

Virtual Machines in a Corporate World

How VM's are changing e-Discovery and Corporate IT

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In the last edition of IRIS Eyes we discussed the technological advantages of utilizing virtual machines in the processing of data for e-Discovery purposes. This month we examine the role virtual machines are playing in transforming e-Discovery from a hosting standpoint, as well as the potential impact they may have on e-Discovery as corporations retool their IT infrastructure to incorporate this technology.

As we discussed last month, the emergence and utilization of virtual machines is one of the most significant advances in the legal industry, and technology as a whole. It is quite conceivable that these software enabled environments will push forward an entirely new way of both challenging and defending electronically stored information, at a significant cost reduction to clients and law firms alike.

As the name suggests, process led virtual machines (also referred to as "application based virtual machines") control the manner in which data is handled, where as system based virtual machines (also referred to as "hardware virtual machines") focus on the units themselves, allowing

multiple computers to run in tandem. Although these units co-exist, each unit can be running a separate operating system or program in an isolated fashion without interference.

System based virtual machines provide the capability to open a program specific file remotely, from its native application, without going through the expense of purchasing that program or having that program localized on the local machine. In addition, virtual machines can run simultaneous versions of past programs (i.e. Word, Excel, Lotus, etc.) without having to worry about manipulation of metadata in transference to newer versions of the software. This is akin to running a virtual private network (VPN) or program solutions such as Citrix, however instead of linking to one computer, you are linking to dozens (or even hundreds) of computers, each running one particular type of program that is initiated at the user's command.

From a security prospective, system run virtual machines can act as a barrier to unreliable data or viruses through the use of "sandboxing." The concept of

sandboxing refers to the capability to run a program or operating system independently of all others, so as to limit the potential harm it can cause. This is especially relevant when dealing with unreliable or newer code which has not been fully tested.

System run virtual machines have the effect of giving an attorney user in Chicago instantaneous and full access to open multiple programs and files concurrently from a datacenter located halfway around the world. These files are hosted in their native program, which will give them the flexibility to examine or search the file as the original author would have. This is done, all the while, without having to spend time installing costly programs or patches. In kind, the cost of e-Discovery will be dramatically affected, allowing smaller parties greater control in challenging production due to the increased availability to access atypical programs and files.

Hosting data in this fashion waxes nostalgic to the days of remote terminal computing systems, where individual units were

tethered through a spinal network to a central mainframe where all computing operations were performed. In the 1970s and 80s these desktop units, with their monochrome screens, were abundant throughout corporate America, however due to their slow network capacity and the emergence of personal computing systems, they were all but eliminated. The central servers or mainframes remained, however most all computing tasks were being performed from the user's own computer, expanding the potential loss or pilfering of corporate intellectual property.

The advancements in micro-processing, in addition to today's fiber-optic driven connectivity, has laid the groundwork for the second-coming of terminal computing networks in the form of inexpensive and durable thin client systems. Thin clients are individual units which depend primarily on a central server for processing tasks, with their main purpose being to convey data from the user to the remote server. As in the original terminal based systems, all software processing will be handled remotely by the server, however instead of the single mainframe systems of old, users will now be able to capitalize on the power of multi-tiered networks of virtual machines.

Thin clients would be especially worthwhile for large organizations as they would allow greater information management and cost savings. Primarily, thin clients would provide intellectual property control by preventing

malicious theft via common replicating media, such as thumb drives, as well as greater organization of data, since all data can be retained, preserved, and culled from one location. Further, thin client networks would reduce the dependence on large costly IT departments in multiple facilities, as a single datacenter could manage all needs, with minimal need for support at remote locations. Finally, since thin clients are merely conduits that have no true processing purposes, and all infrastructure advances are handled from the central server, the need for costly system-wide replacement or upgrades of individual units every few years would be eliminated since a thin client has few moving parts and a significantly long lifecycle. This of course would have the added environmental benefit of reducing landfill waste.

With respect to litigation, since all data will be retained in one central location, corporations will have complete access to all relevant information without the need for costly collections of multiple custodians in multiple locations. Although hard to imagine, a corporation utilizing thin clients would be able to do a full collection of relevant, non-privileged documents in a matter of days after a meet and confer, as opposed to weeks or even months. Further, it is conceivable that if that day arrives, production will be less about producing files and more about providing a virtual machine of data so that the end user could review those files in an identical fashion to the original. Of course with these

potential freedoms provided through virtual machines, the courts will face new challenges, especially with regard to ensuring the availability of expensive, rare, or proprietary software to virtual machine host facilities. A solution to this may be found in the concept of electronic "fair use," which is commonly referenced to within intellectual property law.

Most industry observers recognize the benefits that server based virtual machines bring to both online hosting solutions and organizational technology infrastructures. From an e-Discovery hosting perspective, these technologies are already well established, primarily initiated by their similar utilization by Internet hosting companies. However, the greater potential for these machines lies within their use in organizational infrastructures; yet their true benefits may sadly never be realized due to the significant costs corporations will have to expend in the short term to realize long term savings and efficiencies.

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IRIS Data Services is a national litigation consulting firm specializing in computer forensics, e-Discovery, and online hosting/review for law firms and corporate counsel. For more information, visit www.irisds.com.