

NEC introduces one of the world's largest scale thin client systems utilizing VMware Virtual Desktop Infrastructure to improve security and reduce operational burden and cost



KEY HIGHLIGHTS

INDUSTRY: **TECHNOLOGY**

Empowered by Innovation



CHALLENGE

- To improve information security and reduce the burden of administrative tasks and operational costs through the client consolidation.

IMPACT

- Achievement of a secure PC environment in which no data remains on thin client terminals
- Reduction of administrative tasks by one-third thanks to automatic patch application, automatic software updates and more
- Relief for users from time-consuming day-to-day tasks such as the application of patches and virus scans
- Operational administration for 9,000 clients can be handled by just a three staff
- Drastic decreases in operational costs stemming from reductions in administrative tasks
- Improvement of work productivity through the creation of a new working style

DEPLOYMENT ENVIRONMENT

- VMware Virtual Desktop Infrastructure
- VMware VirtualCenter
- NEC Express5800 Series
- NEC Storage D Series
- NEC Thin Client Terminal: US100 / US110
- NEC Management Software: Sigma System Center

"The most significant effect of the introduction of thin clients for our IT departments has been that it has enabled uniform management of all PCs used at NEC. While it once took not only a substantial amount of effort but also two or three months to deploy new software, it is now possible for this to be accomplished in a matter of just a few hours from within the data center."

Susumu Shimano, Senior Manager,
Management Information Systems Division, NEC

NEC Corporation

NEC has introduced "Virtual PC Center" a virtual PC thin client system utilizing VMware Virtual Desktop Infrastructure (VDI) in an attempt to achieve centralized operation and standardization of client environments. As of June 2008, approximately 9,000 thin client terminals were in operation in departments throughout NEC as well as at its group companies. In addition to having achieved a secure PC environment, centralized control of patch applications, software version upgrades and more has led to drastic cuts in the number of man-hours devoted to PC management. Meanwhile, it has also helped to reduce operational costs. NEC is slated to have approximately 20,000 thin client terminals in use by the end of March 2009, making it one of the world's largest class usage of thin client terminals.

The introduction of thin clients is aimed at both improved security and reductions in operational duties and management costs.

Offering a broad lineup of products including servers, PCs and mobile phones as well as services ranging from advanced network systems to various solutions, NEC is an integrated IT vendor leading the way in this IT era with the latest and most extensive technologies. Having developed a vision for the next generation of IT achieving the three themes of a "Foundation for Business Execution" aimed at strengthening our competitive advantage, a "Foundation for Global Management" enabling rapid response to change and a "Foundation for Safety and Security" supporting risk management, we are now working to strengthen our proactive IT strategies.

Striving towards improvement of compliance and security as well as cost optimization and more, NEC has spent the past several years shifting its IT system strategy from one focused on specific optimization to one that is focused on total optimization. Setting our sights on the goal of standardizing business processes and applications, we have worked to promote platform optimization through consolidation and centralization, i.e. consolidation of network, department shared file servers and more. Amidst all of this, the most difficult task placed before us has been the integration of client environments.

While the integration of client environments aimed at improvement of security through prevention of information leaks, reduction of operational duties and management costs, visualization of client operations and more was a difficult task, it was also an important one that we felt had to be seen through to the very end. In the past, Susumu Shimano, Senior Manager of NEC's Management Information Systems Division and leader in charge of the rollout of thin client systems at NEC, had taken on the challenge of integrating client environments using thin client systems in the U.S. Having hit the stumbling block of being unable to freely operate the client applications he wanted using the thin client technology available at the time, he eventually had no choice but to give up. It was the "Virtual PC Center" utilizing VMware virtual desktop solution VMware VDI (Virtual Desktop Infrastructure) that eventually provided a complete solution to this problem.

Mr. Shimano explains the reasons behind his choice of VMware VDI for use in NEC's own thin client system saying, "I felt that with VMware, performance, function, operability, etc. took precedence when it came to client integration through virtualization. Also, VMware VDI would make it possible to fully replicate existing PC environments in virtualized environments. But in the end, it was the high degree of freedom with which client applications already in use in various departments could be used just as they were that really drew me to VMware VDI. Another reason I chose this product was its proven track record in server integration using virtualized technology and the fact that there were many staff members at NEC familiar with VMware products who spoke very highly of their reliability."

"The greatest appeal of VMware VDI was that the PC environment being used by the current user could be shifted as is to the thin client environment without problems occurring in the operation of individual applications. Moreover, VMware's proven track record around the globe gave me greater peace of mind."

Susumu Shimano, Senior Manager,
Management Information Systems Division, NEC

VMware Infrastructure 3 supports virtual PC generation and operation of resources while VirtualCenter controls virtualized environments.

NEC's introduction of thin clients began in September 2006 with virtual PCs for which client environments had been stored in data center servers. Aiming at improving security through prevention of data removal using USB memory, CDs, etc. and non-work related access as well as prohibition of the installation and use of unnecessary software, etc., approximately 300 thin client terminals were primarily introduced in departments charged with handling critical information. Introduction thereafter proceeded in various other departments and common-use PC centers for employees on business trips, and as of the end of June 2008, the number of thin clients had grown to approximately 9,000. At NEC's data center, there

are currently a total of 312 servers, of which 287 are used to operate approximately 40 virtual PCs each and 25 are management servers. There are also 49 storage units in operation for use with thin client systems. On the virtual PC server, the generation of virtual PCs, optimal placement of resources and more is supported by VMware VDI. Meanwhile, on the management server, NEC's integrated platform management software Sigma System Center and the VMware VirtualCenter work together to manage the virtualized environment and control the physical server.

In various departments throughout NEC, the US100 and US110, both of which were developed by NEC, are being used in conjunction with IP phones as thin client terminals.

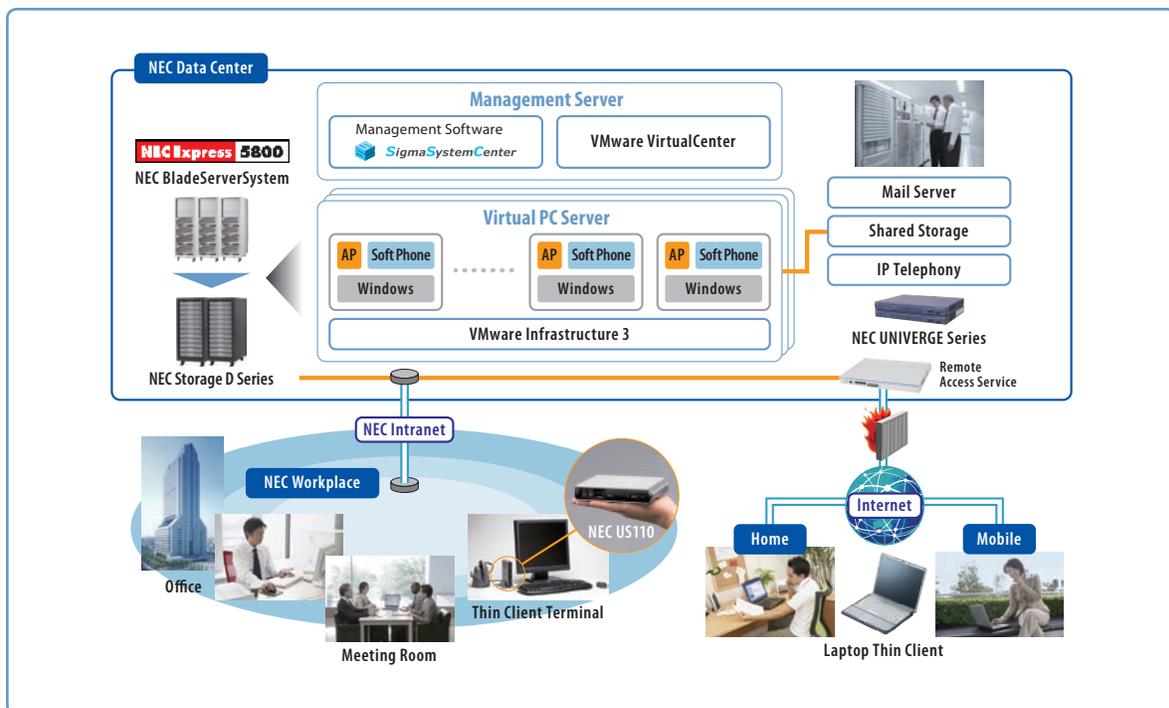
Thin clients have been receiving high acclaim from users with comments ranging from "The fact that they ensure a high level of security gives me a great sense of reassurance," "I no longer have to deal with the hassle of applying the latest patches or virus scans" and "No matter where I go, I can quickly continue on with my work in the exact same environment" to "Startup is surprisingly fast, and I feel as if I don't have to deal with as much stress since I don't spend as much of my time waiting." In addition, when planned server maintenance is carried out, VMware VDI's VMotion function makes it possible for the virtual PCs to be moved to another server without altering its operation status in any way.

Since server maintenance can be carried out without suspending use of virtual PCs, thereby allowing users to continue on with their work without interruption, there is no burden whatsoever on users.

From the standpoint of application management, not only can a secure environment capable of preventing information leaks be achieved but also centralized control of massive client environments. Everything from automatic installation and backup of the latest software to application of patches and configuration based on security policies can be performed swiftly and without fail.

As for results from the perspective of application management, Mr. Shimano states, "With traditional PC environments, it was necessary to arrange for a substitute PC every time a hardware malfunction occurred, which could be quite troublesome. But when you have a thin client system based on a reliable server, the malfunction frequency for clients is exceptionally low, and even if by some chance a malfunction were to occur, it would be easy to quickly prepare an alternative virtual PC. Use of a thin client system also alleviates the burden of users being relentlessly asked to apply patches. All of this has relieved staff from having to serve as protectors of their own PCs."

What's more, since application management is for the most part automatically controlled, support duties can be reduced by approximately one-third. NEC is currently able to cover its system operated by



approximately 9,000 thin client terminals with just a three staff. And in terms of cost, NEC calculates that an approximately 46% decrease in TCO can be expected over a three-year period from not only network load reduction and power-saving effects but also the relief of hassles for end users and management costs for operational staff.

NEC is slated to have approximately 20,000 thin client terminals in use by the end of March 2009, making it one of the world's largest class usage of thin clients.

In addition to deciding to completely ban employees from taking PCs outside the company starting in July 2008 and making use of thin client terminals mandatory, NEC has also newly introduced a telecommuting system that utilizes thin clients. This telecommuting system is designed to not only improve productivity through effective utilization of time but also offer a "people-friendly" work style that takes into account individual circumstances such as childrearing, nursing care, disabilities and more. While telecommuting of course decreases usage of public transport, it also has other "environmentally friendly" advantages including reduction of electricity consumption and CO2 emissions through the use of thin clients, which boast high power conservation effects. NEC expects to have approximately 20,000 thin client systems in use at the end of March 2009, making it one of the largest scale usage of thin clients in the world.

Mr. Shimano expresses his feelings of confidence saying, "NEC as a company providing a wide range of customers with virtual PC thin client systems "Virtual PC Center" utilizing VMware VDI, the fact that we are introducing the world's largest scale thin client system within our own company will give us a big boost in confidence. Using and verifying a thin client system of this scale gives us the ability to prove to our customers the reliability and multitude of positive results of both VDI and the system itself."

It is anticipated that NEC's use of thin clients will continue to expand through deployment to NEC Group companies and securification of PCs at affiliate companies as well as use of thin clients for common-use PCs in conference rooms. With the belief that "if VMware evolves, NEC's thin client system can evolve even further," NEC is placing its trust in and has high expectations for VMware.

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