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IBM's 'dinosaur' turns 40
PCs were supposed to kill off the mainframe, but Big Blue's big boxes are still crunching numbers

IBM's System/360 mainframe.

Known as drab-looking machines that sit in huge air-conditioned rooms, the IBM mainframe computer has been called the dinosaur of the technology world.

About a decade ago, pundits predicted it would soon become extinct.

But the machine, which companies all over the world have used to manage payroll and monitor expense accounts, and which enabled scientists to send the first men to the moon, is celebrating its 40th birthday this week.

In a world dominated by personal computers, notebooks and cell phones, commemorating the birth of an aging technology in big boxes may not seem like a big deal.

But the unveiling of the mainframe, also known as System/360, on April 7, 1964 was considered a major breakthrough in the technology and business worlds.

"This is the beginning of a new generation, not only of computers, but of their application in business, science and government," then-IBM Chairman Thomas Watson Jr. said at the press conference introducing the machine.

The term "mainframe" had been used by other technology companies to describe big computers. But with the introduction of the System/360, IBM essentially redefined the mainframe as a computer that allowed companies to perform multiple tasks at the same time on a single machine.

Before then, a user would have to schedule time on the company computer to do a specific task, whether to process payroll or analyze business expenses.

Don Haderle recalled how it sometimes took a week for a computer at the New York Port Authority to analyze the flow of buses in and out of terminals.

With the mainframe, the agency was able to do the task in a day, he said.

"It's like having a line in the bank and there's only one teller," said Haderle, who later joined IBM and is now vice president of database technology at the company's Silicon Valley lab.

"But with the mainframe, you had 10 tellers. The hardware cut our time in half."

The mainframe was viewed as a big gamble by Big Blue, which invested $5 billion in the product -- that's $30 billion in today's dollars, according to IBM.

The company also hired 60,000 new employees to work on the new product. The company expanded its plant in San Jose where IBM made disk drives and storage controllers for mainframes.

The investment paid off. The mainframe became Big Blue's hottest product, as the company's revenue jumped from $3.2 billion the year it was introduced to $7.5 billion in 1970.

Among the corporations that embraced the new technology were Bank of America and Time Life. The mainframe also helped NASA send the first astronauts to the moon, allowed the Social Security Administration to process millions of Medicare ID cards and enabled American Airlines to develop its online network for airline reservations.

But then came the PC revolution in the 1980s.

Although the mainframe continued to be the centerpiece of corporate IT, more companies embraced a new system featuring smaller computers.

Instead of big boxes in the back room, companies turned to servers that connected PCs in a network.

By the early 1990s, sales of mainframes, then IBM's main product, were dropping dramatically in the face of stiff competition from rivals such as Sun Microsystems.

"The company was hemorrhaging, and at the heart of it was the ... mainframe," former IBM Chief Executive Officer Lou Gerstner recalled in his book, "Who Says Elephants Can't Dance?"

Mainframes came to be associated with tech's old guard, symbolized by IBM's well-groomed workers who wore suits and ties and sang corny company songs.

On the other hand, the new guard, led by firms such as Apple and Sun, were run by young entrepreneurs who started their empires in garages, wore jeans and had long hair.

By then, many within IBM assumed the mainframe was on its way out and believed that the company should focus its energies in winning the war in the PC market.

But Big Blue's top brass, led by Gerstner, opted to stand by the mainframe.

The gamble paid off.

IBM sold $4.2 billion worth of mainframes in 2003, up 6 percent from the previous year, according to International Data Corp.

Rivals such as Amdahl, which is now part of Fujitsu Ltd., and Hitachi Data Systems got out of the mainframe market a few years ago leaving the arena to IBM.

The market itself is expected to decline to about $3.3 billion by 2008, IDC analyst Steve Josselyn said.

But he added: "I certainly am not predicting the death of the mainframe. . .. Even at $3 billion, it's nothing to sneeze at. It is a considerable revenue stream for IBM."

Doug Balog, an IBM vice president, noted that 70 percent of the world's data are still housed in mainframe computers. And Josselyn said they are bound to stay there for a long time.

The corporate world's bid to cut costs was what ultimately helped save the mainframe, he added.

IT networks based on servers and PCs required more staff and therefore was more expensive to operate than a centralized system, he said.

"You need to throw more people at the problem," he said.

The mainframe became a key component of Gerstner's transformation of IBM during the 1990s.

From a pure computer hardware company, it morphed into an IT services giant selling software, hardware -- including PCs, servers and mainframes --

and, most important of all, helping companies set up and maintain their networks.

Last year, IBM underscored its confidence in the mainframe by unveiling a new line, called z990, with a catchy code-name: T-Rex.

Even IBM's critics were impressed with the mainframe's resilience as an entrenched technology.

"It is a dinosaur," said Clark Masters, Sun's executive vice president for enterprise systems products. "It just happens to be performing a role that customers are willing to pay for, not because they like it, but because they're locked in."

Bob Evans, a retired IBM executive who worked on the original mainframe, said he never bought into the dinosaur tag.

"I didn't believe it," he said. "I thought it would last. And it did."

IBM will commemorate the mainframe's 40th anniversary Wednesday at the Computer History Museum in Mountain View. For details, check out www.computerhistory.org.

Courtesy of IBM

Airline reservation clerks used IBM's System/360 mainframe when it was introduced in the 1960s. The computer's multitasking power helped to revolutionize many different industries.

The IBM mainframe

Unveiled on April 7, 1964, by IBM Chairman Thomas Watson Jr., the mainframe, also known as System/360, enabled companies to do multiple tasks on a computer at the same time.

-- Cost to develop: $5 billion ($30 billion in today's dollars)

-- Impact on IBM: Big Blue added 60,000 employees and five new major plants

-- Speed of original mainframe: Up to 750,000 additions per second

-- Memory: Up to 8 million characters or 8 MB. (An average laptop PC today has between 256

and 512 MB of memory.)

-- Cost: Rented for $2,700 to $115,000 a month

-- First customers: Bank of America, Time Life, Allstate, NASA Institute of Space Study

Source: IBM

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