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WHITE PAPER

A Case for Managed PCs Enabled by Stable Business Platforms

Sponsored by: NVIDIA

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IDC OPINION

Business platform instability is a unique problem for business PC users. When the hardware and software components that make up an organization's PCs change — even when the change is meant to take advantage of productivity benefits of new technology — it tends to add manageability burden and cost to corporate IT departments. IDC research indicates that only 25% of a desktop PC's life-cycle cost of ownership for medium to large organizations is attributed to initial procurement and disposition. The lion's share, 75% of a desktop PC's life-cycle cost of ownership, is due to operational and management costs, a majority of which are costs associated with upgrading hardware and software and the resulting network/database administration and management.

A viable case for reducing these costs can be made by adopting a stable business platform, which in effect balances optimum productivity with reduced operational/maintenance costs. These benefits are available for organizations of any notable scale, including medium-sized businesses, government offices, education organizations, as well as larger enterprises. As such, not only end-user organizations, but even system integrators should be particularly interested in a stable business platform, which will enable them to improve their competitiveness, reduce their own costs, and strengthen their relations with their customers.

SITUATION OVERVIEW

Networked PCs have become ubiquitous in today's business environment as the challenges of networking have become easier and less costly. A network can be set up in record time with plug-and-play wire line or wireless components for minimal cost. This ability naturally has encouraged growth of networked systems from larger enterprise work environments to medium-sized businesses and other work environments, such as educational and government settings. And as networks have become more prevalent, so has the opportunity to manage these systems from a centralized location and with a standardized or minimal number of configurations. Not only are the end users benefiting, but so are system administrators who are responsible for maintaining, upgrading, and managing these systems. IT managers are able to manage these PCs from a centralized site and even remotely, potentially saving considerable time and reducing the total cost of ownership.

One way to maximize the ease and minimize the cost of managing these networked PCs is by establishing a uniform hardware and software platform in a stable business platform (SBP). The result is a managed network of PCs that is secure, upgradeable, stable, and reliable as any network in a larger enterprise environment, and at a fraction of the cost of a system that is not based on a stable business platform.

The development of a stable business platform can be critical for system builders themselves when seeking to strengthen their relations with their existing clients or win new ones. Developing such a platform should enable system builders to leverage best-of-breed processes to maximize their competitiveness when competing against the top-tier PC vendors, and reduce their own customers' cost of owning, operating and disposing of their systems.

With fewer resources than their tier 1 competitors, system builders must always work to minimize system failures and reduce risks so as to avoid raising their own costs and further reduce their slim margins. Among the best ways to achieve such goals is to provide their customers with stable PC solutions. But without a stable PC solution, system builders face a difficult competitive environment. Interviews with system builders indicate that many of them have faced growing business costs due to selling substandard systems, resulting in high system failure. Using untested components from a variety of suppliers has been a compromising factor, which led customers to question the reliability of the suppliers.

IT departments that rely on system builders for their PCs also face the same concerns as their peers in large enterprises. They must be able to guarantee stability in the process so as to guarantee business continuity, and protect their IT infrastructure against any hardware and software failure and any security threats to their networks and system. By sourcing their products from qualified system builders, system integrators, and component supply chain partners through a certified stable image program, IT departments can be more assured that the quality and reliability standards they expect will be delivered. This, in effect, could also help qualified system builders attract new customers and better compete with tier 1 OEMs that have traditionally emphasized quality and reliability advantages.

REQUIREMENTS TO ENSURE A STABLE BUSINESS PLATFORM

The requirement for establishing a stable business platform is to integrate the entire supply chain to ensure a coordinated and interoperable end-product solution. Individual medium-sized organizations cannot typically establish a stable business platform for themselves because they often lack the necessary influence in the supply chain and economies of scale. However, if key component and system manufacturers can jointly develop a stable business platform and can agree on a set of technology and performance standards and schedules, then the basic elements of a stable platform are satisfied. By then coordinating other supply chain partners to conform to these standards, a robust, high-quality solution can be provided.

A stable business platform spans hardware and software and can be characterized by five key attributes:

- **Product and brand quality.** Probably the most critical attribute of a stable business platform starts with the reliability of hardware and software. To ensure quality products, qualified suppliers are needed throughout the product build process. This includes a reliable set of component and IC suppliers, qualified manufacturers and/or contract manufacturing partners, and system builders and integrators. Although quality products are taken for granted by the end customer these days, particularly for mobile and desktop PCs, there are complex controls needed to ensure that quality is assured. Starting at the component providers, specific certified components from approved manufacturers are essential to guarantee that original, noncounterfeit or sub-standard parts are used and are assembled in a proper manner using appropriate manufacturing processes. The interoperability of these parts is also essential as is the functioning of these parts under set performance criteria. A series of mandatory functional, environmental, and performance testing is necessary to ensure that the end products function properly in their performance range.

- **System security.** Another critical attribute of a stable business platform is the protection against security threats. A combination of hardware- and software-based features should be integrated in the platform to offer a comprehensive and effective security defense. Preferably, the system should have a hardware-based firewall at a minimum and, for increased security, incorporate a trusted platform module (TPM) security solution. This IC-based security is integrated into the motherboard with supporting system management utilities and application software; with Microsoft's Windows upcoming Vista operating system (due at the end of 2006), operating system support will be integrated. It is also important to accommodate all core components of a security subsystem through the use of hardware-based key generation and storage for secure data storage, secure information exchanges, and online transactions.

- **Image consistency.** By definition, a stable business platform should have a certain level of stability and thus longevity in the software applications, drivers, utilities, and electronic manuals that it uses. This software configuration or "image" should apply not only to business-specific operating systems, but should also include drivers and configurations for IC-based graphics, audio, core logic, and storage applications. Ideally, an organization would gain the most benefit (least cost) by implementing a well-tested certified image among all of its installed base. This would facilitate software upgrades, migrations, and new application implementations over an extended period of time. However, the trade-off with a nonchanging standardized image is that it may not be compatible with new hardware and software features that become available. So providing a limited number of disk images that are updated on a set schedule is key. These disk images should be stable for a reasonable period of time to minimize overall system management/maintenance costs, but not so long that new features cannot be integrated. There must be a reasonable balance between new feature sets and disk image stability. Based on current technology changes in the

notebook and desktop PC environment, a reasonable time frame seems to be about 12 to 24 months for most midsize enterprises.

In order to minimize the need to change a standardized image, the update schedule for hardware and software should be coordinated throughout the supply chain. Semiconductor manufacturers, system manufacturers and system integrators and software development should all be coordinated to introduce new integrated solutions together.

- **Simple and low-cost manageability.** A stable business platform should also be able to offer simplified and lower-cost solutions for managing PCs. By integrating a term of stability of 12 to 24 months in a platform, the challenges of accommodating new applications and hardware changes are minimized. Yet, by instituting systematic hardware and software upgrades, new technologies can be implemented in an integrated fashion. In addition, to facilitate the transition to new IT purchases in the organization, there should ideally be a period of evaluation and qualification of new platforms without a disruption to the current platform. This can typically be built into a stable business platform by including several months of evaluation in addition to the 12 to 24 months of stable platform availability.

  System management from a single point of administration is also an important capability to ensure simple and low-cost manageability. A suite of reputable, affordable, and comprehensive system and remote management solutions should be qualified and certified to be compatible with the rest of the platform. These solutions should be able to track the hardware and software inventory (assets) in the network, provide updates and patches, monitor licenses, and monitor security controls all from a central point of administration or even a remote location. Remote management with reboot and restart capabilities is also important.

- **Supply assurance.** Since a stable business platform involves qualified hardware and software components from qualified suppliers, the issue of assured availability is key to a successful program. All critical components that feed into the finished products should be available in sufficient quantities to satisfy all anticipated demand throughout the life cycle of the platform. This is particularly important in the front end of a life cycle when product ramp issues can limit the stock of available products. It is also important that the program accounts for possible interruptions in supply due to quality issues, compatibility issues, market shortages, etc.

For mid to low-tier system builders, the implementation of a stable business platform based on the five attributes listed above should guarantee the following outcomes:

- **Improved competitive advantage.** System builders will be well prepared to compete against any competitor in the marketplace regardless of whether they seek to sell to medium-sized businesses, introduce their products to public sector buyers, or even penetrate enterprise accounts. An offer that guarantees quality, stability, longevity, security, and manageability is a powerful value proposition.

- **Reduced PC failure rates.** Many system builders face higher failure rates than their competitors and remain vulnerable to loss of market position. Introducing a stable business platform will help reduce failure rates substantially and their associated costs.

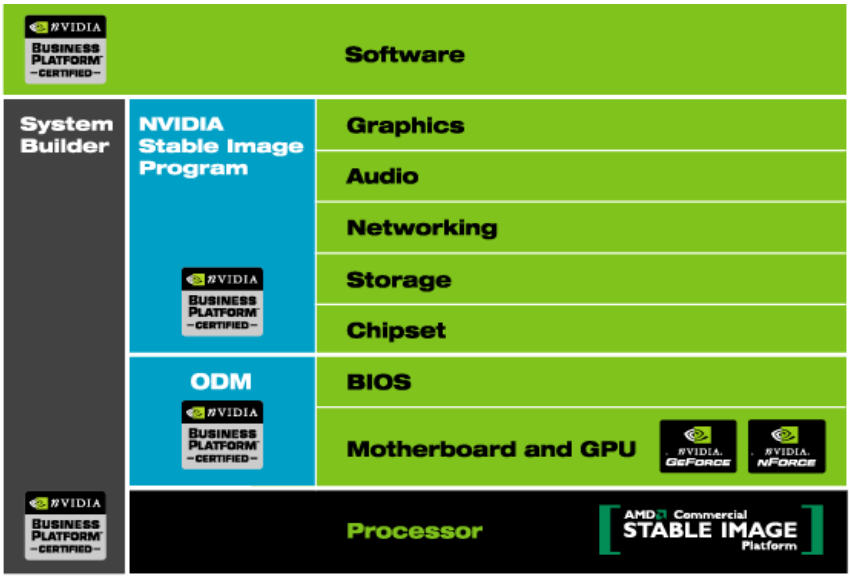
NVIDIA'S RECENT IMPLEMENTATION OF ITS STABLE PLATFORM

Stable platforms in various forms have been provided for enterprise PC networks for years, although the level of integration and scope of application has been expanded recently. Dell, HP, IBM and virtually all other top PC OEMs have been offering stable image platforms for PCs for several years. In 2003, Intel introduced a stable platform called Intel® Stable Image Platform Program (Intel® SIPP), and in September 2005, Advanced Micro Devices (AMD) also introduced a stable business platform called the AMD Commercial Stable Image Platform (AMD CSIP). The latest stable platform was announced just last month by NVIDIA and is called the NVIDIA® Business Platform, which extends AMD's CSIP program to its core logic chipsets, and integrated and discrete graphics processors. This program is designed around AMD's 64-bit processors and provides for driver architecture compatibility, hardware-based firewall protection, and other performance-enhancing features.

The NVIDIA Business Platform is a comprehensive and integrated program intended to target the needs for stability and reliability in today's medium-sized businesses, government offices, education organizations, as well as larger enterprises. NVIDIA addresses the requirements of a stable business platform by incorporating several key building blocks from its supply chain partners as illustrated in Figure 1 below.

FIGURE 1

NVIDIA Business Platform



Source: NVIDIA, 2005

NVIDIA combines AMD's CSIP program with its qualification and certification program for system builders, ODM motherboard designers and manufacturers, and even component suppliers to deliver a comprehensive stable program to the end customer. This program includes not only hardware qualifications, but also encompasses software interoperability and compatibility and even functional and reliability testing standards.

Even though NVIDIA has just introduced its NVIDIA Business Platform program, if the scope of the program spans the supply chain to the degree planned, the program could very well be one of the most comprehensive stable platforms in the market today, and one of the first to directly target medium-sized businesses, and government and educational organizations.

CHALLENGES/OPPORTUNITIES

Some of the challenges of providing a stable business platform center on the same attributes that are required for a workable solution. A successful platform requires an integration and alignment of the entire supply chain, from IC providers to ODMs to system integrators, to a level that is not typical in the PC supply chain. Suppliers must convert all along the supply chain to ensure that all phases of their design, specifications and manufacturing, are compatible with the rest of the form factor and user profiles. This integration requires extensive planning and cost to ensure conformity, but in the end should benefit the end customer.

- **Product and brand quality.** Extra collaboration testing may be required to ensure conformance to the standard platform. However, product and manufacturing compliance through qualifications of supply chain partners will ultimately improve brand quality of subsystem/component suppliers. Particularly since many of the products that are sold through the channel will not have the brand backing of the large tier 1 PC OEMs. This is particularly important for medium-sized businesses that are more likely to purchase through the channel.

- **System security**. Total system security could actually improve in finished systems by the use of a platform design approach. Silicon suppliers will be aware of what system threat protections are needed during the design stages of the chips. This collaboration should make it easier to satisfy all usage requirements in the end products.

- **Image consistency.** The primary challenge in image consistency is determining the optimal length of time for a stable image to balance the need to incorporate new features versus the need for a stable image lifecycle. As long as the time period is in the range of 12 to 24 months, then consumers should realize the most benefit from this consistency. Even though image consistency is threatened when confronted with different hardware platforms, the time period should mitigate most of this risk.

- **Simple and low-cost manageability.** The primary benefit is a lower total cost of ownership for a system, as long as functionality and flexibility are maintained for the system administrator.

- **Supply assurance.** The biggest risk to a stable platform is the sudden unavailability of platform-compliant product that drives an organization to purchase new PCs from a source different from the original master machine, possibly with a different configuration and different platform. For this reason, it is imperative that the supply chain ensure that sufficient supply is available. With a stable business platform comes significant benefits to the end user, but also a certain level of dependence on the continuity and availability of that platform.

CONCLUSION

The challenge of providing a stable business platform involves integrating a variety of independent suppliers in a coordinated plan of action. The challenges are many, but the end result could be very beneficial to the market. A stable image platform offers a compelling solution to the market for commercial IT solutions. Whereas most programs are offered by tier 1 IT providers, there is considerable opportunity to extend a stable image program further into the mid-tier of IT providers, including PC assemblers and system integrators. Such a program would offer a wider range of choices for sourcing IT solutions, particularly for medium-sized businesses that buy from alternative suppliers outside of tier 1. It would also provide similar assurances of stability and performance from smaller providers that participate in a stable business platform.