

VENDOR PROFILE

NComputing: From Hardware to Software — Providing an End-to-End Client Virtualization Solution

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IDC OPINION

The client virtualization market has come of age in the past couple of years and is expected to approach the \$3 billion mark by 2014. This highly competitive market today is characterized by a two-tier structure: three large competitive software vendors that continue to acquire smaller companies and a second tier of smaller companies offering hardware solutions and niche software solutions optimized for larger or smaller customers as well as for vertical market segments. NComputing falls into the latter group, and the company is best described as a hardware vendor that also offers a complete software solution. The company differentiates itself through a custom system-on-a-chip (SoC) design, allowing NComputing and OEM partners to deliver hardware-based capabilities in their devices. While NComputing's software product is critical to delivering an integrated turnkey solution, the company's hardware products can also support other virtualization solutions from the large software ISVs in the virtualization software market. IDC's observations include the following:

- ☒ IDC research on client virtualization finds that the complexity and variety of offerings lead to confusion among potential adopters, leaving them misinformed about the value proposition associated with client virtualization solutions.
- ☒ Opportunity in this market is widespread and will last for years to come. While the long-term outcome is that applications, over time, will move to a native format that makes them Web or network accessible as a default format, it will take a decade or more to eliminate the need to support existing Windows and Linux applications that need to be virtualized or Web accessible.
- ☒ The software and hardware businesses that NComputing is involved in are distinct — but have a direct interrelationship. IDC believes this combination increases the long-term viability of the company. Potential exists for future acquisition by a larger player, most likely on the hardware side of the market.
- ☒ NComputing is orthogonally positioned to its giant software-only competitors VMware, Citrix, and Microsoft. Indeed, NComputing is seen by Citrix as a partner and is one of a couple of key hardware vendors working to incorporate support for Citrix's HDX client virtualization protocol directly into its hardware solutions. In addition, NComputing's Gold Alliance partnership with Microsoft provides additional go-to-market leverage, particularly in the education markets worldwide.

IN THIS VENDOR PROFILE

This IDC Vendor Profile examines virtualization and thin-client provider NComputing and considers the market opportunity for companies in this market space.

SITUATION OVERVIEW

Company Overview

NComputing was founded in 2004 by entrepreneurs Young Song and Klaus Maier. Initially, the company was located with distributed management, development, and engineering functions that spanned Eastern Europe and South Korea. After several years in business, the company relocated its headquarters to California, and today it is based in Redwood City. As of late 2011, the company cites its market penetration at 3 million seats placed at 50,000 customers in 140 different countries. The company maintains a strong presence in Asia/Pacific and Latin America.

NComputing's product mix includes both hardware and software products, which are discussed in the sections that follow.

Hardware

L-Series Thin-Client Access Devices

- ☒ **L300.** The high end of the L-series product line, the L300 includes connection for a keyboard, mouse, monitor, and speaker. The L300 offers video acceleration so full-motion HD video can be rendered on thin-client displays. The L300 connects to the host PC or host server over an Ethernet cable and can be scaled up to as many as 100 users on a single PC or server. The L300 also brings additional USB peripheral ports, a high-availability log-on option, and rapid deployment software tools. All L-series products ship with and leverage vSpace Server software.
- ☒ **L230.** The midrange of the L-series, the L230 supports a USB port for storage devices and a microphone port and has 24-bit color support at lower resolution than the L300.
- ☒ **L130.** The L130 is a more basic access device that includes connections for a keyboard, mouse, monitor, and speaker.

M-Series Multitenant Access Devices

- ☒ **M300.** A new addition to the NComputing portfolio, the M300 is built around the Numo 2 system on a chip and supports three complete user sessions and desktops across a single Ethernet LAN connection and with a single power cord, reducing network infrastructure; it is expected to cut power requirements to one-third of those used by traditional thin clients. The M300 is sold as a 3-user kit with one primary and two additional client devices. The M300 client supports USB 2.0 peripherals, audio input and output, and full HD video for multimedia. The M300 ships with and leverages vSpace Server software.

U-Series Thin-Client Access Devices

- ☒ **U170.** The U170 is a USB-attached thin-client device that allows the sharing of a single PC with up to 9 users via multiple USB hubs (plus 1 user on the host PC or server). The U170 offers low power consumption and high-quality display characteristics and includes ports for attaching a keyboard, monitor, and mouse.

X-Series Access Virtual Desktops

- ☒ **X550.** An X550 is a PCI card extender that enables a connection between a host PC or server and a local device from NComputing, called an XD2 access device. The X550 supports up to 5 users per PCI adapter card, with up to two cards per host, and allows up to 10 users (plus 1 user on the host PC or server) for a total of 11 users supported. The X550 includes both widescreen and high-resolution graphics.
- ☒ **X350.** The more economical version of the X550, the X350 supports up to 3 users per PCI adapter card, with up to a total of 7 users. All other features are similar to those of the X550.

Software

- ☒ **vSpace Server.** NComputing offers a server software product that makes it possible to add multiuser capabilities to a server operating system (OS), mapping one operating system image to multiple users, or to map multiple centralized virtual desktop client OS images to individual users each located on unique thin-client access devices, mobile devices, and PCs. vSpace can multiuser enable server and client operating systems, assuming the licensing or subscription terms permit that usage. In addition, vSpace Server software is also used to centrally manage and provision virtual desktops.
- ☒ **vSpace Client.** Currently in public beta, the vSpace Client software broadens the ability of NComputing to serve its existing and future markets. This software provides software-only access to a vSpace Server-enabled host and uniquely enables full Windows and Linux desktops or a subset of specific applications. Customers can mix devices and software clients across an implementation as well as manage the soft clients centrally just as with the NComputing devices.

Semiconductor Products

- ☒ **Numo system on a chip.** NComputing also offers an SoC that incorporates thin-client functionality that OEMs can use to build their own thin-client devices. The Numo SoC includes native in-silicon support for Citrix's HDX protocol, which is designed to deliver high-performance graphics in a thin-client computing environment. This performance capability is expected to form the basis for optimized thin clients manufactured by both NComputing and the company's OEM partners.

Company Strategy

NComputing began its operations as a distributed business with operations in Eastern Europe and South Korea but today is based in Redwood City, California. The location makes sense in that NComputing is in the same region as its key partners VMware and Citrix, and the company can draw on the considerable talent and expertise on client virtualization that exists in the San Francisco Bay Area. NComputing has sales and customer support operations in North America, Latin America, Europe, and Asia/Pacific.

NComputing CEO Raj Dhingra is an alumnus of Citrix, where he was a VP and GM overseeing Citrix's desktop virtualization business. Dhingra joined NComputing in April 2011 and is focused on growing the company and building out relationships with the industry leaders as he exploits market opportunities that the industry leaders are not serving well.

NComputing has a focus on keeping its solution set cost competitive and claims it can put a solution in place that costs less than some of its best-known thin-client hardware competitors.

NComputing targets education and SMB/SME organizations worldwide, with a strong focus on emerging markets such as Asia/Pacific, the Middle East, and Africa where simplicity and low-cost computing are key requirements. The company finds uptake globally in these smaller organizations and in departmental applications where the combination of simple implementation, low management overhead, and low costs is coupled with a high-quality PC experience.

NComputing utilizes a two-tier distribution model, working with both distributors and value-added resellers around the world. As of the end of 2011, NComputing claims more than 1,500 resellers in its network. This allows the company to scale its operations as well as deliver focus to specific market segments.

While NComputing found its initial success serving the education market, especially K–12 schools, roughly 40% of its business today is in the SMB/SME arena. There, NComputing claims a broad set of customers across state and local government, manufacturing, retail, services, and other segments appropriate to its value proposition.

Software Technology Strategy

NComputing's software solution is designed to function as a lightweight virtualization engine and focuses on virtualizing only the core of the server. The focus, says the company, was to reduce the utilization of CPU and memory resources. That approach was surrounded by the liberal use of paravirtualized devices, compression, and hardware agnosticism. The goal is to support the same applications, including media-intensive applications, on thin clients just as they would be supported on the host system.

NComputing provides a level of operating system agnosticism as well, with Windows and Linux both supported. The Windows environment provides some limitations partly

because of Microsoft's license restrictions. The vSpace renders itself as a service in the Windows environment, installs into Linux as a loadable kernel module, and virtualizes the whole Linux operating system.

The objective, say NComputing executives, was to make it possible to run vSpace in either a server environment or a centralized virtual desktop computing environment.

From a practical perspective, NComputing finds that the majority of its customers gravitate toward a 1:many deployment using Windows Server as the base OS. Effectively all of NComputing's customers today are hardware customers first, with company executives confirming there are no software-only customers currently.

However, with the forthcoming release of the software-only client, NComputing believes that it will begin to see both broader coverage within its existing client base and the potential for more significant software-only customers. The combination of the vSpace Client, the vSpace Server, and the management software targeted for mid- to large-scale deployments will allow customers to leverage older equipment and include mobile platforms in their formal deployments.

Considerations of Windows Virtualization

Customers choosing to virtualize a Windows environment have several decisions to make regarding the operating system choice. A 1 OS:many users mapping mandates the use of a Windows Server operating system. Windows Server 2008 R2 (and prior versions of Windows Server) has multiuser capabilities integrated into the base operating system, but there still needs to be some additional connectivity hardware (and potentially software) to build out that solution. Customers choosing a 1:many mapping will need to procure a Windows Server Client Access License (CAL) and a Remote Desktop Services CAL for each user attached to the server.

The use of Microsoft client operating systems in a central virtualized desktop (CVD, aka VDI) deployment results in a 1 OS image:1 user mapping. Customers choosing a CVD deployment must also obtain proper licensing, which requires individual Windows 7 client OS licenses for each end user/OS image and potentially a Windows Server CAL as well. Microsoft has several licensing options available to customers to make a CVD deployment possible without violating licensing terms.

Microsoft brought out a product called Microsoft MultiPoint Server 2011, which is a multiuser Windows Server-based solution that is configured for, and sold into, the educational market. NComputing's vSpace product works with Microsoft MultiPoint Server 2011 as well.

FUTURE OUTLOOK

The push to adopt desktop virtualization technologies initially came from organizations that successfully implemented server virtualization. The attractive ROI and immediate reduction of capital expense on hardware of server virtualization led to the (often incorrect) assumption that a similar cost savings could be found through desktop virtualization. However, the presumption that desktop virtualization would

lead to mitigating other headaches including management, security, and backups and reducing user-caused system problems has proven to be true.

The overall market for client virtualization is expected to approach \$3 billion by 2014. IDC believes client virtualization growth has strong legs. As the technology matures, it will become more applicable to a greater breadth of industry verticals. While IDC sees a slowdown in overall market growth in 2012 due to macroeconomic conditions, the continuing decline of acquisition costs, the emergence of new virtualization models, and new addressable sectors will ensure client virtualization reaches new heights.

IDC also sees desktop as a service (DaaS) becoming a viable option for enterprises and SMBs in the next couple of years. The acceptance of this model will turn adopting client virtualization into an operational expenditure from a capital expenditure, further reducing a potential roadblock to adoption.

The broad adoption today of mobile devices including phones and tablets has proven to be a boon for the virtualization market since these devices can often help drive interest in adopting client virtualization as a way to solve both existing needs and the new requirement to enable existing applications on these new devices.

But at the same time, straightforward solutions such as NComputing's portfolio have good applicability to market segments where low cost and ease of deployment are prime requirements.

NComputing executives are aware of this dramatic industry evolution and tell IDC that the company's portfolio will expand over the next few years to respond to the changing industry needs.

ESSENTIAL GUIDANCE

Advice for NComputing

NComputing has made a bold but smart choice in expanding its portfolio to include a software solution that can be standalone but, more often than not, complements NComputing's partners' existing solutions. This allows the company to be less leveraged by its bigger counterparts and allows NComputing to upsell current customers at the same time.

Following in this vein, it will be important for NComputing to find other niches of pain and need that the larger vendors are not addressing. The company already recognizes receptive verticals that offer opportunities, such as education, where the company can bring a cost-effective, simple-to-deploy solution to the table without the relatively complex infrastructure requirements that a deployment from one of the big software vendors would bring.

IDC fully expects that desktop as a service will start to gain traction in the next couple of years, and this could be one area where NComputing could expand its portfolio to help partners and customers alike. The challenge is to build a product-and-partner strategy that allows for NComputing solutions to be delivered by local service provider

partners but also for NComputing to service customers directly when the deployment requirements suggest that approach is best.

LEARN MORE

Related Research

- ☒ *Virtual Desktop Environment Survey: A Companion Presentation to IDC Document Number 231220* (IDC #232196, December 2011)
- ☒ *Understanding Adoption Trends and Storage Requirements of Virtual Desktop Environments* (IDC #231220, November 2011)
- ☒ *Small Data Is the New Big Data* (IDC #ICUS23109111, October 2011)
- ☒ *Citrix Synergy 2011: The Rise of the Personal Cloud* (IDC #228693, June 2011)
- ☒ *Worldwide Application and User Session Virtualization Software 2010 Vendor Shares* (IDC #228451, June 2011)

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