



### Chandrakant Patel

HP Fellow and Director, Sustainable IT Ecosystem Lab, HP Labs

Hewlett-Packard Laboratories

Chandrakant Patel is an HP Fellow and director of the Sustainable IT Ecosystem Lab at HP Labs, which is committed to creating new business models and technologies for the lower carbon economy that save money and leave a lighter footprint on the world.

At HP Labs, Patel pioneered a holistic approach to power and cooling that encompasses everything from chips to systems to racks and the data center itself. Dubbed “smart cooling,” the vision was to dynamically provision cooling commensurate with the heat loads in a data center, and to provision computing, and thus the heat loads, based on the available cooling resources.

The resulting Dynamic Smart Cooling solution, which became an HP product in 2006, enables businesses to reduce power used by cooling resources in their data centers by up to 45 percent. It is also used by HP to manage its own IT infrastructure.

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Patel played a key role in establishing HP’s leadership in energy-efficient computing by founding HP Labs’ thermal technology research program in the early 1990s, and subsequently the data center architecture program. He foresaw the thermal-management challenges associated with high-power density due to miniaturisation in semiconductor technologies and the need to manage energy as a key resource as enterprise IT system resources became increasingly connected and shared. He initiated the research in “smart” data centre, emphasising that the “data is the computer” and it requires a management system that enables dynamic provisioning compute, power and cooling resources based on the need.

Patel joined HP Labs in 1991, initially leading the cooling and packaging research of the Wide Word microprocessor. This research contributed to what later became Intel’s Itanium processor, which represented the next generation of microprocessors.

Patel also has taught computer-aided design as an adjunct faculty member at Chabot College in Hayward, Calif., and undergraduate and graduate-level thermal management courses at University of California, Berkeley Extension, Santa Clara University and San Jose State University.

A senior member of IEEE, he has authored many refereed journal and conference papers in the area of electronics cooling and has been granted more than 95 U.S. patents.

Patel has been honored as a distinguished alumnus by both San Jose State University and City College of San Francisco.



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