Can Virtualization Empower Automation of Datacenter Operations?

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Agenda

• VMTurbo overview
• Introduction to virtualization and clouds
• The challenges of managing virtual IT
• VMTurbo technologies, products, solutions
• Building a startup through the great recession
Yes we are HIRING!!!!

If you are a smart SW builder, who thrives on challenges, let us talk…
VMTurbo At A Glance

• Vision: proactive mgmt of virtual & cloud systems
• Founded Q4/08 (first VC presentation 9/08)
  – Founding team: 5 ex-SMARTS veterans
  – Top VCs funding Q2/09: Bain Capital Ventures
  – HQ: Valhalla NY; offices in MA, CA, UK, Israel
• First product release: 08/10 ➞ 6 products by 11/10
• Relations to CATT:
  – Prof Y. Yemini (YY) co-founder
  – Technology based, in part, on CAT research in the 80’s
Introduction to Virtualization

Consolidate Silos workloads

Traditional IT Silos
- Dedicate hosts to apps statically
- Overprovision capacity for peak traffic
- Average utilization is low (e.g., 5%)

Virtualized IT
- Multiplex workloads onto shared HW
- Assign workloads to resources dynamically
- Improve resource utilization
Consolidation Reduces Costs....
Consolidation Increases Risks...

Where and how to draw this line

Utilization

Costs

$ per VM

Delays/Loss

Performance Problems
Virtualization Creates Huge Benefits

- Reduce HW costs through increased utilization
- High Availability: virtual machines (VM) can move easily
- Simplify some management functions
  - Provisioning: use VM templates to launch servers with a click
  - Configuration mgmt: template-based
  - Patch installations: unify across VMs
Virtualization Also Presents New Challenges

- Virtualization loses the performance guarantees of silos
- VMs can interfere with each other
  - e.g., Peak traffic of VM1 disrupts VM2/VM3/VM4
  - Solution?: move VM1 to host 2?
  - Interference patterns can be subtle and dynamic
- Requires new mgmt technologies
  - Dynamic resource/workloads/performance mgmt
Recasting The Problem

• How to allocate host resources among VMs?
  • Consider an economic model: host sell resources to VMs
    – Hosts price resources according to supply/demand
    – VMs get budget to pay for their workloads demands
    – Optimize performance through an invisible hand

• Example: Host 1 is congested
  – VMs at Host1 see high prices; VMs with low budgets move away
VMTurbo Technology

- Assure healthy optimized performance
  - Regulate dynamic resource competition through economic principles
  - Pricing assures that the system operates within safe parts of state space
  - Eliminate problems proactively
  - Automated decision support through economic algorithms

- Proactive mgmt: increase utilization while avoiding problems

- Broad applications; scalable solutions

- User Experience: “Peace of Mind”
An Integrated Virtualization Mgmt Platform

VM Turbo Engine Layers

Presentation Layer
- Monitors
- Reporters
- Analyzers
- Resolvers
- Optimize

VMTurbo integrated tools suited for managing virtualization systems.

Common UI to support seamless integration of VMTurbo tools suite.

Analytic Layer
- Algorithms to analyze the infrastructures operations, identify and resolve problems and optimize capacity and workload management decisions.

Modeling Layer
- Organizing virtualization infrastructures operational data into modeling databases used by the analytic layer.

Mediation Layer
- Automated discovery of infrastructures components & relationships; agent-less monitoring of their instrumentation.
Building Startup Through The Great Recession

• Technology paradigms keep changing, provide growth opportunity
  – The future of IT: private and public clouds

• Someone needs to lead paradigm changes; why not you?

• The high tech industry is in a flux:
  – Unclear exit pipes
  – New business models, financing models, marketing models…

• The challenge for all of us: how to restore the growth engine?
  – Will high-tech startups retain their past role as the key drivers of growth?
Thank You!!

Questions?