



## Current status

- Active-Hot standby dual heads
- Image server powered by SIS for cloning and disaster recovery
- OSCAR 2.3 and Red hat 9.0
- Manual failover 3-5 secs.
- Occasional NFS issue during failback

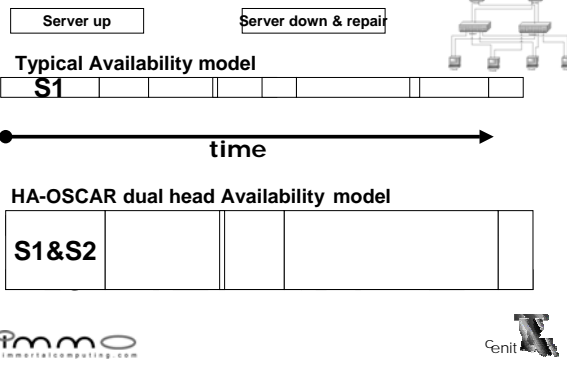


## Reality Checks

- Great!
- But How much improvement?
  - The total uptime?
  - Performance?
- Analytical model and prediction
  - How many 9's? (downtime per/year)
  - Stochastic Reward Net using SPNP package



## Availability Model

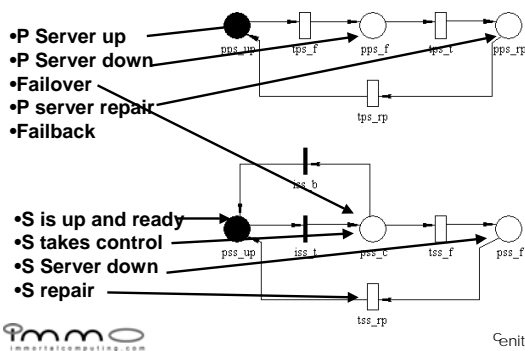


## HA-OSCAR SRN model

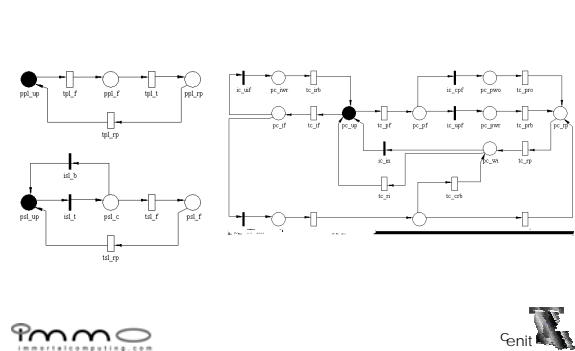
- Server sub-model
- Switches
- Compute nodes



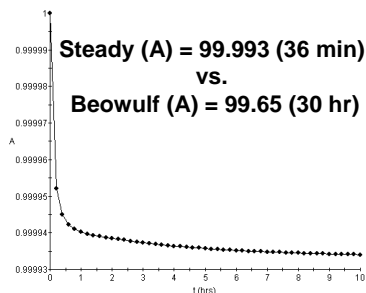
## Server Sub Model



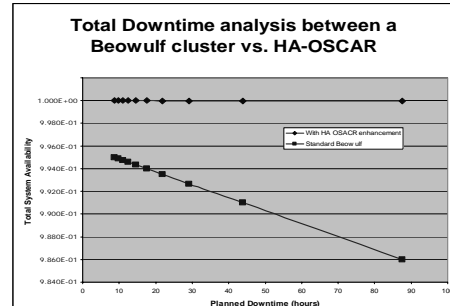
## Switch sub model    Compute node sub model



## Instantaneous Availability



## Comparisons



## Conclusion

- Significant downtime improvement
- Cost-effective solution by dual head
- In a normal cluster size, compute node won't improve downtime but performance



## HA-OSCAR Roadmap

- Expected Beta in first quarter 2004
- IPMI-enabled monitoring
- Fault-tolerant Job schedulers (OpenPBS/MAUI)
- Multi-purpose HA-OSCAR: HPC, HA with load balancing + thin-oscar
- Some integration experiments (HA-OSCAR + OpenMosix, LVS etc...)

