IT Trends: Midyear Update for the Desktop

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Giga Position

The collapse of the PC market and the **Microsoft** court decision have created a substantial foundation for change. The emergence of **Transmeta** as a viable technology provider and **AMD**'s renewed ability to execute against a weakening **Intel** have further fueled this trend. Also, competition between OEMs to differentiate in a declining market has increased the activity surrounding new designs as companies look to engineers to create ways to get people back into a buying mood and focused on PC technology. In this storm of potential change, Intel, **NVIDIA**/AMD, Transmeta and other companies, like **Clear Cube**, have emerging platform changes that, if executed timely, will make the platforms we see at the end of 2002 little like those we have now.

Improvements will include greater flexibility, both with regard to what software is loaded on the platform, as well as how the platform is used. Traditional laptops and desktops will drop into decline, and they will be replaced by devices that have built-in, PC-like communication capability, like the personal computing technology used in automobiles called Telematics, and by handheld computers with vastly greater capability than those we see today. Users will be able to move more easily from platform to platform, and the extreme cost of migrating from one product to another will move from a major current problem into a not-so-fond memory. Wireless connectivity will begin to propagate to a degree that increasing numbers of people will become dependent on remaining connected, and related security exposures will eclipse anything we have seen so far.

It will be a different, new world, with vast improvements and impressive capabilities; surviving unscathed will be dramatically more difficult for both vendors and buyers of this technology. Overall, the outlook for the segment, barring a Windows XP miracle, remains poor until the major hardware refresh in the second half of the 2002 to 2003 time frame can be completed and accepted.

Proof/Notes

In looking ahead to 2002 and 2003, there are a series of dramatic changes that will occur in hardware, in the companies that supply that hardware, with Microsoft, and in the surrounding services. These changes will be based on a set of drivers and trends that are based largely on user needs, technology changes and court actions. With regard to user needs, much has changed during the last few years, and the resulting dissatisfaction in the personal computing platform has been a large cause of the market slowdown now being experienced worldwide.

Last year, we forecast the extended market downturn (see Planning Assumption, Key Causes of PC Market Downturn, Rob Enderle) and identified the cost of deploying new technology, poor reliability, inexperienced marketing staff, and the fact that what people had was good enough for their needs as key drivers for the downturn. Much of this remains the same today. This exemplifies why there appears to be substantially reduced new product interest, and most of the news appears to be focused on corporate mistakes and senior operational and marketing executives who are walking representatives of the "Peter Principle" (i.e., have advanced beyond their competence).

In January of this year, we looked at Intel (see Planning Assumption, Intel — Disintegrating Inside, Rob Enderle) and how its disintegration was accelerating this slowdown. We identified manufacturing/quality control, focus and marketing as key areas that appeared broken in the company. Currently, we are talking to

hardware OEMs and financial analysts that are frustrated with Intel's inability to execute, and a growing number of these people are looking ahead to when Intel's board will take action.

In April, we first looked at the kinds of things that needed to be done to facilitate a long-term sustainable recovery (see Planning Assumption, Strategies for Sustaining a PC Market Recovery, Rob Enderle). These things included: (1) mapping the organization to the customer, (2) creating stable, power-efficient, appliance-like hardware that could conform to the market need for a flexible platform wrapped with services that enhance the user experience, (3) an operating system that allowed for easier hardware and software upgrades and (4) a default virus-checking capability.

Compaq and **IBM** have reorganized to better map to their purchasing counterparts in large companies and are working on hardware that will address the hardware needs; unfortunately, this new hardware will not ship until the second half of 2002 and may not be accepted until the year after. Dell, Compaq, **Hewlett-Packard** (HP) and IBM are all working on enhancing services, and even Microsoft is launching a worldwide services organization, but much of this still needs to mature in the market. Finally, Windows XP is due late in 2001, and Release Candidate One appears to be vastly improved, addressing many of the requirements we identified in the Strategies Planning Assumption referenced above. Unfortunately, few buyers know this, and most remain jaded by disappointments with the previous offerings.

We then looked at the things that could be done near term to start a recovery (see Planning Assumption, The Tactics of Starting a PC Market Recovery, Rob Enderle). These tactics focused on: reducing the cost of upgrading from old hardware to new with existing migration technology; eliminating the Intel-driven, confusing mess of technology improvements in favor of regular, coordinated system improvements; eliminating vendor-driven programs that point solidly to the near-term obsolescence of the personal computer; creating programs to protect the decision-maker who drives new technology; and implementing competent marketing campaigns focused on building demand.

On the tactical side, there are improvements in both the migration offerings and in the programs that deliver them. AMD is driving a program that should result in a more stable platform against Intel's messy upgrade road map, which should force Intel to respond. In addition, Wintel, and the hardware OEMs have reduced, but not eliminated, the statements forecasting the death of the PC. However, both marketing and the practice of protecting decision-makers have not improved substantively. Worse, changes in Microsoft's licensing programs have so incensed the market that many upgrade programs are effectively dead — companies are scrambling to try and avoid, or get budget relief for, what is being commonly called the Microsoft tax (and worse). Going forward, the negotiations surrounding a Microsoft settlement, and the trial itself, should offset sharply the unprecedented $1 billion marketing budget targeted at the Windows XP launch. In addition, the XBox will compete for the same limited budget dollars in the consumer segment, with the Home Edition of Windows XP, and confusion generally results in deferred purchases, which likely will adversely impact both products in the fourth quarter.

The overall market collapse extended to virtually all segments and geographies during the first half of 2001, driving down sales volumes for desktop and handheld computers. Earlier this year, we thought the low price points of handheld computers would be able to weather at least some of this storm; unfortunately, missteps by the market-leader **Palm** stalled this emerging segment, and we will have to wait until the market recovers and/or the emergence of a much better class of wireless computer coupled with third-generation wireless services for a sustainable recovery.

Therefore, the key drivers into 2002 will be the following:

Dissatisfaction with current desktop and mobile products: A general mismatch between buyer needs and the products that are being offered will continue to drag on the market. The emergence of more appliance-like products based on Windows XP, coupled with stronger migration offerings and more flexible industrial designs, could establish a foundation for recovery; however, that currently appears unlikely.

Microsoft: A combination of expanded litigation and licensing changes may result in short-term uplift for Microsoft, but a sharp downturn in hardware purchases as companies struggle to find funds for what they are viewing as a Microsoft tax. Long term, this may result in a migration off Microsoft products, with opportunities for companies that can show competencies in both the Microsoft platforms and the platforms IT buyers are considering as alternatives.

Marketing: The $1 billion budget for the launch of Windows XP in the second half of the year will certainly have an impact, but it may be offset by the issues surrounding Microsoft outlined above. Clearly, focus and direction remain a problem; however, the sharp reduction in Blue Man sightings on TV may be a precursor to a move to create demand by the key players, which could deliver benefits in 2001.

Technology: Intel's new lower powered chip, coupled with competing offerings by AMD and Transmeta, can, if positioned properly, address power efficiency and sound issues that are becoming more visible this year. In addition, new platform changes proposed by NVIDIA and Intel should result in compelling new desktop and mobile platforms by the end of 2002. In addition, Windows XP is much better than was expected in terms of usability and reliability, and once it is coupled with a new class of hardware, it could provide an experience that most would find compelling; in addition, by the time the new hardware comes out, at least one service patch will have been released, increasing the confidence in this platform. The fact that XP now has migration functionality built into the product will help future replacement cycles, but it will have little impact on the current cycle.

Market conditions: Even if people found the products compelling, there are declining resources to buy them. As revenues fall, it becomes harder to justify the budget for new technology, particularly when you've never been able to show any measurable return on investment (ROI) from previous upgrades. Therefore, market conditions are not only the result of slow hardware and software sales, they are also a good deal of the source. One interesting place we will see this played out is when the XBox gaming platform championed by Microsoft competes with Windows XP Home Edition for Christmas spending dollars. Two high-ticket items targeting the same limited base of funds during the same time will give us a better idea of where the value is, and this year, the XBox, with far less marketing budget, but a more compelling story, may cripple sales of PCs with Windows XP Home Edition.

Security: The lack of acceptable security will undoubtedly result in some large and very visible system failures before year-end. If there is one thing that can ramp a market quickly, it is an insurance-type product right after a related event has crippled a highly visible company. If the vendors are positioned with the right products and solutions when the market is ready for a vastly more secure desktop and mobile platform, it should benefit greatly by targeting the fears of IT managers who see their careers going up in flames if a security problem brings their company to its knees.

The outlook for the future is as follows:

The second half of 2001: The outlook for the second half of 2001 is fueled by the $1 billion Windows XP launch, and it is gated by the lack of a compelling hardware change, a poor worldwide economy, Microsoft's trial and pricing changes, and pricing war fallout. While the $1 billion advertising budget and Windows XP are both very compelling, the weight of the events that will be holding back sales currently are even more compelling. Add to this the likelihood that the market will discover that much of what will be sold this year will become obsolescent at an aggressive pace, and the one thing you don't have is a foundation for a recovery. There is a chance that handheld computer sales will pick up as we approach the end of the year and a more complete feature/accessory set becomes available, and that PC accessories, in general, may become stronger as people look to increase the capability of the products they have rather than replace those products. There is also a chance that the emerging class of ultra-light notebooks released at aggressive price points and targeted at individuals who generally just do e-mail and create few, if any, complex documents will emerge as a competitor to handheld computers.

The first half of 2002: As we enter 2002, the post-Christmas slowdown tradition will be evident, and the impact of the Microsoft licensing programs, which was shifted into the first quarter as a result of a policy change, will continue to be felt. This is also when we are likely to see any negotiated Microsoft settlement take hold and reduce much of the speculative adverse news on the company. Intel will release its Mobile P4, which is expected to be rejected by most of the market due to excess heat and power inefficiencies. We expect to see an executive purge in this half as boards are increasingly asked to take action to protect the companies they oversee. We also expect the first wave of Windows XP installations to have gone very well, providing a foundation for a second half recovery. By the end of the year, we expect to see fewer viable PC OEMs and resellers, and those that remain will be defined by their low operating cost, differentiable solutions and diverse revenue sources.

The second half of 2002: This should be the beginning of a recovery; however, if Microsoft has entered into a protracted legal fight, that could detract substantially from this recovery. Some of the new mobile systems are hitting the market and, by the end of the fourth quarter, we should have some new hardware to consider. This hardware will be vastly different and, for most, vastly more compelling than what came before. If it arrives late in the third quarter, then the market, most of which is maintaining a three-month replacement cycle, should respond with strong buying behavior and fuel a late recovery. However, the odds are in favor of 2003 being a more likely time for that recovery. Microsoft's .NET will, pending government and legal issues, begin to look viable, and the financial market will be basing their predictions and market outlook largely on how the first iterations of .NET are received. Both modular and hybrid computers should be on the market in late 2002 and, if the interest in these forms is as expected, they should begin to replace the more traditional products by year-end at a very high rate that is constrained more by manufacturing capacity than demand.

2003: This is the year we begin to look at the replacement for Windows XP and when all parts of the existing solutions begin to mature. Intel's new standards are now clearly ready for a market that will need to replace the machines purchased in 1999 and 2000 as part of the Y2K hardware replacement cycle. If there is an alternative technology available, and the market is still dissatisfied with the Microsoft/Intel solution, this is the most likely time we will see a strong movement to that alternative platform or a recommitment to the now vastly improved PC hardware and software offerings. Microsoft's .NET initiative, if it survives government oversight, will now reach its stride, and the potential for a strong market recovery is most likely during this year as a result.

2004 and beyond: Long-term trends suggest a lengthening of hardware replacement cycles, a shift from traditional desktop and notebook computers to less-traditional, flexible forms, and a greater degree of personalization between hardware and the people that use it. Performance should once again emerge as a differentiator toward 2005, as intelligent desktop software becomes more capable and compression becomes a more common way to get around network bottlenecks. The differences between handheld computers, smart phones and other portable computers will become ever more blurred as the decade progresses, and wearable options will approach common use by the second half of the decade. The shift throughout the period to applications that run remotely, as opposed to on the personal computer, will continue, and a much more secure, likely smart card-based, security solution on computers will be standard by mid-decade and a differentiator by year-end 2002.

Alternative View

We are anticipating not only a dramatic changeout in hardware and software during the next two years in terms of technology, but also in the executive staff of many companies. Right now, it seems that not a week goes by without an executive, often a CEO, being asked to look outside of his or her current company for ongoing employment. This activity, more than any other, will likely define the rest of 2001 and much of 2002. When you have this level of executive change, any focus, let alone a focus on technical advancement, becomes very difficult, if not impossible. Anticipating changes in technology, therefore, becomes secondary to anticipating changes in vendor behavior and commitment. Across the entire segment, there is no safe

haven; thanks to the Dell-driven price war, all of the vendors, including Dell, are at substantial risk of board-driven corrective action. Therefore, the most important task in front of you for the next few months is not which technology you should move to and when, it is establishing clear escalation paths in your chosen vendor and having a backup plan in case that vendor fails or becomes otherwise unacceptable.

These backup plans should include not only your relationship with the hardware vendors, but also with Microsoft, which may have a government-driven restructuring before the end of 2002. This suggests making sure your reliance is largely placed with a couple of strong Microsoft partners that can shield you from this expected change when it happens. This does not suggest you should anticipate the failure of any of Microsoft's initiatives; however, you should establish backup plans for those that are at the greatest risk. Hailstorm/Passport, for instance, appears to face the greatest challenge by the various government bodies going forward. In the end, your success may be based more on how well you hedge your vendor bets and less on how well you anticipate hardware and software inflection points than anything else.

Findings & Recommendations

The market for personal computing technology has stalled as a result of a number of factors largely driven by the key vendors in the segment ignoring a growing dissatisfaction with the solutions they were providing and a general failure to address a shifting of needs from performance to things like deployment cost, reliability and stability. In addition, they let their marketing organizations degrade to a point where they were unable to respond timely to a growing impression that the PC as a platform was dead, and instead appeared to be going out of their way to fuel that perception.

The key drivers going into the second half of 2001 include the following:

- Microsoft: The largest and most powerful software player in the market has been branded a monopoly and will face a near crippling level of litigation and oversight. In addition, recent pricing program changes are driving companies to look to alternative platforms and products.

- Marketing: There will be a $1 billion launch of Windows XP, with market impact in 2001 and 2002. How effectively this money is spent will have a great deal to do with any market recovery in the next two years.

- Market conditions: If the world economy does not improve, there may not be any funds available for new technology.

- Security: We anticipate an increase in security breaches. These will run the gamut from stolen identities at the consumer side, to virus attacks, unauthorized access and vandalism. Near term, security expenditures have the greatest likelihood of fueling a recovery.

These drivers help us create the following predictions:

The factors holding down sales in 2001 and most of 2002 currently exceed the factors that would fuel a recovery. Security, not Windows XP, is the likely wild card, and related exposures may force a hardware replacement cycle if more secure solutions are available, and acceptable, when the exposures appear otherwise unavoidable. In the first half of 2002, unless there is a recovery, we expect to see a board-driven executive purge that will leave few firms untouched and may radically redefine the PC market.

We should begin to see a recovery as we enter the fourth quarter of 2002, driven by a combination of new compelling solutions and executives who clearly wish to avoid the fate of their predecessors. However, there clearly will be fewer viable companies at that end of both 2001 and 2002 than there were in 2000 in this space. Microsoft's .NET will be under heavy domestic and European pressure as a result of fears that Microsoft is misusing its monopoly power. A new class of modular and hybrid computer will ship and, if survey results are accurate, will begin to displace more traditional forms. Plus, a new class of handheld computer will increasingly be used as a viable PC alternative. 2003 will be the year when the market should

be able to show renewed strong growth — if it is to recover in the first half of the decade at all. The Microsoft issues should be largely resolved; hardware and software platforms should once again be in sync, and any shift to Microsoft alternatives or .NET will have reached a strong steady state of revenue increase.

Going forward, a shift from desktop to services-based applications should lengthen product replacement cycles, and more personalized solutions should dominate. Performance won't be a key buying need until after 2003, when performance, once again, may become critical, along with other factors that are not now self evident. The current lines between mobile products will blur after 2002, and technology breakthroughs that reduce the size of the core device, as well as enhance the user experience and increase overall reliability, are expected.

Giga recommends that companies heed the following:

Anticipate a broad changeout of technology starting in late 2002 and accelerating in 2003. Since all of the vendors in this segment will be under a great deal of stress, make sure you have your escalation paths well established and have backup vendors qualified in case of a failure or other change that renders your primary vendor nonviable. Hedge your reliance on Microsoft offerings, but beware of shifting off Microsoft platforms too early. The first companies that do this will undoubtedly experience a high level of unplanned pain, and it is better to get the benefit of that pain than to experience it yourself. In addition, if Microsoft sees the migrations, it will have to react to them, and staying with the company may, once again, become the best option — so don't rush the decision point unless you can't wait.

Being either a Microsoft advocate or a detractor will be more risky than taking a more balanced stance and appearing vendor-neutral in your positions, let others bet their careers on one outcome or the other and concentrate your efforts on finding the right path as opposed to the trendy one.

Overall, prepare for change by shifting as much capability as you can off the desktop over time and investing in making your company less of a target than your competitors for external attacks. The best strategy going forward is one of considered flexibility and reduced personal and corporate exposure. Successful executives will be living off the mistakes of others while focusing on cost reduction and secure reliability for their desktop solutions.

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