MokaFive Expands Endpoint Virtualization Support, Earns New $21 Million C-series Investment

Abstract

Endpoint systems management has long been one of the most challenging domains of IT. The personal system is the meeting point of many often conflicting requirements and demands, from enterprise-wide policy to the requirements of departments and groups—and, above all, the freedom and flexibility individuals demand from their personal environment. Balancing these multiple levels of management with individual preference has long been an elusive challenge. With its distinctive, layered approach to endpoint virtualization, MokaFive introduces a way to manage endpoints that has attracted a new round of Series C funding at $21 million, spurring new capability and further expansion of MokaFive's role in the promising evolution of endpoint virtualization.

The Endpoint Dilemma

Many enterprises recognize the value of a disciplined approach to systems management. Keeping a tight rein on system configuration and software complement is key to assuring a high quality of IT services. Availability and performance become more reliable, while support burdens can be substantially reduced.

But there is a "gotcha" in this story. While these values have been realized by high performing organizations in the data center, few can achieve this same level of discipline with personal endpoint systems:

- **The personal system poses a management challenge, largely because it is personal.** Individuals want as much latitude in the personal environment as possible. They like to tailor their systems to their personal requirements and tastes—but this is not strictly for personal reasons. For the business, maintaining a competitive edge often means that individual users must be able to explore and learn—and this may mean the experience of a wide range of endpoint functionality. Emerging trends such as social networks only blur the distinctions between personal and business computing. As a result, users can often introduce content, settings or functionality that can have an impact on everything from endpoint security to usability—with resulting impact on IT support and security management, when the business must support the user environment.
- **When worlds collide:** At the same time, the business must assure a high level of confidence in the systems individuals use to interact with sensitive business applications and resources, particularly since the individual endpoint is often the source of problems such as security threats and intrusions. Organizations often go to great lengths to isolate enterprise IT environments of differing levels of sensitivity. But when, for example, the end user's personal system interacts equally with highly sensitive corporate information and phishing attacks or Web sites serving up drive-by downloads, policy-based resource segmentation can be rendered moot if an exploit of the personal system leads to an intrusion into highly sensitive resources.
- **"Enterprise management" is not always black and white.** Further complicating the matter is the fact that, in the enterprise, multiple groups may become involved in defining IT systems management. Some may operate across the enterprise as a whole, while other groups, such as individual business units, departments, or even user groups, may have their own requirements. Personal systems may need to be tuned to requirements at each level accordingly, but this can add significant complexity—and cost—to systems management.

- **Mobility** adds even more complication to this picture. Not only does this introduce access risks from public or uncontrolled networks, it often means the personal system is disconnected from the enterprise. This limits the alternatives enterprises have for controlling endpoint risks when personal systems are in "disconnected" mode. Introducing a new and wider range of mobile devices may further add to management burdens.
- **Endpoint management is hard enough regardless.** Even if all these issues were not a factor—if the enterprise could exert complete ownership and control over every end user system—the fact remains that the maintenance of a highly distributed environment can be expensive and unpredictable. System updates and upgrades, reconfigurations and patches may not always be deployed as expected. Disconnected systems may fall anywhere from hours to days or weeks behind in maintenance, which may prolong risk exposure. Following up on individual issues can become highly resource-intensive—and becomes even more expensive when support personnel must make deskside visits to resolve problems.
- **The "BYOPC" challenge:** These issues are even further exacerbated when users would prefer to use systems of their own choosing for business as well as personal use. This is a trend that many organizations are considering, and that some even offer as incentive—particularly given the expectations of a new generation of professionals who have grown up with technology. The risk the business runs, however, is that this degree of latitude can add substantially to end user IT support burdens.

Ultimately, all these challenges boil down to a fundamental dilemma: How can enterprises gain the control they need over the endpoint for business purposes, and still give users the flexibility and freedom they expect from personal systems?

Weighing the Endpoint Virtualization Advantage

Many organizations have considered endpoint virtualization as a solution to these problems. Virtualization offers a way for businesses to define a separate endpoint environment under their control while allowing the individual more latitude and freedom in the use of the underlying host system. This helps organizations maintain control over what needs control, without interfering with the individual preference and flexibility.

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There are a number of approaches to endpoint virtualization that, together, could help to solve these management challenges. Virtual Desktop Infrastructure (VDI) centralizes endpoint computing resources in the data center by virtualizing the endpoint on a server, which adds many efficiencies to endpoint management. Client hosted desktops utilize a client hypervisor to virtualize execution on the endpoint, which when managed gives the enterprise greater control of locally executing applications and resources, making them available to the user regardless whether the endpoint functions in connected or disconnected mode. Together, these technologies can be woven together to balance enterprise control with individual latitude and flexibility.

There are at least two flies in this ointment, however:

- Approaches such as Virtual Desktop Infrastructure (VDI) may be predicated on a "connected" model. While server-based delivery of endpoint applications or the desktop environment concentrates control more efficiently in the data center, it may not be viable when personal systems must often—or mostly—work without access to the enterprise network. The increasingly ubiquitous availability of wireless data networks is making the connectivity requirement less of an issue. But this is hardly the reality today, and what is widely available is not, in many cases, nearly as robust as enterprise requirements demand.

- On the other hand, more de-centralized, less "connected" approaches such as client hypervisor based virtual desktops require management in order to be a viable enterprise alternative. The enterprise still needs consistent control over the virtual environment it defines for endpoint business computing, regardless how delivered.

The management challenge escalates when multiple endpoint virtualization techniques enter into play. Combining VDI environments with client hypervisor and streaming based environments for multiple policy requirements is well beyond the reach of many organizations today—but such combinations could emerge in the future if they increase the granularity and flexibility of managing the endpoint dilemma. For now, these approaches must still take into account how factors such as individual user settings, user applications and user data could impact an enterprise-wide endpoint virtualization management strategy.

Introducing MokaFive

MokaFive has emerged as a company that sees these advantages as well as these challenges of endpoint virtualization. MokaFive utilizes a client hosted desktop model by capturing the entire desktop in a virtual machine that is executed on a client hypervisor at the endpoint. The VM and the hypervisor are encapsulated and centrally managed with a rich set of policies. The company's technology recognizes that endpoint virtualization operates on many levels, from the nuances of user, group, departmental and enterprise-wide platforms, applications, settings, applications and data management, to the multiple emerging technologies of endpoint virtualization itself.

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The MokaFive approach to layering is not dependent on a locally executing client hypervisor. Rather, it segments these multiple levels of endpoint functionality to separate layers: base OS, corporate applications, user applications, user settings, and user data. This combination offers the granularity of control through layering with the isolation capabilities of a VM hosted by a locally executing hypervisor. This enables enterprises to further segment sensitive business functionality from personalized, user-specific endpoint resources, and enhances the ability to contain controlled environments.

The MokaFive approach offers a number of distinctive advantages:

- It encapsulates the entire virtual machine so that it can be centrally controlled with a rich set of policies. This enables IT to determine and enforce the level of lockdown for the LivePC environment. In case of a lost or a stolen device, the LivePC can simply be killed through the management console. Most importantly, this approach delivers the advantages of central control without the cost and administrative burden of the datacenter build-out and ongoing management required to support VDI.

- The approach offers much wider flexibility in the business's—or the user's—choice of personal computing environment, including removable storage devices. The concept of "BYOPC"—or, for that matter, adapting a wider range of devices of any kind to enterprise use—has much greater viability when sensitive business functionality can be segmented from any aspect of the personal environment.
- The approach is not dependent on maintaining network connectivity, which expands flexibility in usage modes. Endpoint configuration and software complement is controlled by MokaFive LivePC functionality, which can enforce configuration and software complement when working offline, and deploy changes or updates as required whenever connectivity is available.
- Within the VM it isolates the underlying OS from user- or group-specific settings. Among other values, this enables IT to define one image for a specific endpoint platform that can be widely distributed with minimal impact on user- or group-specific variants.
- Should user applications or settings result in endpoint corruption or lost capability, those settings can be rolled back separately from the base OS image, regardless whether corruption has been the result of user actions or a security exploit. This offers a more responsive level of recovery from endpoint problems than legacy approaches.
- The client hosted desktop approach also helps with enterprise-wide endpoint system changes such as rollouts of new underlying base OSs. This could give organizations greater latitude in rolling out Windows 7, for example, while maintaining support for legacy applications.

Security and policy controls are further enhanced by providing multiple levels at which the organization can define a controlled environment. The layering approach allows the enterprise to lock down the base OS and corporate applications, while mitigating risks from user-controlled functionality, data and settings. This in itself is something of a "holy grail" for endpoint security management.

New Funding, New Capability

Because MokaFive has tackled these issues head on, it is attracting new attention as a vendor that recognizes the opportunity as well as the multi-faceted challenge of endpoint virtualization management.

This new attention was most recently and visibly manifest in a new Series C round of funding of $21 million announced in early April 2010, led by NGEN Partners with existing investors Khosla Ventures and Highland Capital Partners. This level of funding speaks to the potential seen not only in emerging approaches to endpoint virtualization, but to the multiple levels of the challenge, and the need for a comprehensive management approach.

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More recently still, MokaFive has announced expanded support for endpoint hypervisors, now including a beta release of support for Oracle (formerly Sun) VirtualBox, announced April 29, 2010. VirtualBox support is fully integrated with the generally available MokaFive Suite 2.8, giving administrators multiple levels of control policy definition and group-based control from a single console.

In its announcement of support for VirtualBox, the company also indicated that it would continue its expansion of hypervisor support to include Type 1 hypervisors (those that do not require an underlying OS in order to function, but which can run directly on the underlying hardware platform), as Type 1 client hypervisor technology continues to advance.

EMA Perspective

Endpoint virtualization offers a number of exciting new capabilities for managing and securing the personal environment, providing users with a high degree of latitude balanced with a more granular control over sensitive business functionality. But this capability comes at a cost. While new technologies add new capability, they also add complexity for administration. Management tools up to the task will be required in order to weave these new innovations together most effectively.

These new approaches to endpoint management introduce a new set of challenges to IT professionals. They may require them to rethink their current approach to management, and to re-evaluate existing management tools. Approaches that require a wholesale overhaul of distributed systems management will likely not fare well, no matter what positive changes they bring. Those that directly interfere with users, or with the latitude users expect from their personal environment, risk poor acceptance from users and IT alike.

The advantages of layering combined with the isolation capabilities of the endpoint hypervisor bring a powerful new set of tools to bear on the challenge, introducing controls that can be tuned on multiple levels, from individual users to groups, departments, and across the enterprise as a whole.

Companies such as MokaFive have recognized these challenges, and in MokaFive's case, have brought together a set of tools that can deliver the finely grained control required to address the endpoint management dilemma. The MokaFive approach allows enterprises to maintain their existing endpoint systems management tools while leveraging the advantages of layering, while the LivePC approach improves endpoint management without requiring users to change their behavior. The advantages of layering combined with the isolation capabilities of the endpoint hypervisor bring a powerful new set of tools to bear on the challenge, introducing controls that can be tuned on multiple levels, from individual users to groups, departments, and across the enterprise as a whole. The attraction of new funding is therefore well understood.

ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) analysts look forward to the continued expansion of capability fueled by this new level of investment, particularly as MokaFive expands to include Type 1 client hypervisor functionality. Though still nascent, the approach has significant promise for enhancing the isolation afforded to virtual environments—a particular value for security, and one that helps reduce risk exposures in underlying host platforms. A Type 1 approach may also improve the performance of virtualized resources, which can place significant demands particularly on legacy systems or those without more recent developments in hardware-assisted virtualization, such as Intel VT-x capability.

Regardless, and as with data center virtualization before it, it will likely be management that will make or break the success of these new approaches to endpoint computing, taming new complexities while making the most of new capability. With its layered approach to managing the virtualized endpoint, MokaFive has staked out a distinctive position in one of the most provocative—and challenging—developments in personal computing.

About EMA

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