

## Mapping Apps to Avoid Disaster

By Glen Fest, August 1, 2008

Moving day for a data center, prior to the popular growth of server virtualization, was usually a disaster-in-waiting. Unplug server, move server, connect server, cross fingers.

Even in a virtualized environment there still may be a Poseidon Adventure or two in store for administrators, this time hidden in the mysterious interdependencies that widely stretched enterprise applications and resources can have in general operations beyond the server farm.

To prevent lost downtime, or worse, many turn to the burgeoning field of application dependency mapping (ADM), an infrastructure snapshot that can provide the crucial insight for change management—not only for major moves, but even for patches and upgrades to existing infrastructure.

This was an exercise undertaken in the last two years by Wachovia, which tackled the challenge of a major data center migration to a new state-of-the-art, \$400 million center in Birmingham, AL, where it shuttered a center inherited in its 2004 SouthTrust acquisition.

One of its strategies was to map and plan for conflicts or disruptions of interdependent applications as the move took place. "The complexity of software as distributed apps running in data centers...has escalated, and becomes fraught with risk and burdened with costs in terms of people," says Richard Muirhead, founder and CEO of London-based Tideway, a provider of automated application dependency tools used by Wachovia.

Without Tidewater's discovery and mapping, there was "a high likelihood that errors would be made. The resulting downtime would [have been] unpleasant and mission costly," says Jim Houghton, who was head of utility product management of Wachovia's corporate and investment bank at the time of the transition. (Houghton now is co-founder and CTO of consultancy Adaptivity).

Wachovia wrapped up the 36-month project last year as part of a corporate plan to, according to reports, geographically diversify its centers as well as adopt more green-friendly infrastructures with LEEDS-standard construction and virtualization to reduce power consumption.

Mapping applications in a virtualized environment may seem like a job for a virtualization management system — the hypervisor layer — but those tools "don't have the visibility as to what machines they are sitting on, what parts of infrastructure they are dependent upon, nor do they have the visibility into the software components that are running on them," says Muirhead.

Tideway's signature Foundation software continuously ties the application relationships across both physical and virtual infrastructures. It will be maintained at the data center to continue mapping the SOA infrastructure, including Web services. Its latest version adds a pattern recognition engine that charts segments of architecture to particular applications, plus configuration data to track the history of changes from the original source release.

The importance of auditing changes, in what Tideway calls "data provenance," was underscored by one small snafu during Wachovia's changeover. Houghton says an attempted database server switchover caused an interruption with an international connection—a five-alarm malfunction that could have taken the bank days to rectify. But a prior Tideway scan of the archived system history gave a blueprint of how lost connections were to be restored. It turns out the longest portion of the repair, says Houghton, "was getting people in on a Sunday afternoon in order to actually perform some of the re-pointing," he says.

While many apocryphal "don't push that button" tales abound, most case studies show that interdependency mapping more often has to do with finding inefficiencies or potential gaps in disaster recovery. In a recent Forrester Research report an unnamed vendor used Tideway to handle an application discovery exercise to lasso the details of 2,000 custom apps and more than 1,000 on-board, enterprise-class applications like Oracle and SAP. The company tried to do it themselves, but without automation the system maps drawn up were usually about 60 days out of date because of the volume of data involved.

When automated, the company discovered big problems, including a data center that was not running a firewall— to the surprise of staff members who had the firewall in their documentation. They also found shared port connections slowed down applications, and unintended clusters of client applications that were running across several data centers. They also found mistakenly shared instances of multiple-client applications that, in the event of one endpoint system failure or a patch, could have brought two or more client databases down.

Besides Wachovia, banks that have utilized Tideway's software and services (\$9 a server, per month) include JPMorgan Chase; European investment bank Dresdner Kleinhort; ING; Mizuho Bank of Japan; and Credit Suisse.

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