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Defining the Landscape

*Trends and Forecasts for the Enterprise
Server Market and Data Centers*

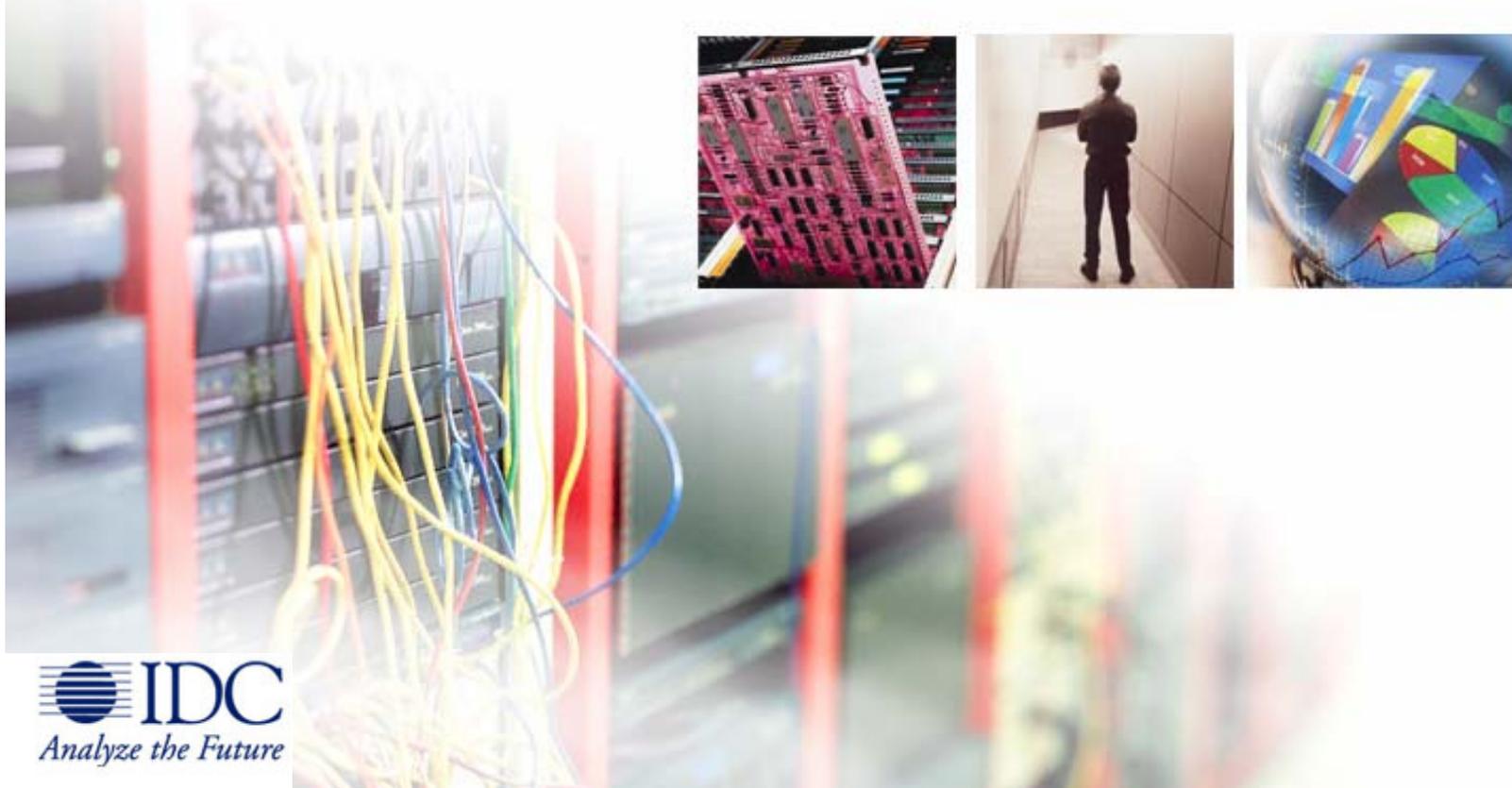
Spring 2006

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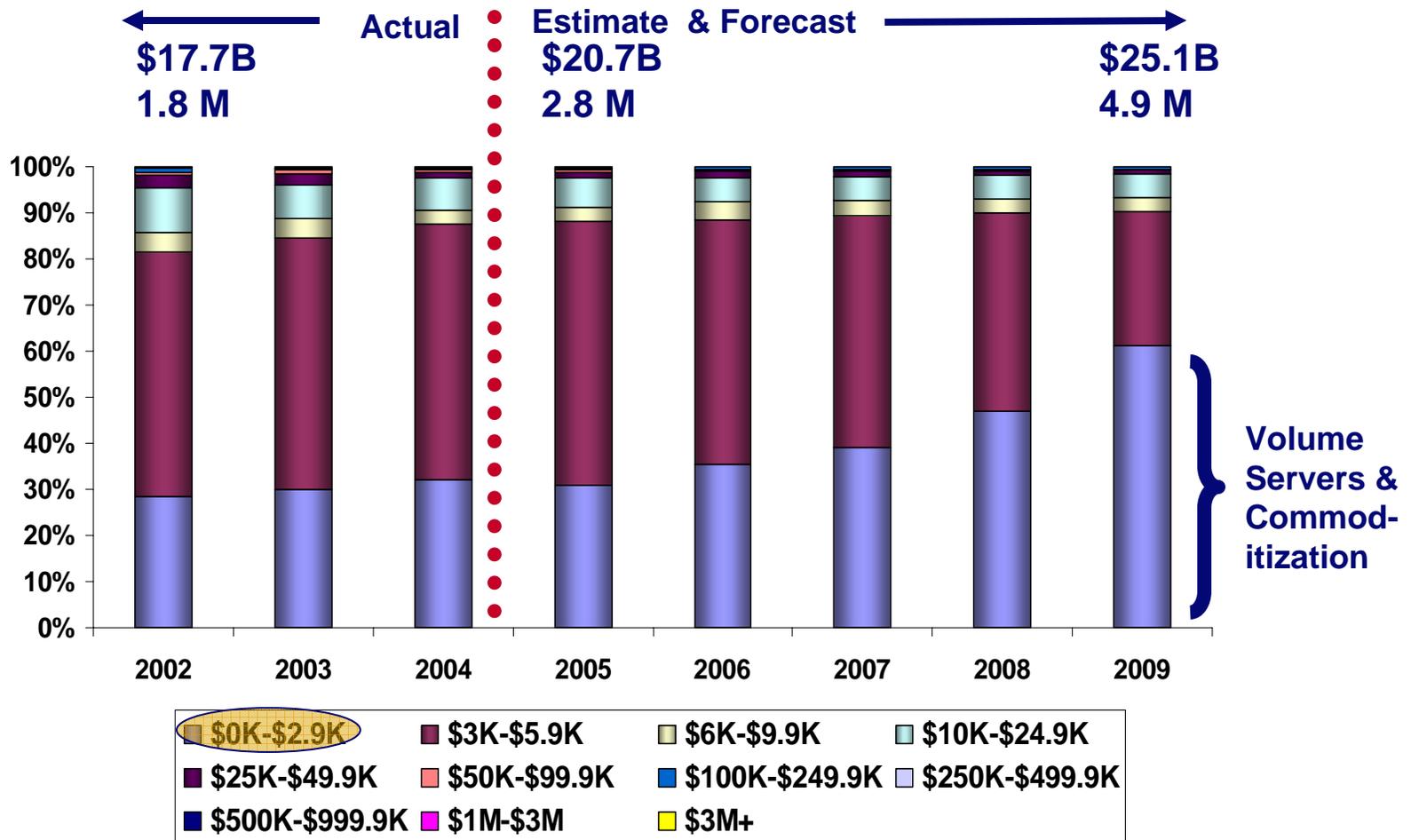


Agenda

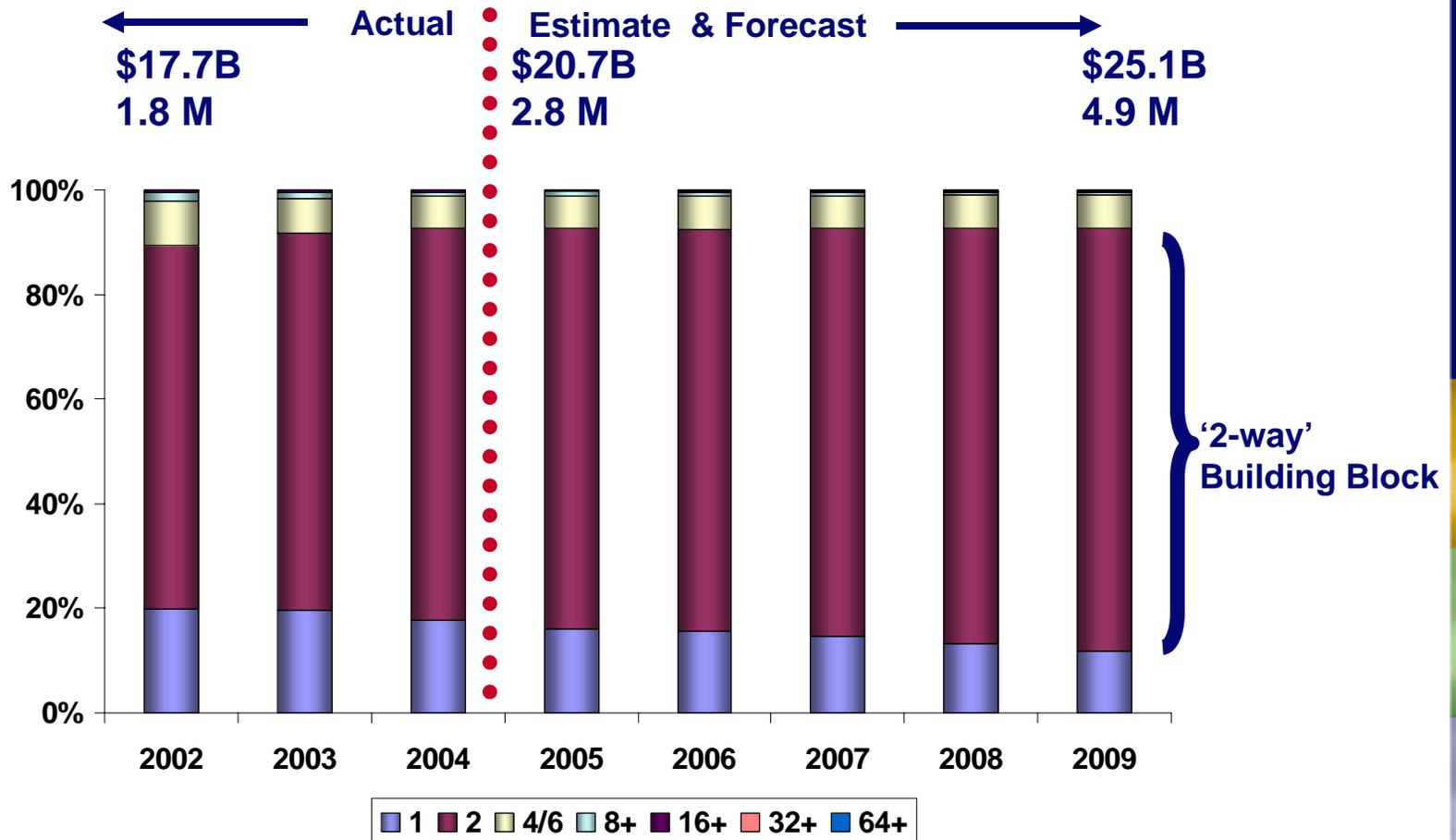
- U.S Server Market Outlook
- Data Center Footprint Analysis
- Technology Outlook



US Server Market



US Server Market



Characteristics Of A Data Center



Small Data Center

- Between 350 – 500 Servers Installed
- 15,000 Sq Feet Of Raised Floor
- Predominately Volume Server Architecture, with 1 - 3 High End Server Systems
- 'Scale Out' Server Deployment Is The Normal Course

Medium Sized Data Center

- Between 1,500 – 1,700 Servers Installed
- 20,000 Sq Feet Of Raised Floor
- Four or Five High End Systems Form The Basis Of Enterprise Systems
- 'Scale Out' Server Deployment Continues To Be The Normal Course

Characteristics Of A Data Center



Large Data Center

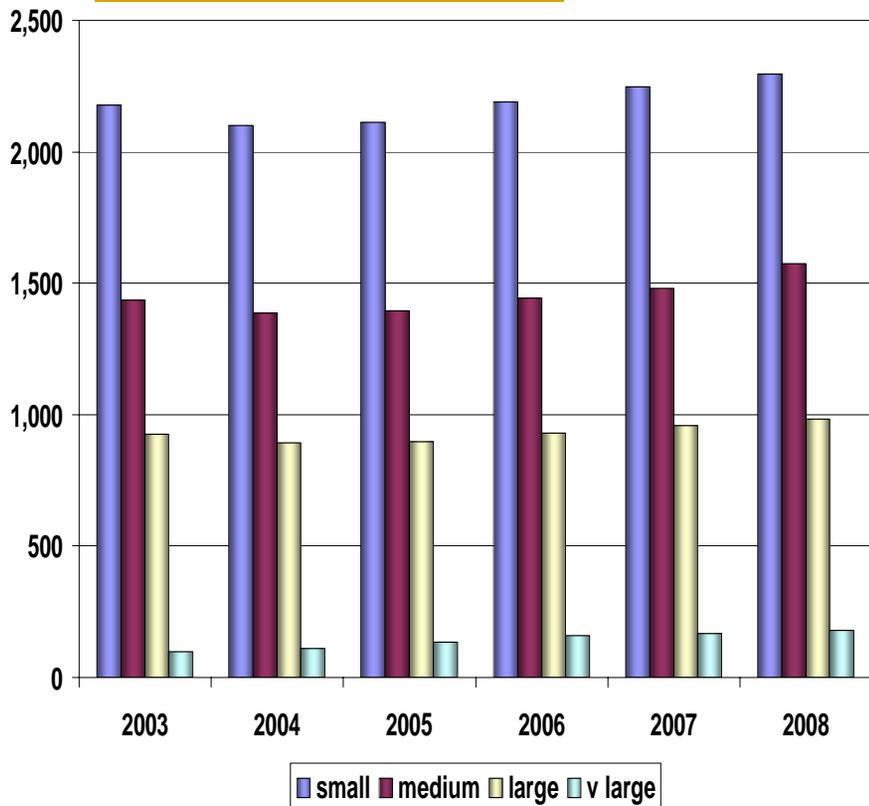
- Between 2,000 – 2,500 Servers Installed
- 35,000 Sq Feet Of Raised Floor
- House Up To 7 High End Systems
- Integrated Systems Deliver Competitive Advantage Within Similar Vertical Market

Very Large Data Center

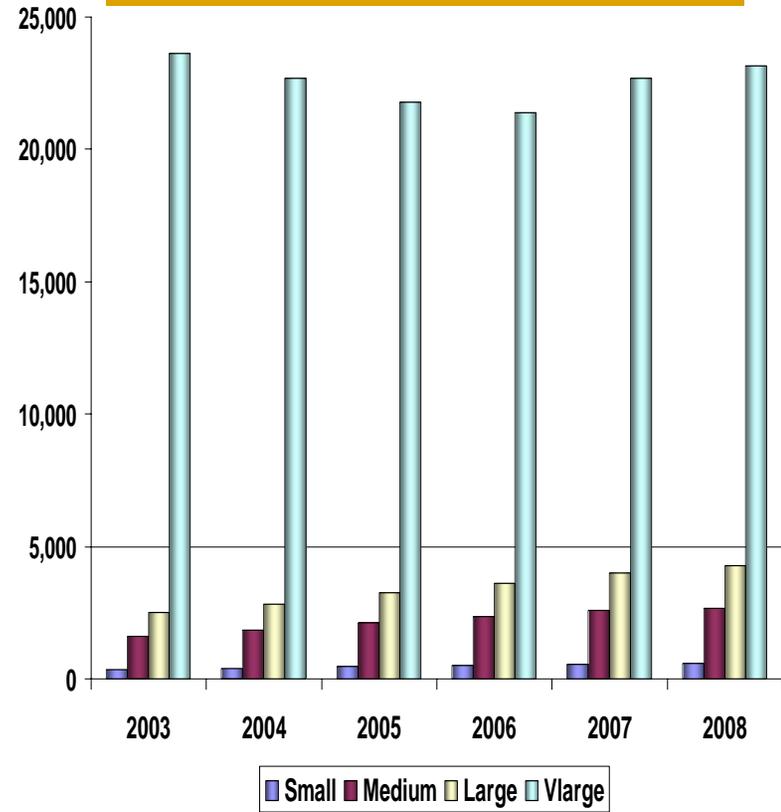
- Up to 25,000 Servers Installed
- + 100,000 Sq Feet Of Raised Floor
- + Eight High End Systems
- Integrated Systems With Government And Vertical' Market Make For Very Demanding Compute Environments.

Data Centers & Servers Installed In Them

Number Of Data Centers

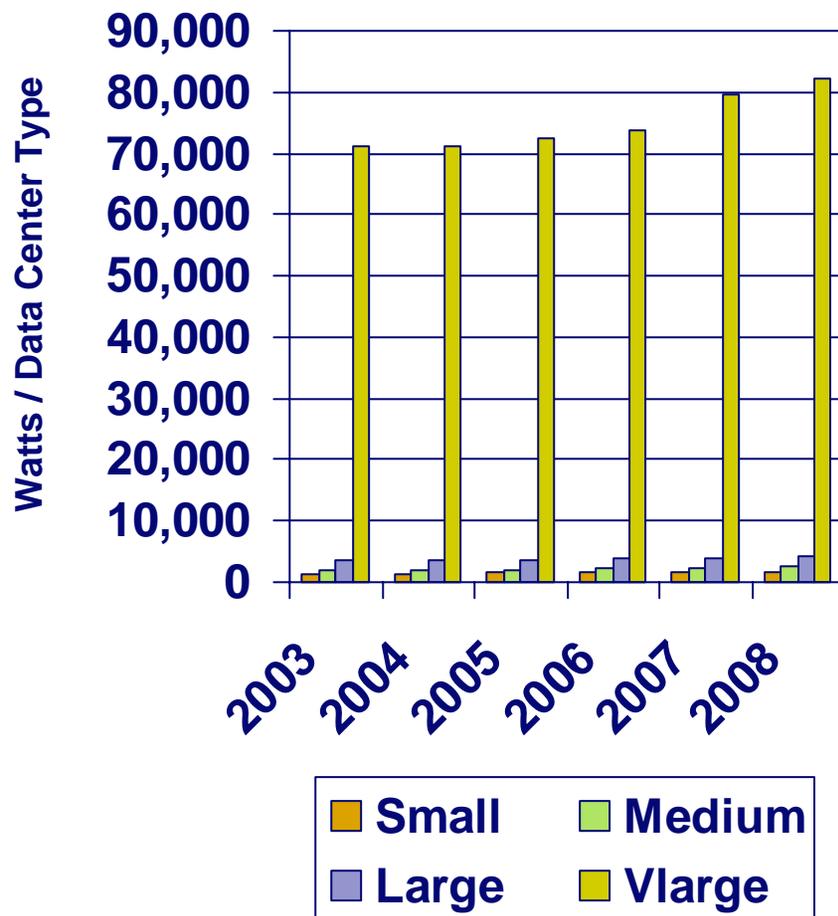


Number Of Server In Data Centers



➤ Despite The 20:1 Of Small Data Centers To Very Large Data Centers, Very Large Data Centers Represent A 70:1 Ratio In Servers Installed

Utility: Power Requirements For Server Farms



Consideration For Running The Server Data Center

- Daily Uptime Per Server
 - Assume 24 Hours /Day
- Total Square Footage Dedicated To Server Farm
 - Define Percentage Allocated To Servers Increase Power Density / Sq Foot
 - Can Appropriate Facilities Be Installed To Support Denser Computing Farms?
- Cooling The Server Farm Can Be Between 50 – 100% Of Power Consumption

A Summary Of Overall Market Conditions



- Installed Server base Continues To Outpace Revenue Spend Due To The Benefits Of Commoditization
- Data Center Build-Out Continues After A Lull
 - Over 12M Additional Square Feet Between 2006 - 2008
- More Servers (Tip Of The Iceberg) Means More Facilities Requirements
- But There Is Help On The Way ...

Technologies To Improve Data Centers

- 64-Bit Platforms
- Multi-core Servers
- Virtualization
 - Systems Management
 - Automation
 - Provisioning
- Server Blades