

Data center application tracking and dependency mapping

KNOW WHAT YOU HAVE AND HOW IT ALL WORKS TOGETHER

Understanding application dependencies in your data center fosters resiliency and flexibility. In this white paper, we discuss the basic steps necessary to identify relationships among applications and devices.

Asset Point works closely with leading global organizations that rely 24x7x365 on their mission-critical IT infrastructure.

Data center managers must gain a thorough understanding of how applications interact with the computing infrastructure to meet changing demands of business customers.

The view of the data center as an amalgamation of discrete physical systems such as servers, network and SAN is disappearing. Instead, the data center is perceived holistically as a mechanism that must deliver software applications to consistently meet customer standards for speed, capacity and reliability. Without knowledge of each application’s dependencies on devices and other applications, you put your business users at risk of degraded performance or service disruption.

THE IMPORTANCE OF UNDERSTANDING DEPENDENCIES

Application mapping reveals which resources are logically connected to deliver against user demand – enabling an enterprise to manage and monitor applications rather than devices. Consider an application that utilizes a cluster of web/application servers, a single database server and a

storage device. If one of the clustered servers fails, so long as the rest of the cluster functions properly the impact on the user group is minimal. But traditional device monitors don’t provide this information.

Application dependency maps highlight the existence of other servers in the cluster and allow the manager to react properly (e.g., issue an informational alert to the business owner of the application and open a ticket to replace the server). Without the knowledge of hardware-to-application relationships, the data center manager is faced with a difficult choice: wait until the situation is diagnosed or sound a general alarm and act on an emergency basis. Understanding of application dependencies mitigates serious operational risks. For example, an application map can:

- Identify single points of failure for critical applications – including those that are thought to be fail-over resilient
- Verify all devices needed for an application to be replicated in a DR environment
- Prevent damage during large-scale change events – an ill-timed move of a single server can cause catastrophe if it is the lynchpin to a vital system

ESSENTIAL ELEMENTS OF THE DEPENDENCY DISCOVERY PROCESS

The task of mapping dependencies can be arduous, especially for sizeable data centers with a large number of legacy applications. However, the use of versatile tools and a meticulous process can minimize the pain.

STEP 1:

Examine existing documentation sources/data repositories

Manual examination of the many sources for application documentation – including development specifications,

user guides, help files, knowledge bases and other records – can jumpstart the investigation process. This approach will typically provide the added benefit of identifying the application support staff and internal “experts” who can shed light on the large, complex custom applications that exist in the corporate environment.

As a supplement to manual assessment, there are tools that examine application source code to determine data flow and information dependencies. Once gathered, this data should

be stored in a central data repository like Asset Point® to support daily operations and the move/consolidation planning process. Alternatively, Asset Point can provide “golden” asset-master key data that can be used to ensure that various information sources are properly synchronized.

STEP II:

Automated software application discovery and identification

The ability to link both software and applications to the hardware on which they reside is the critical next step. This is accomplished most efficiently through the use of software auto-discovery tools that have been available in the marketplace for years. These products investigate servers to match installed software against product component libraries for major application packages and versions. More sophisticated tools support “application fingerprinting,” which allows for discovery of internally-developed and bespoke applications as well.

Typically these tools identify the host device (e.g., IP address, host name), which allows this data to be cross-referenced and loaded into the information repository. This provides a central view of both the hardware (physical or virtual) and software components that are dynamically linked together and can be continuously updated via real-time links or data feeds.

STEP III:

Application dependency mapping

By this point, software applications have been linked to the host devices. However, critical dependencies may remain unknown if components are not part of the documented application profile. Asset Point links to a number of tools that work well for dependency discovery, including ServiceNow, InControl and Riverbed.

These tools perform elaborate analysis on network traffic to find application interrelationships, and as a result, all constituent parts of complicated systems – including hardware and software components – can be identified and mapped.

Additionally, dependency mapping can be linked into the rules engine in the Asset Point Server Migration Module to flag issues during the tactical planning process for data center moves, server consolidations and virtualization.

ADD VALUE ACROSS YOUR ENTERPRISE

Gathering and maintaining accurate information about the applications supporting business operations is an involved process – and is best approached with a consistent methodology that includes integrating a central data repository and maintaining synchronicity between disparate systems. The results speak for themselves:

- Improved operational support through clear understanding of application to hardware linkages
- Enhanced impact analysis for outages and prioritization of incident management
- Knowledge of the business community supported by the applications and improved communication
- Mitigation of risk in data center migration/consolidations through understanding application dependencies
- Visibility of logical and physical dependencies via a central data repository for hardware and applications

Knowledge of the devices on which an application runs and how they relate remains a blind spot for many data center managers. Asset Point provides a means to manage the relationship between your business applications and your IT asset infrastructure – enabling data center managers to consider the application side of the environment and the physical/network components together.



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