

CirrusModcs: Uma framework para avaliação de Performance, Dependabilidade e custos em ambientes IaaS.

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Motivação

- Disaster recovery plan mandates:
 - The deployment of multiple data centers located far enough apart.
 - Protect of regional power failures and disasters.
- Synchronous remote data replication is the appropriate solution for data recovery



Motivação

- It provides:
 - minimal data loss and protection against database integrity problems.
- Counterparts:
 - application performance is affected by the distance and latency between the data centers

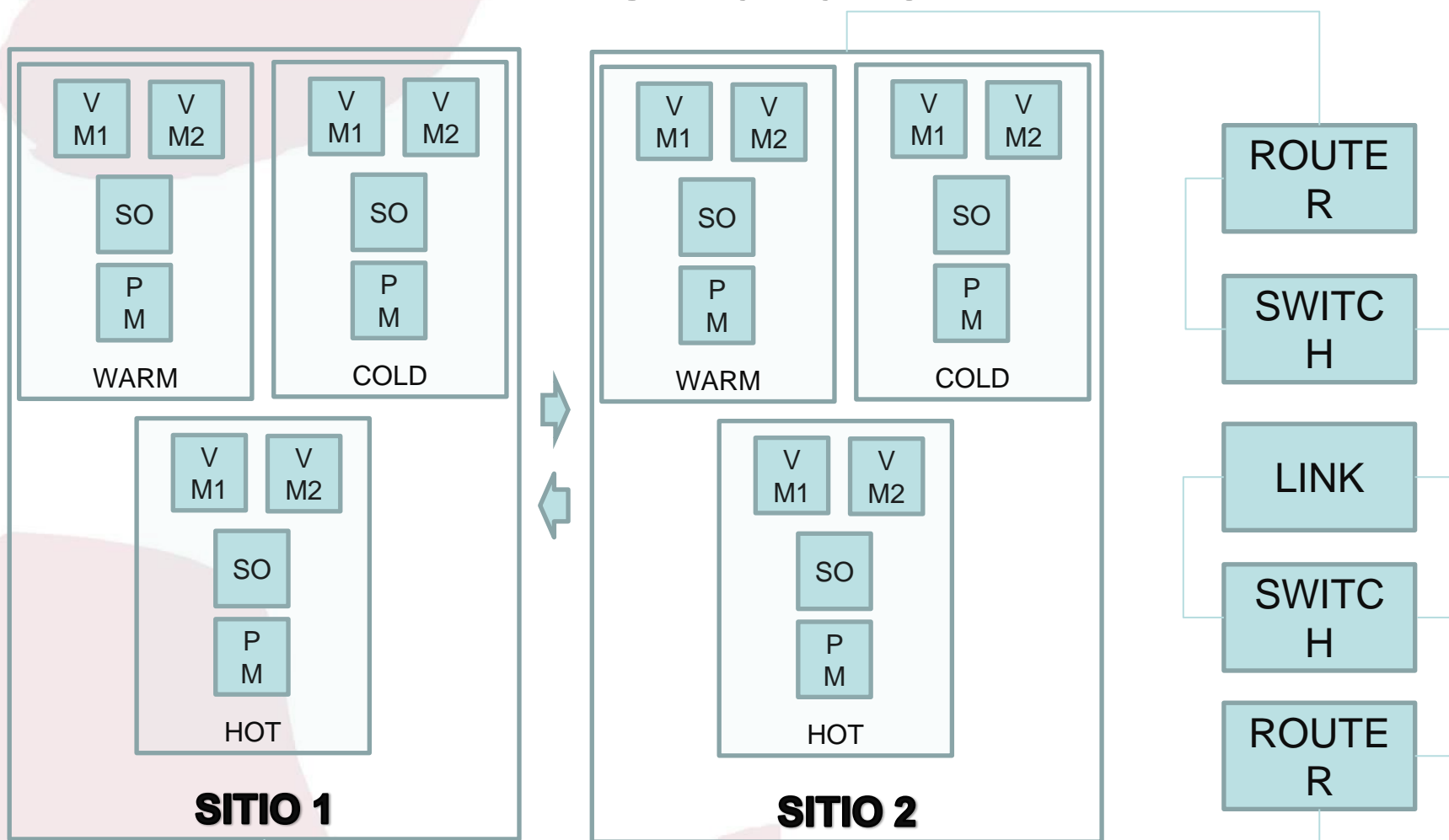


Motivação - Benefícios

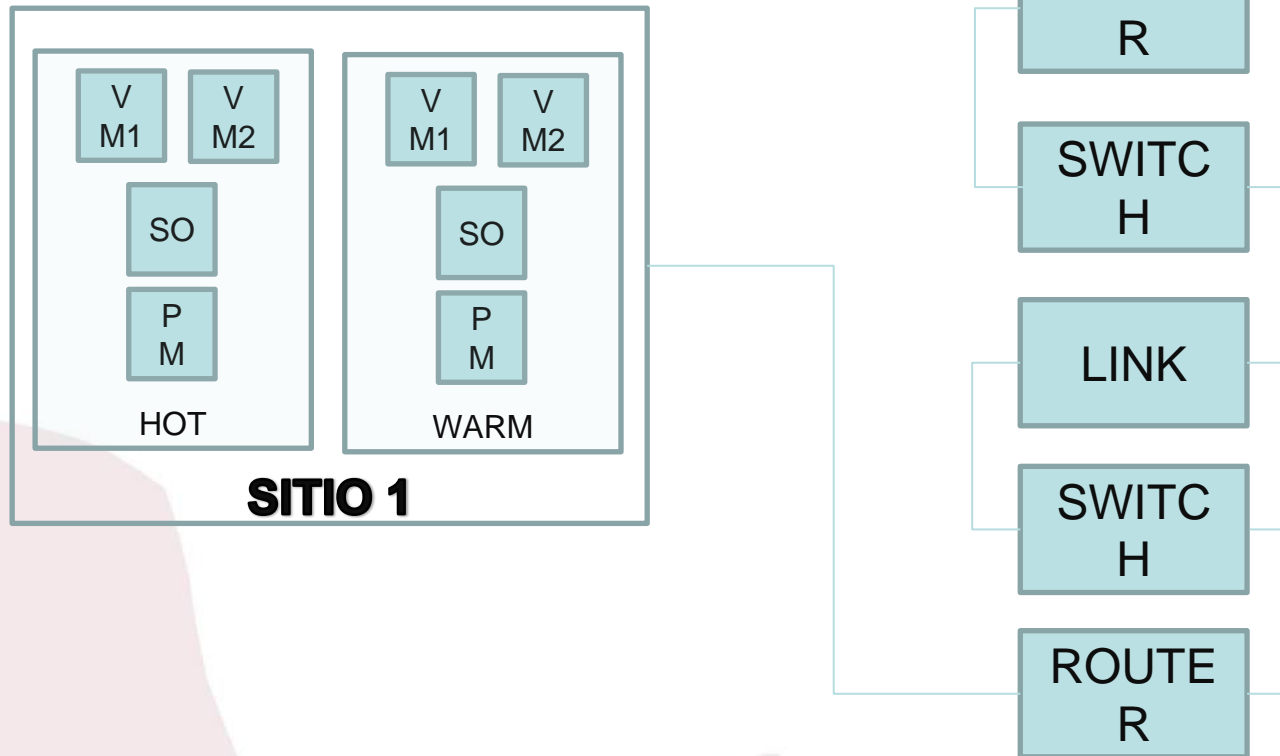
- Perceived zero data center downtime for maintenance
- Workload balance between different data centers
- Disaster avoidance



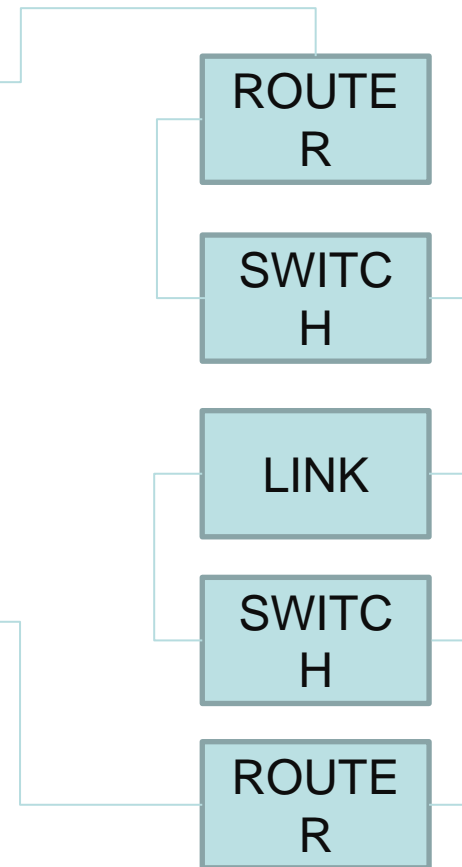
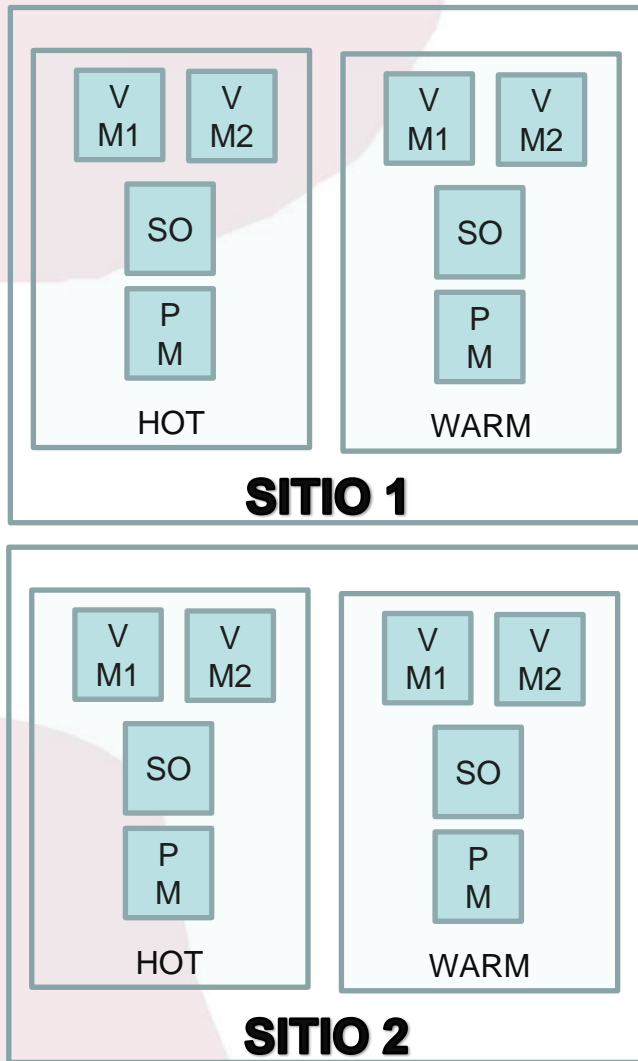
Estrutura



Abordagem Inicial



Segunda Abordagem

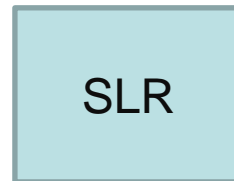
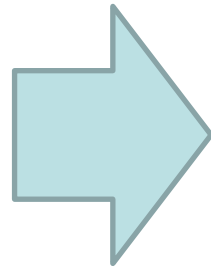
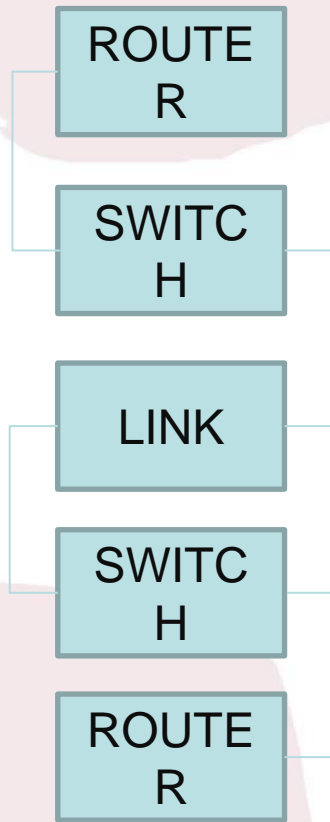


Modo Operacional Adotado

- Pelo Menos duas máquinas virtuais precisam estar rodando para que o serviço seja executado.



Simplificação 1

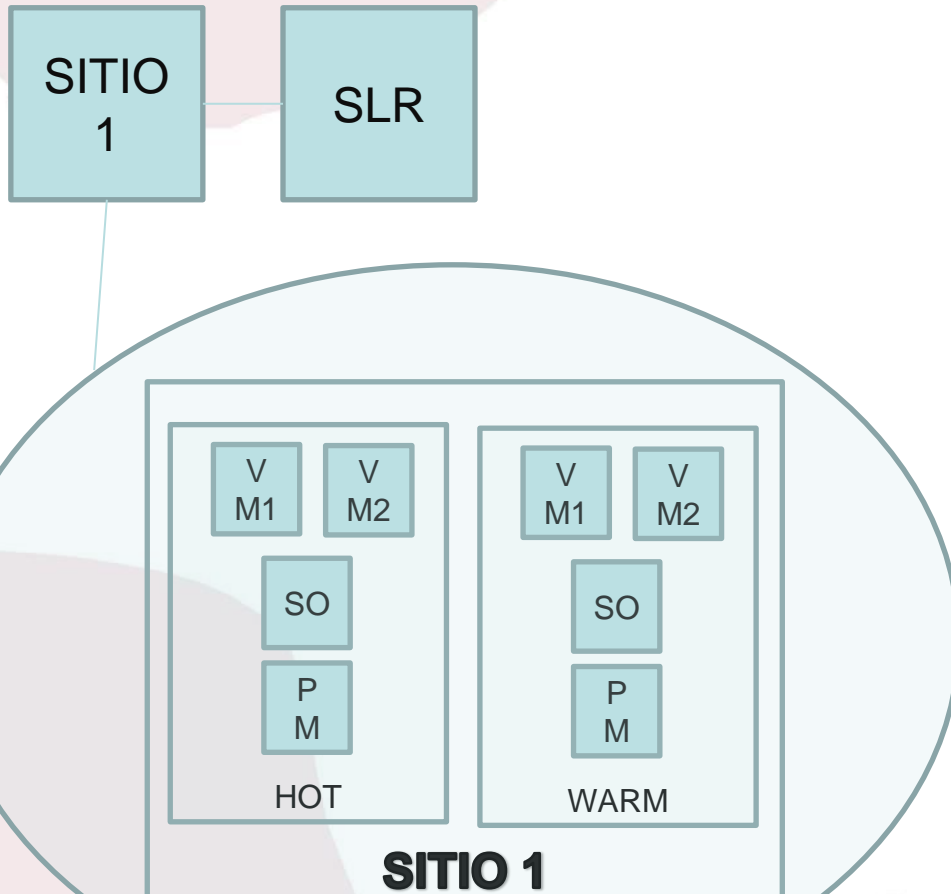


MTTF: 200.0
MTTR: 1.0

Foi assumido que todo componente do modelo possui
MTTF 1000h - MTTR 1h



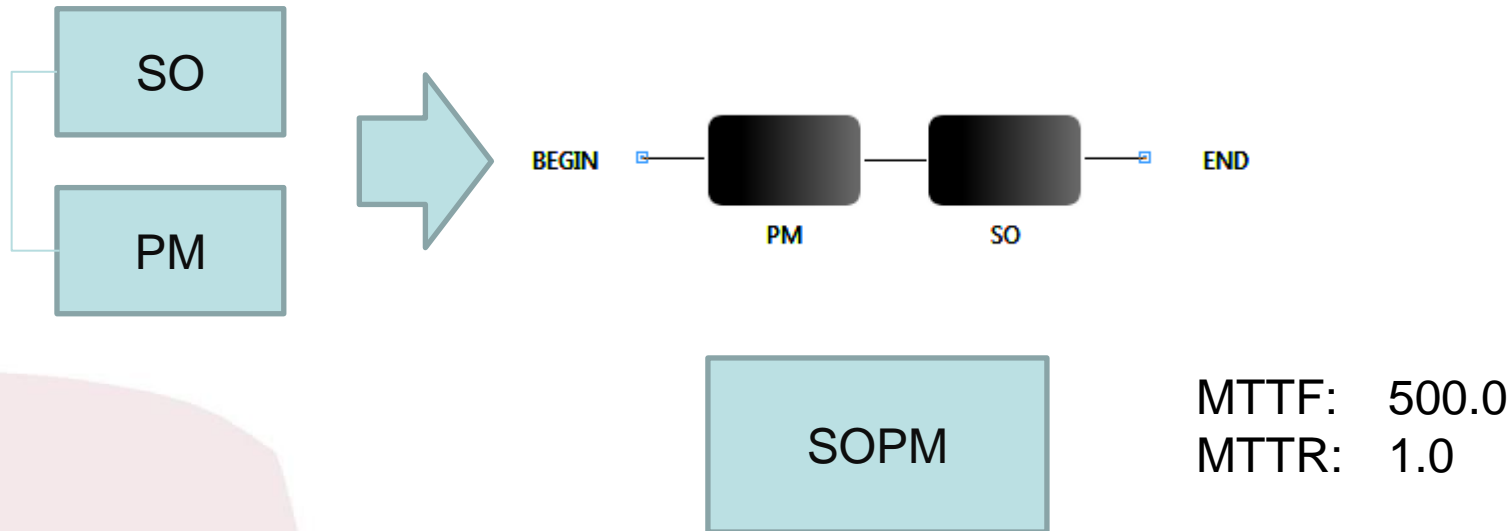
Simplificação 2



- SPN escolhido devido a complexidade do modelo.
- SO e PM podem ser representados por RBD



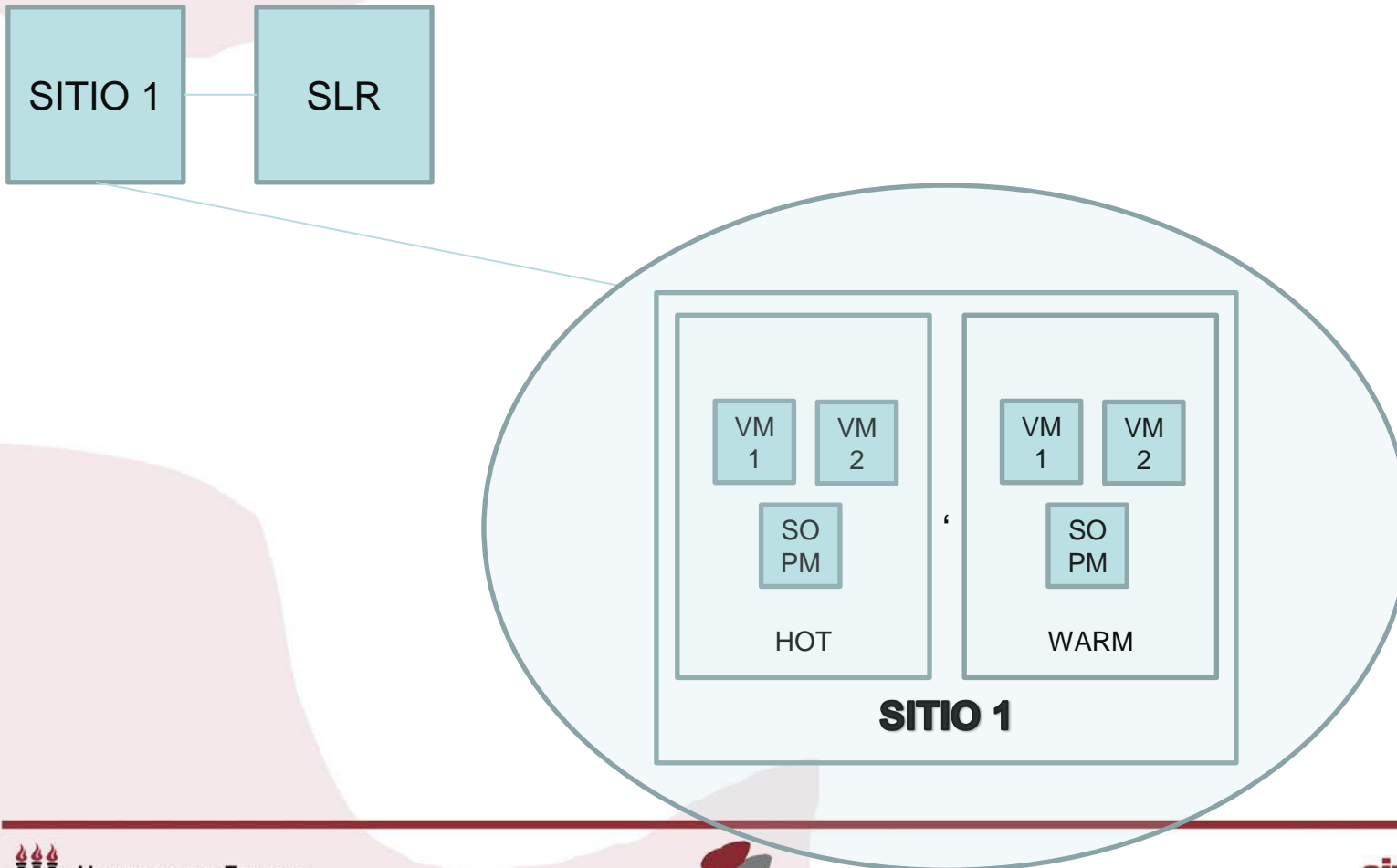
Simplificação 3



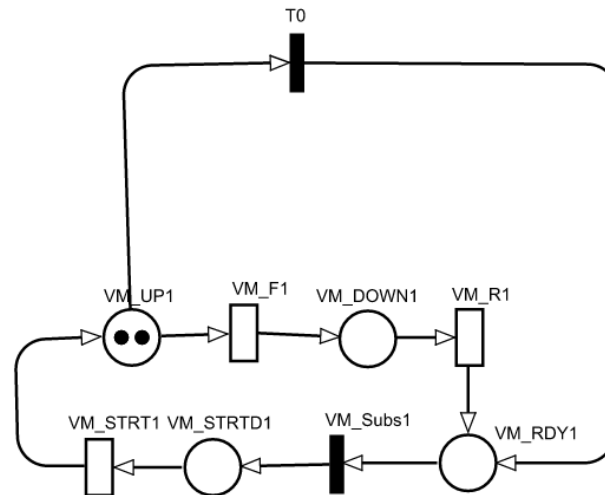
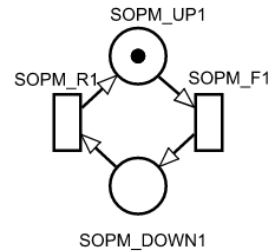
Foi assumido que todo componente básico do modelo possui
MTTF 1000h - MTTR 1h



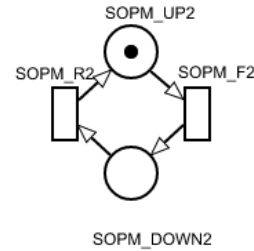
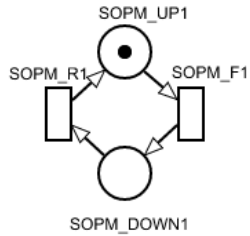
Simplificação 4



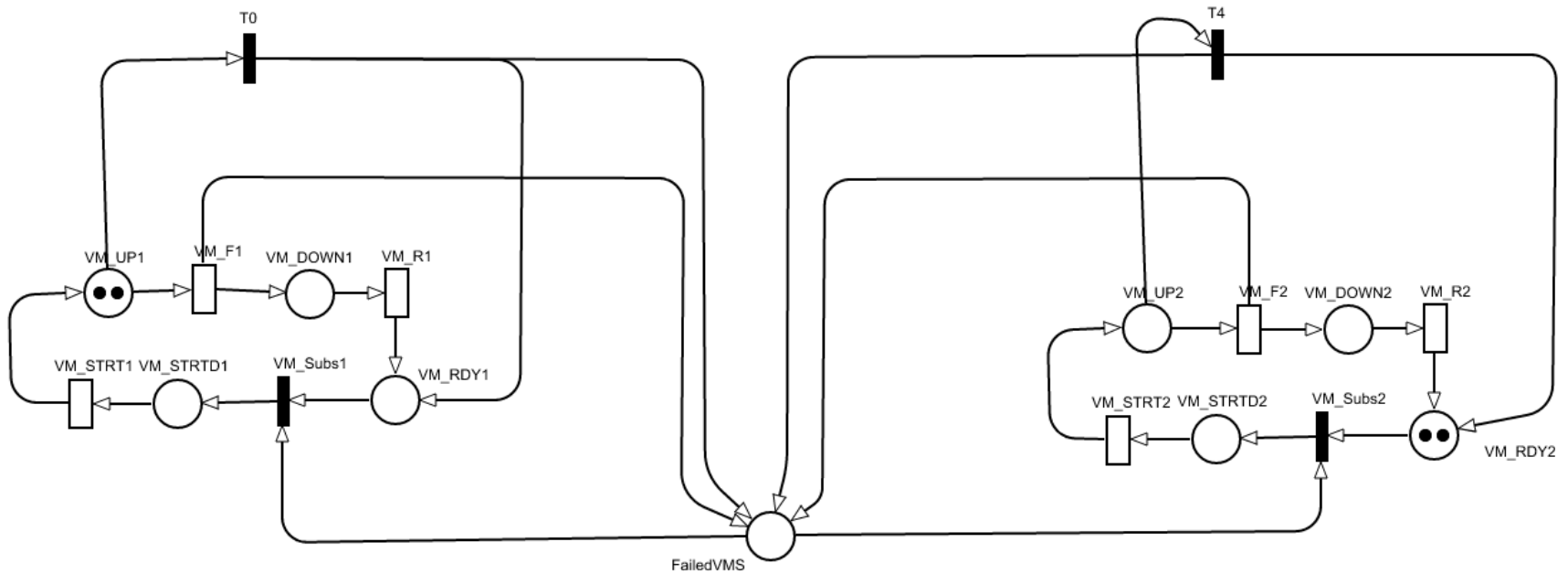
Modelo única máquina



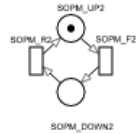
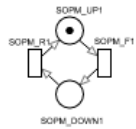
Modelo– Sitio 1



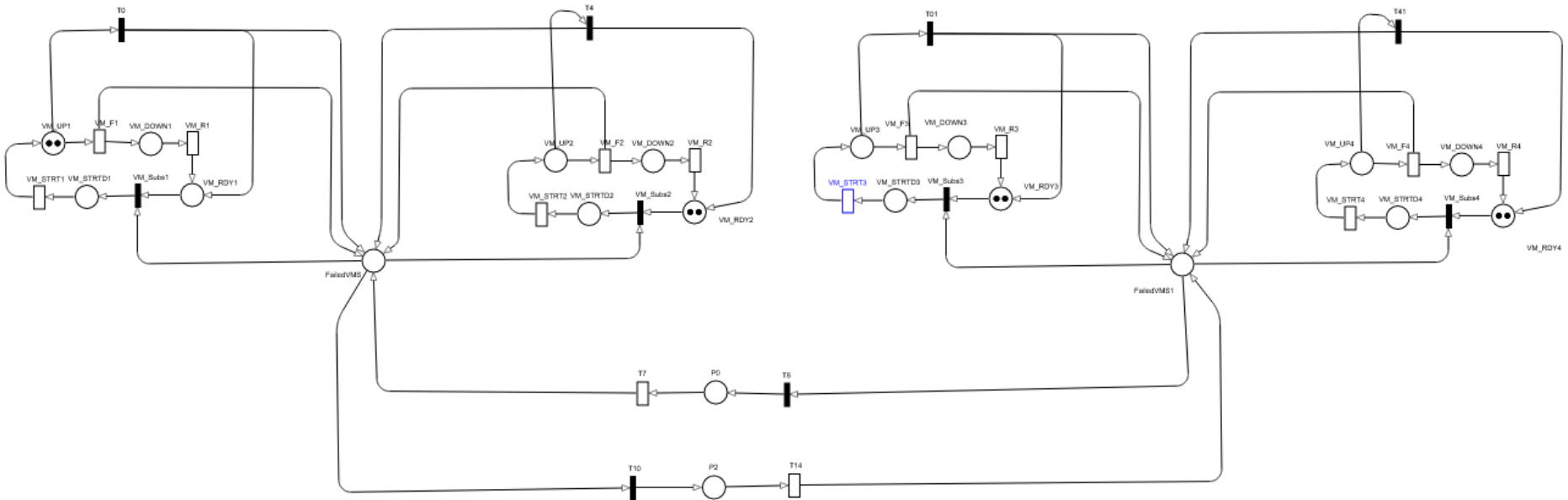
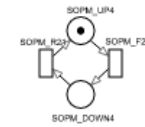
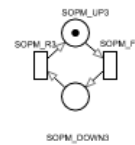
$$A_v = P\{(\#VM_UP1 + \#VM_UP2) = 2\}$$



Modelo- Sitio 1 e 2



$\lambda = 0.9999941$



Resultados Preliminares

MODELO	MTTF Fisica (h)	Disponibilidade
UnicaMaquina	1000	0.9969739
UnicaMaquina	500	0.9967024
Sitio1	1000	0.9999628
Sitio1	500	0.9999403
Sitio1 Sitio2	1000	0.9999641
Sitio1 Sitio2	500	0.9999441



Dúvidas



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