IBM Systems and Technology Group University 2005

San Diego, California
January 16 - 19, 2005

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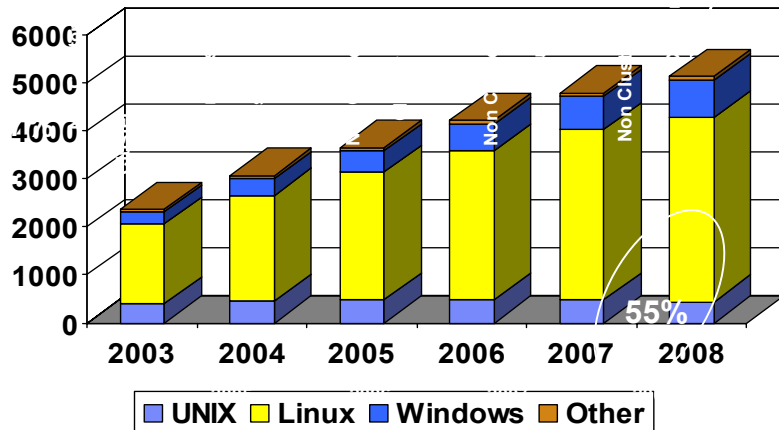
@server Cluster 1350

Course #: XXXX
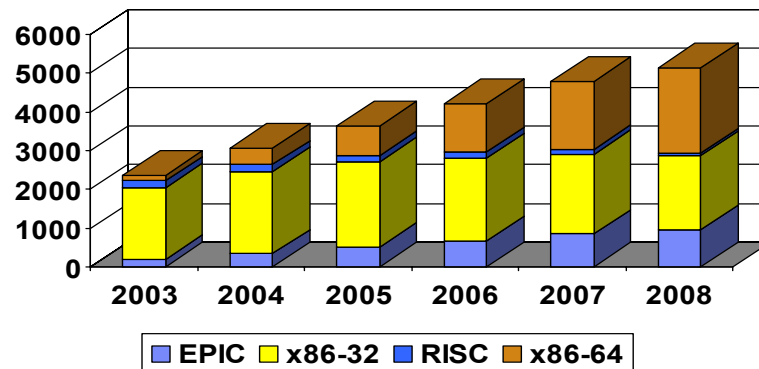
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Agenda

- **Linux Cluster Market Outlook**

- **Linux Cluster and** @server **Cluster 1350 Value**

- **Cluster 1350 Overview**

- **Finding Linux Cluster Clients**

- **Linux Cluster Tools**

- **Linux Cluster Directions**

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Linux Market Opportunity Continues to Grow

**HPC Cluster Revenue by OS
($ Millions)**

Legend: UNIX ☐ Linux ☐ Windows ☐ Other

Departmental segment (< $250K; cluster + non-cluster) will grow from 47% of 2003 revenue to 55% of 2008 revenue

Cluster share will grow from 37% of 2003 market to 58% of 2008 market (driven by cost and cost/performance advantages)

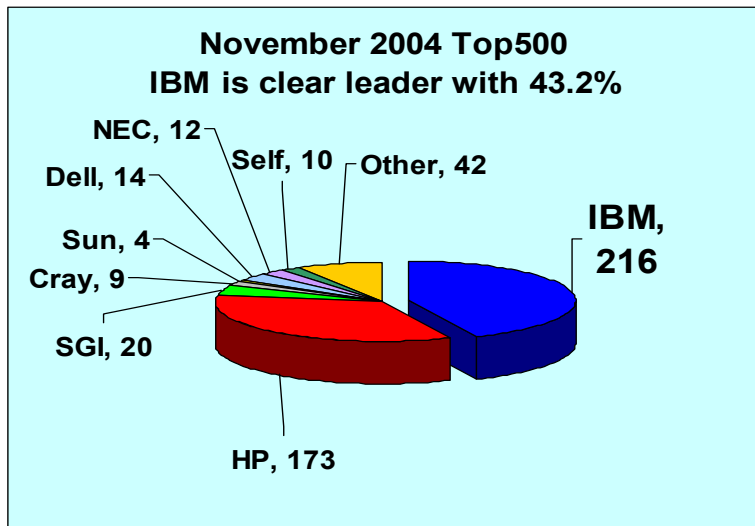**Cluster segment will continue to be dominated by Linux / x86 (32 and 64-bit)**

> **Linux grows from 70% in 2003 to 75% in 2008**
>
> **Windows will grow from 11% in 2003 to 15% in 2008**
>
> **X86 (32 and 64-bit) account for 84% of 2003 cluster revenue and 80% of 2008 cluster revenue**

**HPC Cluster Revenue by Processor Type
($ Millions)**

Legend: EPIC ☐ x86-32 ☐ RISC ☐ x86-64

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IBM is clearly a leader in supercomputing …
… and in Top500 Linux Clusters

November 2004 Top500
IBM is clear leader with 43.2%

NEC, 12
Self, 10
Other, 42
Dell, 14
Sun, 4
Cray, 9
SGI, 20
IBM, 216
HP, 173

TOP 500 ®
SUPERCOMPUTER SITES

Semiannual independent ranking of top 500 supercomputers in the world

November 2004 Top500 Linux Clusters
IBM leads with 54.7% of 294 systems

Lin Nwx, 11
Other, 33
IBM, 161
Dell, 14
Sun, 2
HP, 73

IBM is clear leader ...

- ✓ **#1 System – DOE - BlueGene/L (70.7 TF)**
- ✓ **Most entries on list with** 216 **(43.2%)!**
- ✓ **Most installed aggregate throughput with over 556.9 Teraflops (49.3%)!**
- ✓ **Most in Top10 with** 4 **systems (40%)!**
- ✓ **Most in Top20 with** 8 **systems (40%)!**
- ✓ **Most in Top100 systems with** 58 **(58%)!**
- ✓ **Largest system in Europe (MareNostrum)!**
- ✓ **Most Linux Clusters with 161 of 294 (54.7%)!**
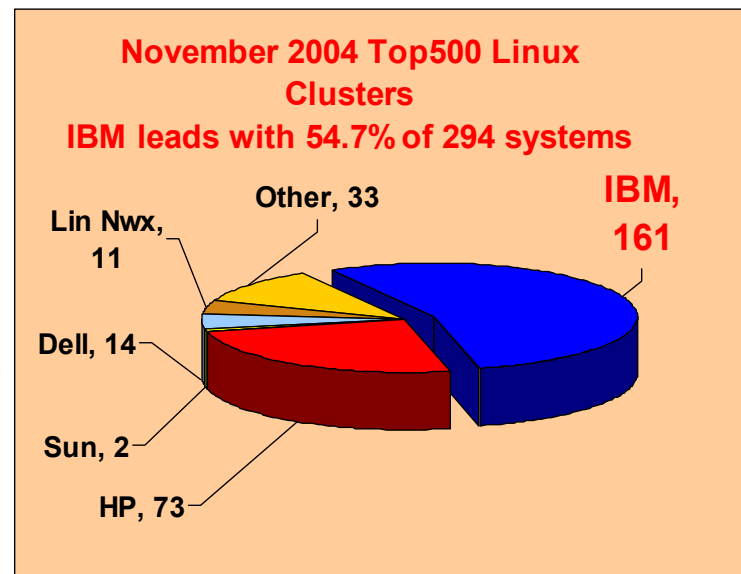
Source: www.top500.org

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Linux Cluster Value

Excellent Price/Performance

Horizontal Scalability

Rapid introduction of New Technologies

Systems Management Offerings

Growing Linux Skills Availability

ISV Application Availability

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IBM Advantages for Linux Cluster Clients

- **Extensive experience in developing innovative cluster solutions**

- **Leadership in Deep Computing marketplace as demonstrated by Top 500**

- **Extensive expertise in designing, deploying and managing some of the world's largest clusters**

- **End-to-end service and support through IBM Global Services and business partners**

- **Simplified configuration, ordering and deployment**

- **Leading-edge IBM @server® technologies**

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Cluster 1350 Value

- **Leading edge Linux Cluster technology**
  - ➢ employs high-performance, affordable Intel and AMD® processor-based servers
  - ➢ Capitalizes on IBM's decade of experience in clustering
- **Thoroughly tested configurations / components**
  - ➢ Large selection of industry standard components
  - ➢ Tested for compatibility with major Linux distributions
- **Configured and tested in our factories**
  - ➢ Assembled by highly trained professionals, tested before shipment to client site
- **Hardware setup at client site included (except 11U configurations)**
  - ➢ Enables rapid accurate deployment
- *Single point of contact* **for entire Linux Cluster … including third-party components**
  - ➢ Warranty services provided/coordinated for entire system – including 3rd party components
  - ➢ Backed by IBM's unequalled worldwide support organization

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Cluster 1350 Overview … Focus on Flexibility

- **Hardware**
  - IBM @server 326, xSeries® 336 and 346, and IBM @server BladeCenter™ HS20 and JS20 nodes
  - Gigabit Ethernet, Myrinet™ and Topspin® InfiniBand™ cluster interconnects
  - DS4100, DS4300, DS4300 Turbo, DS4400, DS4500 Storage Servers
  - DS4000 EXP700, DS4000 EXP100, and EXP400 SCSI Storage Expansion Units
  - 11U, 25U and 42U Racks

Factory Integrated Solution

- **Software**
  - RHEL 3.0 (Preload)
  - SLES 9
  - LCIT V3.3
  - IBM Cluster Systems Management V1.4.0 (optional)
  - IBM General Parallel File System for Linux V2.3 (optional)

Reduced Complexity and Simplified Deployment

- **Services**
  - Hardware system integration and installation
  - Single point of contact for warranty service (IBM and OEM components)
  - Linux Cluster installation services
  - SupportLine for Linux Clusters

Comprehensive Warranty Service

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Clients Need Multiple HPC Node Offerings

- **Client requirements for compute nodes vary according to application workloads**
  - Traditional enterprise applications require high availability features to enable high uptime
  - HPC applications require leading edge price/performance and limited high availability features
- **Demand for 2-way 64-bit platforms is increasing**
  - Price/performance advantages of Linux clusters driving migration from 64-bit UNIX® platforms
- **Client requirements vary within the HPC 64-bit segment**
  - Maximum performance focus
  - Price/performance focus
  - 32-bit backward compatibility
  - 64-bit application support

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Cluster 1350 Delivers Flexibility and Choice

Cluster 1350 is the right choice for customers who value ...

xSeries 336

xSeries 346

eServer 326

... performance and manageability for processor-intensive applications in an IA platform that supports both 32-bit and 64-bit applications

... price/performance for memory-intensive applications in a server platform that supports both 32-bit and 64-bit applications

@server **BladeCenter with JS20**

@server **BladeCenter with HS20**

... performance density, integration, and investment protection in an IA platform that supports both 32-bit and 64-bit applications

... 64-bit price/performance in a Power-based blade architecture or have applications that can exploit the unique capabilities of VMX

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Cluster Systems Management (CSM) Benefits

CSM is a powerful tool that can help reduce overall cluster management costs

- Single point-of-control for robust, centralized management

- Simplified cluster installation, operation and maintenance

- Modular architecture provides administrative flexibility

- Event monitoring and automated response capability improves uptime

- Based on proven technology from IBM Parallel System Support Programs for AIX® and Open Source tools

- Enhanced cluster tools complement CSM for Linux

  - Available on IBM alphaWorks® (http://alphaworks.ibm.com/tech/ect4linux)

Well-integrated set of tools for a comprehensive systems management solution	**Performance** – efficient monitoring can reduce cluster network traffic	**Automated error detection** – can enhance problem avoidance, rapid resolution and recovery
Focus on usability and use of Open Source products – facilitates administrator learning curve	**Automated setup** of security and predefined node groups – facilitates quick set-up of the cluster	**Single point-of-control** – provides more efficient utilization of administrators' time

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LCIT v3.3 – Key Client Benefits

The Linux Cluster Install Tool can greatly enhance cluster hardware installation, configuration, diagnosis and management.

- **Increased speed and integrity of installation and reconfiguration routines**
  - Automatic generation of configuration files
  - Immediate node, Remote Supervisor Adapter (RSA) or Management Module (MM) verification
  - Support for multiple Linux distributions (Linux distribution-independent)
- **Improved cluster management**
  - Dynamic allocation of IP addresses
  - Enhanced cluster topology analysis
  - Inventory management features
  - Dynamic monitoring and acquisition of physical cluster reconfiguration data

- **Diagnostic cluster health monitoring**
  - Reduced problem determination cycle
  - Validation of network and RSA connections
  - Ability to exercise individual nodes
  - Ability to flash BIOS, CMOS or ISMP on multiple nodes
- **Remote cluster management**
  - SSH and proxy
  - Rename nodes
  - Remote power on/off

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CSM and LCIT are Complementary Tools

LCIT v3.3 delivers key features to simplify cluster hardware set-up, validation, maintenance and problem diagnosis. CSM builds upon these capabilities to facilitate cluster software installation and updating, monitor cluster status, automate event responses, and provide ongoing cluster administration and maintenance.

Key LCIT Functions

- Discover cluster topology and inventory (including nodes, RSAs, MMs and various third-party network hardware)

- Discover MAC addresses (without requiring a terminal server) and automatically assign IP addresses to all cluster components

- Validate networks, RSAs, MMs and nodes

- Flash BIOS and CMOS on multiple nodes concurrently; flash firmware of RSAs/MMs

- Maintain log of all changes made to the hardware

- Diagnose hardware problems after set-up

- Discover new nodes installed after initial cluster installation and configuration

Key CSM Functions

- Install operating system and CSM on nodes

- Apply cluster software updates across the cluster (e.g., apply patch kernel on nodes, update applications, perform software maintenance/updates)

- Automatically set up security on the nodes

- Execute remote power control and query hardware environmental conditions

- Run distributed commands in parallel across cluster

- Synchronize configuration files across cluster

- Monitor cluster events and execute automated responses

- Manage node groups and execute operations against node groups

- Utilize CSM ECT tools on alphaWorks to set up cluster daemons (DNS, NIS, NTP) or HPC stack software

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IBM General Parallel File System for Linux

- **High-performance parallel, scalable file system for Linux operating system-based clusters from IBM**

  - Proven technology derived from GPFS for AIX (RS/6000® SP™ heritage)

  - Exploits virtual shared disk capability in IBM Linux cluster systems

  - Multiple concurrent access to a single file

  - IBM Reliable Scalable Cluster Technology (RSCT) provides automatic recovery of storage to surviving nodes

  - Journaling feature enables rapid recovery and restoration data

  - Often no application changes required – single image file access

- **Key benefit – improved system performance**

  - Increased aggregate bandwidth and capacity

  - Increases data availability and maintains file consistency

  - Significantly lower cost than SAN but with performance advantages

  - Exploits high-speed interconnect (Myrinet)

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GPFS for Linux Clusters

Each file spans multiple

nodes and multiple disks

for improved performance

Basically, a big "virtual disk"

**High-performance
Shared Disk**
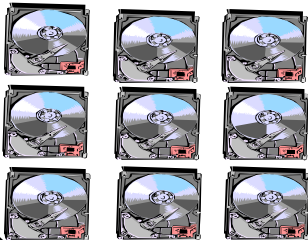
When to use GPFS

- Applications that require fast, scalable access to large amounts of file data
  - Data serving for data visualization
  - Seismic data acquisition processing
- Environments with very large data requirements, especially when single file servers (such as NFS) reach capacity limits
  - Digital library file serving
  - Large CAD/CAM file sets
  - Data mining
- Applications requiring data rates which exceed what can be delivered by other file systems
  - Large aggregate scratch space for commercial/scientific applications
  - Internet content serving to large numbers of users with balanced performance
- Applications with high-availability file system requirements

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Benefits of Linux Cluster Services

- Enhanced client satisfaction
  - Potential reduction in downtime/lost productivity
  - Optimized performance and reduced management costs
  - Customized services address unique client needs
  - Consulting/Technical Support Services assist in planning, design and ongoing maintenance
  - Implementation services assist integration with existing clusters, software installation/configuration, upgrades/migration

On-Site Technical Support

Pre-Installation Planning and Consulting

On-site Parts Locker

IGS Linux Cluster Offerings

Enhanced On-site Integration and Installation

Technical Support - SupportLine

On-Site Acceptance Testing Support

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Linux Cluster Service Offerings

IGS Linux Cluster Service offerings can significantly enhance client satisfaction by reducing downtime, optimizing cluster performance, and reducing administrative costs.

Service	Description	Responsible	Fee or Included
Basic Pre-installation Planning	**Provide physical planning advice for Cluster 1350 installation. Activities may include: participate in SAR, verify site readiness with client, identify issues and recommended alternatives.**	**Installation Planning Representative (IPR) and/or Systems Support Representative (SSR)**	**Included. If on-site visit is required, travel is billable.**
Additional Pre-installation Planning Services	**Consultation services to assess client's current physical environment and recommend actions to improve the environment.**	**IPR**	**Fee. Statement of work needed to meet client's specific requirements.**
Factory Integration and Test of Cluster	**Integrate all hardware components and supported options; verify cluster operation before shipping.**	**Manufacturing**	**Included**
On-site Hardware Setup	**Install Cluster 1350 hardware – reinstall any components depopulated for shipping, cable all components, power up cluster to verify hardware is operational and ready for software installation. 1417-11X rack is customer setup only.**	**ITS SSR**	**Included. Does not include any software installation or any integration with existing client systems.**
Software Installation Services for Linux Clusters	**Customized software installation services. May include: install Linux, install and configure CSM and/or other clustering software, configure system to work within client's network, install and test applications, etc.**	**IGS Linux Practitioners and/or Qualified Business Partner**	**Fee. Statement of work needed to meet client's specific requirements.**
Technical Support	**Support for major Linux distributions and cluster technical issues. SupportLine offers 24X7 services via telephone. Advanced support options available.**	**IGS**	**Fee.**
On-site Support Upgrades	**Enhanced levels of on-site support (24X7 with multiple response times available) through the purchase of an ITS Maintenance Contract. Service Pac part numbers of servers are added into that contract so service levels are consistent for all cluster components (rack and OEM components DO NOT have Service Pacs).**	**IGS**	**Fee. Contact ITS Maintenance – list of contact information on next two pages**
On-site Parts Locker	**For larger customers that require customer acceptance testing and/or Federal Sector/Large customers that want extra parts on-site. (This is very important to include in the bid so that proper parts planning can be done to ensure availability of necessary parts to fulfill any enhanced level of customer support.)**	**IGS**	**Fee. Contact ITS Maintenance – list of contact information on next two pages**
Enhanced On-site Support for Customer Acceptance Testing	**For larger customers that require customer acceptance testing and/or Federal Sector/Large customers that want extra parts on-site. This will allow the acceptance test team to have response time equivalent to what is being sold to customers prior to financial transfer of cluster to customer.**	**IGS**	**Fee. Contact ITS Maintenance – list of contact information on next two pages**

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Cluster 1350 Maintenance Contracts – WW Resources

Country	Contact	EMAIL	Phone
Israel	**Mearv Argaman**	**merac-argaman@il.ibm.com**	**972-3-9188699**
Turkey	**Taner Sonmez**	**Taners@tr.ibm.com**	**Mobile : +90 533 764 1543 Office : +90 212 317 1543**
UK	**Gary Herrick**	**Gary Herrick/UK/IBM@IBMGB**	**Phone: 44-01932-754649 Mobile: 44-7801-909400 (278445)**
Italy	**Franco Moltrasio**	**Franco Moltrasio/Italy/IBM@IBMIT**	**Phone 0039.02.59623064 - Mobile 0039.335 7693545**
Spain	**Antonio Bernal**	**Antonio Bernal Pastor/Spain/IBM@IBMES**	**Phone: 34-91-3976611 Â - Mobile: 34-63-9 230 844**
Ireland	**David Goodman**	**David S Goodman/Ireland/IBM@IBMIE**	**Phone: 353-1-8154272 Â Mobile: 353-86-6041955**
Canada	**ibm.com sales team**	**No specific person**	**1-800-IBM-CALL EXT. 1589**
US	**IBM Inside Sales**	**http://w3-3.ibm.com/services/cwi/portal/**	**1-(888) 426-4343, Option 1**
ANZ	**Craig Bell**	**Craig Bell/Australia/IBM**	**Phone: 61-8-8301-2337 Mobile: 61-412-414-525**

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Cluster 1350 Maintenance Contracts – WW Resources (continued)

Region	Name	Contact	Phone
ASEAN	Meng Hock Ee	Meng Hock Ee/Singapore/IBM	Phone: 65-6418-1367 Mobile: 65-9681-8818
Japan	Takashi T Itoh	Takashi T Itoh/Japan/IBM	Phone: 81-3-3779-8390
GCG	Wei AS Wang	Wei AS Wang/China/IBM	Phone: 86-10-84981188 x6059 Mobile: 86-13801197789
	Man-Ki Cheung	Man-Ki Cheung/Hong Kong/IBM	Phone: 852-2825-7712
	Kevin Kao	Kevin Kao/Taiwan/IBM	Phone: 02-8723-8956 Mobile: 0933200353
Korea	SeGun Byun	SeGun Byun/Korea/IBM	Phone: (822)3781-7466
LA	Bianca Boone		
Brazil	Carlos J Goncalves	carlos j Goncalves/Brazil/IBM@IBMBR	Phone: 55-11-2132-3423 Mobile: 55-11-7722-2128
Mexico	Carlos Espinosa Torres	carlos Espinosa T/Mexico/IBM@IBMMX	Phone: 011-525-270-4282
SSA	Marcelo Lasry	Marcelo Lasry/Argentina/IBM@IBMAR	Phone: 54114341-5532

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How to Identify a Potential Linux Cluster Client

If the client has traditional HPC applications …

… it's a potential Cluster 1350 opportunity if :

- The application is a computational problem that can be divided into multiple independent calculations
- The application requires searching or running calculations against a large data set and :
  - The individual queries or calculations can be run independently
  - The large data set can be divided into multiple smaller data sets

If the client has traditional commercial applications ….

… it's a potential Cluster 1350 opportunity if :

- The application requires multiple, independent transactions
- The application requires searching a large database and :
  - The individual queries can be run independently
  - The large database can be divided into multiple small databases

It's NOT a Linux Cluster Opportunity if every transaction or calculation must be executed "in order, one-at-a-time"

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Where to Find Linux Cluster Clients

The Cluster 1350 is applicable to a broad range of clients across many application environments. In addition, the new, smaller racks will allow clients to optimize the size and affordability of their cluster to meet specific application needs.

Primary Client Targets

- Small, Medium and Large enterprises with Scientific and Technical applications
- Large Enterprises with Decision Support applications
- Large Enterprises building their Web infrastructure
- SMB and Departmental applications and databases

Key Target Client Industries

- Petroleum
- Aero/Auto
- Life Sciences
- Health
- Media
- Academia/National Labs
- Finance
- Digital Media
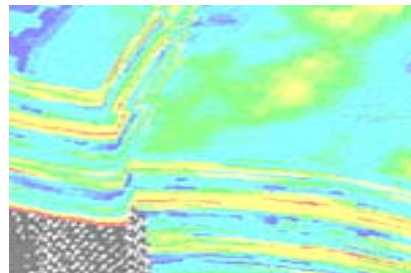
Example Workloads/Applications

- CAE
  - CFD
  - Crash
  - NVH
  - EDA
  - Structural analysis
- Scientific Research
  - Physics
  - Weather
  - Earth simulations
- Geological Analysis
  - Seismic
  - Reservoir modeling
- Life Sciences/Health
  - BLAST
  - FastA
  - HMMR
  - Protein folding
  - Drug/receptor interaction
- Financial
  - Portfolio analysis
  - Risk management
  - Market simulations

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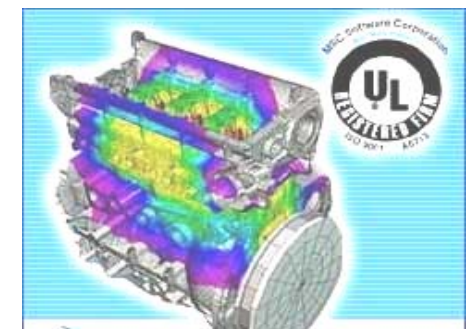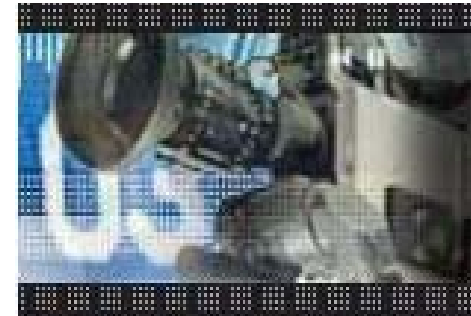
Successful Strategies for Selling Linux Clusters

- **Identify potential customers and application environments**
  - Utilize identification guidelines in target market segments

- **Team with key sector teams**
  - Industrial
  - Financial
  - Life Sciences
  - Public
  - Deep Computing/GRID

- **Work with key ISVs and partners to create Value Nets**
  - Petroleum – Landmark, Paradigm, Schlumberger/Western Gec
  - EDA – Cadence, Synopsis, Mentor Graphics
  - Automotive – Fluent, EXA, Abaqus, Engineous, ESI, Ansys, CD adapco, LSTC, Mecalog
  - Financial – Algorithmics
  - GRID -- Platform Computing, DataSynapse, United Devices, AVAKI

- **Work with Intel and AMD business managers**

- **Focus on strategic solution offerings**
  - Project Synchronicity
  - DB2 Ice

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IBM Solutions

STG + SWG: Collaborating to provide *integrated solutions* to our clients
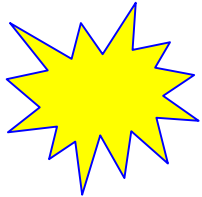
Customer buying preference for integrated solutions along with competitive pressure drove need for joint SWG / STG initiative
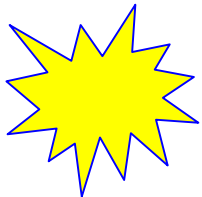
Project Synchronicity calls for new joint SWG / STG offerings, marketing, sales and channel activities to drive clothing and new opportunities

First "tactical offering" announced August 31, 2004: DB2 Integrated Cluster Environment (DB2 ICE)

DB2 Integrated Cluster Environment
For Linux

SOSWOS:
SELL OUR STUFF WITH OUR STUFF **SOSWOS** *Plus*

IGS + STG + SWG = more

DB2 ICE Solution Positioning with Cluster 1350

The @server Cluster 1350

- Thoroughly tested configurations
- Simplified deployment option for clusters
- Availability of current technologies
- Onsite customer setup included*
- Single point of contact for support
- *All* hardware warranted for three years

Excellence in CLUSTER Technology
32-bit Turnkey Solution
WINNER

PRODUCT EXCELLENCE AWARDS
LinuxWORLD CONFERENCE & EXPO

IBM BladeCenter®

Added Value with Cluster 1350

w3 Software Sales

BluePages   Search   HelpNow   Feedback

v3 Home
Software Home
Software Sales
Software University 2005
Synchronicity

08 Oct 2004
Software Home > Synchronicity > Data >

DB2 Integrated Cluster Environment

Project Synchronicity
SOSWOS: SELL OUR STUFF WITH OUR STUFF **SOSWOS** *Plus*

2004 Sales Tools
Geographies
Channel Sales

IGS + STG + SWG = more

Technical Sales
Products, Services and Solutions
Financing & License Agreements

The IBM DB2® Integrated Cluster Environment (DB2 ICE) is a complete integrated database cluster solution for Linux. It includes Novell® SuSE Linux, DB2 software, and IBM xSeries™ servers through the IBM eServer Cluster 1350 offering. The solution also includes Tivoli System Automation software at no charge Additional nodes of Tivoli System Automation need to be purchased if high availability is the key requirement across the cluster. Additional nodes can be purchased when high availability is the key requirement.

Sales Aids
Summit Award
Education & Skills
TeleWeb Central

This offering capitalizes on the growing demand for low-cost Linux infrastructure database solutions. The offering is ideal for customers to start small, and scale out to 1000 nodes, providing the ideal pay-as-you-grow, or "scale out on demand" environment.

This Sales Kit provides everything you need to understand and sell the DB2 Integrated Cluster Environment offering. More information can be found at http://d25web1.torolab.ibm.com/db2info/dminflib.nsf/DM/db2icepak.

Page Actions
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Note: "DB2 ICE" is used throughout this sales kit as an abbreviation. It is not approved for use as a product

- Offering Overview   · Diagnostic questions   · Contacts
- Initiate Contact   · Target customers   · Customer references
- Resources   · Customer references   · Customer deliverables

Turnkey cluster platform
- Scalability to 512+ nodes for data center rollouts
- Leverages IBM BladeCenter integrated features
- Complete application + database platform

Data marts and warehouses
- 4-16 nodes *sweet-spot for Linux cluster* deployments
- Attack Teradata and Oracle/Unix on price
- Industry-leading 64-bit performance

AMD Opteron

@server e326

High availability applications
- 2 nodes (primary & failover) with DB2 Express™
- Includes 2 nodes of Tivoli System Automation
- Target SMB applications

xSeries™ x346

* For 25U and 42U configurations only

DB2 ICE : What Does the Customer Get?

DB2 software for $15,498** per CPU + subscription

*New pricing when ordered as bundle**

** Passport Advantage entitled price *when ordered with the Cluster1350 offering*.
* IBM Global Financing Available!

Items	Description	Comments
DB2 Enterprise Server Edition v8.2	DB2 foundation strength	Special price, limited to 2-way (dual CPU) compute nodes *only*.
DB2 Data Partition Feature	Data partitioning for cluster	Special price, limited to 2-way (dual CPU) compute nodes *only*.
@**server** **Cluster 1350**	Complete, integrated Linux cluster hardware platform	Flexible configurations using dual-processor, **xSeries server compute nodes**

DB2 Integrated Cluster Environment For Linux

Low Rate Financing

Cluster 1350 Sales Value….Multiples and OEM Content

- **Average Deal Size =$334K**

- **Average Cluster Size = 63 Nodes**

- **Sales teams compensated for OEM content and factory integration services**
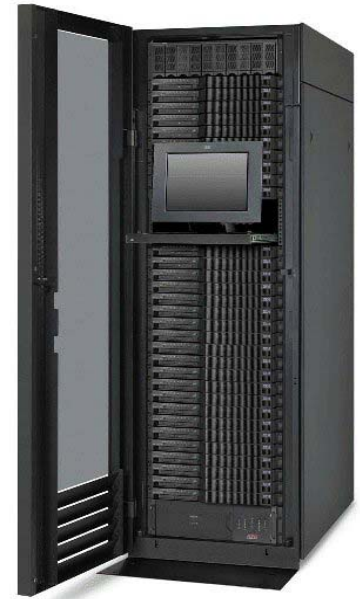
Average Unit Revenue for Cluster 1350 node approx. 20% - 25% greater than for individual nodes in a RYO cluster

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Client Wins

- Key current client references will be presented in the STGU "live" sessions.

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Getting Started -- Linux Cluster Sales Tools

- **Configurator Sales Kit on System Sales**

  –http://w3-1.ibm.com/sales/systems/myportal/_s.155/254?navID=f220s240&geoID=All&prodID=IBM%20eServer%20Products&docID=cluster1350sk.skit&docType=SalesKit&skCat=DocumentType or search system sales for "Linux Cluster 1350 Configurator Sales Kit"

- **e1350 Configuration Tool (Linux Cluster Sales Assistant)**

  –Excel spreadsheet tool – complete BOM and list prices

- **e1350 Rack Configurator**

  –Extension to xSeries Racking tool with additional topology logic

- **Linux cluster paper configurator**

  –100+ pages – documents configuration rules

- **Cluster 1350 Preconfigured Systems**

  –http://www-1.ibm.com/servers/eserver/clusters/hardware/linux.html

  –multiple configurations with spreadsheet and rack topology files

    •Easy starting point for customized configurations

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Simplifying the Linux Cluster Order Process

Use CPOM (Cluster Pre-sales Order Management Tool)
* *Workflow Management*
  * *Process Management*
    * *Project Management*

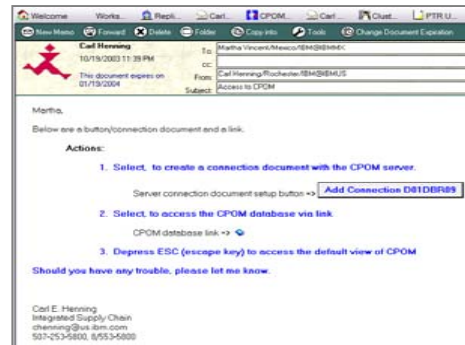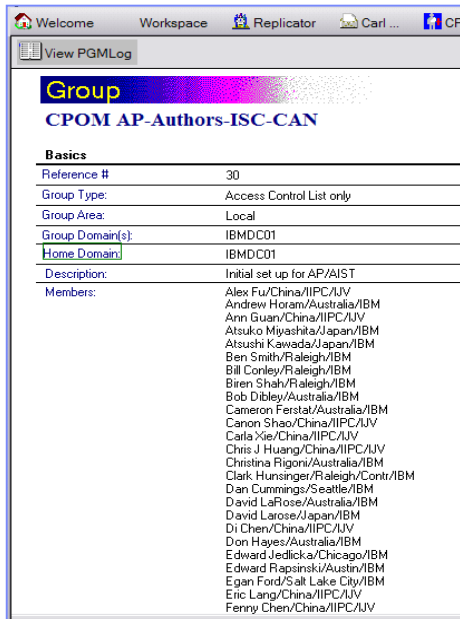**CPOM will help you manage all the key questions and processes to efficiently order a Cluster 1350 …**

– <u>How</u> do I order a Linux Cluster solution?

– <u>When</u> will my Linux Cluster solution ship?

– <u>What</u> is the next step?

– <u>Who</u> do I contact?

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Getting Started -- Ordering a Cluster 1350

Step #1 – Get access to CPOM (Cluster Pre-Sales Order Management Tool)

- Name added to access control list (ACL) … *Carl Henning: chenning@us.ibm.com*

Step #2 – Use Your Connection Document

Step #3 – Access the CPOM tool and Get Started!

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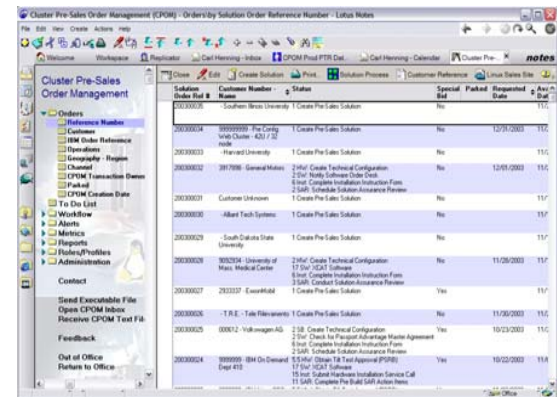
Special Bids – Your Answer to Special Client Needs

CPOM Special Bid Request is method to obtain approval to include Non-Bill Of Materials OEM/IBM devices

- *Create/Edit Config/Rack Diagram files using current e1350 Configurator (eLCSA). Highlight Non-BOM components, add comments to assist Review Team*

73P6000	e1350 Myrinet Cluster Expansion Card	x,xxx	xx	xx,xxx	xx,xx
13N2281	Cisco Systems Intelligent Gb Ethernet Switch Module		x		SPECIAL BID ITEM
02R9080	e1350 BladeCenter Optical Pass-thru Module	x,xx	X	x,xxx	x,xxx
73P6033	e1350 BladeCenter Optical Pass-thru Module LC Cable	xxx	x	xxx	xxx

- *Attach Config and Rack Diagram Files in CPOM Step 2*

- *Turn-on CPOM Special Bid Indicator and click "Submit"*

- Questions: Contact Mike Francis/Raleigh, 8/254-3193 or 919-871-3193

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Special Bids – Review and Follow-up

- *Special Bids review team includes:*
  - Expert Reviewer
  - Cluster 1350 Development (cluster hardware)
  - Cluster Software Development (CSM & GPFS)
  - Manufacturing
  - Service (ITS)
  - Cluster 1350 and node-level brand management teams

- *Check CPOM record for Review/Approval Status*

- *Avoid accepting customer PO before Special Bid has been "Approved"*

- *Examples of Special Bid Approved Devices:*

  Cisco 6513 Switch   Summit 400-48T

  Nortel BayStack 5510 Quadrics QM-S128

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Getting the Help You Need

- **Vice President and BLE, IBM @server BladeCenter, Linux Clusters and IntelliStation®– Jeff Benck**

- **Brand Manager, IntelliStation Workstations & Linux Clusters, IBM @server xSeries – Bob Lenard**

  WW Linux Clusters Marketing Team
- BrandManager, Linux Clusters, IBM xSeries– Diana Grimmer
- **LC 1350 Product Mgr. – Lisa Peña Augen**
- **Strategy, Market Dev., RTM – Stuart Alexander***
- **Industries / ISV Development – Joe Banas**
- **Planning/Communications/Sales Support – Rich Davis**
- **Software Solutions, Upgrades, and non-IBM HW – Mike Francis**

  Geography Linux Clusters Sales Team
- **Americas - Doug McGuire**
- **EMEA – Viktor Hagen**
- **Asia/Pacific - Sinisa Nikolic**

  IBM Global Services - Linux
- **Worldwide - Benoit Degreve**
- **Americas - Sam Docknevich**
- **EMEA - Clive Harris**
- **Asia/Pacific - Takami Tadamasa**

Additional Key EMEA Contacts
- **EMEA Linux BP's – Michael Mauchline**
  mauchline@uk.ibm.com   44-131 558 4266
- **Technical Sales Lead, Deep Computing – Adrian Hammond**
  adrian_hammond@uk.ibm.com   44-1603 201803
- **Technical Lead, Cluster 1350 – Andreas Thomasch**
  a.thomasch@de.ibm.com   49-7031-16 x4139

  Sales Kit (System Sales / PartnerWorld
- **IBM Cluster 1350 Spec Sheet, Facts andFeatures, Presentations, White Papers, and more**

  Redbook
- **SG24-6601-00 Linux Clustering with CSM and GPFS**
- **SG24-6041-00 Linux HPC Cluster Installation**
- **http://www.redbooks.ibm.com**

  Workshop (clients, Partners)
- **QLX31: Linux Clustering with CSM and GPFS**
- **http://www.ibm.com/services/learning/spotlight/linux**
- **2-day sessions with lab - available worldwide**

  Linux Clusters Solutions Assurance Review
- **http://w3-1.ibm.com/support/assure/ assur30i.nsf/PubAllNum/SA465?OpenDocument**
- **http://www.ibm.com/linux**
- **http://www.ibm.com/eserver/clusters**
- **http://w3.ibm.com/servergroup/linux/cluster**

  Other Key Links for Business Partners
- **http://www.ibm.com/partnerworld/pwhome.nsf/weblook/trs_spt_portal.html**
- **http://www.ibm.com/partnerworld/pwhome.nsf/weblook/trs_spt_portal.html**
- **http://www.ibm.com/servers/eserver/clusters**
- **http://www.ibm.com/partnerworld/pwhome.nsf/Weblook/trs_spt_portal.html**

Cluster 1350 …. Today and Tomorrow

Cluster 1350 will continue to expand client choice and flexibility by offering leading-edge technology and innovation in a reliable, factory-integrated and tested cluster system.

TODAY

TOMORROW

High Performance Nodes

- x336, x346, e326, HS20 and JS20

- Dual core technology
- Expanded Blade-based offerings
- New PowerPC technology

High Speed Switches, Interconnects, and Storage

- Gigabit Ethernet, Myrinet, and Topspin Infiniband
- High performance local and network storage solutions

- Emerging technologies
- Expanded 3rd party offerings
- Focus on both commercial and HPC environments

Leading OS & Cluster Management Software

- Red Hat and SUSE enterprise offerings
- LCIT, CSM, GPFS, SCALI

- Leading Linux distributions
- Enhanced cluster and HPC software

Worldwide Service and Support

- Factory hardware integration
- Single point of contact for warranty service
- Custom IGS services

- Custom hardware, OS and DB integration services
- Enhanced cluster support offerings

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Backup

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New Cluster 1350 Content

- November 15, 2004
  - e326 – 2.0, 2.2, 2.4GHz
  - x336, x346 – 2.8, 3.0, 3.2, 3.4, 3.6GHz
  - JS20 2.2GHz
  - TotalStorage DS4100 Storage Server (S-ATA)
  - TotalStorage DS300 Single Controller (iSCSI)
  - TotalStorage DS400 Single Controller (FC)
  - TotalStorage SAN Fabric Switch Model H16
  - ServeRAID-7t SATA
  - ServeRAID-7K SCSI
  - 250GB S-ATA HDD
  - 146GB 15K U320 SCSI HDD
  - Sandpiper3 (32a, 60a)
  - RHEL QU 3.0 32-bit
  - SLES 9 32-bit
  - LCIT 3.3
  - CSM 1.4.0 PTF

- December 15, 2004
  - HS20 – 2.8, 3.0, 3.2, 3.4, 3.6GHz
  - Cisco Gigabit Ethernet Switch Module (BC)
  - Brocade Enterprise SAN Switch (BC)
  - InfiniBand (Topspin) Switch Module for blades (1m cables)
  - Copper Pass-thru Module (BC)
  - BladeCenter Fibre Channel expansion card (JS20)
  - RHEL QU 3.0 64-bit and 64-bit EMT
  - SLES 9 64-bit EMT and 64-bit PPC for JS20

- January 25, 2005
  - Myrinet Cluster Expansion Card for BladeCenter - 4MB
  - InfiniBand (Topspin) Switch Module for blades (8m cables)
  - Myrinet 225MHz Fiber/PCI-X w/4MB memory
  - Myrinet Ethernet line card
  - Topspin 270 96-port switch
  - Topspin 10Gb PCI-Express adapter
  - Voltaire 9024 1U switch
  - Voltaire 10Gb PCI-X adapter
  - Voltaire 10Gb PCI-Express adapter
  - SMC 8648T 48-port Gigabit Managed Switch
  - Force 10 E600 Switch and options (4-port 10GB line card and 10GB XENPAK SR-Fiber)
  - Cisco 65xx options (10GB 4-port line card and XENPAK 10GB-SR)
  - RHEL 3.0 QU3 Preload

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Cluster 1350 Node Choices

xSeries 336
**Highly manageable
rack-dense node**

- 16GB Maximum Memory*, 8 RDIMMs
- 2 Hot-swap SCSI hard disk drives
- Dual Processor Support – Nocona (11/04)
- Integrated System Management
- 1U

@server BladeCenter with HS20
**Comprehensive modular
computing solution**

- Dual Processor Support – Nocona (12/04)
- 14 Blades per Chassis
-
- Integrated System Management
- 7U Chassis

@server BladeCenter with JS20

- POWER 4-based BladeCenter Blade (11/04)
- 1.6GHz PPC 970, 2-way Blade
- Maximum Memory: 4GB
- IDE Drives: 2, 40GB
- 2 Daughter Cards available (Ethernet, Fibre Channel w/Boot Support)

xSeries 346
**High-availability node for
application serving**

Management Node
- Dual Processor Support – Nocona (11/04)
- 16GB Maximum Memory*
- 6 Hot-swap SCSI HDDs
- Integrated System Management
- 2U

eServer 326
High Performance rack dense node

- Dual Processor Support - Opteron
- 16GB Maximum Memory (with PC270 option), 8 RDIMMs
- 2 Hot-swap SCSI or 2 Fixed SATA HDDs
- Integrated System Management
- 1U

*When 2GB RDIMMs are supported.

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