



**Multi-core: Solutions to
Meet your Needs**

Epic Technology Day

October 21, 2008

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Agenda

- **Gain a business solution advantage with 45nm Intel® Technologies and Platforms**
- **Desktop Platform/Roadmaps**
- **Mobile Platform/Roadmaps**
- **Server Platform/Roadmaps**
- **Core i7**



The industry's first 45nm processors introducing the biggest change to transistor design in 40 years.

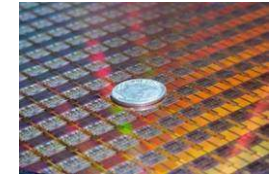
New Hafnium-infused chip design compared to 65nm processor:

- **Smaller**
 - 2,000 45nm transistor gates fit across ONE human hair
- **More powerful**
 - 2X the chip density
- **More energy efficient**
 - 10X reduction transistor gate leakage



Tuesday, Oct. 30, 2007

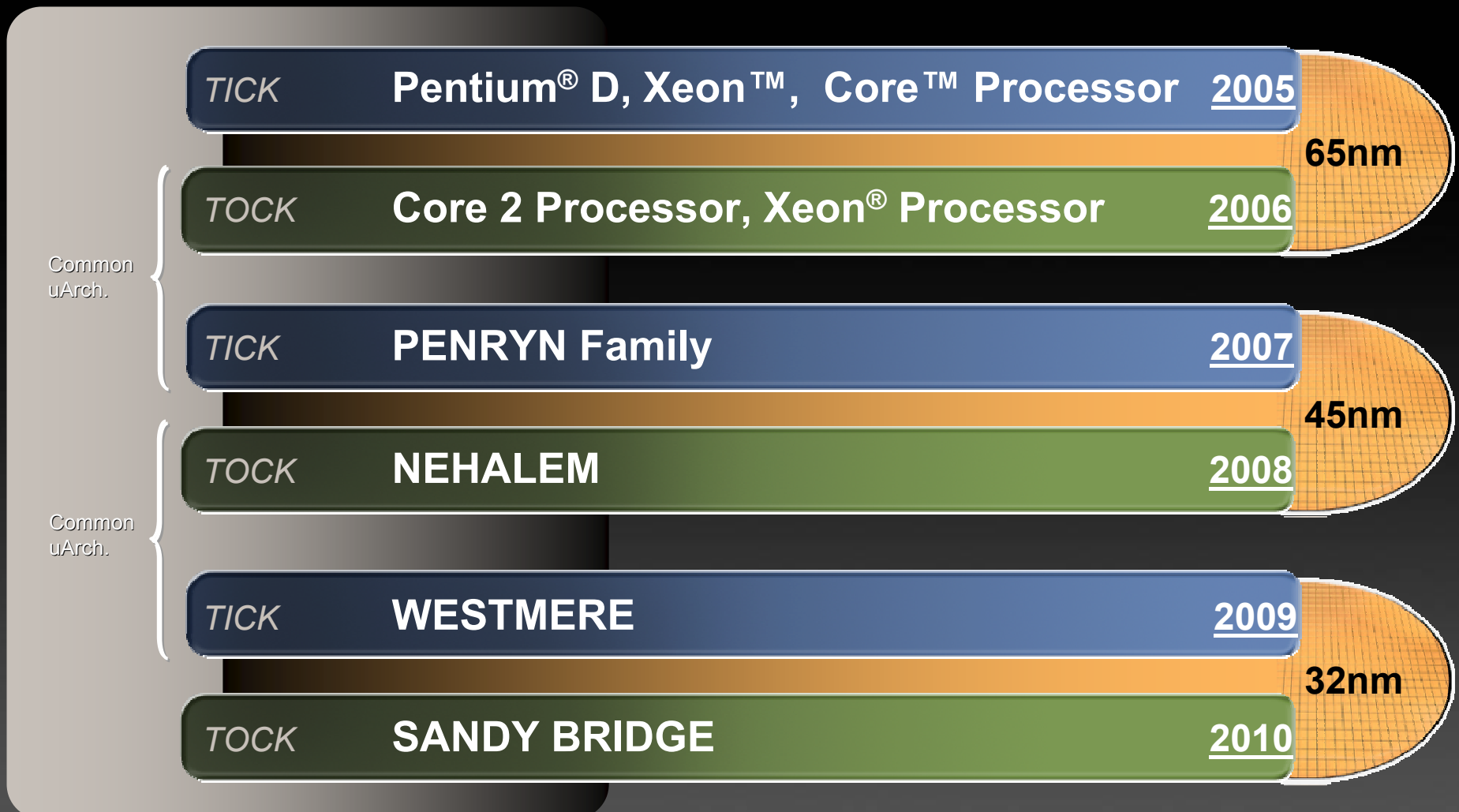
Size Matters



Intel engineers are slaves to Moore's Law: they have to keep packing more power into the same-size microchips. They've done it again with a new alloy that cuts down on electricity leakage, which is a big problem as transistors get smaller. The new 45-nanometer Core processor is so compact, you could fit 2 million of its transistors on the period at the end of this sentence. Available By the end of the year intel.com

http://www.time.com/time/specials/2007/article/0,28804,1677329_1678130_1678116,00.html

Tick/Tock Model: Sustained Microprocessor Leadership



All dates, product descriptions, availability and plans are forecasts and subject to change without notice.



45nm Desktop and Roadmap

Intel® Core™2 processor with vPro™ Technology

The Edge To Move Your Business Forward



Proactive Security

- Enhanced system defense filters
- Hardware-based isolation and recovery
- Security agent presence checking
- Virtualized intrusion protection, isolation & recovery
- Support for 802.1x & Cisco NAC*
- Intel Trusted Execution Technology

- Remote asset, HW, and SW inventory
- Remote diagnostics and repair, even when the PC is powered down or the OS is inoperable
- Manageability agent presence checking
- Remote configuration
- Platform stability – Intel® SIPP

Built-in Manageability



Energy-efficient Performance

- Intel® Core™2 Duo Processor
- Improved Energy Efficient Performance aligned to new Energy Star specifications¹
- Run security, management tasks in background
- 64-bit application ready

- Supports WS-MAN and DASH 1.0 standards² available from major manufacturers
- Supported by leading IT service providers
- Software from leading ISVs
- Windows Vista Premium* Ready

Broad Industry Support



1. ENERGY STAR denotes a system level energy specification, defined by the US Environmental Protection Agency, that relies upon all of the system's components, including processor, chipset, power supply, HDD, graphics controller and memory to meet the specification. For more information, see http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CO

2. Intel® vPro™ processor technology (2007) DASH implementation is based on the draft DASH 1.0 specification



vPro Technology Value Proposition

- **Built-In Manageability and Proactive Security**

- Even if the PC or mobile PC is powered down or the OS is inoperable
- 17% of support calls today require on-site diagnostics¹
- Reducing the time to complete the IT Help Desk support call by up to 85%*
- Increased remote and proactive manageability reduces truck roll costs



- **Unrivaled performance**

- The all new Intel® Core™2 Duo dual-core processor is the heart
- 2X performance boost, Same great battery life² Energy efficiency
- New, smaller, lighter notebooks
- Power to handle today's applications but investment protection for tomorrow's advancements



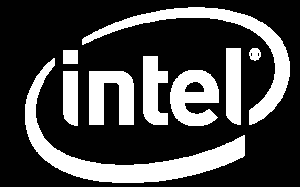
- **Industry support/enablement**

- Leading MSP Software Solutions enabled for Intel® vPro™ & Centrino® Pro® processor technology
 - MSP Consoles: Level Platforms, N-Able, Kaseya, others
 - General Management Consoles: HP, LANDesk, Altiris, others



¹ See Intel's Length of Support (LOS) for details.
² Compared to Intel® Pentium® D processor 960. Performance measured using SPECint*_rate base2000. Actual performance may vary. Power reduction based on Thermal Design Power (TDP) measurement.
* See Intel's vPro Technology website for details.

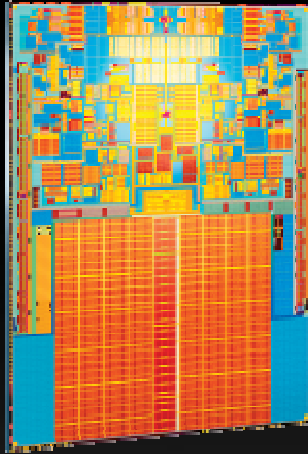




45nm Notebooks and Roadmap

Get Performance, Conserve Power

Intel® Core™2 Duo Processor Overview



Unrivalled Processor Performance

Faster High-Def Content Creation & Multitasking ⁴

- NEW!**
- Up to 1066 MHz Front Side Bus
 - Up to 50% Faster on enabled Intel® HD Boost apps⁴
 - Up to 6MB Intel® Advanced Smart Cache
 - Intel® Enhanced Dynamic Acceleration Technology

Smart Power Use for Longer Battery Life ⁴

NEW! Cooler 25W TDP mainstream SKUs ⁵

- Intel® Deep Power Down Technology
- Industry Leading, Low Power Leakage 45nm process

Low Power. High Performance. Very Smart.

Platform Overview: Montevina Refresh



Intel® Anti Theft¹
(PC Protect)



Penryn CPU bins refreshed
Higher bins up to 3.06 GHz



Sleek (<0.8") form factors at mainstream price points featuring new SFF ULV SKUs



Continued Average Power leadership + expanded support for Switchable Graphics



Higher performance 3D Graphics – new Value, Mainstream, Performance SKUs



Intel Graphics w/ Vista Premium and Aero Interface



Wired/ Wireless Intel® AMT

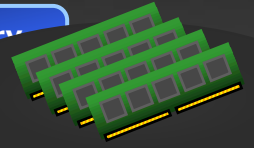


Blu-ray* logo support



Improved Wireless Ecosystem with Intel® My WiFi Technology, 3x3 Access Points, & WiMAX

DDR2/ DDR3 Memory up to 1066 MHz



Integrated HDMI and DisplayPort w Integrated HDCP



Improved HD Visual Quality with Advanced De-Interlacing, Film Mode Detection, De-Noise

New for Montevina Refresh

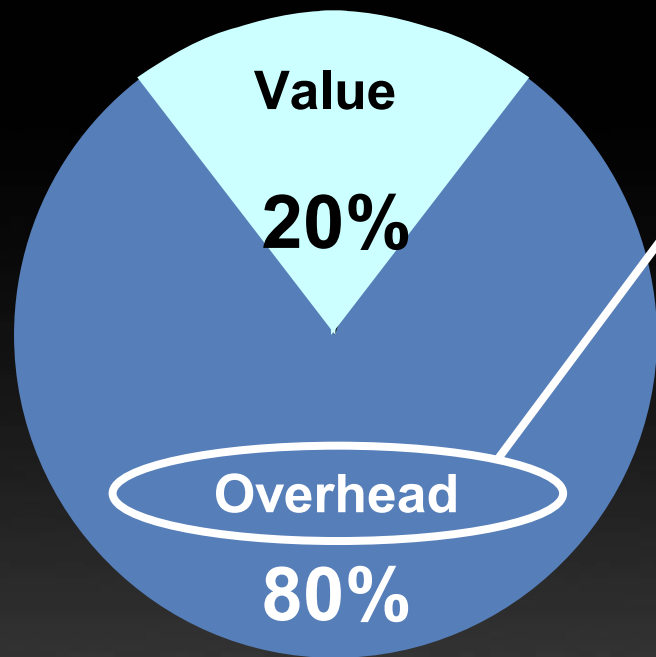
Montevina Features

Note1: This feature is targeted at business platforms, and requires an upgrade to Intel® AMT 4.1



The 20% -80% Small Business Problem

PCs & Notebooks with Intel 'Pro' can reduce the daily small business overhead tasks



Overhead Tasks

Data Security

Software & OS Updates

PC Hardware Repair

PCs with Intel® vPro™ technology

Proactive Security

Off hours Updates

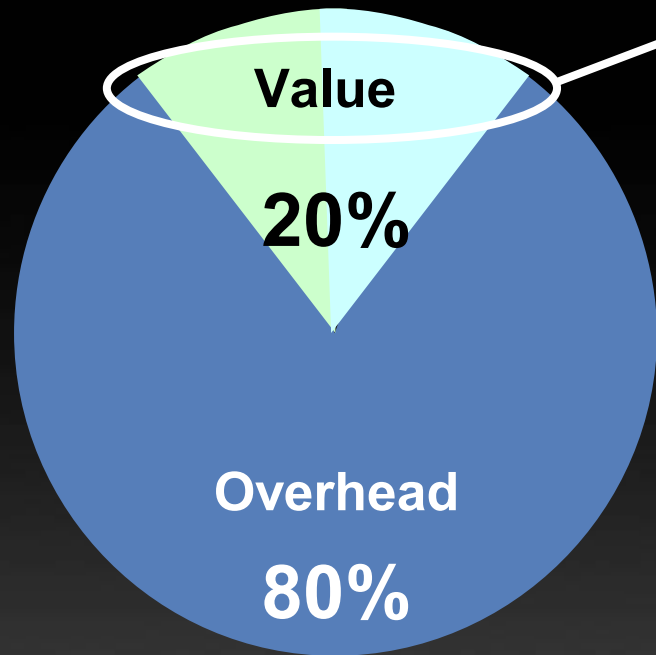
Built in Manageability & Remote MSP Repair

Overhead tasks can be done by others ...
... Using PCs with Intel® vPro™ technology.



The 20% -80% Small Business Problem

PCs & Notebooks with Intel 'Pro' can add business value



PCs with Intel® vPro™ technology:

- Performance for demanding applications like spreadsheets, photo, video, graphics
- Dual-core for easy multi-tasking and running tasks in background
- Glitch-free VoIP with video conferencing and other collaboration services

Add value to your everyday business tasks ...
Using PCs & Notebooks based on Intel's vPro Technology



Intel Confidential





45nm Servers and Roadmap

An Easy Decision

If you needed to add a new server ...

Why wouldn't you choose Intel Quad-Core?

**TEN Reasons
to standardize
on Quad-Core
Intel Xeon
Processor-
based Servers**

- 1. Best 2P and 4P Application Performance**
 - Broad range of industry standard benchmarks
- 2. Leading Energy Efficiency (SPECpower*)**
 - Industry's first standard benchmark for energy efficiency
- 3. Leading Virtualization Performance**
 - Both VMware* Vmark* & V-consolidate* benchmarks
- 4. Same Power Envelope**
 - Energy Efficient 80W & 50W quad-core processors
 - Intel® Core™ microarchitecture
- 5. Same Price as Dual-Core**
- 6. Investment Protection – socket compatible**
- 7. Advanced Technology Support**
 - 64bit
 - Fully Buffered DIMM memory
 - Intel Quick Data Technology
- 8. More reliability features** than alternatives
- 9. Built for Virtualization**
 - More Cores + Larger Cache = More Headroom
 - Leading hardware assisted technologies
- 10. Quad-Core Processors ... available in volume**

1, 4 Application and V-consolidate performance results see <http://www.intel.com/performance/server/xeon/summary.htm>

2 Source: http://www.spec.org/power_ssj2008/results/power_ssj2008.html as of Dec 17, 2007

3 VMwark: As of Jan 16, 2008 See: <http://www.vmware.com/products/vmmark/results.html> for details.

5 Source Intel. Pricing as of Nov 12, 2007. subject to change without notice



Data Center Refresh

Business Requirement: Deliver 5.1 Million Business Operations Per Second
Using 45nm Quad-Core Intel® Xeon® Processor 5400

2004

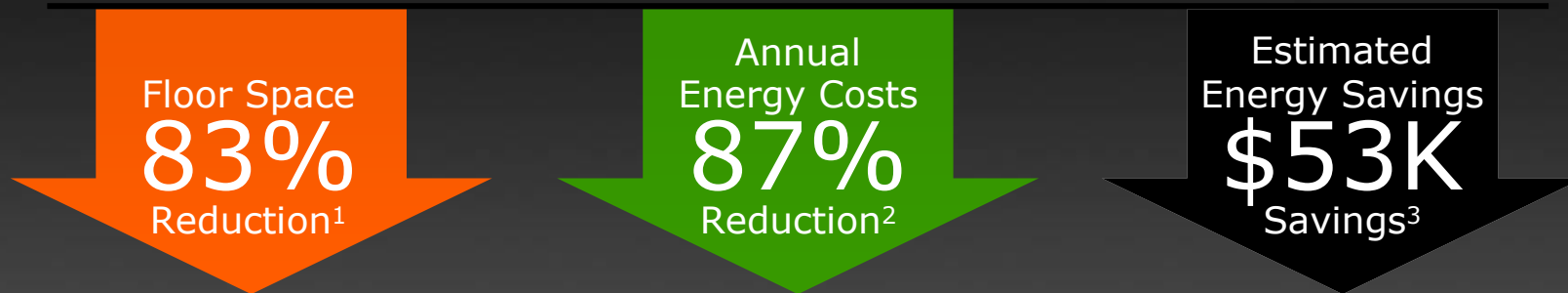
- 5.1M bops
- 6 racks
- 126 servers
- 240 sq ft
- 48 kW



2008

- 5.1M bops
- 1 rack
- 17 servers
- 40 sq ft
- 6 kW

The Bottom Line Benefits for IT (< 2 year ROI⁴)



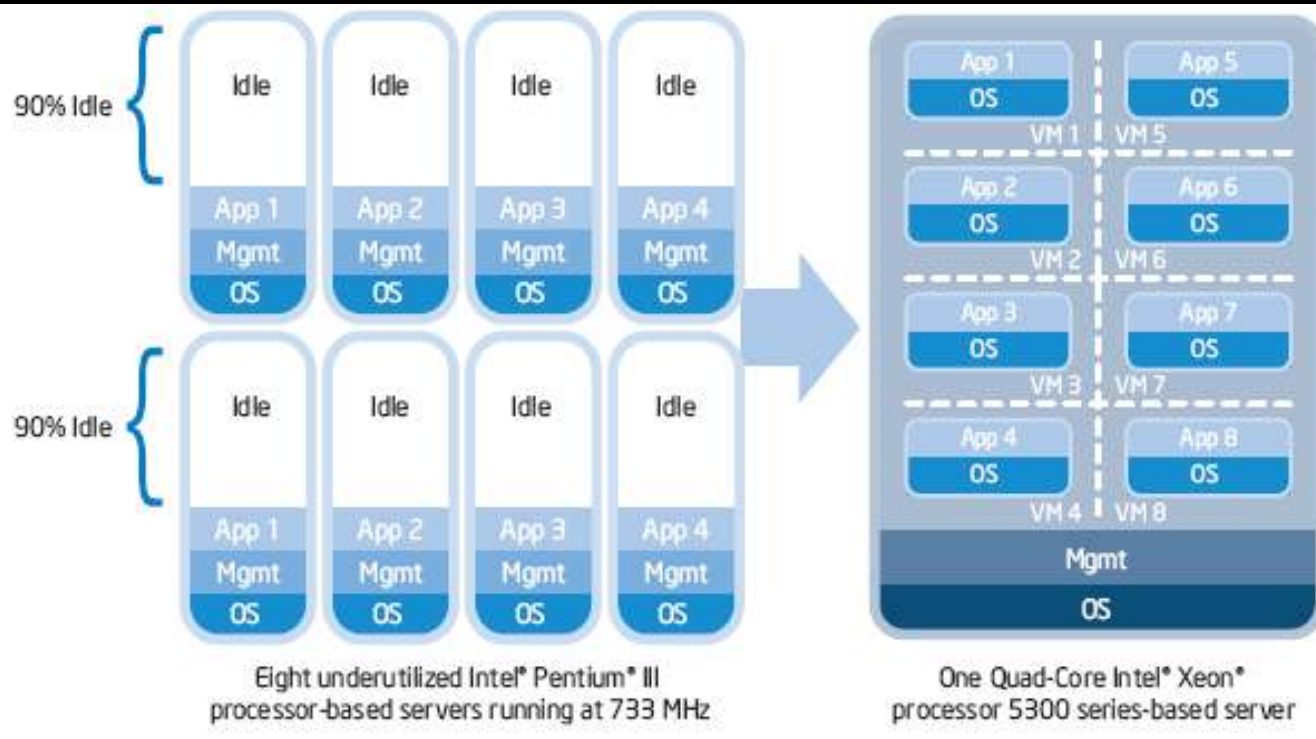
For notes and disclaimers, see legal information slide at end of this presentation

Virtualization with Quad-Core

We anticipate that each 800:100 server could save about **\$6,024 a year** in direct operating costs, based on support, network depreciation, and power and cooling.

Source: IT@Intel Study December 2006[†]

d1



Boost Server Utilization

Improved TCO

Improved Flexibility

Lower Maintenance Costs

[†] Source: Intel IT, Dec 2006. Results compare one Quad-Core Intel Xeon 5300 Series processor-based server compared to 8 Pentium III based servers using a CPU intensive database application modeling data analytics environment. <http://www.intel.com/it/pdf/consolidate-using-quadcore.pdf>

Slide 17

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We need to make sure the \$6,024

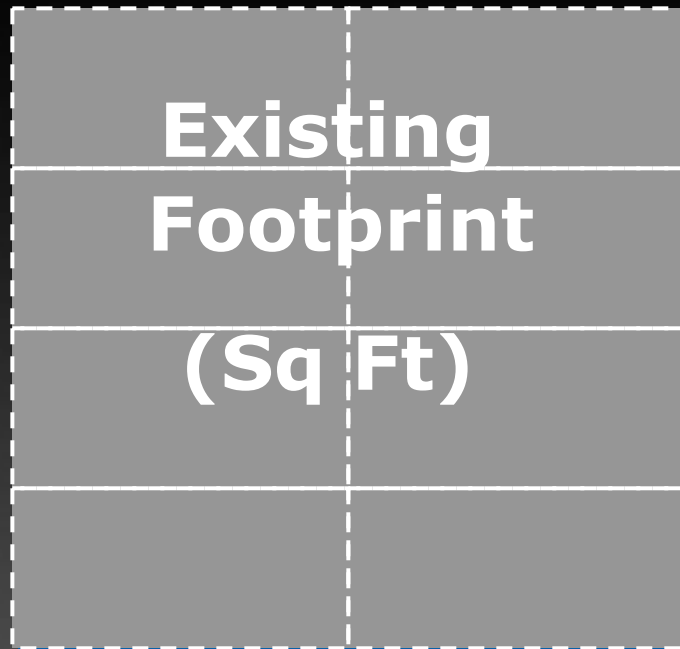
dagreavx, 3/10/2008

Smaller Facilities

Use Fewer Servers - Same Work
Lower Support Costs

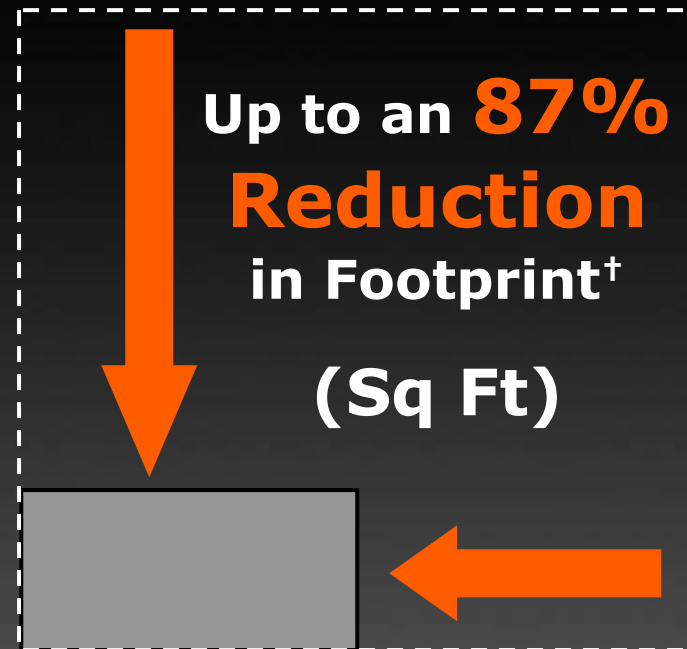
Less Cabling
Smaller Facilities

800 Single Core DP Servers



100 Quad-Core DP Servers

vs.



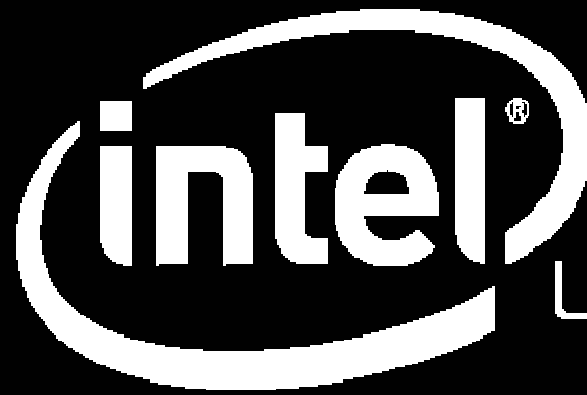
† Footprint reduction will depend on the size and form factor of consolidation

Source: Intel IT, Dec 2006. Results compare one Quad-Core Intel Xeon 5300 Series processor-based server compared to 8 Pentium III based servers using a CPU intensive database application modeling data analytics environment.
<http://www.intel.com/it/pdf/consolidate-using-quadcore.pdf>

Summary

- **45nm is here today**
- **45nm advances translate into benefits across *ALL* Intel platforms**
- **Intel is the clear leader in 45nm Technology today and into the future**





Leap ahead™

Thank you! Bottom Line...
Intel leads the way with 45 nm Technology!

