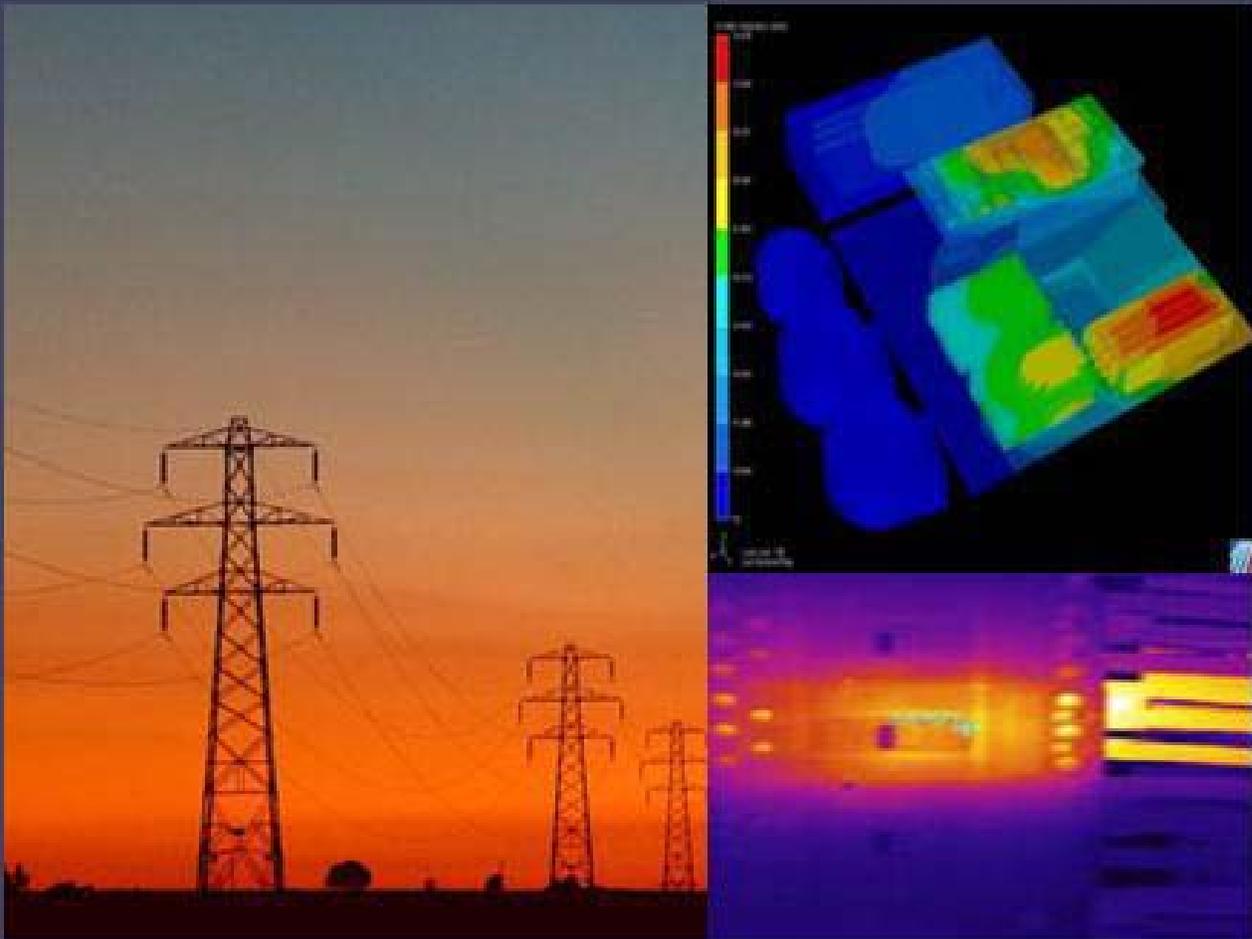
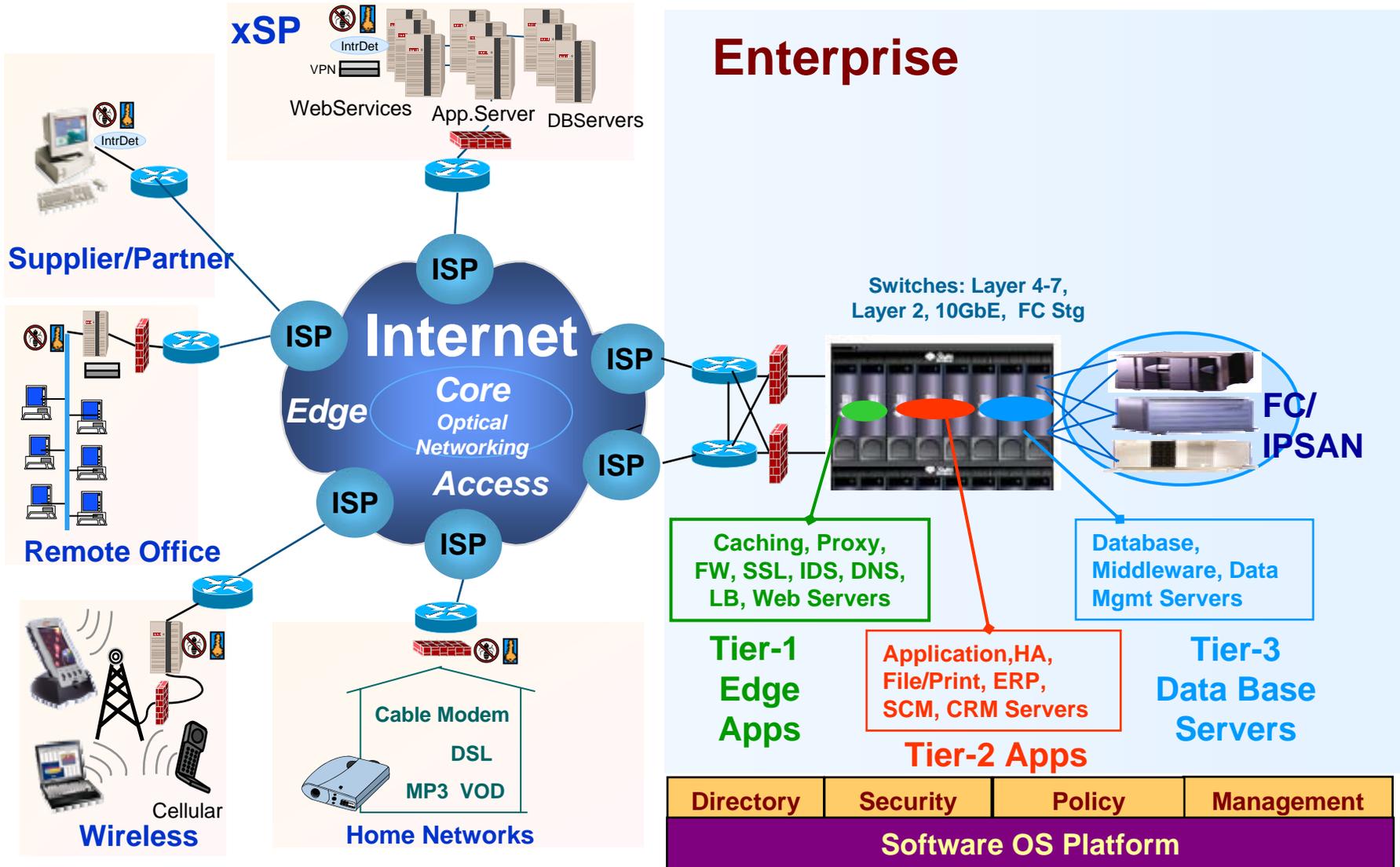


An Industry Report
NGDC Report Series 2008

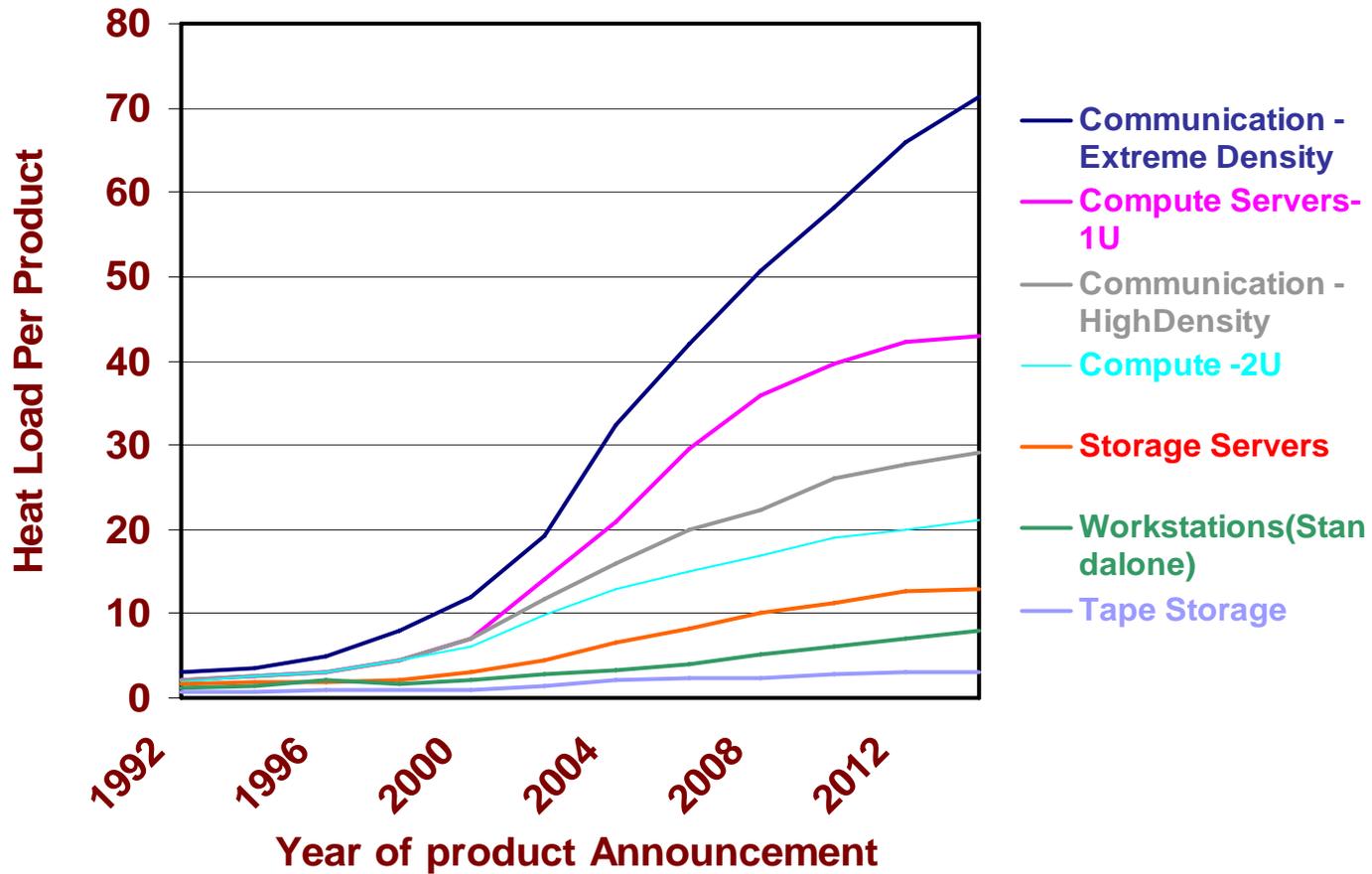


Next Gen Datacenters: **Power & Cooling**

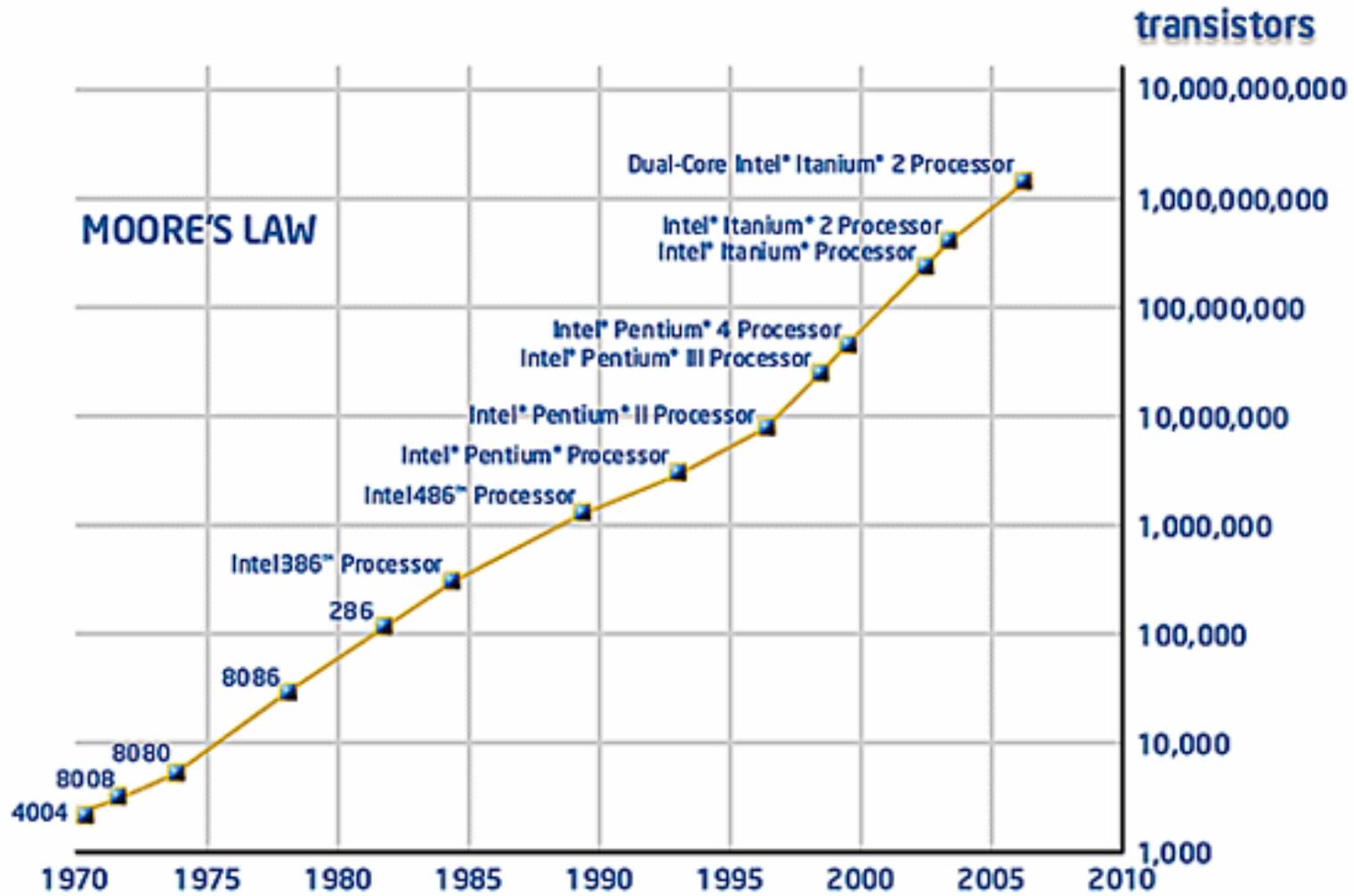
Consolidated Data Center



► Datacom Equipment Trends



► Moore's Law: Intel Chipsets



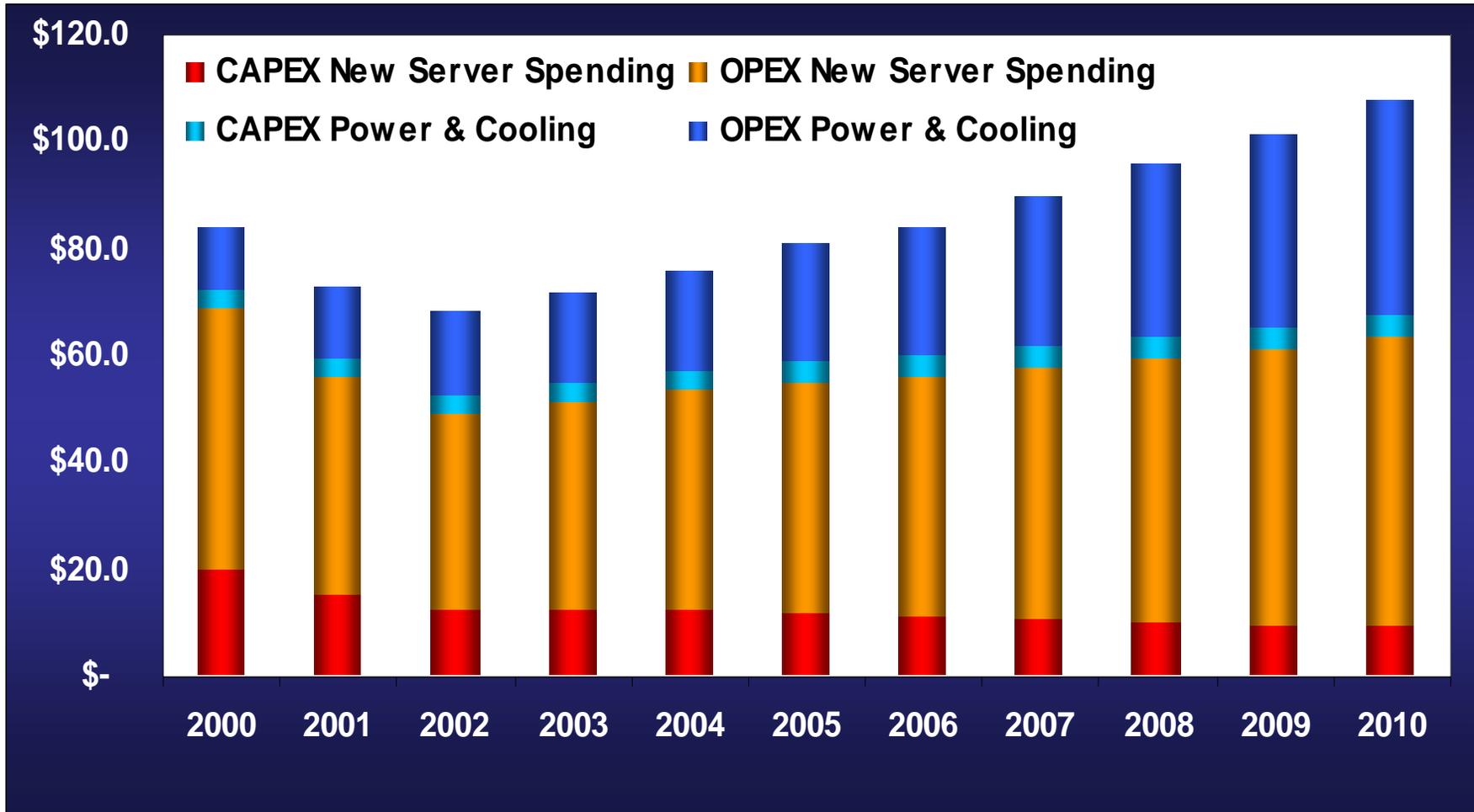
Source: Intel.com

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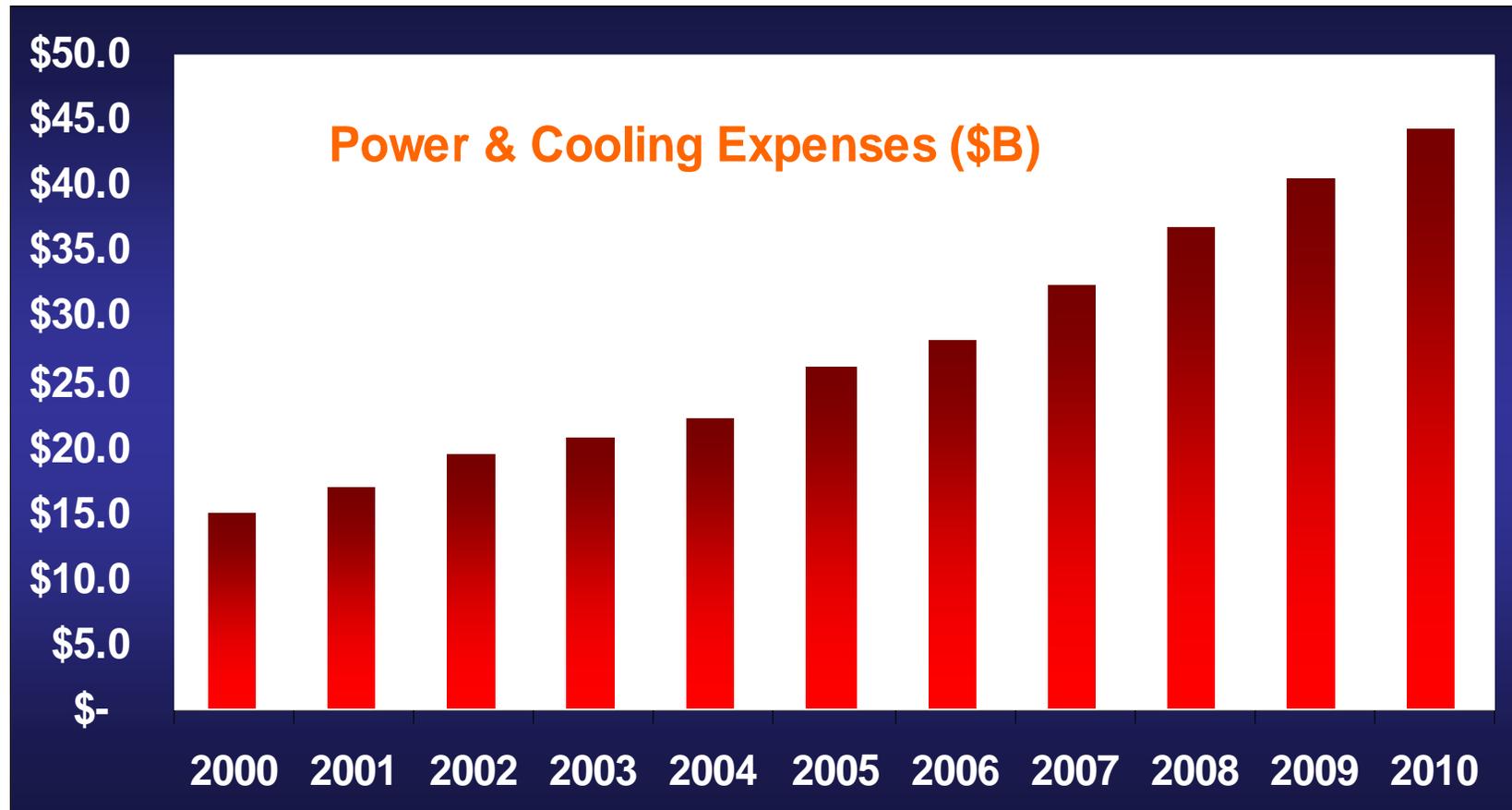
▶ **Next-Gen Data Center - Observations**

- **WW, there are 5.1 million data centers (you are not alone)**
- **Now costs \$100-175M to build a large data center**
 - ~\$1005/Sqft, \$40,000/Rack, \$2,500/Server, 2.5U
 - 82% of installed equipment (Srvr,Stg,Ntwk) has only 10% utilzn.
 - For every \$1 invested in new IT infrastructure, \$7 spent to maintain
 - For every \$1 in new Server spending, 50c spent on Power & Cooling /2006
 - Virtual Servers growth will outstrip growth of Physical servers by 50% with an associated rise in managing virtual servers
 - Blades increasing Power/Rack by 10x Need Power/Cooling, Weight, Solutions to pursue

► *Power & Cooling Expenses on the Rise*



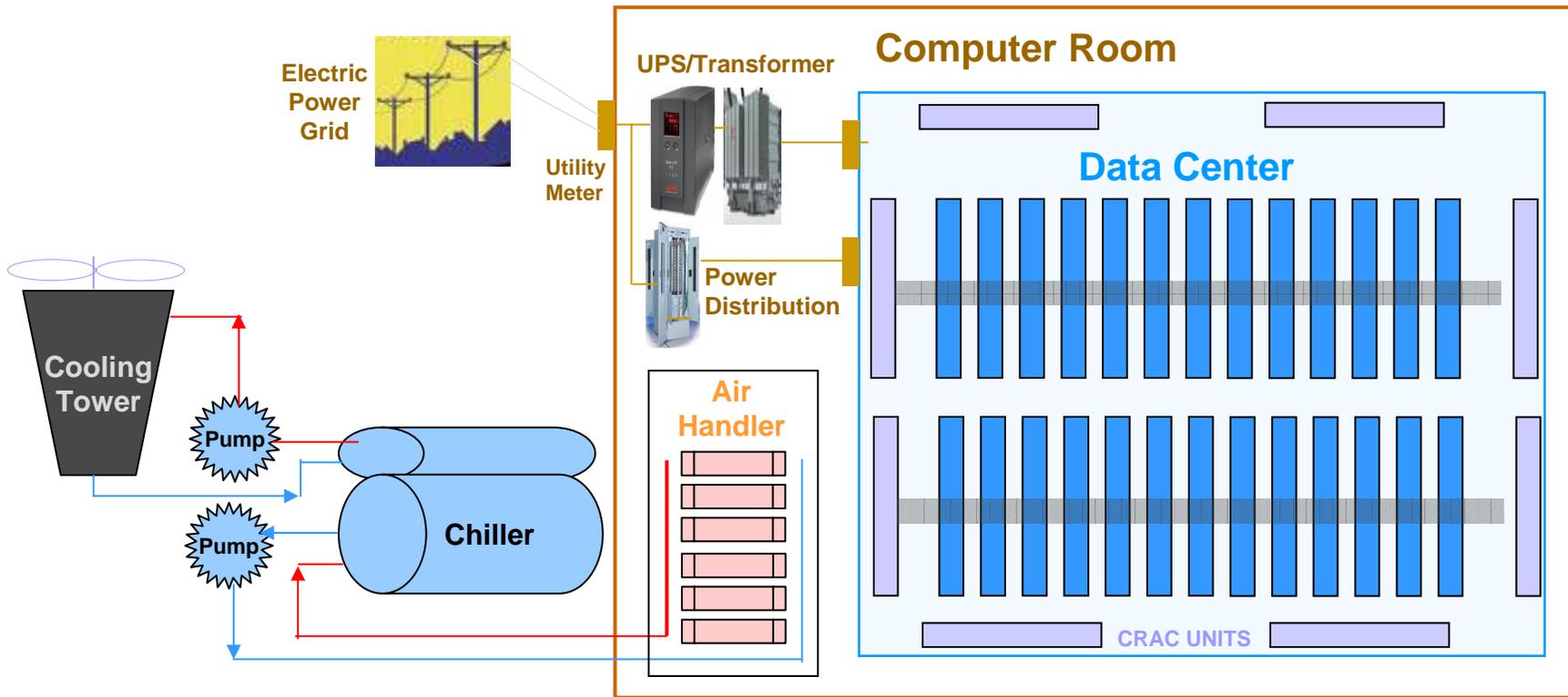
► *Datacenter Power & Cooling Costs*



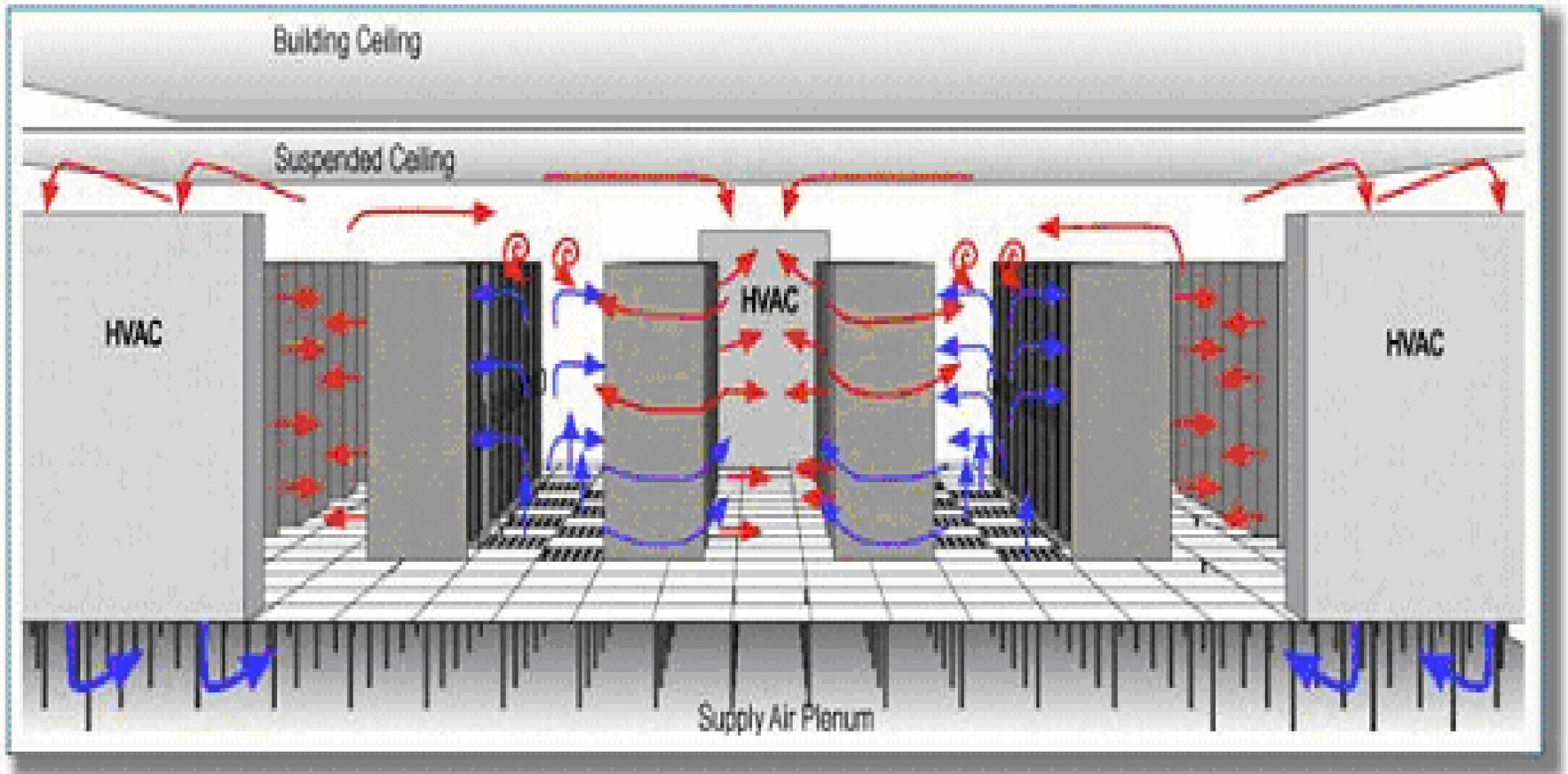
▶ Power System Elements' Efficiency



► Data Center Power & Cooling Ecosystem



► *Blanking Panels Prevent Recirculation*



► *Traditional Data Center Environment*

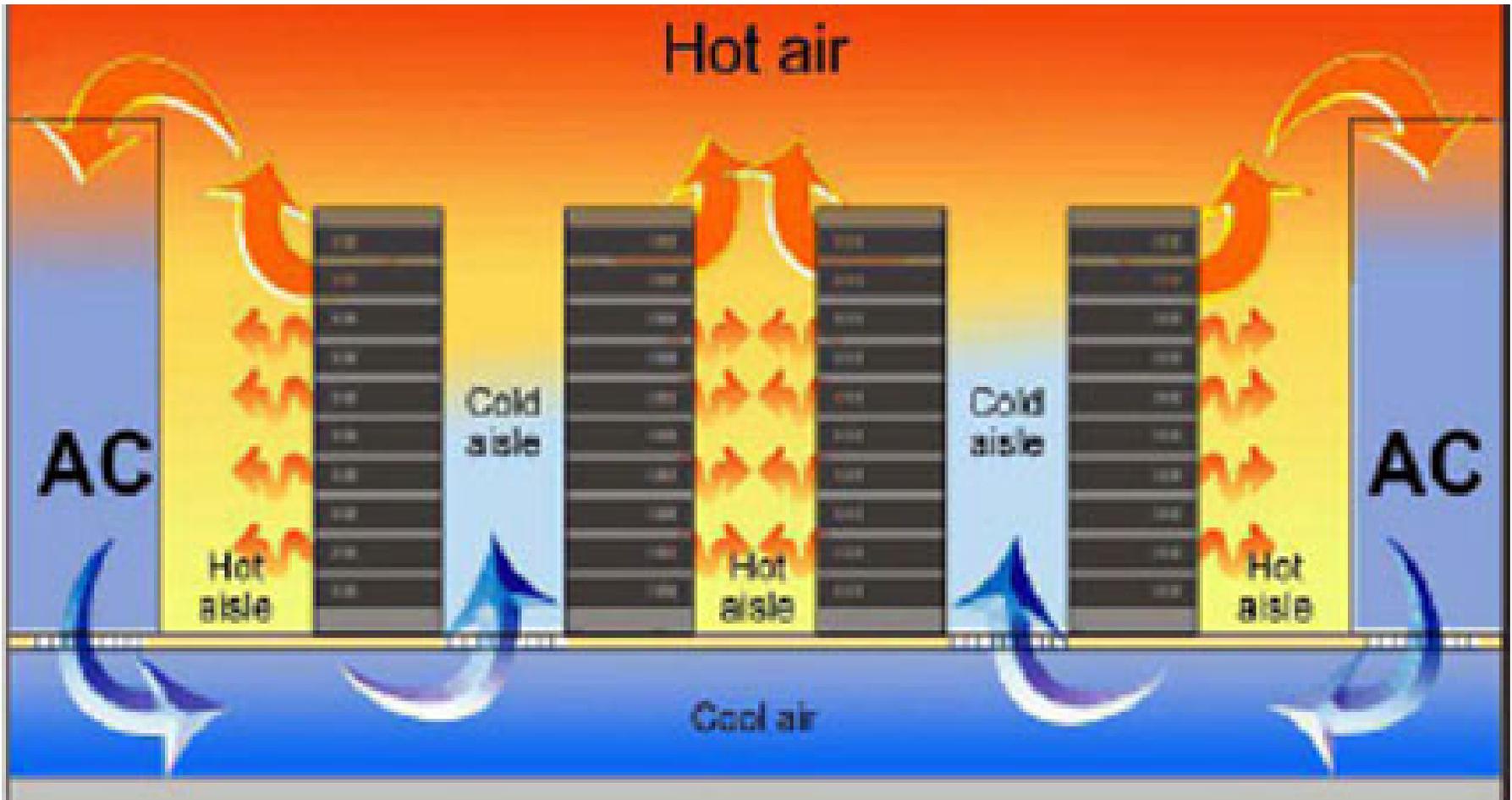


Image from "Keeping Your Data Center Cool: There is Another Way", IBM March 2005

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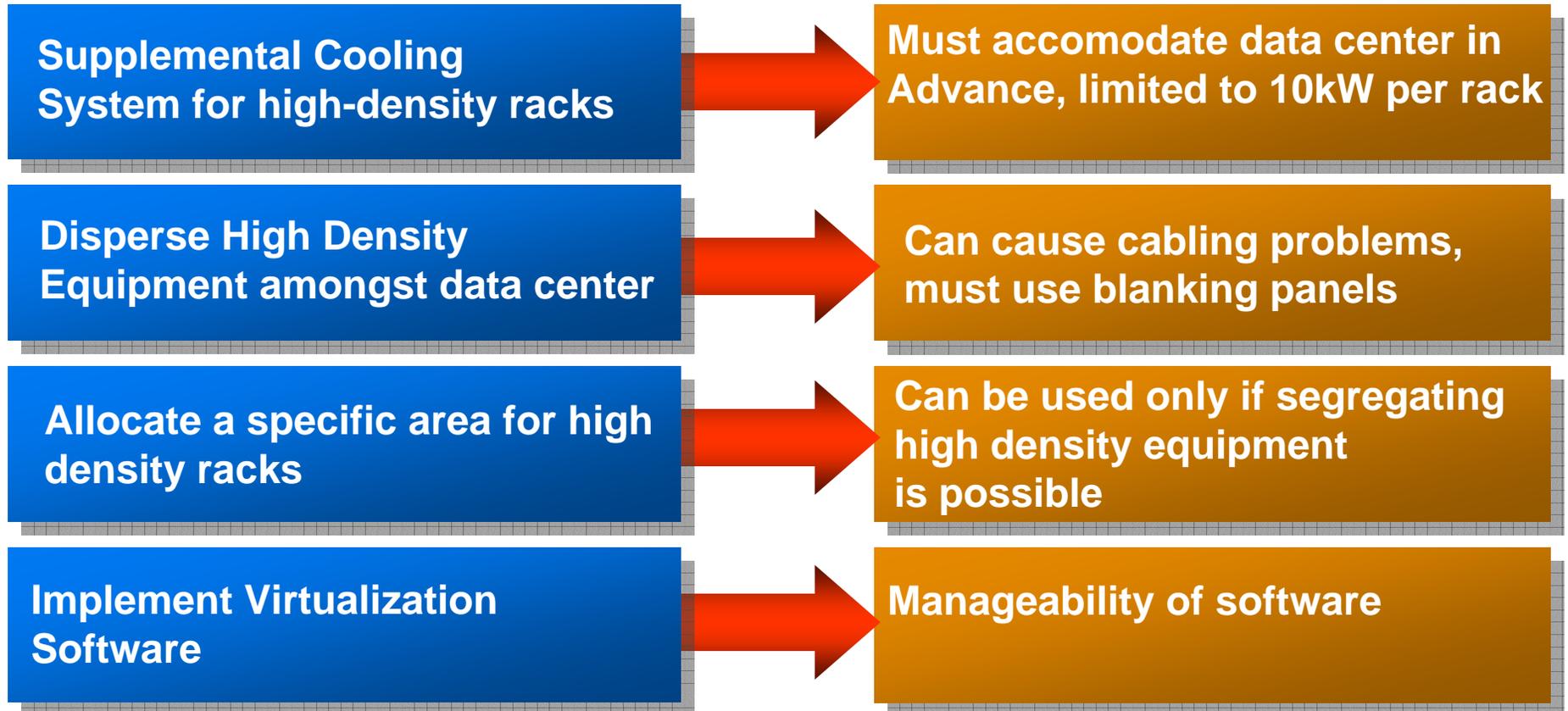
► *Modular Cooling Solutions*



Heat Load

of Racks

► Existing Strategies & Implications



► TCO Savings with Virtualization

