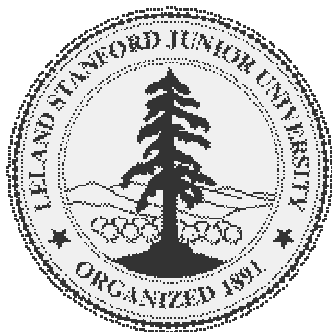


The vMatrix: Server Switching

(work in progress – ROC'03)



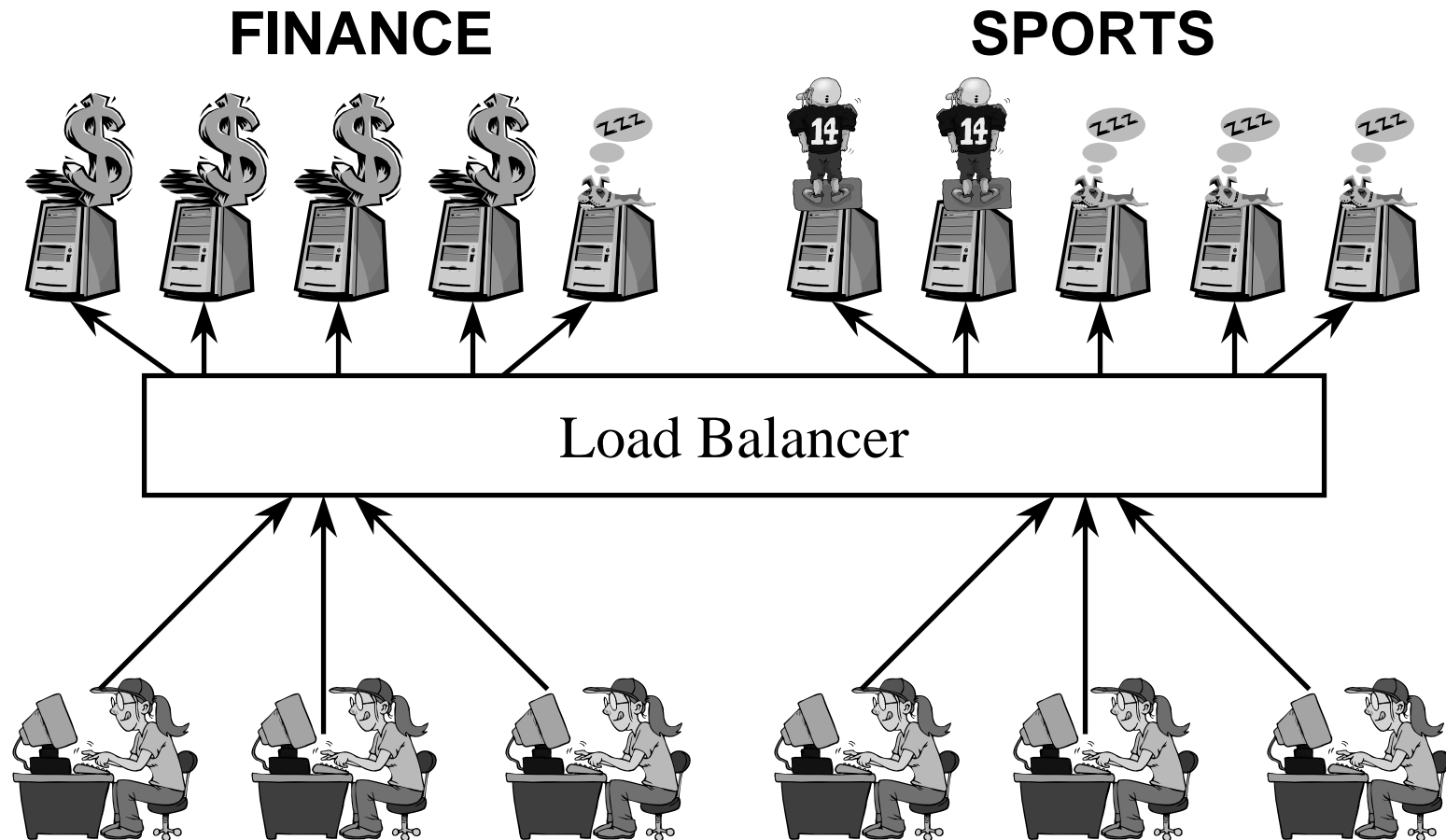
Amr A. Awadallah

Mendel Rosenblum

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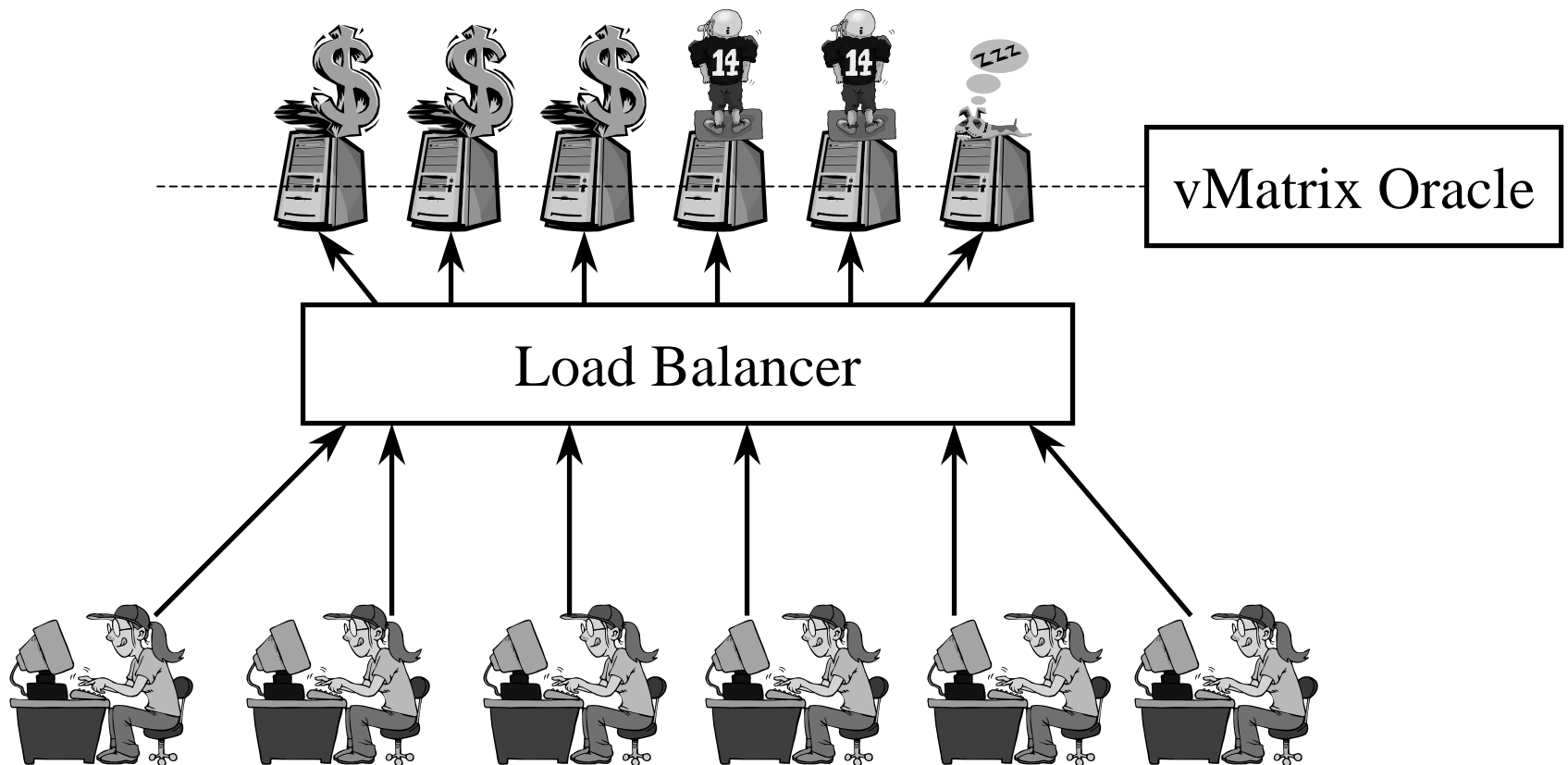
<http://www.thematrix.com>

Static Servers (ala Circuit Switching)



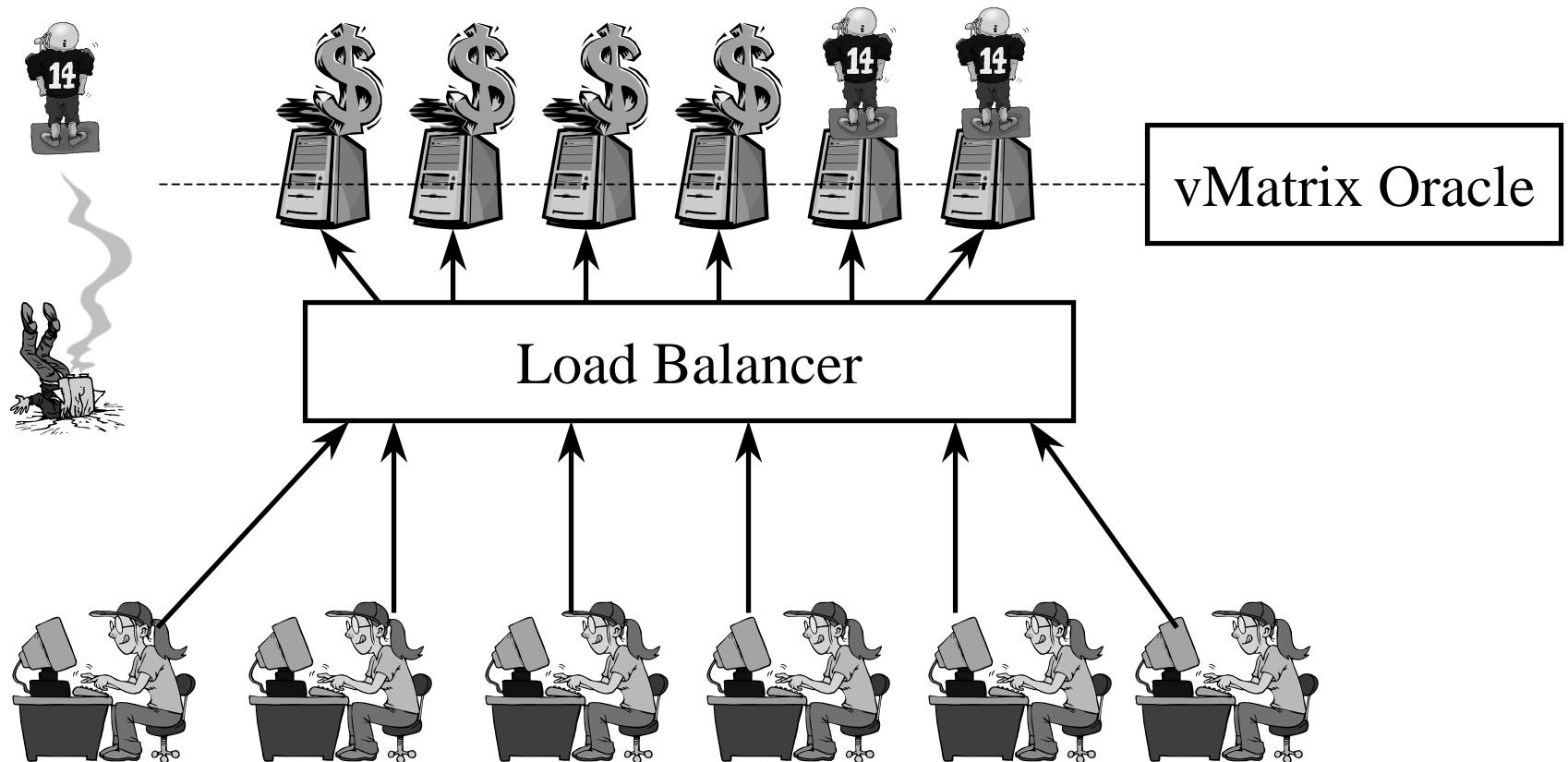
Server Switching (ala Packet Switching)

FINANCE & SPORTS



Server Drop (ala Packet Drop)

FINANCE & SPORTS



Problem with moving services

- Software Dependencies
- Hardware Dependencies
- People Dependencies

What is The vMatrix?



Stanford University – Computer Systems Lab – LISA 2002

Virtual Machine Monitors

Oracle, IIS	MySQL, Apache
OS1: Windows 2000	OS2: Linux
Virtual Machine 1: vCPU, vMem, vDisk, vNet	Virtual Machine 2: vCPU, vMem, vDisk, vNet
Virtual Machine Monitor	
Real Machine (CPU, Memory, Disks, Network)	

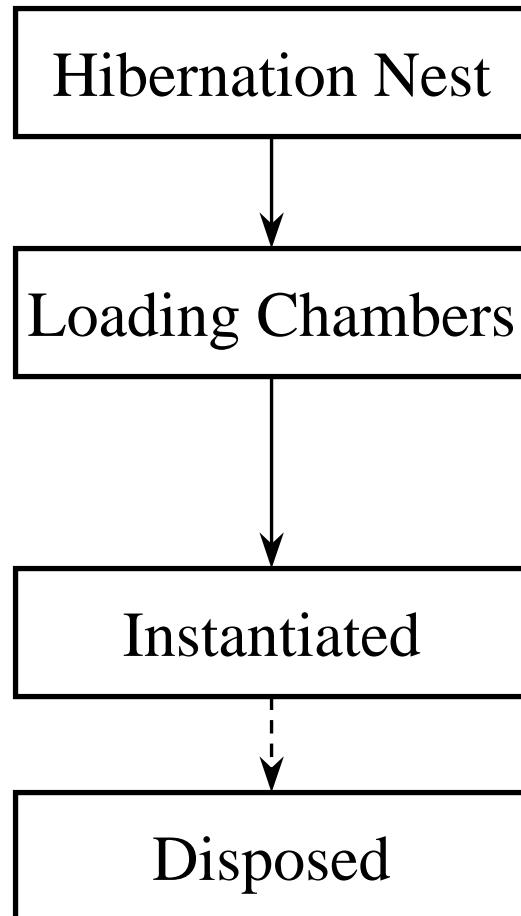
Advantages

- Efficient Resource Utilization
- Backward Compatibility
- On-Demand Spike Absorption
- Faster Recovery

Disadvantage

- VM files are very large (order of gigabytes)!
- VM Software is not free 😊

Lifecycle of a server VM



1. A large number of virtual servers are stored as dormant files a SAN or Netapps

2. A number of virtual servers are activated in a shared RM so that developers & system admins can upgrade, debug, or patch them.

3. A virtual server is activated on a dedicated RM and exposed to live load.

4. A virtual server malfunctions and is thrown away.

The Matrix Farts

