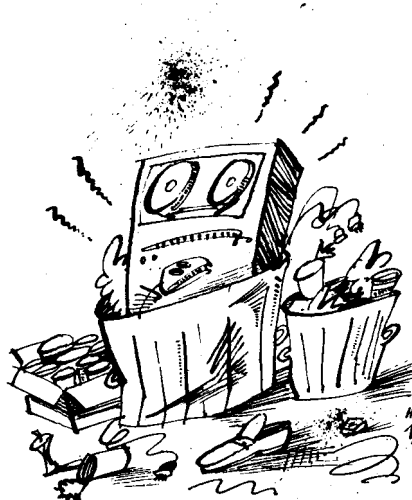


bring with them data and compute servers. And LAN-based X-Window terminals are also encouraging a return to central computing and away from the computer on the desk where all the users become system administrators.

I don't believe, however, that mainframes and large minicomputers will be the benefactors of distributed computing because of the large (10 to 25 fold), fundamental disparity in price/performance between mainframes and microprocessor-based computers. In order to get any reasonable performance, mainframes and high-end minicomputers must use complex ECL and CISC architectures and require expensive packag-



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ing, versus the CMOS and RISC technology used in microprocessor-based systems. Getting all the fast circuitry on one chip sure does make things go faster, run cooler, be more reliable and cost next to nothing.

Isn't it clear that expensive and slow has to lose to cheap and fast, especially if the development times and costs are also substantially less? Even the die-hard users with lots of code locked up in these "code museums" are beginning to get the picture.

The following micro-based alternatives offer performance which equals or beats the old line at negligible prices: Plain old PCs and multiprocessor PC servers from Compaq and other vendors; workstations and servers from Sun, etc.; uniprocessor micros from Mips, Motorola, NCR

and Pyramid; network servers from NetFrame and others; multiprocessor servers and minis from Alliant, Arix, Encore, Sequent, Silicon Graphics, Solbourne, Stardent, Stratus, etc.; specialized technical computers from Intel and NCube; a plethora of transputer-based systems, and front and back end database servers from Teradata and other companies.

Look for a massive and continued shift in the industry structure in the next decade, not the growth for traditional product lines your experts predict. The lower revenue and reduced profits at DEC and IBM, resulting in downsizing, are not just a result of management, but a result of a fundamental technology shift that neither company likely understands or knows how to address. Users are beginning to understand that proprietary architectures using the wrong technologies mean greater cost and lower performance. Furthermore, key software suppliers have switched to standards-based platforms.

Incidentally, this industry shift, which has been apparent for at least five years, could by itself cause a major recession. At a minimum it will be as dramatic as the movement of mills from New England when new fabrics entered the market. Has there, for example, been a shift in revenue at Apollo, Data General, DEC, Honeywell (now Bull), Prime and Wang over the last five years?

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### Letters to the editor

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### Mainframes won't benefit

In reference to your Jan. 8 article, "Distributed computing: A blessing for mainframes," distributed computing using LAN-connected PCs and workstations clearly needs to interface with the established computing environments. Many LANs