



Technology Brief...

February 13, 2006

J.Gold Associates, 6 Valentine Road, Northborough, MA 01532
www.jgoldassociates.com jack.gold@jgoldassociates.com 508-393-5294

Research, Analysis, Strategic Consulting

Notebooks: The Call of the Wide

INSIDE THIS ISSUE

- 1 Notebooks: The Call of the Wide
- 2 Is a WWAN Equipped Notebook a Good Idea?
- 3 Notebooks: Trading Commodities

Most notebook vendors are adding widescreen models to their lines. While these devices are very popular with consumers because of their superior performance when viewing movies, there is a less compelling need in the enterprise. Should enterprises consider purchasing wide screen notebooks? Is there any need for such devices? Are there “killer apps” that will drive enterprise adoption? These questions must be answered by companies in the next year in order to formulate a coherent deployment strategy.

We do not believe there is a compelling killer business application for wide screen devices. Yes, being able to view two pages of a Word document side by side, or an expanded Excel spreadsheet may be helpful to some users, but PowerPoint and web pages, among others, do not fit the widescreen format easily and are not designed to do so. Further, since business users spend at least 25%-35% of their day in email (i.e., Outlook), there is no compelling reason why the Outlook experience would be better on a wide screen format, other than perhaps allowing additional side windows for IM, etc. Finally, wide screen devices can add 5%-10%+ to the cost of an enterprise machine and exhibits little payback in user productivity improvements.

“...consumers will migrate to wide screen machines in high numbers, ... 65%-75% ... within 3 yearsWe do not expect a universal move by enterprises to wide screen formats in the next 2-3 years.”

We do not expect a universal move by enterprises to wide screen formats in the next 2-3 years. There will be some movement in this direction, particularly for those users who believe the wide screen format is more portable (i.e., a 14 inch wide screen fits better on an airline tray table than a 14 inch normal aspect device but it exhibits about the same screen real estate as a standard 12 inch machine). But the majority of users will be best served by a standard screen format. However, we do believe that consumers will migrate to wide screen machines in high numbers, so much so that we expect 65%-75% of consumer machines to be wide screen devices within 3 years. At this point, the tipping point on cost will be reached and wide screens, due to volumes, will be less expensive than the equivalent sized normal aspect ratio devices, and vendors will start charging a premium for such devices. It is at this point (2009-2010) that we believe many companies will switch to mass purchases of wide screen devices as part of their

normal machine upgrade cycle (this is very similar to the earlier transition from CD to DVD). However, we do believe that SMB purchases will transition earlier, driven by user demand for entertainment capabilities (i.e., the ability to view movies and other multimedia content), somewhat less price sensitivity and the closer tracking to consumer trends.

Bottom Line: Companies considering buying wide screen notebooks in the short term should do so selectively for those users who may gain true benefit. We do not expect any compelling short term reason for companies to make the switch from normal aspect ratio devices for most users, nor do we think there is a killer app that will force the change to happen quickly, including the release of MSFT Vista. Companies should plan on moving to wide screen in large numbers in the next “buy cycle” in 3-4 years.

Is a WWAN Equipped Notebook a Good Idea?

We have seen a number of notebooks released recently by major vendors (e.g., HP, Lenovo, Dell) that have built in wireless wide area network (WWAN) connectivity options (e.g., a cellular radio modem that connects to GSM/GPRS/EDGE or CDMA/1X RTT/EV-DO). While we see many more organizations outfitting their notebook users with WWAN capabilities, especially as prices continue to drop (e.g., data plans for \$50-\$80 per month and plug-in WWAN cards for under \$100) and networks become faster, we nevertheless think that buying a notebook with a built-in WWAN modem at this point is not a good investment for most organizations.

We believe the current crop of WWAN enabled machines are too limiting. Indeed, unlike WiFi connectivity that is a universal standard (or nearly so), WWAN is very user/geography/carrier specific. A machine purchased to work on a Cingular or Vodafone network will not work on Verizon, and vice versa. Indeed, a standard device with a GSM card installed may not even work in all geographies due to frequency allocation differences. The WWAN modems installed in current models of machines are specifically outfitted for a type of network and/or frequency and/or mode of operation. And changing the WWAN modem is virtually impossible, since it would, at the minimum, require sending the machine back to the factory for an upgrade (even if it is possible to do so, it would be prohibitively expensive).

“...We believe the current crop of WWAN enabled machines are too limiting ... we recommend not purchasing WWAN equipped devices ... companies should continue to purchase plug in cards that can be changed if needed.”

Since the average life of a notebook is about 3 years, companies purchasing machines with built-in WWAN capability often face an outmoded device before its end of life. Given that most corporate cellular contracts are of 2 years duration, should the company change carriers (as is common) it will be stuck with an orphaned system that requires either maintaining a data contract with the original carrier, or purchasing a plug-in card for the new carrier and disabling the WWAN

modem. Further, as cellular networks evolve with new capabilities every 18-24 months, the built-in modems may not be able to handle the latest networks (e.g., EDGE moving to HSDPA to HSUPA, etc.). Indeed, since it takes vendors 6-9 months to certify a machine with a built in WWAN modem and win FCC approval, some modems may be on the verge of obsolescence shortly after coming to market (although most cellular systems will provide backwards compatibility, albeit at lower speed/performance).

Bottom Line: Unless a company can show payback within 1-2 years, or has a shorter than average lifecycle for the machines, we recommend not purchasing WWAN equipped devices at this time. Rather, companies should continue to purchase plug in cards that can be changed if needed. Though not as convenient as built-in, these cards offer investment protection should carrier or network needs change. Within 3-4 years, multi-band, multi-mode software controlled radios will emerge that will eliminate these restrictions and offer universal connectivity. That is the point at which we recommend buying built-in WWANs.

Notebooks: Trading Commodities

During the last 2-3 years, the enterprise notebook market has been evolving into a new phase. This new phase, unlike the old one where machines were uniquely differentiated and were purchased based on feature sets, is one that has achieved commodity status for most notebooks, at least from a hardware perspective. The leading enterprise vendors (e.g., Dell, HP, Lenovo), while still offering HW differentiated by color, shape, size, etc., don't really offer that much difference within a particular class of machine (e.g., ultra light, thin and light, desktop replacement). We believe companies should focus less on actual HW specs and more on what the real purchase criteria should be: reliability, support and services. While these are much harder to quantify in many cases, often being represented by soft costs, they are nonetheless the true determiner of total cost of ownership (TCO) over the life of the device, and can easily represent double or triple the actual HW purchase cost over the 3+ year life of a notebook.

"...During the last 2-3 years, the enterprise notebook markethas achieved commodity status for most notebooks...but dropping from a 15% to a 10% machine failure rate per year can save an organization ... \$250K per year in TCO"

We find many companies do not adequately track machine statistics over their life to determine failure rates and other problem areas (e.g., unstable drivers, update/image problems, user satisfaction, etc.). Our analysis indicates that each notebook failure costs an organization approximately \$865, and dropping from a 15% to a 10% machine failure rate per year can save an organization with 5K notebook users \$250K per year in TCO. (see our report, *Notebooks: the High Cost of Failure*). Clearly, finding the most reliable vendor of HW and improving the failure rates even a few percentage points will more than pay for any additional purchase cost if a more reliable device can be found.

It is beyond the scope of this brief report to analyze various vendors or

their specific capabilities and services. Rather, we offer some concrete advice for enterprises in evaluating vendors of notebook systems beyond the purchase price.

- Within their various classes, companies can assume that the HW from the major vendors is more or less the same, given a standardized approach to chips (e.g., Centrino), screens memory, disks, etc. Most vendors will be within about a 5% price range for an equivalently configured machine.
- Particularly for large deployments, companies should evaluate the services a vendor can provide to lower cost of migration and set-up, as well as tools to keep the machines running, including:
 - Migration tools (e.g., image creation, OS migration)
 - System set up tools (e.g., personalization, user set up)
 - Fault tolerance/fault recovery tools (e.g., disk protection, system recovery)
 - On-Line support tools (e.g., automated updates, file management)
- Although many large enterprises already look at many of these issues, we believe it is also critical for SMBs to evaluate these capabilities, and in fact it may be even more critical than for large companies, since most SMBs have limited resources to apply to these tasks and are more affected when things don't go well.
- Companies should require prospective vendors to have a "shoot out" not just on HW, but on support and services as well.
- Failure rates should be factored into the overall cost of the devices, based upon either known historical data, or a requirement that the vendor provides this data (vendors are generally well versed in historical failure rates for their machines, but getting them to disclose it is often difficult). Buying the lowest cost device is not always the best deal if the more expensive device has significantly lower failure rates.
- We believe companies should include penalty clauses, especially in large, sole sourced contracts, that require vendors to meet specific criteria, and they should be penalized for failure to achieve these criteria. There should also be a "Lemon Law" clause for severe problems requiring vendor repurchase or replacement of machines.

Bottom Line: Large and small enterprises should look at most modern notebooks as commodities and should focus not on actual purchase price of the new unit, but at the overall TCO. This needs to be accomplished through good record keeping and creative contracts that hold a vendor's feet to the fire if they do not meet their promised objectives. Only then can a company say it is achieving the maximum return on investment for its purchases.



J. Gold Associates

6 Valentine Road
Northborough, MA 01532

Phone:
508-393-5294

Web:
www.jgoldassociates.com

E-mail:
Jack.gold@jgoldassociates.com

*Research, Analysis,
Strategic Consulting*