Graphics costs and software sophistication

Editor:

Regarding Alan T. Paller's article "Improving Management Productivity with Computer Graphics" (IEEE Computer Graphics and Applications, Oct. 1981, pp. 9-16), I would like to take issue with a few of the points made by Paller. The most important issue is cost. It is certainly true that there is about a $25,000 cost difference between a dumb graphics terminal which hangs onto a mainframe and a full-blown micro-based graphics computer. However, Paller ignores the most significant cost measure of all—cost per chart.

Products such as Disspla and Tel-A-Graf are very large programs. The cost of producing a chart using these systems, whether you buy time from a timesharing vendor or bill time internally, is in the neighborhood of $7 to $10 per chart. If one takes the $25,000 cost differential between the mainframe system and the stand-alone and amortizes the cost over five years, the stand-alone costs about $333 per month more than the mainframe. If the user is creating more than 30 charts per month, then the stand-alone is actually less expensive. The operation cost analysis is precisely why the makers of stand-alone products are gaining such a significant share of the market.

Software costs from the leading vendors of stand-alone graphics systems are not fixed on a per-system basis. Rather, they are heavily discounted on multiple installations in recognition of their competitive position with respect to traditional mainframe software.

The second point is that the word "stand-alone" no longer really applies to some of these graphics systems. Computer Pictures Corporation, for instance, supplies its user with a very sophisticated Foreign File Interface that allows the user to dip into data bases in virtually any machine. Once the specifications of the file structure are known and entered into the system, then downloading of data becomes automatic. These systems are realizing the advantages of user access and control that have become associated with this technology. They, in fact, provide the user with significantly better access to mainframe data bases than do mainframe graphics packages themselves since such packages can rarely communicate outside their own machine and must rely on DP support for each new implementation. Incidentally, Computer Pictures Corporation’s Trend-Spotter system is the largest selling of the distributed data base graphics systems and was not mentioned in Paller's article.

Paller's contention that mainframe graphics dominate the industry because they enjoy a "15-year head start" is precisely the reason why industry analysts don't see mainframe graphics as contributing the lion's share of growth in the years to come. A few years ago, computer technology was quite different. There were no super-micros. There were no raster-graphics color tubes. There were no color laser printers or color matrix printers. There were only large mainframes and pen plotters. Pen plotters are vector graphic devices, thus quite unsuitable for a wide range of business graphics applications. Anyone who has ever waited while a pen plotter inked in a solid bar or pie slice can attest to this. Furthermore, the idea of a manager having a color CRT in his office was also pretty far out. Today, this is becoming reality only because of local graphics processing. Transmitting display lists from a host to a remote terminal is too slow over anything other than the most exotic high-speed communication links. By locating the graphics computer near the graphics terminal, short high-speed links get pictures up on the screen in a flash. And software written in the last few years is designed to take advantage of the full capabilities of the new raster-display devices.

Finally, I'd like to make an observation about what these systems actually do. There is a difference between a computer system that simply automates the job of a graphic artist and a system which is designed to answer day-to-day business information requirements with graphic displays. The former saves artist time, the latter essentially turns numbers into charts. The highly automated conversion of numerical data into graphics is the primary focus of the new breed of high-speed graphics computer.
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