Four Tech Waves To Watch

1 UTILITY COMPUTING

JUST TURN ON THE DATA

The idea is to make computing power into another pay-as-you-go service—like water or electricity. But beware of the hype

By Steve Hamm

The concept is one of the most compelling in the history of computing: Spare corporations a befuddling labyrinth of computers, software programs, data storage devices, and networks. Instead, make information technology as easy to use as plugging into an electrical outlet. This idea is commonly called utility computing, and many experts believe it's going to sweep the infotech world like a digital tidal wave. IBM, for one, is spending $800 million this year on marketing its vision of utility computing, which it calls e-business on demand.

Unlike past Next Big Things in computing, this wave of innovation doesn't require corporations to rip out technology already installed and replace it with expensive new hardware and software. Instead, they can gradually add technologies or services that make their computing systems more automated. As a result, much of the cost and complexity is being wrung out. "We think this is the third major computing revolution—after mainframes and the Internet," says analyst Frank Gillett of Forrester Research.

The idea is that the power plant-like computing systems of the future will operate both at remote data centers and within a company's offices—under a variety of novel payment schemes. Whatever setup, the systems can be managed by the company's own tech staff or by outsiders. And rather than requiring customers to buy computer servers outright for use inside their own walls, hardware makers, including IBM, Sun Microsystems, and Hewlett-Packard, each offer computing-as-used payment options. American Express Co., for instance, today pays IBM a monthly fee based on the number of computers it uses. It hopes someday to pay based on the actual computing power it consumes.

Problem is, there's still a yawning gap between the hype being generated by the tech giants and the reality of what utility computing is today. It turns out that purging complexity is a mighty complex process in itself. It could take a decade or even longer for the bulk of computing to become as easy to tap as electric current. Even corporate buyers that are interested are moving cautiously. "It's a