Internet services moving us back toward Multics utility computing of old

IN THE 1960s, Bell Telephone Labs and the Massachusetts Institute of Technology developed a mainframe time-sharing system called the Multiplexed Information and Computing Service (Multics). Bell Labs was then in its prime thanks to the monopoly profits of undivested AT&T, and MIT was in its prime thanks to my being there.

Funny, but Multics is still around today — see www.multicians.org. Funnier still, the Multics "utility" is where today's Internet is now headed.

Multics aimed to provide huge communities of users with a wide and evolving variety of 24x7 information and computing services. It had a virtual memory hierarchy, segmentation, paging, and dynamic linking. It supported multiple hot-swappable processors, memories, and I/O. It was written in a high-level language, Programming Language 1, so that it could be ported to ever bigger computers. Multics sources were published so users could understand, debug, and extend it. And by 1970, Multics was on the proto-Internet.

Sadly, Multics was not commercially successful. Its terminals had color, but it was red, off the ribbon of a 30 character per second (cps) IBM 2741 typewriter. It took 5 seconds to get any response from Multics. And its GE645 mainframe was very expensive compared to minicomputers coming into use.

In their 1965 manifesto, Multics designers assumed that Grosch's Law was true — bigger computers are more economical. Funny, 1965 was the year that Intel's Gordon Moore first wrote about his law, which for the last 35 years has held that many small computers are better than a few big ones.

Multics was replaced by another time-sharing system, the name of which made fun of Multics — Unix. So, yes, the "x" in Linux is from Multics.

Now, the Internet is heading away from stand-alone personal computing, a tangent since Multics, and back toward utility computing. I'm all for it, but not because I enjoyed waiting 5 seconds for Multics to respond.

The move back began with ISPs. At first, ISPs offered dial-in access to the Internet. Soon, to speed Internet access, ISPs started providing co-location services, putting servers near the core of the Internet. Next came outsourced hosting, so that everyone didn't have to run their own Web servers.

Now, instead of buying servers and software and loading them up to implement a company's information systems, application service providers (ASPs) are offering services on the Web to do the same things, only better. As I wrote last week, ASPs offer the network effects achieved by leveraging a service's many users with one another.

Last week, I raved about www.fairmarket.com auction services. www.netledger.com offers bookkeeping services to small businesses. www.salesforce.com offers salesforce automation services.

My new favorite, FusionOne, is rolling out a service to synchronize across the coming wide variety of Internet appliances. Its aim is to store all of the information in the world on servers accessible worldwide at www.fusionone.com.
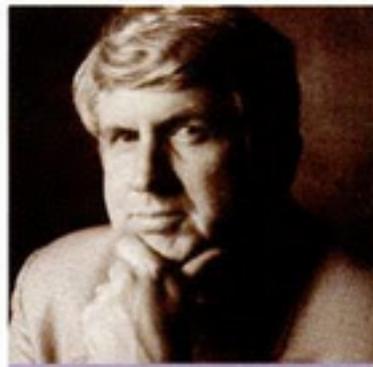
Utility computing was first observed on the client side. We press, as usual, over-hyped network computers and have recently been over-debunking them.

Now, let's observe utility computing from the server side. ASPs are hot and will get hotter. The big differences between Multics and ASPs are the terminals, no longer typewriters, and the bandwidth, no longer 30 cps.

If this trend toward utility computing is to continue, there is one embarrassment we'd better deal with. It takes on the order of 10 seconds to download a Web page, which does not compare favorably with the 5 seconds latency on Multics. There is 100 percent room for improvement here if we would only better exploit our vastly more intelligent clients in anticipating what their users will next request.

The Internet is headed away from personal stand-alone computing and back toward utility computing.

Technology pundit Bob Metcalfe invites you to join the 50,000 people who in the last three months have signed up to receive From the Ether via e-mail each Tuesday. To subscribe to this column, go to iwsubscribe.com /subscribenews.htm.