



The birth of a
super-cool concept

For traditional “racked and stacked” servers, power and cooling has always been a vicious circle. Every increase in computing power led to a leap in cooling demands – and a jump in costs. The new BladeSystem has revolutionised this age-old equation. In developing the system, HP took a fresh look at every aspect of cooling, searching out ways to cut energy use, without compromising performance.

The “waste not, want not”
school of thought

In developing the BladeSystem, HP vowed to never waste a watt of power, or a breath of air. To achieve this, the team went right back to basics, even taking their inspiration from jet-engine design and radio-controlled planes. The results are ground-breaking.

So how does it work?

Using HP Thermal Logic, the BladeSystem pools and shares resources for greater efficiency. So, rather than having one fan running per server, regardless of workload, the system is open and adaptable with cooling shared across multiple servers. This approach gives the BladeSystem the ability to adjust and shift power loads and cooling volume automatically, based on changing demands.

Re-inventing the foundations of cooling

Never happy to settle for the status quo, HP turned their attention to the humble fan. Taking inspiration from jet-engine design and innovations from the electric-ducted fans of radio-controlled planes, the new Active Cool fans are smaller, use less energy and are more powerful than the average server fan.

Research also showed that zoning the enclosure to create cooled chambers was more efficient than applying two large fans to the chassis. So HP put 10 small jets in each enclosure, all supported by a management system to control their speed and duct the air to where it is required most.

The resulting fans use up to 66% less power than standard.

Channelling power when and where it's needed

Moving air is one thing, but HP went a significant step further, redesigning the systems for maximum cooling efficiency and fundamentally addressing the power issue. Through three HP innovations, blades are reducing power costs dramatically:

Dynamic Power Saver: automatically shifts power load for maximum efficiency, reliability and redundancy.

Power/Thermal Regulator: pre-set thresholds for your environment, so it will self-regulate to maintain acceptable consumption, output and thermal conditions.

Future-proof power strategy: power supplies designed together with Intel and AMD processor roadmaps keep pace with the evolution of your computing environment.

Server blades inside the c7000 enclosure use about 40% less power than an equivalent rack-mounted server.

Monitoring power and adapting usage

The data centre never stays the same for long, so Thermal Logic technology gives an up-to-the-minute picture of how each blade is functioning. The system delivers near-instant intelligence through:

Graphical thermal dashboard: view and understand the power consumption and thermal impact of your BladeSystem environment.

Customised reports: track and analyse the specific data that's important to keep your IT environment up and running.

Built-in management: onboard management components enable the BladeSystem to monitor itself and warn of any impending power or cooling issues.

Together, these innovations empower the data centre manager, 24/7.

Open up to the possibilities

Thermal Logic is just one of the core HP innovations that is revolutionising the data centre. **Virtual Connect** provides improved adaptability, flexibility and productivity – while HP **Insight Control** supports your team as they manage the server infrastructure, saving valuable time.

To find out more about the compelling business benefits of HP BladeSystem and Thermal Logic, visit www.hp.com/eur/bladescommunity

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