



Dell Advanced Infrastructure Manager

Simplifying development & test operations

Introduction

Do you have a large, complex set of interconnected, multi-tier applications that need ongoing development and testing? Are you spending more time and resources setting up physical machines and resetting them to clean states than actually doing development and testing? Do you lack sufficient machines to test your multi-tier applications the right way?

You're not alone. As testing has achieved strategic importance within companies, pressures on test infrastructure have also increased, including:

- **Responsiveness/speed:** New multi-tier applications (business systems) are constantly changing — being designed, deployed and upgraded. But network cabling, static association to backend data and hardware sensitivity to software stacks effectively shackle servers in place, making changes difficult. Most companies spend more than 50 percent of their operational time on reconfiguration — setting up systems, rather than actually developing and testing on them. This decreases the utilization of test infrastructure, increasing the amount of hardware needed, and extending the time it takes to release changes into production — lowering the overall agility of IT.
- **Complexity:** The complexity of managing business-critical server infrastructure has grown exponentially. Multi-tier applications are typically deployed in highly heterogeneous environments, utilizing server hardware, network hardware, operating systems and applications from many vendors, often across several sites. Attempts to maintain development and test consistency usually result in very static system configurations that further reduce overall server infrastructure efficiency and raise costs.
- **Cost/resource tradeoffs:** Server hardware acquisition costs remain high, and less visible operations costs (such as power, space, environmental control and physical administration) may cost several times more per server on an ongoing basis than acquisition costs. Low utilization of these IT resources, resulting from idle time due to the static, over-provisioned nature of testing environments, exacerbates the situation.

Testing is critical, but hard — and getting harder. Teams face even more complex infrastructure challenges to support production roll-out. You can overcome these challenges, by deploying Dell Advanced Infrastructure Manager (AIM) a non-intrusive, overlay solution.

Dell Advanced Infrastructure Manager (AIM)

Dell AIM lets you rapidly repurpose servers. Using AIM you can transition your data center between different configurations or from bare metal to live, connected servers in five minutes or less, without physical intervention or infrastructure changes.

AIM dynamically controls not only what software stacks are running on every server, but also each server's associated network (LAN/WAN) connectivity, storage (FC SAN/iSCSI/NAS) access and power state via an interface that guarantees that server farm functional reality matches design. The result is that data centers can create an adaptive infrastructure, enabling effective real-time transformation of entire farms of servers' functionality in real-time, in response to changing needs.

With AIM, each production server software stack (running Linux, Windows or hypervisors like Microsoft Hyper-V,

Rapidly shift testing one service to another (and then back again) without ever physically touching a machine

VMware ESX or Xen) is captured as an image on centralized storage, along with network and storage configurations. When a business system (for example, an email server cluster) must move to a new physical machine, the system's required software, existing network addresses, and topology and storage connectivity will all automatically be established at the push of a button on that new hardware, without any need to physically reset switches, rerack servers or reconnect cables.

Furthermore, AIM software does not impact server performance as it is not in the data path; systems are still running directly on their original hardware, virtual machines or physical servers. The movement and repurposing process can be automated, so that the AIM controller performs server redeployment automatically in the event of a load change or failure condition.

Solving the responsiveness, complexity and cost challenge

Companies who have deployed AIM software for test infrastructure automation have realized significant reductions in cost, complexity and need for physical capacity — whether containing growing data center needs or consolidating existing systems. Dell AIM enables:

- **Increased responsiveness:** AIM enables real-time repurposing of existing infrastructure by detaching the applications from the servers. Physical servers can be rapidly turned on and purposed for different business system servers, on the fly, without any physical network changes. With AIM, IT test teams can leverage a library of business system templates kept on central storage, from which they deploy to real machines and networks on an as-needed basis, manually or automatically. So, fewer machines are necessary to meet total processing demand, and even fewer machines are "always on," increasing the company's capacity and efficiency as a whole. Responsiveness improves, while actual physical infrastructure and power needs decrease.
- **Reduced management complexity:** AIM's centralized, automated, rapid server repurposing approach dramatically reduces system management complexity while maintaining application performance. AIM manages network and storage connection reconfiguration, as well as software retargeting to new machines, alleviating the need for physical cable and machine movement to repurpose a server. Moreover, AIM can repurpose physical servers in addition to virtual machines, so that applications that need to run directly on physical machines will run on physical servers, while others can be placed on virtualized CPU.
- **Lowered costs:** AIM enables you to rapidly repurpose servers from one role to another, from test environment to test environment, across physical servers and virtual machines, allowing for more time spent on test and development rather than system setup. With

improved utilization and simplified repurposing and reconfiguration, less hardware and administration is necessary, resulting in decreased operational costs.

Results

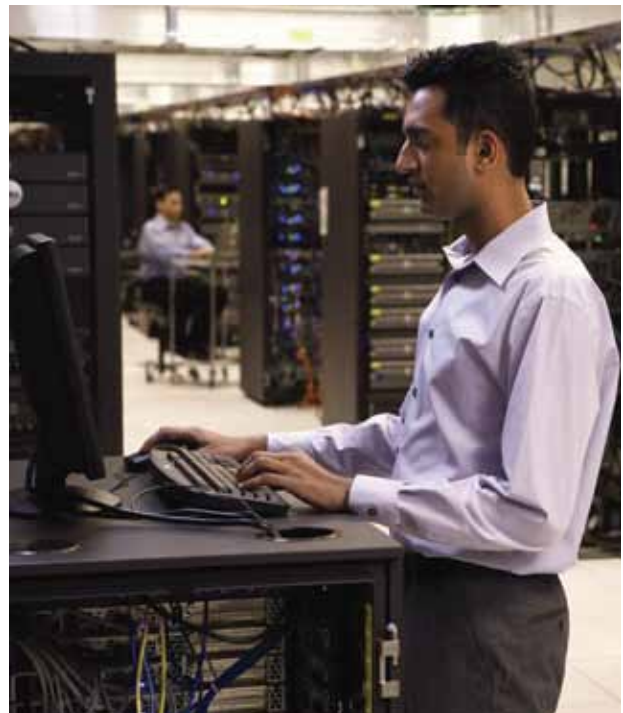
With Dell AIM, test and development operations become simpler and smarter, with the ability to rebalance for improved efficiency and to rapidly shift testing one service to another (and then back again) without ever physically touching a machine.

IT teams can rack once, cable once, then effortlessly reconfigure and repurpose server infrastructure as needed. Server and business system shifts become a logical, real-time, automatable activity instead of a physical activity.

Summary

By deploying AIM, test teams can use fewer servers, turn off servers that aren't being used and gain flexible control and rapid service availability — meeting demand and addressing infrastructure, management and performance issues in a straightforward, cost-effective way.

AIM enables data centers to react in real-time to changing business needs by dynamically changing what servers are running and how those servers are connected to network and storage. The result is an adaptive infrastructure, where data centers can transition between different configurations — or from bare metal to live, connected servers — in five minutes or less without physical intervention. By using AIM, companies have been able to implement cost-effective solutions while reducing server counts, simplifying manageability and increasing reliability.



To learn more about how Dell AIM can help you, please visit Dell.com/Dell-AIM

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