



Symantec Continues to Deliver on Its Promise of Automation with Veritas Application Director

Analyst: Dianne McAdam

Management Summary

During my former life as a Systems Engineer for a storage vendor, I spent several weeks a year attending training classes about new products. These classes were usually three to five days in length. The days could be long - each day started with six hours of lecture and finished with a few hours of lab time. Some of the instructors were very entertaining instructors and some just read us the PowerPoint slides. We all wanted to attend a class with this certain instructor - he was very knowledgeable and entertaining. At the beginning of each class, he always challenged us to a game of *JENGA*.

Leslie Scott, a British citizen who spent her teenage years in Africa, developed *JENGA* in the 1970s. (*JENGA* is a derivative of Swahili word that means *to build*.) A tower is built by placing three blocks at the foundation. The next layer consists of three more blocks oriented at ninety degrees from the first layer. Alternate layers of blocks are added until the tower is completed. Each player must remove one block from the middle of the tower and place that block on the top of the stack. The player that causes the tower to collapse loses the game. To be successful at *JENGA*, one needed to understand the inter-dependencies that one block has on the surrounding blocks.

Many data centers today must feel that they manage *JENGA* towers every day. Each block is not made of wood but consists of a storage device, a server, or an application. Removing the wrong storage or server device without understanding the underlying dependencies can cause the structure to fail. Moving an application without understanding the dependencies of other applications can have similar effects. No one within the IT organization wants to be responsible for toppling the infrastructure tower. One easy way to ensure that the tower never collapses is to keep the status quo. Keeping the status quo, however, is inefficient and not realistic. Moving applications to new, more powerful servers or consolidating application onto fewer servers can result in better performance and reduced operating costs. Higher-priority applications on servers that have failed must be moved to other servers to continue operations. In the case of a disaster recovery, applications running in the local data center must be moved to a secondary location to ensure high priority applications continue to run.

Moving a few applications is not that difficult. As the number of servers and applications grow, managing these resources grows in complexity and cost. Many large enterprises manage hundreds or thousands of applications and add new applications throughout the year. Applications that once were supported by departments and remote offices are now being managed by the data center, adding more complexity. What these enterprises need is a product that continuously monitors applications, and automatically shut down and starts up applications on different servers as business requirements dictate. Symantec's new *Application Director* will both simulate and execute moving applications. Read on to find out more about Symantec's newest member of its automated data center products.

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Symantec Data Center Foundation

In the beginning of this year, Symantec announced its *Data Center Foundation*, combining *Veritas NetBackup*, *Veritas Storage Foundation*, *Veritas Server Foundation*, and *Veritas i³-APM* under the new *Data Center Foundation* strategy. Now IT administrators have one console to manage servers, storage, applications, and backups. During this announcement, Symantec hinted that more products would be delivered to reduce complexity and provide more automation. *Veritas Application Director* is the newest product within Veritas Server Foundation that delivers on Symantec's promise of reduced complexity and greater automation.

Veritas Server Foundation

Application Director is the fifth product within the Veritas Server Foundation. The first product, *Cluster Server*, provides high-availability clustering for mission-critical applications by monitoring the status of the application and its dependent infrastructure components and automatically moving the application to another local or remote server in the event of a fault. Cluster Server is available for *UNIX*, *Windows*, *Linux*, and *VMware*, as well as a wide range of heterogeneous hardware configurations. Another notable feature of Cluster Server is *Fire Drill*, which allows automated testing of disaster recovery configurations without affecting the primary environment.

Veritas Provisioning Manager detects if servers are configured properly with supported configurations and reports any differences between supported configurations and detected configurations. This product automates the server build and application deployment process across the enterprise allowing IT to reduce the time to provision servers.

Veritas Configuration Manager, the third component, automatically discovers all servers and software running in the environment. It observes the behavior between servers and software and builds maps that show the dependencies between servers, files, and applications. It tracks all changes to servers and applications and reports that information in real-time allowing IT to resolve problems quicker.

The fourth component is *Veritas Patch Manager*, which automates the deployment of patches throughout the enterprise enabling roll-back and recovery. It enforces policies that dictate patch levels and required compliance levels and reports on patch and compliance

deficiencies. *PatchBase Intelligent Repository* monitors bug fixes and alerts from independent software vendors.

These components of Veritas Server Foundation can detect servers and applications and map their interdependences. What has been missing is a way to move applications – dynamically and automatically – to other servers, based on priorities and policies. Veritas Application Director (VAD) fills that gap.

Veritas Application Director

Veritas Application Director enables IT operators to monitor, and start and stop complex applications across hundreds or even thousands of physical or virtual servers, across every major operating system, in a secure, error-proof way. IT administrators define the application requirements to VAD by assigning its priority, operating system requirements, and resource requirements – such as amount of memory or processing power required. Dependencies and incompatibilities between applications are also defined. VAD uses this information to determine the best system for an application to run on to meet its defined levels of service.

Managed Applications

Each application under the control of VAD is called a *managed application*. Managed applications consist of several resources such as volume groups that support the application, databases, web servers, and network components such as Network Interface Cards (NICs) and IP addresses. These resources have specific startup and shutdown sequences defined. For example, the file systems containing the data files must be mounted before the database instance is started. VAD uses these defined sequences to start up and shut down applications in the proper order.

The *VAD Policy Master* resides on a clustered server (running Linux or Solaris) with shared storage and communicates to the other servers over secure TCP/IP connections. *Veritas Security Services (VxSS)* is used to authenticate and encrypt communications between the Policy Master and the application node. Currently, each Policy Master can support up to 256 application nodes.

Using VAD

Enterprises can use VAD in several different ways. VAD commands can be issued to logically bring down applications in the proper sequence during a planned outage and, later, restart the applications. These operations can be

completed without requiring operators to log in to each local application server or maintain and execute scripts. The web-based console allows IT administrators to view, monitor, and control all managed applications across the data center.

VAD supports prioritized and automated failover. For example, a high priority application is running on a server that just failed. VAD determines which other servers can support that application, stops lower priority applications currently running on that server and restarts the high-priority application on the second server. This feature provides quick recovery from server failures and ensures that the high priority application is brought up on the server with the proper memory and processing power.

VAD ships with a simulator. This feature allows enterprises to simulate the effects of adding new applications to the existing server farm. It can determine which servers can support these new applications. VAD can also be an effective tool for server consolidation by predicting the effect of migrating many different applications from smaller to larger servers. This can allow enterprises to drive up server utilization and reduce costs.

Multi Tier Applications

Most of today's applications are complex; they consist of one or more backend databases, one or more application servers, and several web servers. These components can run on different servers and on different operating systems. For example, the databases may run on Solaris, while the web servers run on Linux. It can be difficult to manage these multi tier applications, but VAD allows enterprises to use one single tool to view and manage multi tier applications as a single unit. If this multi-tier application grows in size, IT administrators can define policies that tell VAD to distribute the components across as many servers as possible or only to load each server to a preset threshold, providing room for growth.

Conclusion

Veritas Application Director is not a tool for every organization. Small enterprises with only a few applications to manage will not need Veritas Application Director. Large enterprises with hundreds of servers and applications will find that VAD can greatly simplify operations. It can eliminate the need to create and maintain start up and shutdown scripts. It can automate recovery during server failures. It can also help plan future server consolidations. Enterprises

with multi-tier applications will find VAD particularly useful – it is a single tool that can manage the multiple components of one application as a single entity.

Veritas Application Director continues Symantec's promise to deliver more automation to the data center. Stay tuned for future announcements as Symantec delivers more automation and further integration within the Data Center Foundation.



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- ***The Clipper Group can be reached at 781-235-0085 and found on the web at www.clipper.com.***

About the Author

Dianne McAdam is Director of Enterprise Information Assurance for the Clipper Group. She brings over three decades of experience as a data center director, educator, technical programmer, systems engineer, and manager for industry-leading vendors. Dianne has held the position of senior analyst at Data Mobility Group and at Illuminata. Before that, she was a technical presentation specialist at EMC's Executive Briefing Center. At Hitachi Data Systems, she served as performance and capacity planning systems engineer and as a systems engineering manager. She also worked at StorageTek as a virtual tape and disk specialist; at Sun Microsystems, as an enterprise storage specialist; and at several large corporations as technical services directors. Dianne earned a Bachelor's and Master's degree in mathematics from Hofstra University in New York.

- ***Reach Dianne McAdam via e-mail at dianne.mcadam@clipper.com or at 781-235-0085 Ext. 212. (Please dial "212" when you hear the automated attendant.)***

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