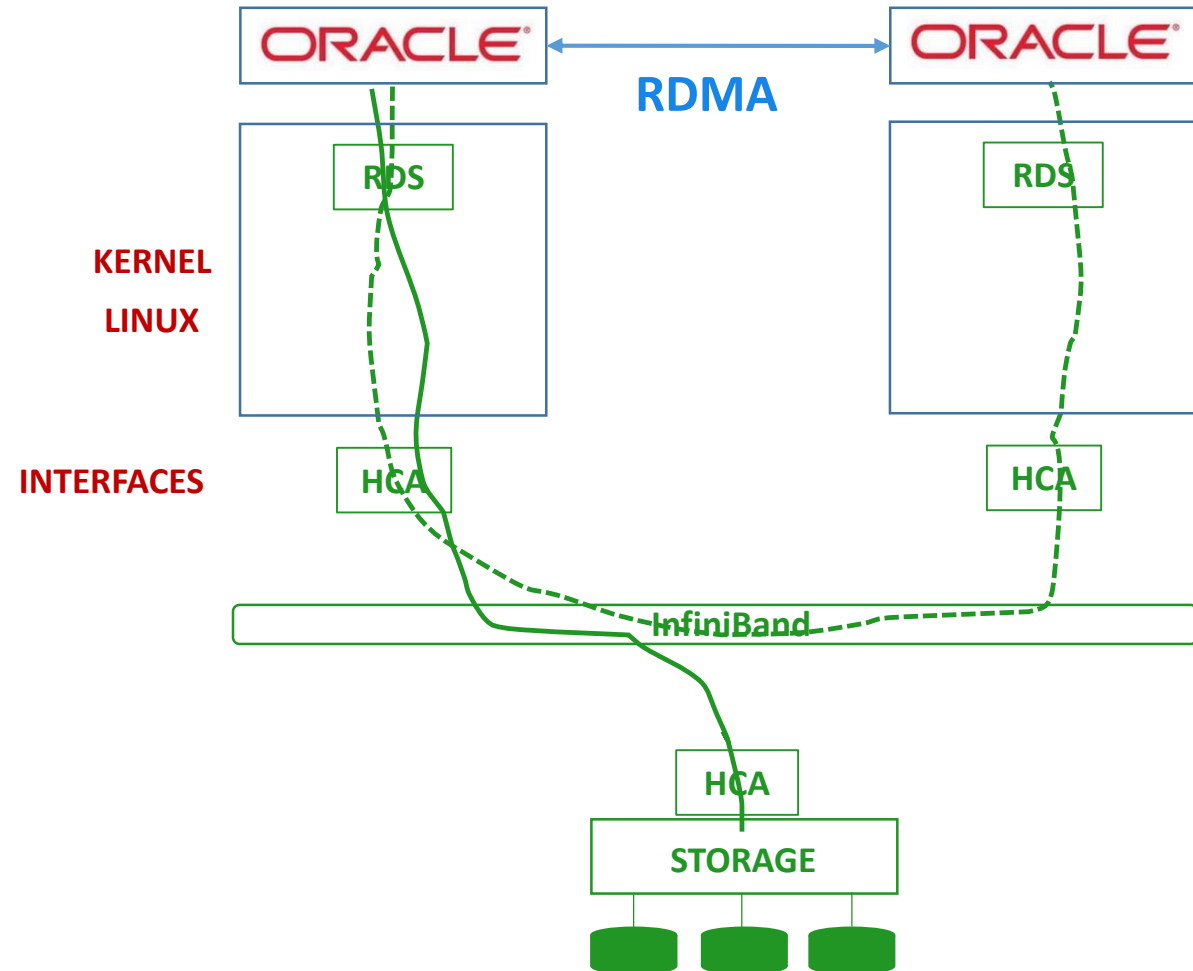
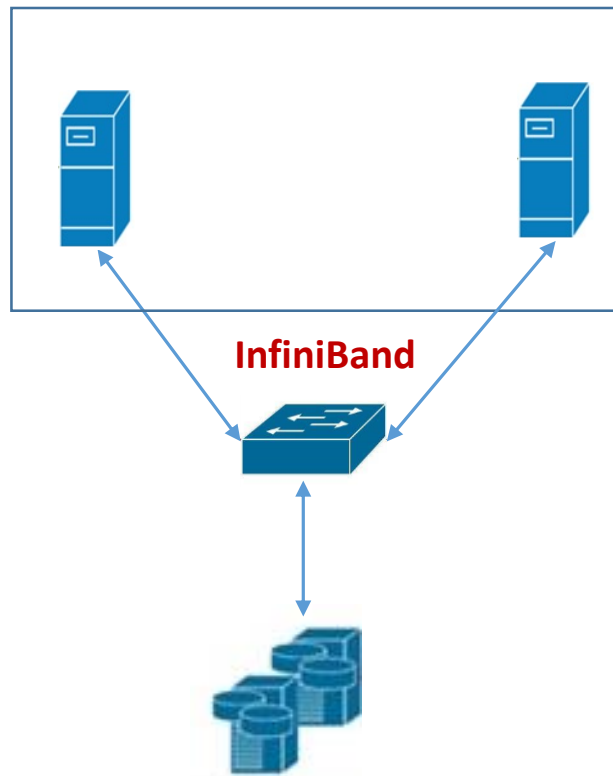
Oracle Real Application Cluster



Exadata – Tipos de Conexão

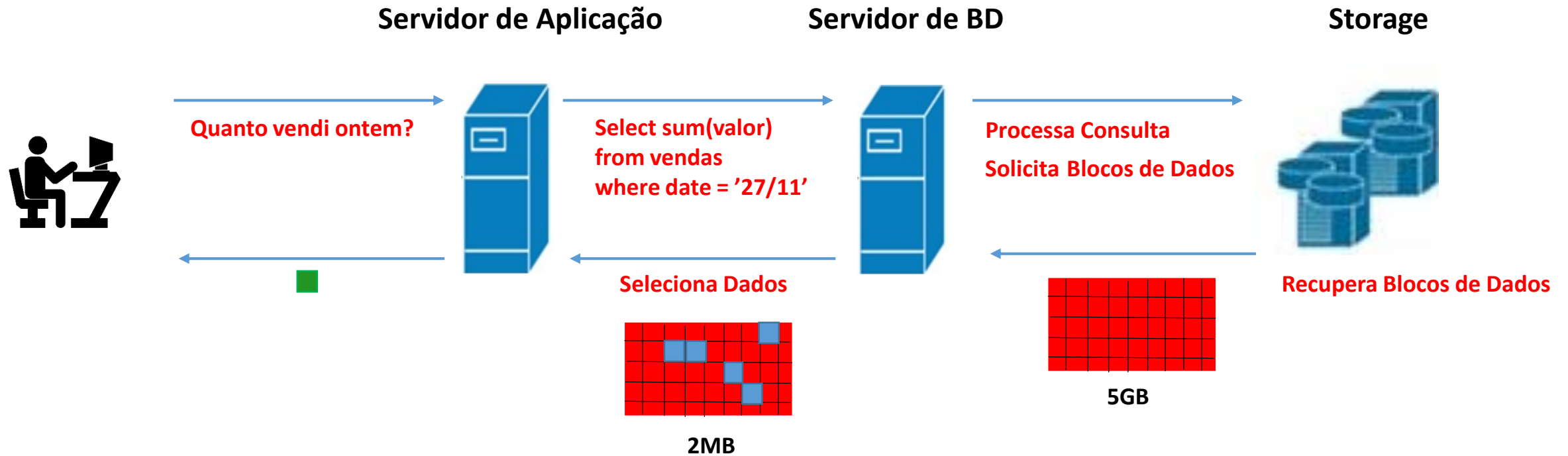
50 % CPU

Oracle Real Application Cluster

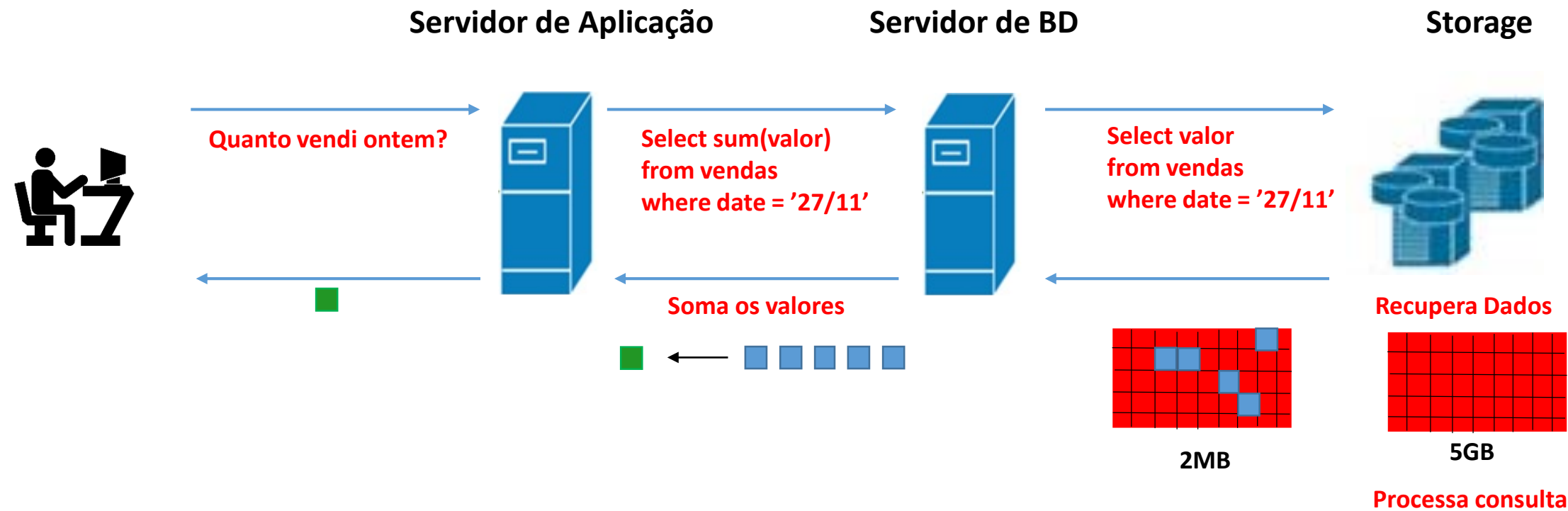


Smart Scan

Processamento de consulta tradicional



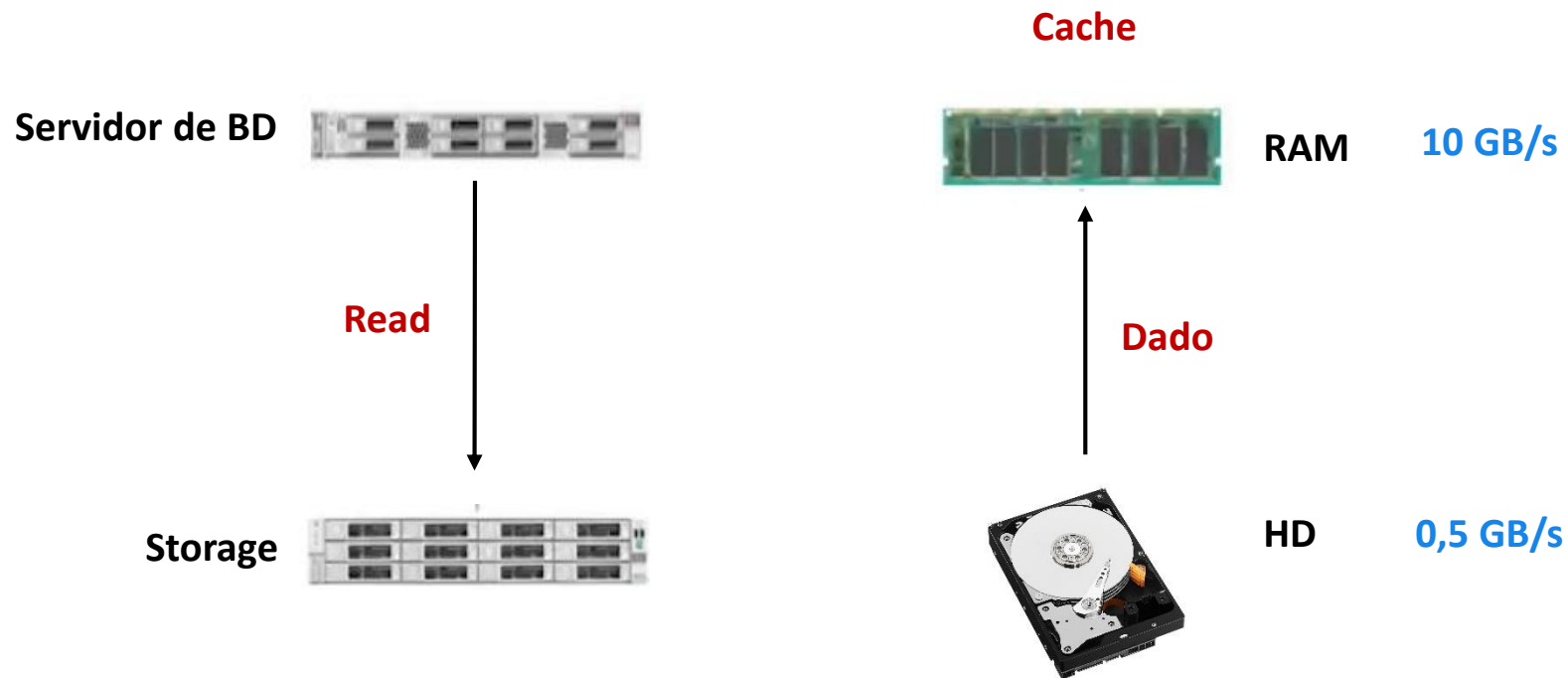
Exadata Smart Scan



In-Memory Acceleration for OLTP

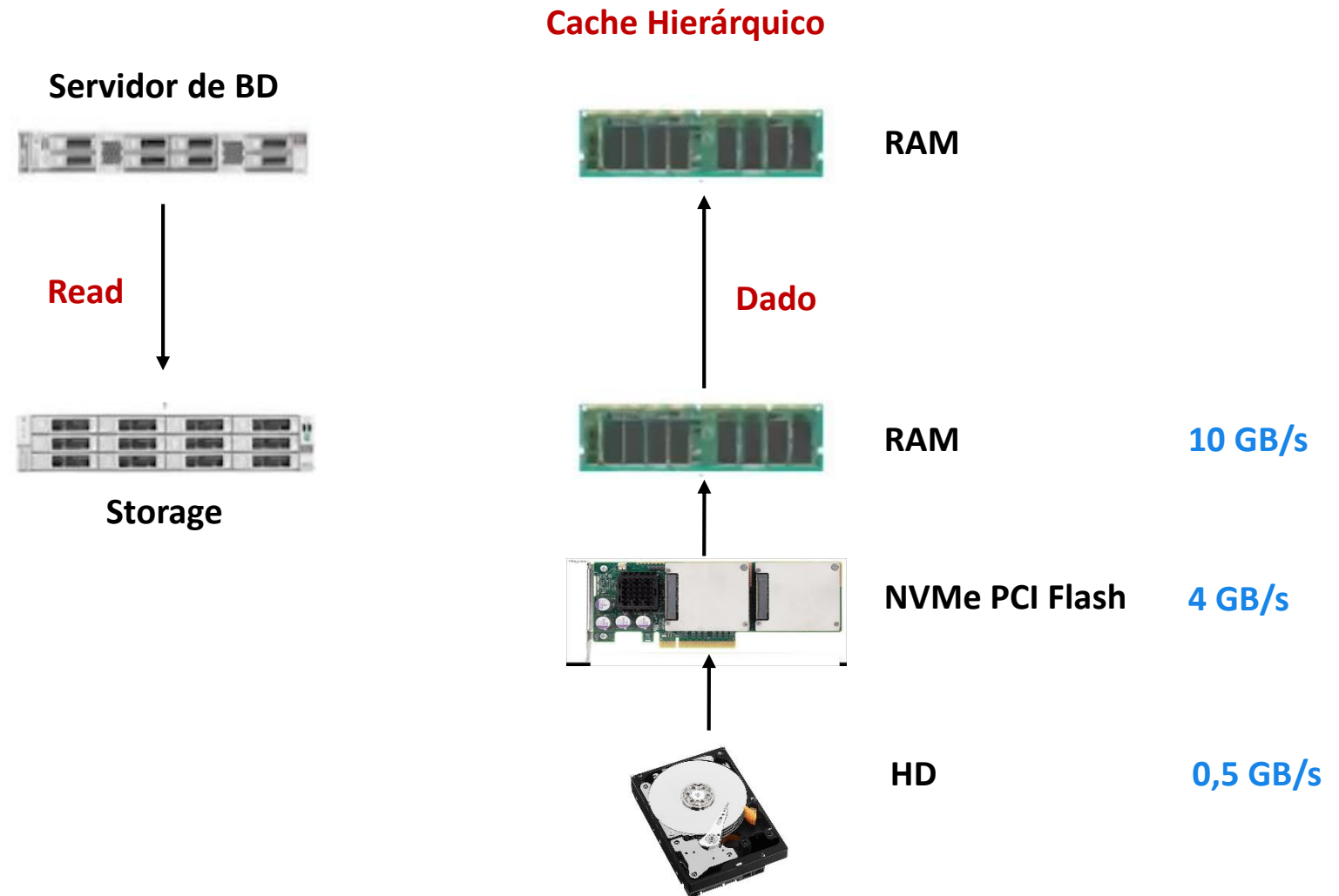
Database Cache

Cenário Atual



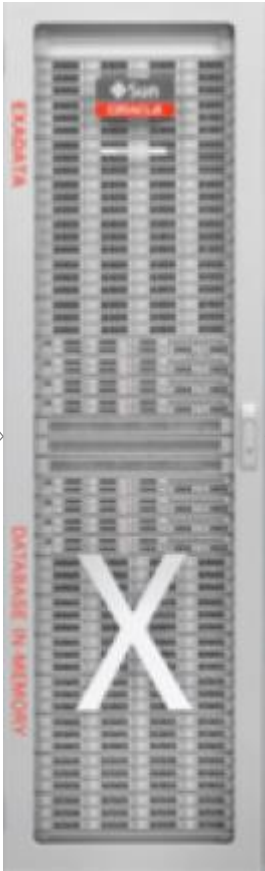
Database Cache

In-Memory Acceleration for OLTP



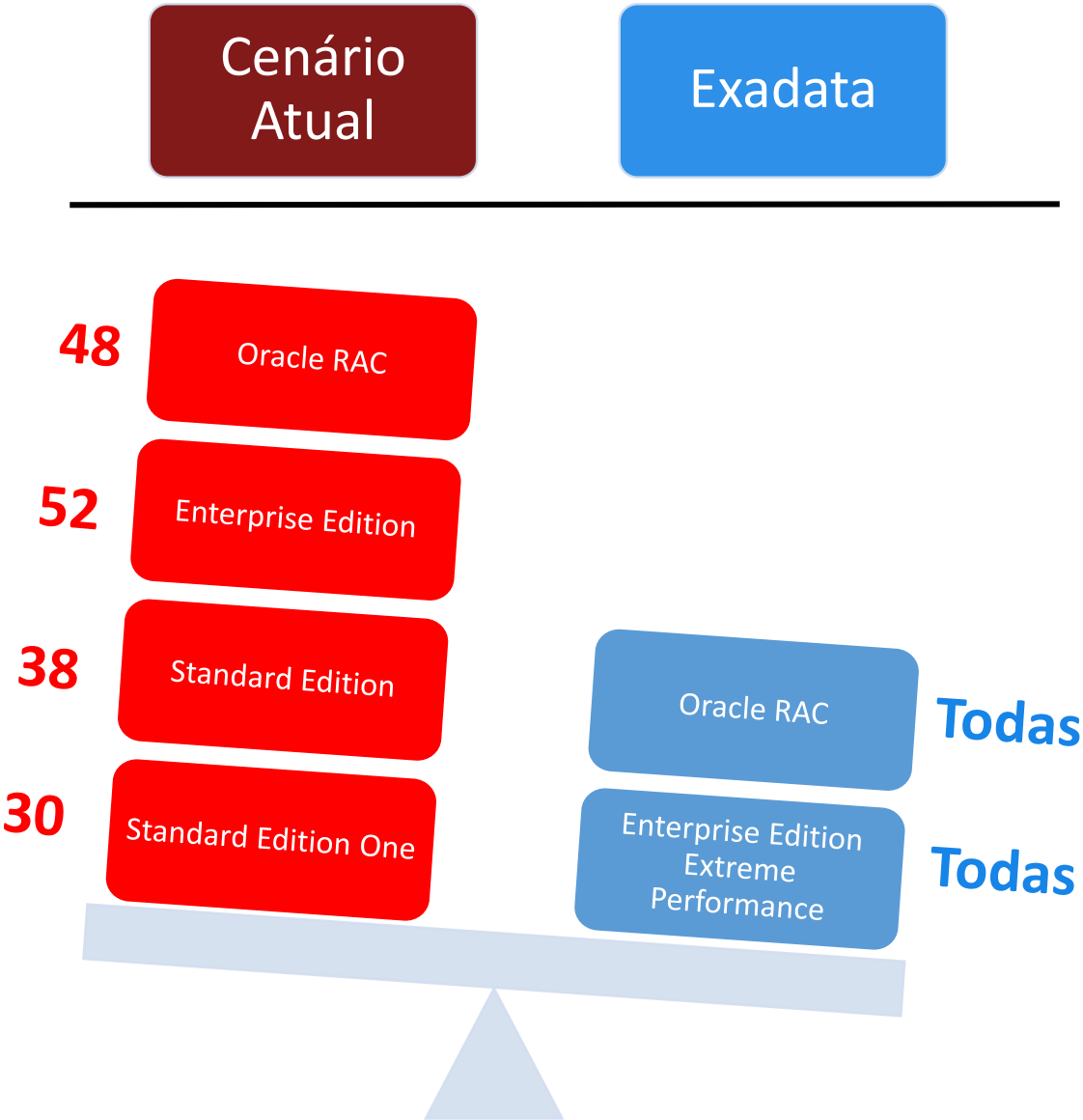
Recursos e Benefícios

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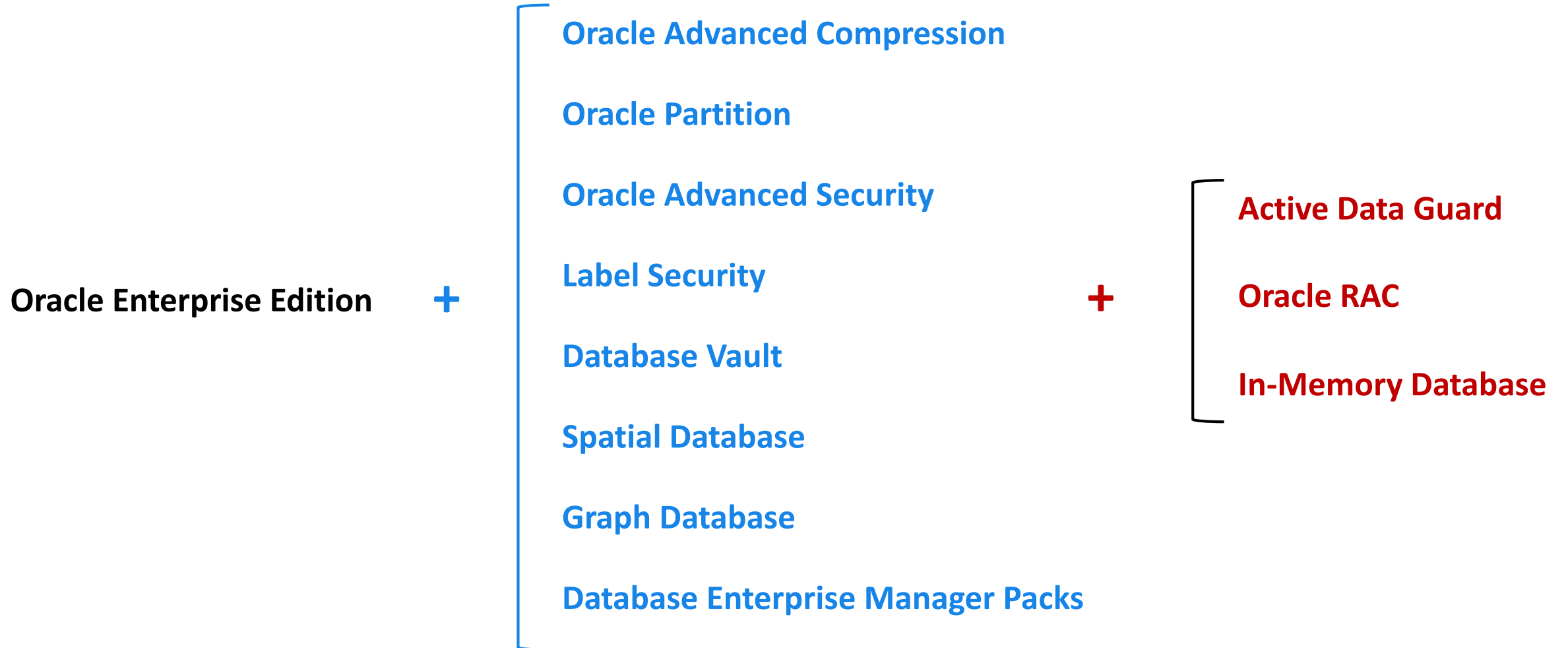


	Multitenant
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	Partitioning
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	Advanced Analytics, Spatial and Graph
	Management Packs for Oracle Database

Licenciamento Oracle



Oracle Enterprise Extreme Performance



Segurança de Dados



Transparent Data Encryption



Data Redaction



Label Security



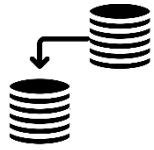
Database Vault



Database Masking & Segmentation



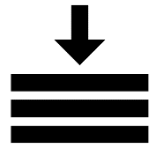
Alta Disponibilidade e Desempenho



Active Data Guard



Real Application Cluster (RAC)

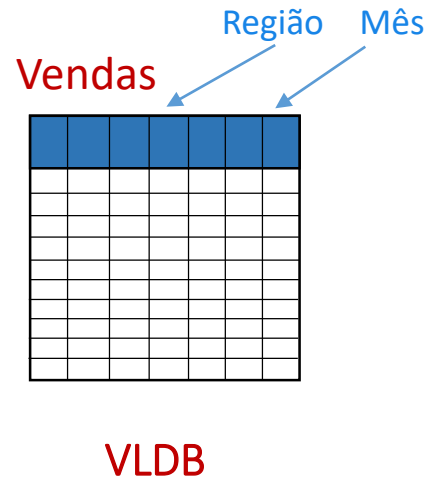


Oracle Advanced Compression



Oracle Partition

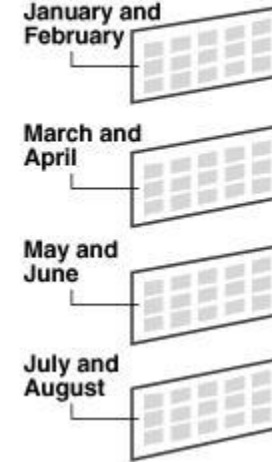
Oracle Partition



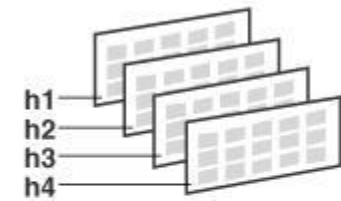
List Partitioning



Range Partitioning



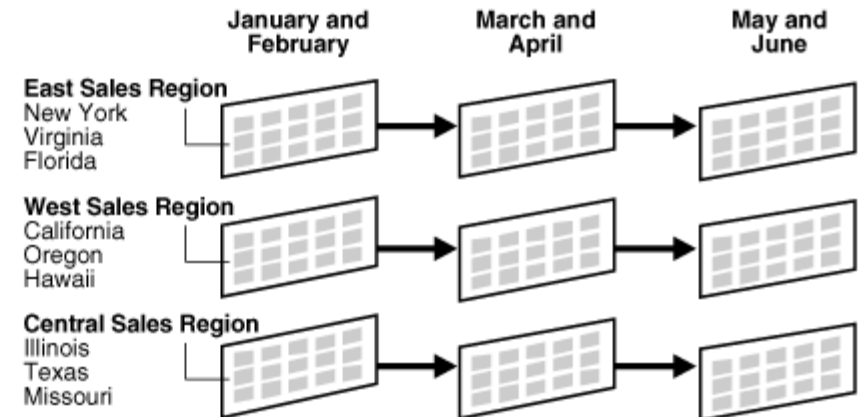
Hash Partitioning

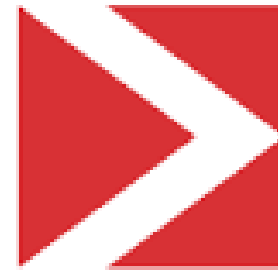


Composite Partitioning
Range-Hash



Composite Partitioning
Range - List





prodemge

Modelos de Contratação



On Premises



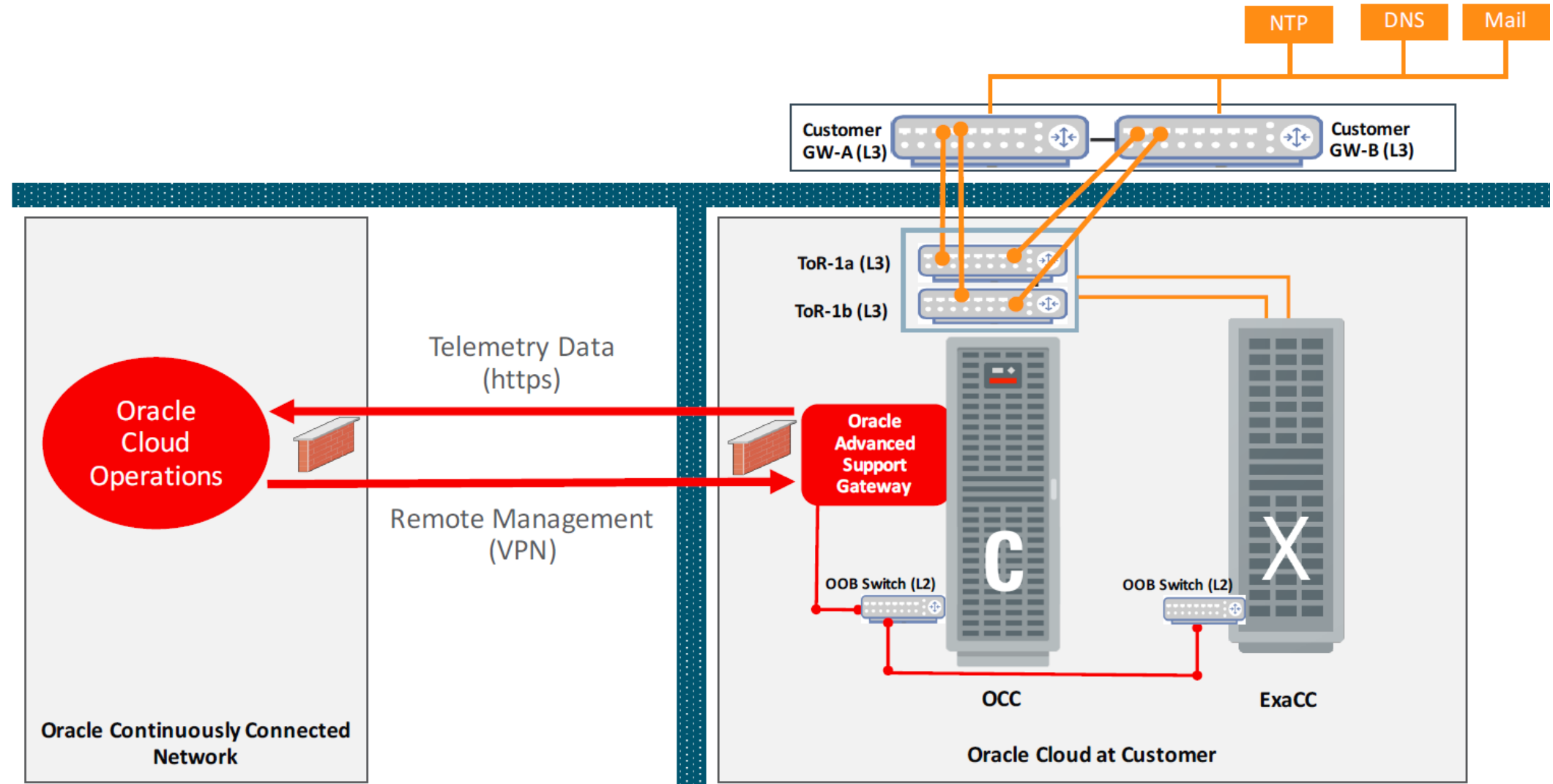
Cloud at
Customer



Public Cloud



Diagrama Simplificado de Rede



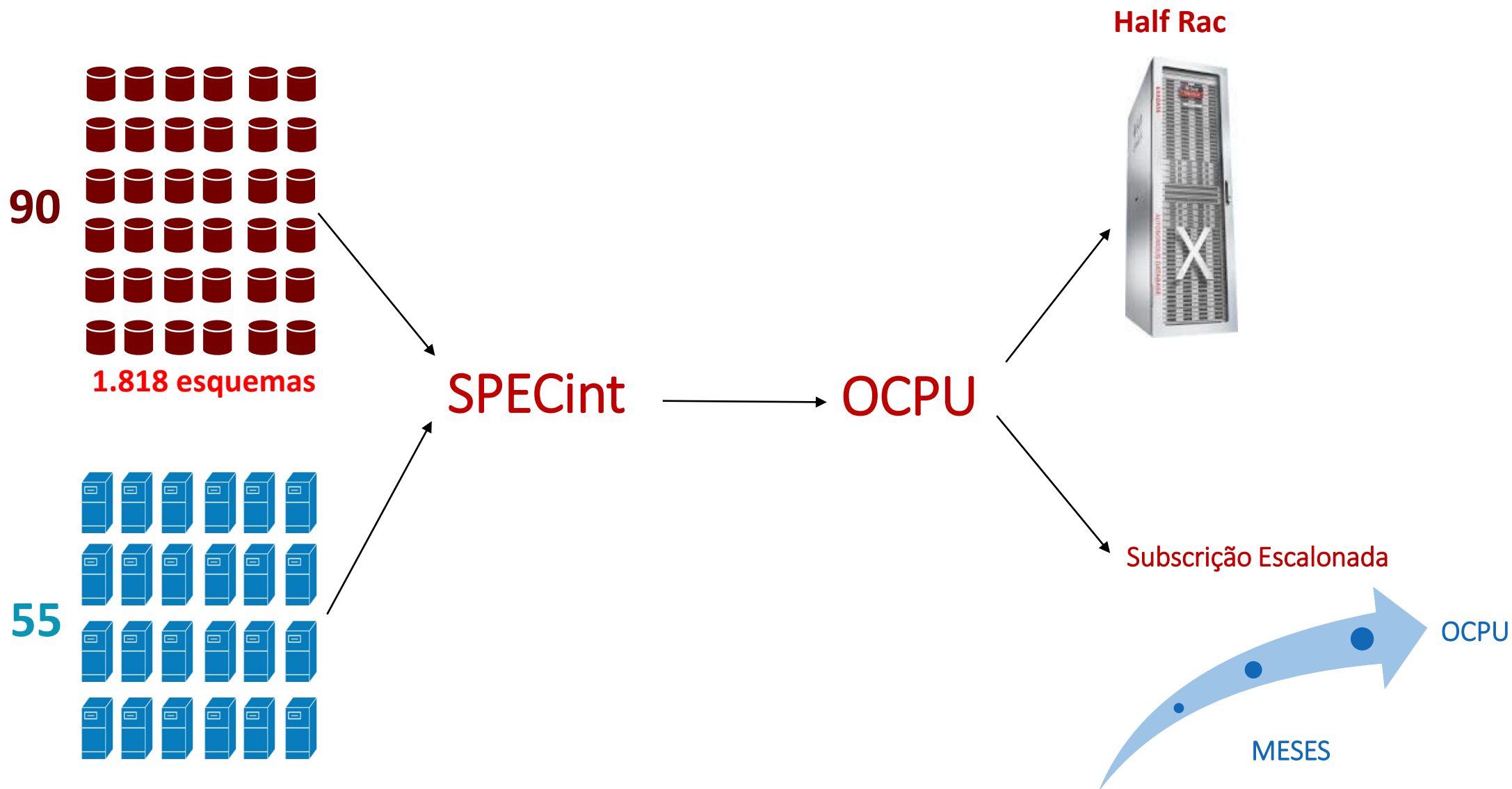
Forma de Subscrição



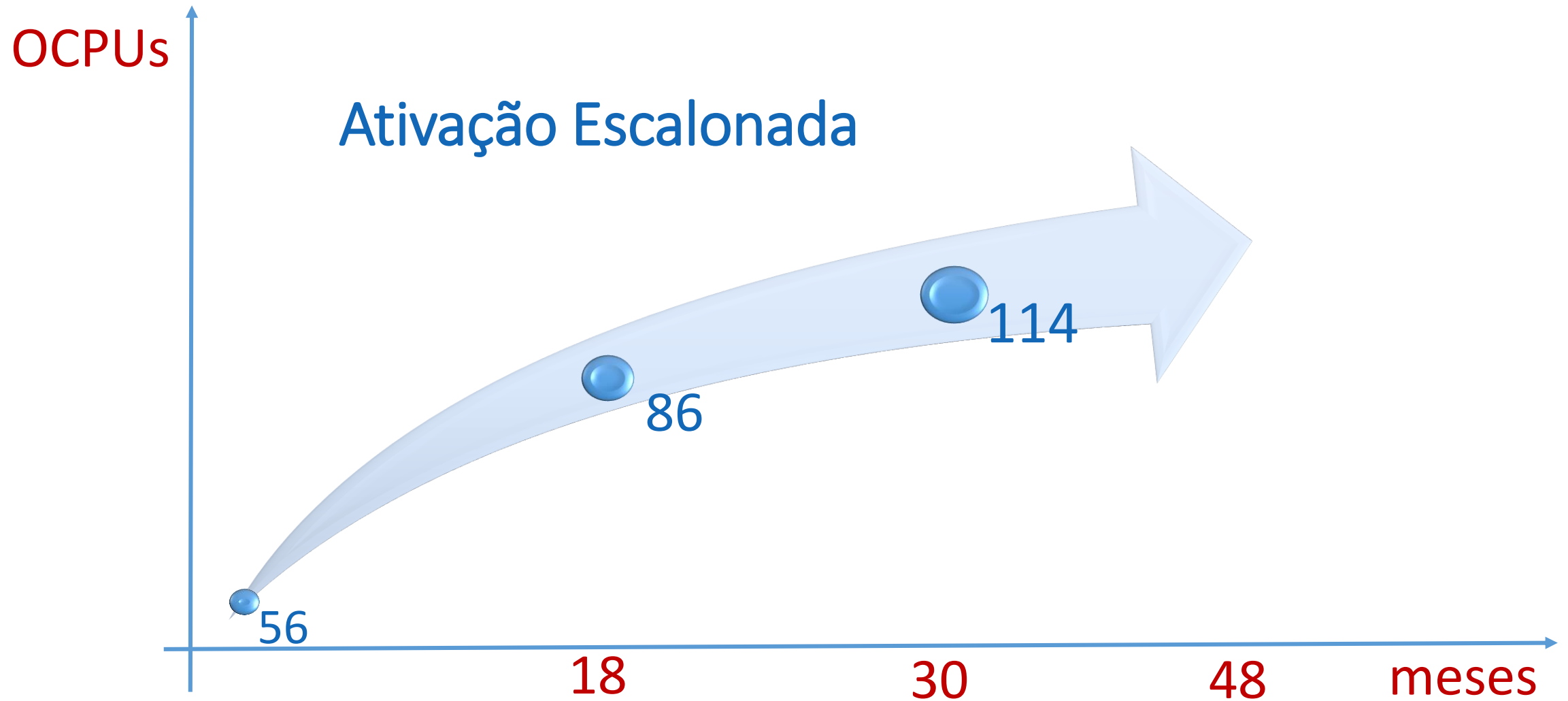
OCPU

Oracle Compute Unit

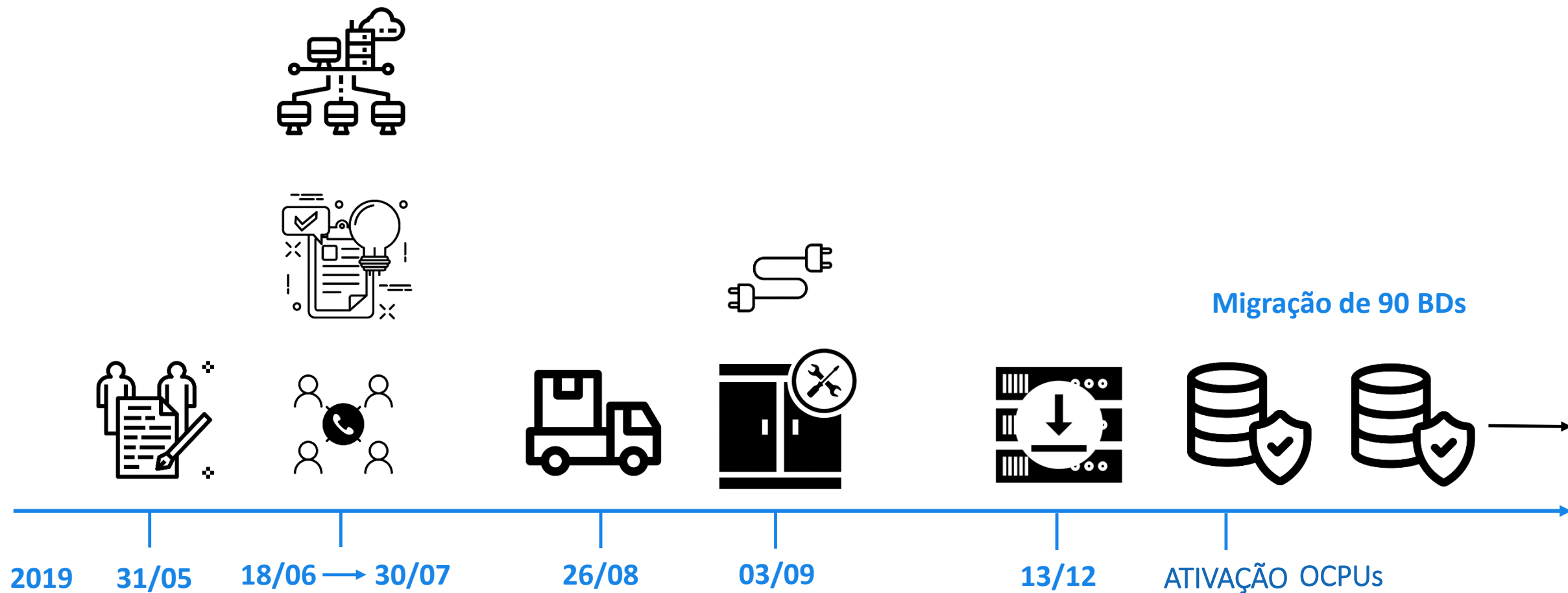
Dimensionamento Exadata



Subscrição Prodemge



Linha do Tempo



DESAFIOS



DESAFIOS



Operacionalização imediata do Exadata



Migração todo ambiente de BD Oracle



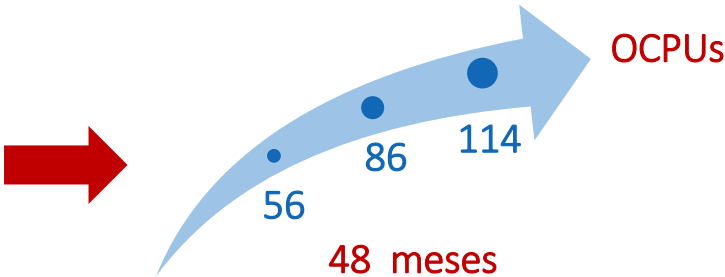
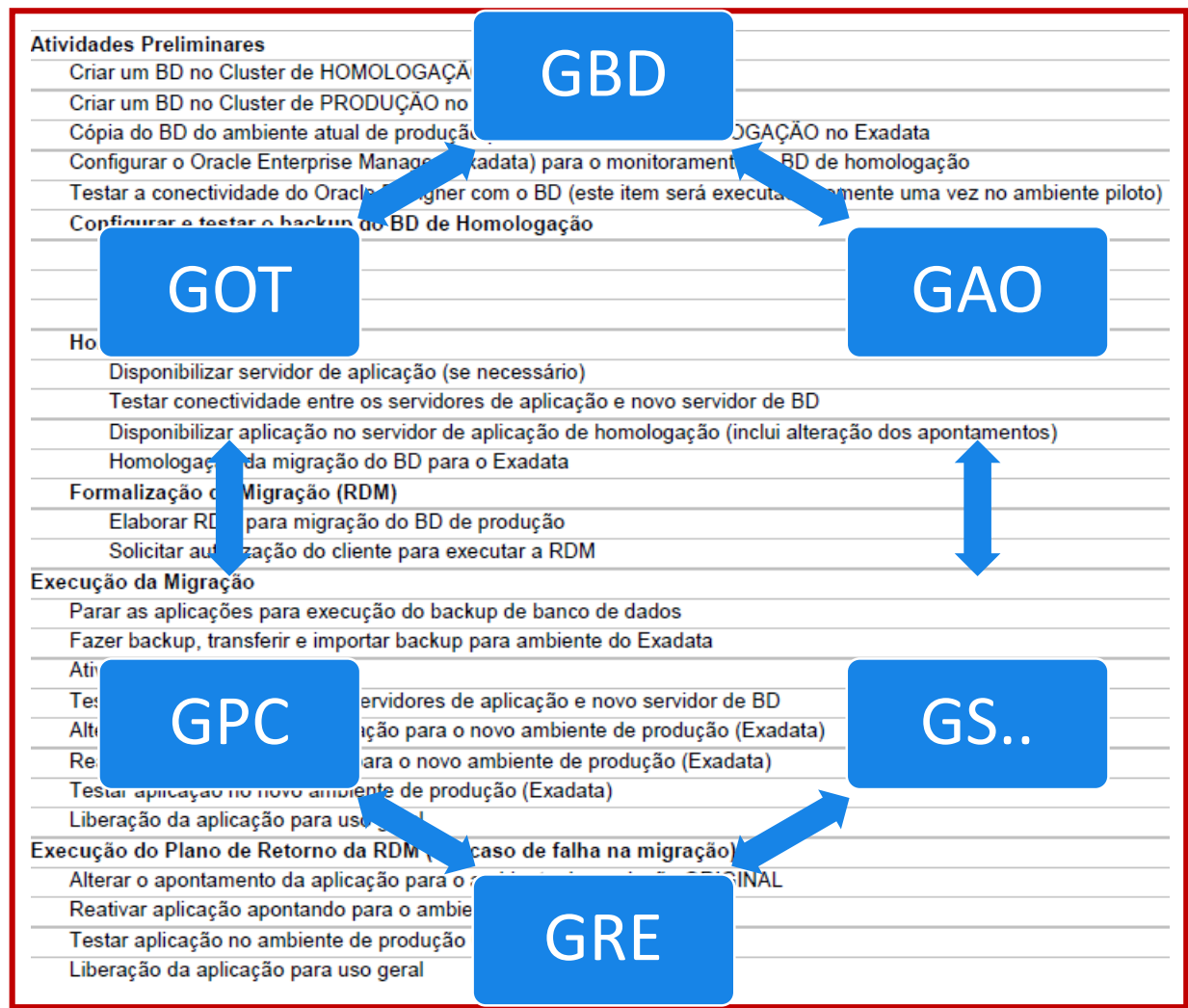
Capacitação contínua nos novos recursos



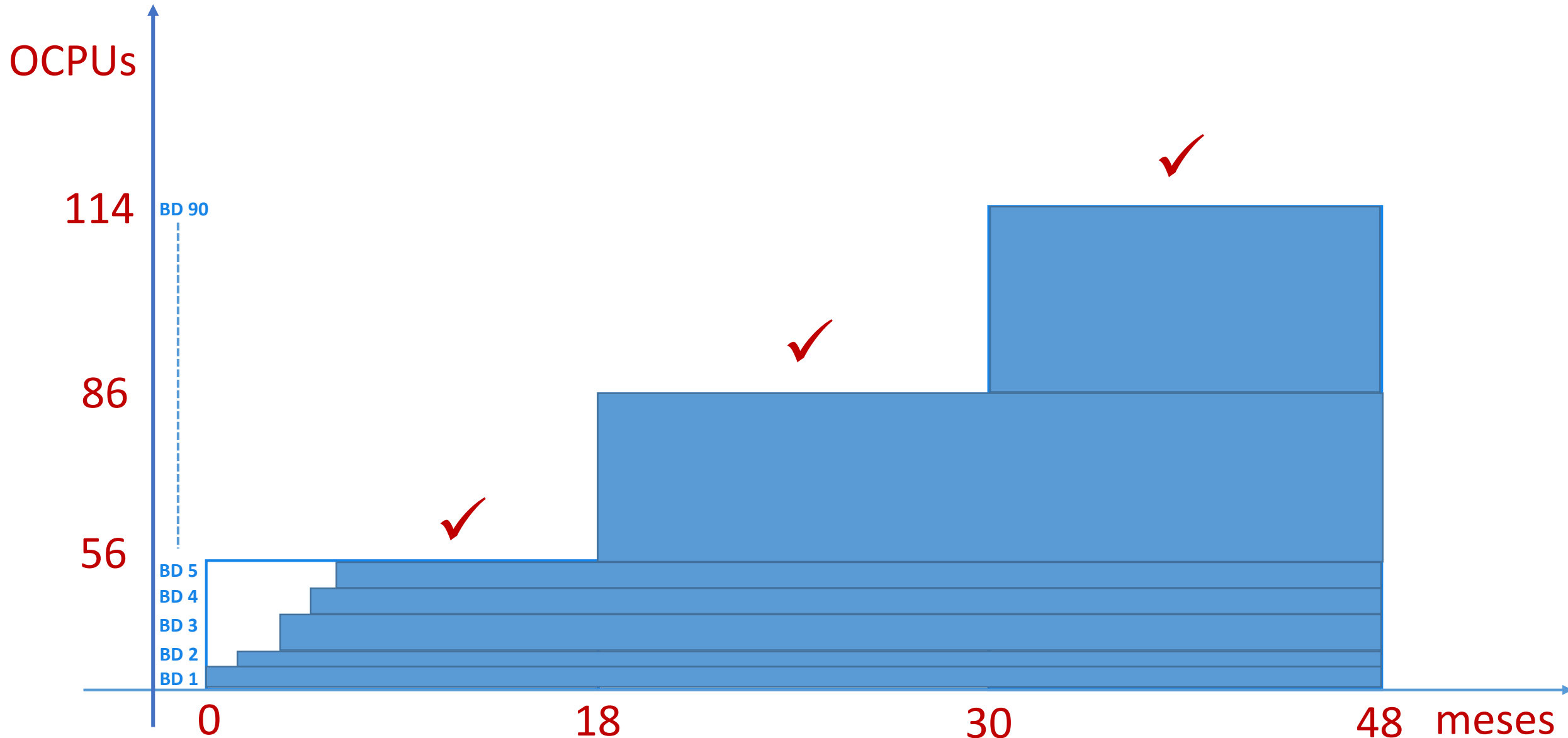
Adequação do modelo de comercialização

Migração todo ambiente de BD Oracle

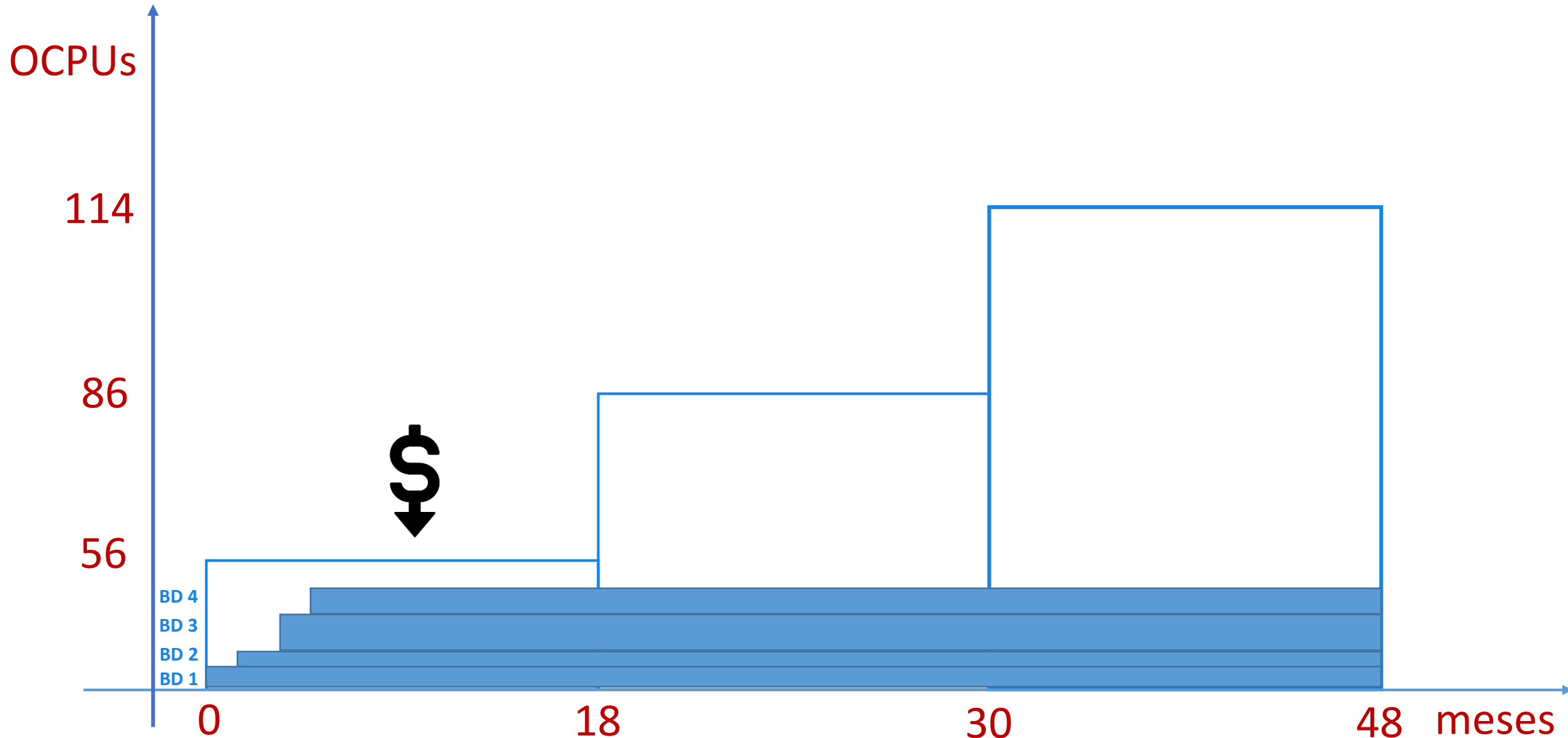
90 x BD x



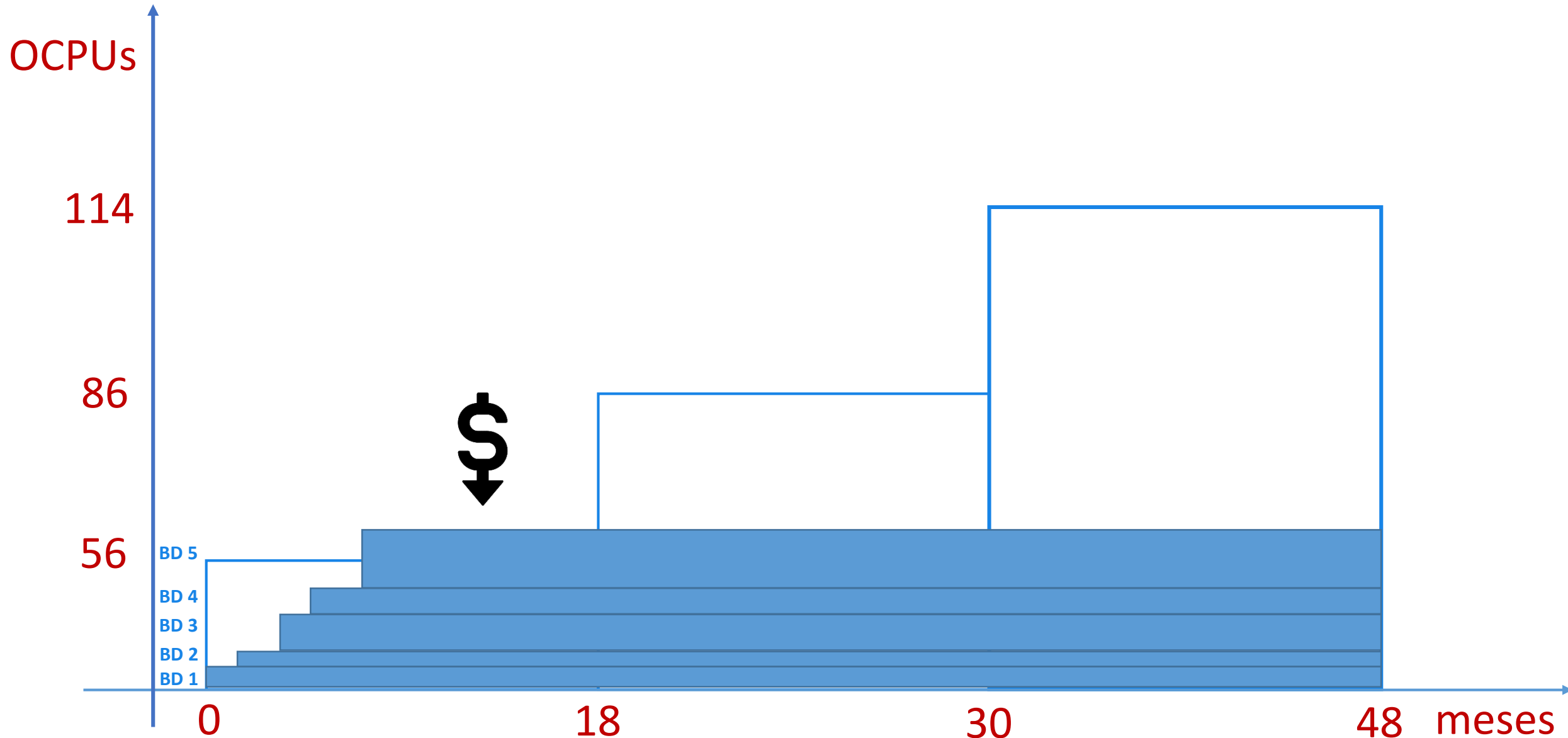
Migração todo ambiente de BD Oracle



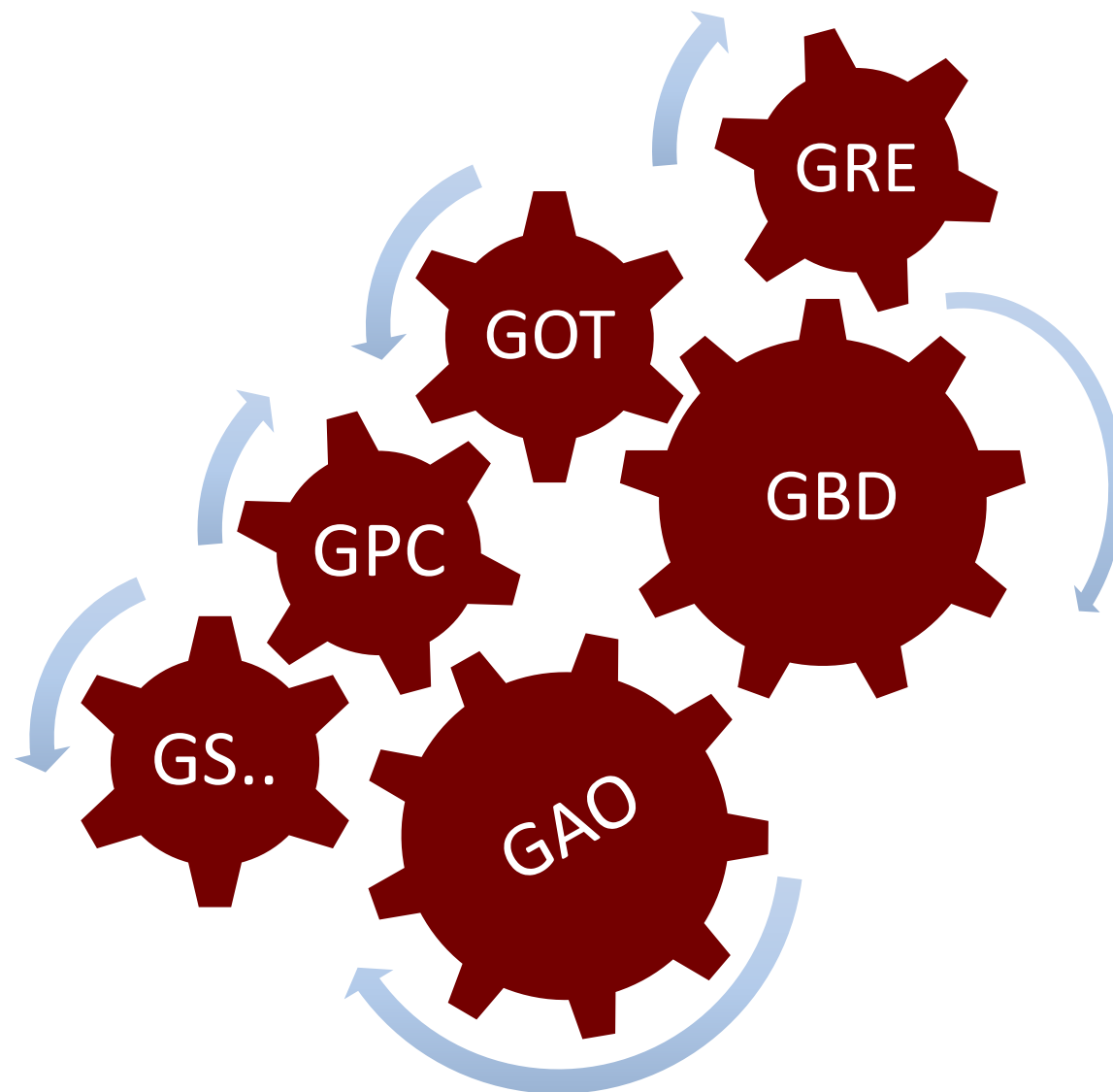
Migração todo ambiente de BD Oracle



Migração todo ambiente de BD Oracle



5º DESAFIO



INOVA

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Obrigado!