

## And so begins the next mainframe saga

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People who purchase data center equipment should pay close attention to Cisco Systems' new server product. Cisco's industry-rattling move portends great change for the ways in which hardware and software arrive at businesses.

"There is a new architecture being developed that is really revolutionary," Bob Beauchamp, the chief executive of BMC, told me in a recent interview. "I think that represents a very significant threat to I.B.M. and H.P. who have business model issues associated with a new architecture."

Cisco has yet to specify exactly what it will ship. But my conversations with numerous people familiar with Cisco's plans peg its new product, likely due in March, as a large cabinet filled with servers, switches and storage systems, along with bundled virtualization and management software. Cisco looks to ship the fastest virtualization system on the planet by teaming standard hardware components with some specialized hardware developed by the team it acquired when the company bought the hardware start-up Nuova Systems.

The former Nuova engineers have created chips which can speed up the input and output operations within a server, meaning that data should cruise around Cisco's system at unprecedented speeds. (Quentin Hardy at Forbes did one of the best pieces to date on the Nuova folks' presence at Cisco.)

What's more important for the industry at large is that Cisco's product is in essence a mainframe built mostly out of standard hardware. Cisco has crafted a tight package that's chock full of software in the hopes of keeping the profit margins on the product high.

Hewlett-Packard has been moving in a similar direction for years. Customers who want the most out of H.P.'s blade servers, for example, must commit to its chassis, which is not industry standard, and purchase technology such as Virtual Connect, which creates virtual ties between servers, storage systems and networking components.

(As I hear it, it's Virtual Connect which really upset Cisco, since it cut down the number of switches H.P. customers bought with each blade system, while also giving H.P. more control over networking technology.)

In addition, H.P. sells a vast suite of software for managing this hardware, including its OpenView products and code purchased when H.P. acquired Opsware.

Mr. Beauchamp argues that H.P. and I.B.M., like Cisco, will look to sell customers a new wave of mainframe-like systems and all of the associated software. Meanwhile, companies like Cisco and Dell, who lack their own management applications, will partner with software makers.

"You see H.P. and I.B.M. attempting to build a full, proprietary stack to protect their mainframes," Mr. Beauchamp said. "They will control the price and the margins, and then the customers are no longer in control."

To a large extent, this is much ado about the unknown. We've yet to see Cisco's product or the responses from H.P. or I.B.M.

That said, the future described by Mr. Beauchamp does smack of inevitably.

The rise of virtualization software has erased traditional boundaries between servers, storage and networking gear. A given set of administrators can no longer claim ownership over an application or a server when data is coursing through a data center with little regard for its underlying hardware.

In addition, virtualization software and cloud computing models likely mean that people will buy less data center gear. Each computer will handle more work thanks to virtualization software. And, thanks to cloud computing, customers no longer need to buy enough hardware to handle their busiest days of the year. They can buy enough hardware to handle average days and then rent extra hardware as needed.

The hardware makers understand these trends.

And, if their overall market shrinks, then each hardware maker must fight for a larger chunk of the available sales. So we see Cisco selling servers and H.P. investing more in its switch business.

BMC, which posted a 6 percent rise in revenue last quarter to \$488 million, hopes to thrive in this new era by selling software which can manage virtualized data centers as a whole.

"Imagine you want to sit in one room and deploy tens of thousands of servers all with different personalities," Mr. Beauchamp said. "The management environment that needs to exist for that to occur has been developed by BMC."

Of course, management companies have been speaking in such terms for a number of years. But, according to Mr. Beauchamp, customers will soon witness such promises turn into realities when Cisco ships its first product and begins rewiring the data center.

**New York Times, New York, 17 fev. 2009, Technology, online. Disponível em <[www.nytimes.com](http://www.nytimes.com)>. Acesso em: 19 fev. 2009.**