terremark™ Worldwide, Inc.

Who broke the colo?

May - 2007



What Happens OUTSIDE the Data Center….

- Broadband
- Video!
- IP Centric Devices
- Thick Clients
- Web Services
- Real Time Communications
- Big Data/Big Pipes

Is Driving Deployment INSIDE the Data Center…

27M servers installed worldwide and $110B spent managing them!

15M Servers

2000

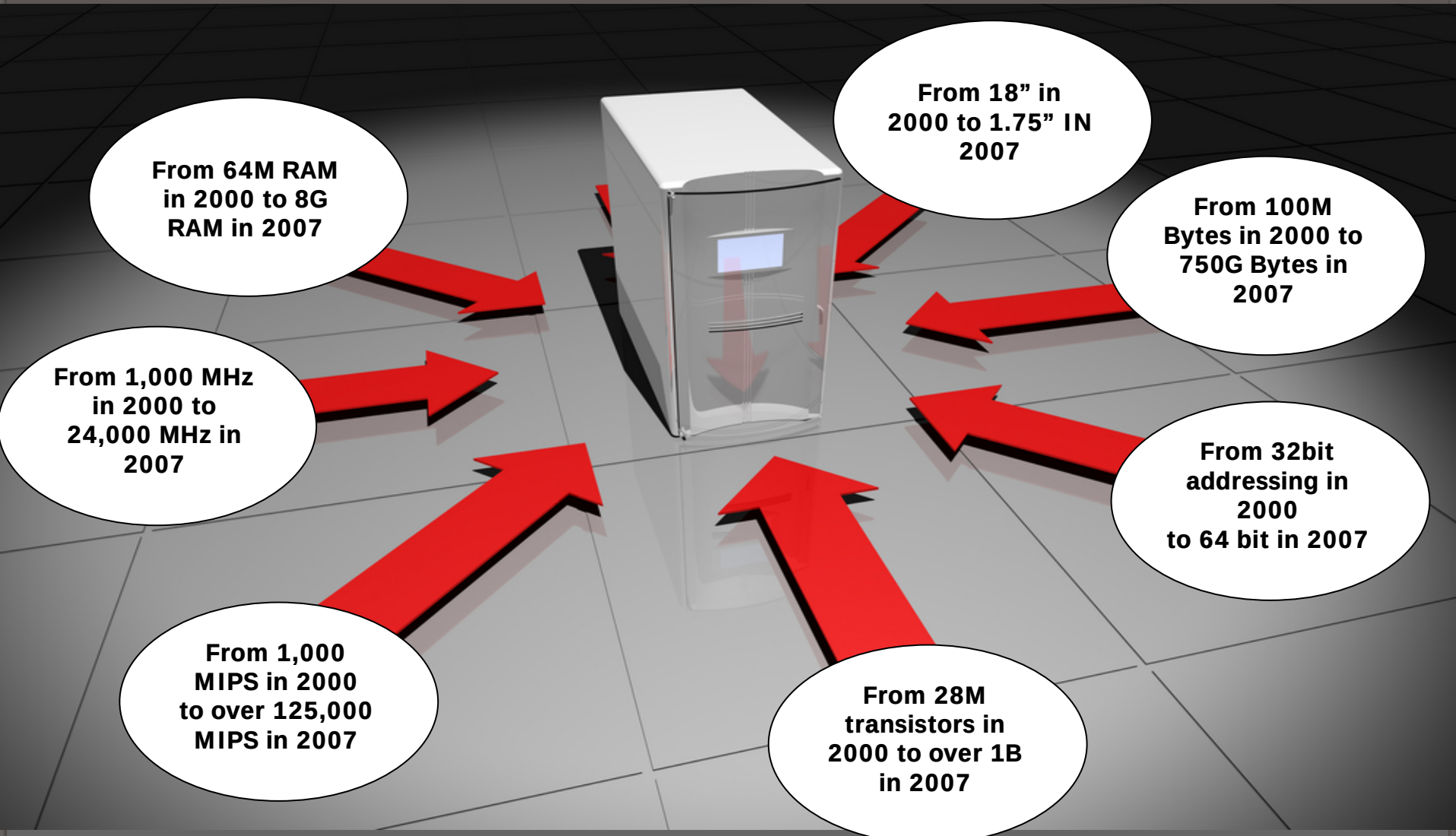
27M Servers

2005

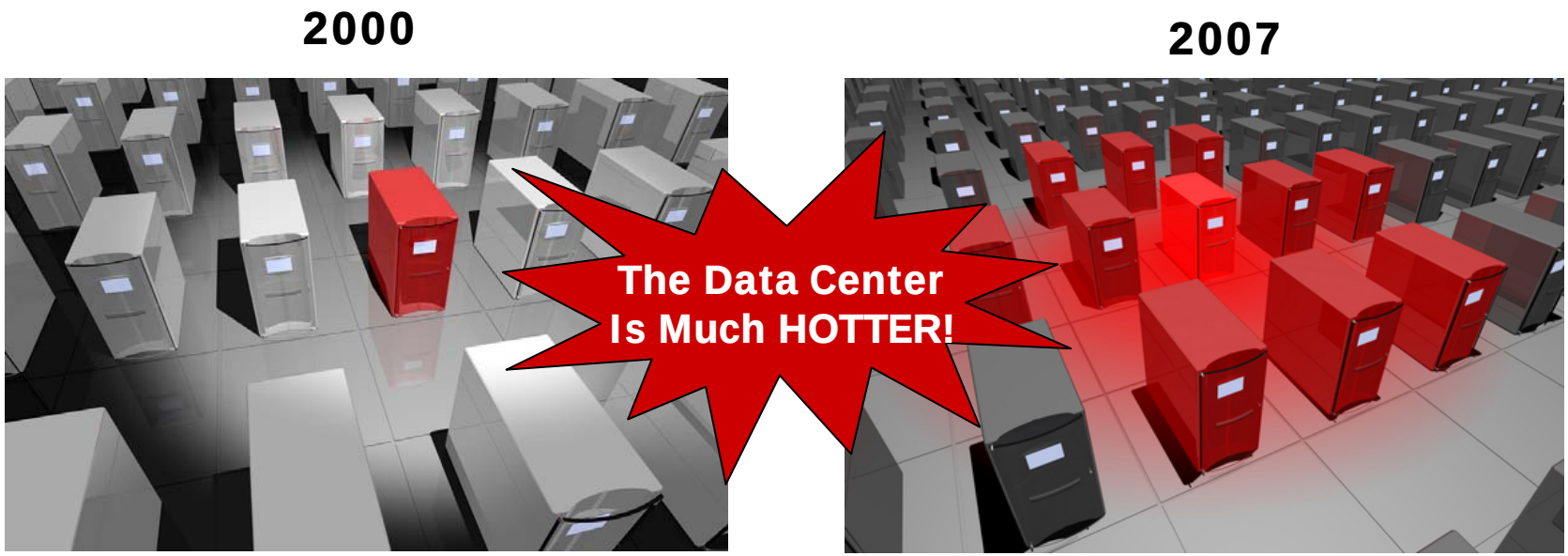
35M Servers

2008

.....and even what Goes INSIDE the Server

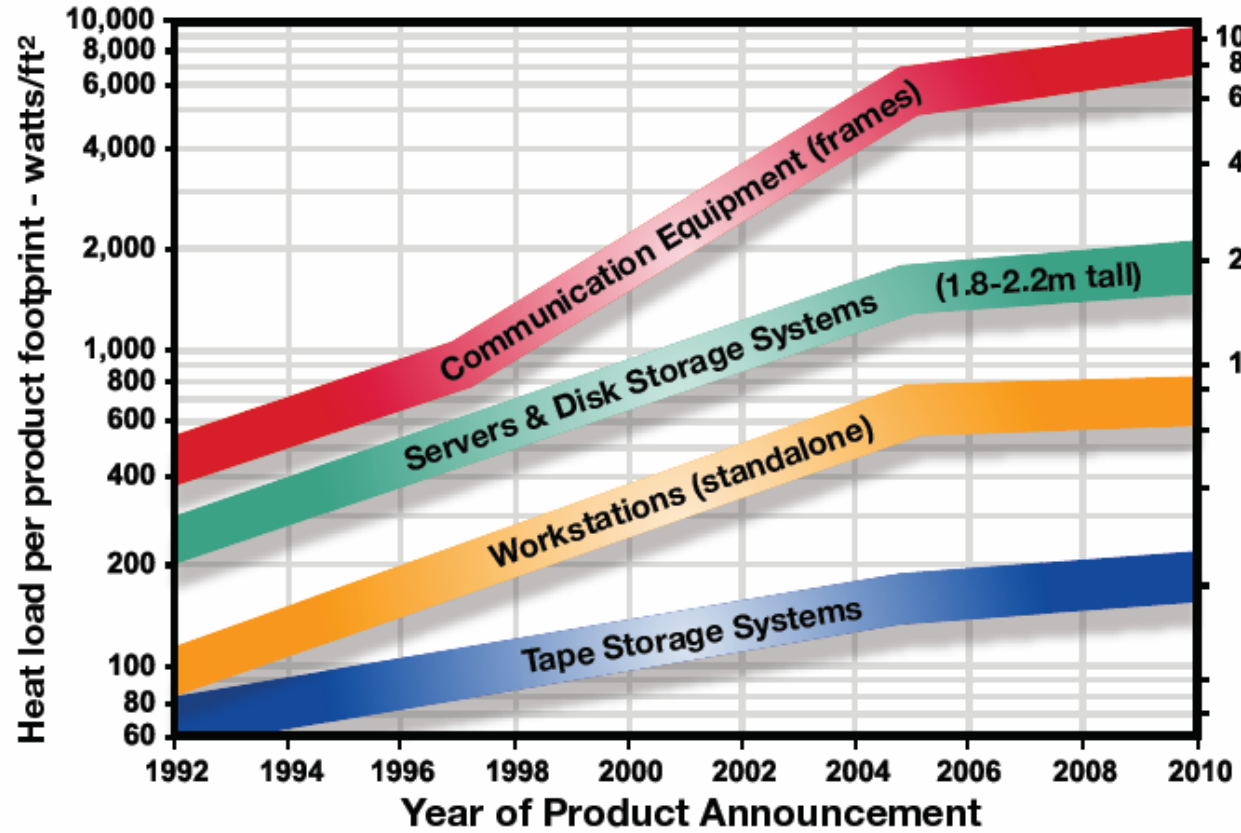


Which Means.....



- A single Intel processor today can consume as much as 130 watts, more than most standard light fixtures
- Today's servers consumes 2-4 times more power than 5 years ago
- Many data centers are designed to support 4 kilowatts/rack but requirements can be as high as 15-20 kilowatts/rack

In Other Words....More Power = More Cooling



Thermal Management Consortium Members

Amdahl
Cisco
Compaq
Cray
Dell
EMC
HP
IBM
Intel
Lucent
Motorola
Nokia
Nortel
Sun
Unisys

....and More Cooling means More Costs

2.5 Watts In

1.0 Watt Out

Equipment

1.5 Watt Out

Infrastructure

Most Data Centers have a ratio of 2.5.....
Achieving a ratio of 2.0 is the equivalent of approx. $1M USD in annual savings**

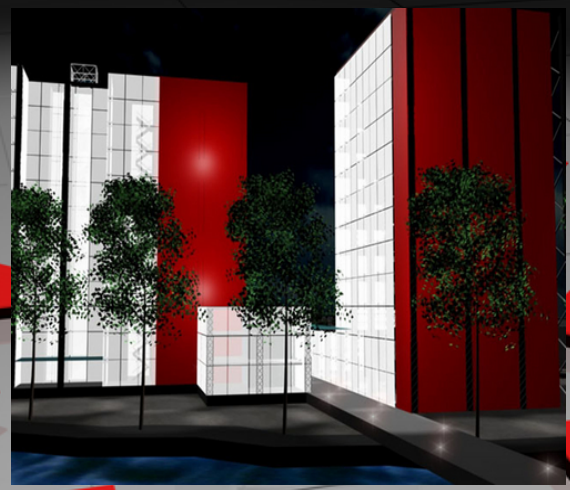
Some organizations are in the unenviable position of paying more to power and cool a rack a servers than they paid for the rack and the servers themselves. Clearly things are moving out of balance.

Gartner Research, 2006

Reference: **The Uptime Institute, 2006
20,000 sq ft DC

But It Gets Worse…..

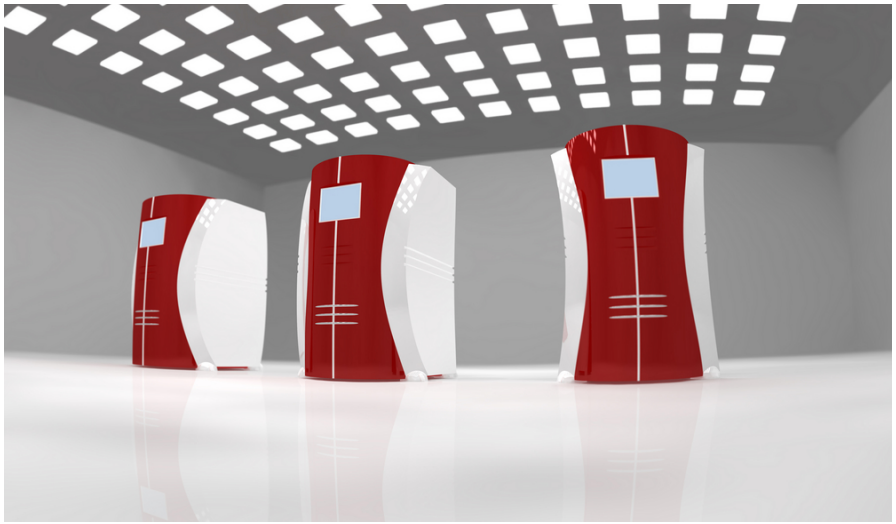
Many external factors are at work and impacting the data center migration and upgrades



- Regulatory Compliance
- Security, Disaster Recovery, Mitigation
- Customer Satisfaction, Changes in Mission
- Incremental Demands of Power and Cooling
- CEO Mandates, Cost Pressures
- Access to Right of Ways

.....and the Cost Is Prohibitive.....

Tier I or Tier II Data Center



20,000 sq feet = $15.4M

Tier IV Data Center

20,000 sq feet = $48.4M

Enterprise customers simply cannot afford to be spending additional budget on real estate, power and cooling

IDC Data Center of the Future Report, 2006

……The Bottleneck of the Internet is Colo!

- Lead time to build a top tier 200W a Sq Ft Colo is 1 year (75k Sq Ft and up)
- Driving that lead time is 50+ Weeks for Gensets and PDU's
- Ground up construction of $100 to $200+ Million dollar facilities takes time for land acquisition, design, permitting and building/build-out
- If the Major Colo based IX's can't get the space built fast enough then the ISP and Content companies can't deploy
- Peer traffic will flatten and long term inbalances in regional traffic flows will occur
- We are all building it now...but will it be enough?

What Others Are Saying

Demand for colocation space remains extremely strong worldwide. This is due in part to the lack of available space in quality facilities, rapidly rising energy prices making the DIY-case for enterprises more challenging, and general rising adoption of Web-based applications and related DR solutions.

Tier1 Research, March 2006

We have recently seen an implementation at 40 KW per rack, 10 times what was considered adequate a few years ago. If this trend continues, huge amounts of power will be needed to run data centers and to regulate their temperature.

Gartner Research, 2006

82.9% of enterprises renew their managed services contract. 67.8% of enterprises require add-on services to their existing contracts.

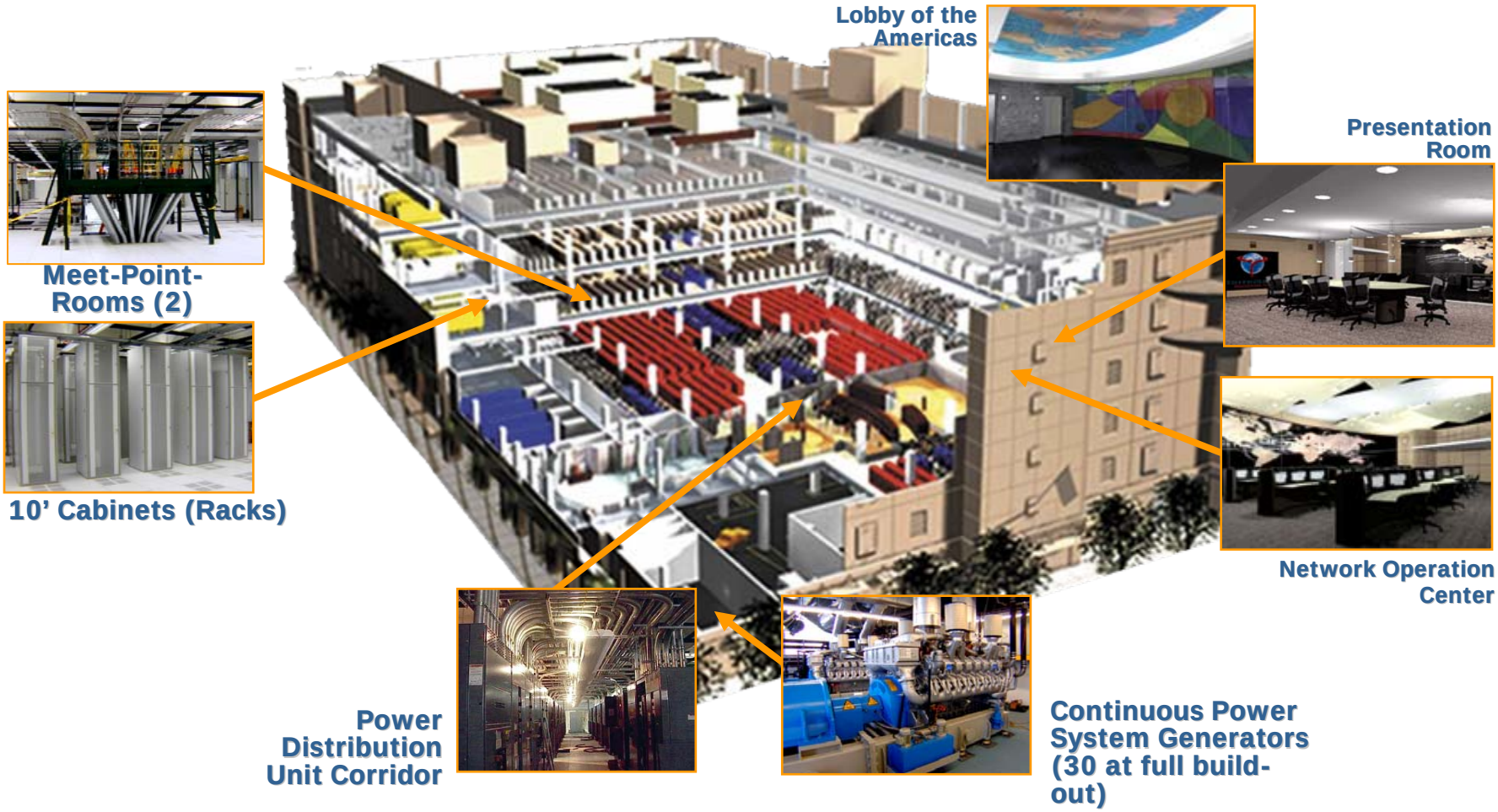
THINKstrategies, 2006

Through 2009, 70 percent of data center facilities will fail to meet operational and capacity requirements without some level of renovation, expansion or relocation.

Gartner Research, 2006

The NAP of the Americas - Miami

750,000 Sq Ft of Top Tier – Category 5 Hurricane proof Data Center



terremark™ Worldwide, Inc.

Josh Snowhorn – Director

Terremark Worldwide – NAP of the Americas

305-205-8327 Cell – snowhorn@terremark.com