The IBM Enterprise Linux Server – A solution to your IT challenges

Use cases: Why customers have chosen the IBM Enterprise Linux Server

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Many customers are realizing the benefits of consolidating on the Enterprise Linux Server

- Atos Origin
- AutoData Norg AS
- Baldor
- Banco Pastor
- Bank of New Zealand
- Bankia
- BG-Phoenics
- BSBC Minnesota
- Business Connexion
- City of Honolulu
- Colacem S.p.A.
- Computacentre
- Dundee City
- Efis EDI Finance
- El Corte Ingles
- Embasa
- Endress+Houser
- EuroControl MUAC
- gkd-el
- IBM Blue Insight
- Liberty Mutual
- Marist
- Marsh
- Miami Dade County
- National Registration Dept
- Nationwide
- NWK
- Procempa
- RCBC
- RENFE
- Salt River Project
- Shelter Mutual Insurance
- Shikoku Electric
- Sparda Datenverarbeitung eG
- Svenska Handelsbanken
- University of Bari
- University of Arkansas
- University of NC
- VietinBank

Let's look at a few of these up close…

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How some businesses solved their challenges with the Enterprise Linux Server

	Before	After
Company A	Server sprawl meant their data center was at capacity	• Reduced data center footprint by 30%, heat output by 33% and carbon footprint by 39%
Company B	An acquisition led to multiple platforms, steep IT and admin costs, and unsatisfied customers	• Reduced IT costs by 50%, cut power costs by 40%, and reduced floor space by 6x
Company C	Existing distributed platform not scalable to handle future growth	• Reduced space and power consumption by 80%, monthly HW charges by 50% • Expected savings of $16M over first 3 years

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How some businesses solved their challenges with the Enterprise Linux Server

Before	After
Server sprawl meant their data center was at capacity	*"Deploying [ELS] to address our carbon footprint and cost savings concerns was a very big deal, especially at the senior management level."* - Lyle Johnston, Infrastructure Architect
An acquisition led to multiple platforms, steep IT and admin costs, and unsatisfied customers	*"Migration of our SAP application servers to Linux on the [ELS] produced an immediate increase in performance, and has made it easier to manage and maintain our systems."* — Mark Shackleford, Director of Information Services
Existing distributed platform not scalable to handle future growth	*"We were able to provide a reduction in server cost of more than 50% to our customers. Linux on [ELS] saved significant data center floor space and power consumption."* - Steve Womer, Senior IT Architect

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SinphoniaRx (USA)

In partnership with the University of Arizona College of Pharmacy,
providing a pharmacists call center and medication management service

- Used an Intel-based Apple Mac Pro and MySQL database
- Processing information for more than 2.5M members

Business challenge:

- Anticipated astronomical growth – to 10M patients and millions of volumes of claims data in coming years

IT challenge:

- Major I/O bottlenecks caused delayed analysis of patient data
- Hardware reliability – Apple was not planning an upgrade for the Mac Pro system

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SinphoniaRx (USA)

Solution:

Replaced their Mac servers with an Enterprise Linus Server with four processors, and replaced MySQL with DB2

- The full environment was migrated over a weekend
  - The mainframe was installed on Friday, the software was all loaded and tested on Saturday, and the entire environment went live on Sunday…
  - …with no hiccups or problems!

Benefits:

- Reduced data load times by 1/3
- Improved I/O performance for better data analysis
- Batch processes run during normal business hours without disrupting operations
- Today, their system is being run by a single Linux programmer on a part-time basis

"One of the reasons we went with the [Enterprise Linux sServer] was the ability to enhance the box almost infinitely. We can add more processors, memory, and a lot more I/O without reconfiguring"

"My DBAs have been playing with DB2 [software] and they're blown away. I've got two guys who have a lot of experience with Oracle and SQL server and they were a little leery about DB2 when I hired them. But they're very happy with the capabilities and functionality so far."

— Kevin Barber, director, data systems, SinphoniaRx

White Cube (London, UK)

Focused on establishing lasting relationships with artists, as well as providing a richer experience for clients, artists and the public…

- Recently expanded internationally, opening new galleries in Hong Kong and Sao Paulo

Business challenge:

- Provide real-time inventory access and continuous availability in worldwide context, with options for growth

> *"We have suddenly transformed from a U.K.-centric business to a truly global organization, operating in three different time-zones. From an IT perspective, this posed some real challenges: our existing systems landscape was never designed for 24/7 operations and having a much smaller maintenance window made it more difficult to ensure availability."* — James Meara, IT manager at White Cube

IT challenge:

- Replace the 12 aging x86-based Sun servers
  - Supporting their core systems - including file servers, warehousing and logistics system, and traditional email and back-office systems

Larry Bell
Mirage Collage and the Light Knots

16 October 2013 – 12 January 2014
North Galleries, Inside the White Cube

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White Cube (London, UK)

Solution:
Consolidate distributed servers onto IBM Enterprise Linux Server

- Recognized benefits of the platform
  - Proven track record in traditional industries for reliability, performance, and flexibility
  - A single backbone for their entire IT landscape
- Enabled close integration of databases, repositories and email systems with new Cognos analytics platform

Benefits:

- Noticeable improvement in response times for warehousing and logistics systems
- Scales up to meet the needs of the business – set up new VMs in 2 minutes!
- VM live guest mobility means no need to bring systems down for maintenance and upgrades
- Cognos eliminates spreadsheet-based analytics

"We wanted to find a platform that was built for high availability, that was versatile enough to handle all of our diverse workloads and that could scale up to meet new demands such as business intelligence. Running [IBM ELS] was the best solution to meet all of our requirements."

"In all honesty, managing a Linux environment on [ELS] platform is hardly any different from managing a Linux environment anywhere else. We still use the same monitoring and administration tools, and our network and storage specialists have not needed to learn any mainframe-specific skills at all."

— James Meara, IT manager at White Cube

Sicoob (Brazil)

Business Challenge:
Brazilian credit union system needed to ensure that it could meet members' needs for **24/7 service** and **mobile access** to information. Existing distributed infrastructure could not **scale** to provide the necessary performance and availability, or meet data consolidation requirements for analytics.

Solution:

- Virtualized distributed servers onto 2 ELS servers
- Capable of running more than 300 virtual servers on one platform
- IBM DB2 software supports 50 major databases

> *"Compared with databases on our previous distributed landscape, DB2 running on Linux on the [ELS] platform offers more reliability and performance, and better integration with our backup, monitoring and ETL tools."*
>
> *—Paulo Nassar, IT Processing and Storage Infrastructure Manager, Sicoob*

SICOOB

Results:

- Enabled **600%** growth in mobile solutions, and **200%** growth in internet banking
- Supported 60% increase in in-branch transactions, while avoiding $1.5M a year in electricity costs
- Transformed the speed, reliability and efficiency of service delivery to members

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The Met Office (UK)

75%
reduction in Oracle licensing costs

17 ELS cores
now handle workload that previously required 204 x86 cores

Major simplification
of the distributed server landscape achieved

Met Office

The transformation:
The Met Office was using Oracle-based systems, mostly running on distributed Linux servers, to handle the post-processing of data from its weather supercomputer.
By consolidating all of these distributed database systems to the IBM Enterprise Linux server, Oracle licensing costs have been cut by approximately 75%.

"By consolidating distributed commodity servers you can save a great deal of money."
— Martyn Catlow, portfolio lead for centralised IT infrastructure, the Met Office

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Additional use cases of interest

RADIXX INTERNATIONAL
All systems. Go.℠

- Migrated and consolidated existing Oracle Database software infrastructure from 14 x86 servers onto Enterprise Linux Server with 10 cores
- Also implemented an IBM FlashSystem 840 device with solid-state drives to provide exceptionally high I/O performance.
- Gained ability to scale its capacity for airline reservation system by a factor of 10 on the same platform
- Total cost of ownership was reduced by 50 percent.
- Consolidated infrastructure created a simplified, better managed server environment and helped reduce software licensing costs.

Sanming Human Resources and Social Security Bureau (China)

- Consolidated dozens of x86 servers and minicomputers onto an Enterprise Linux Server in order to support their new public-service system supporting 2.73M residents
- x86 servers integrated at a 1:20 ratio and minicomputer servers integrated at a 1:8 ratio, yielding a reduction in software costs of 90%
- Consolidation improved resource use and decreased complexity of operations, management and maintenance
- Improved CPU and I/O processing capacity led to reduced batch-job runtime by 50%

Tests show cost-effectiveness of secure private clouds on Enterprise Linux Server

Typical enterprise mixed workloads

64 Light Workloads (128 VMs)

32 Medium Workloads (64 VMs)

27 Heavy I/O Workloads (27 VMs)

123 workloads (219 VMs)

Which option provides the lowest TCO over 3 years?

Public Cloud

Private Cloud on x86

Private Cloud on ELS

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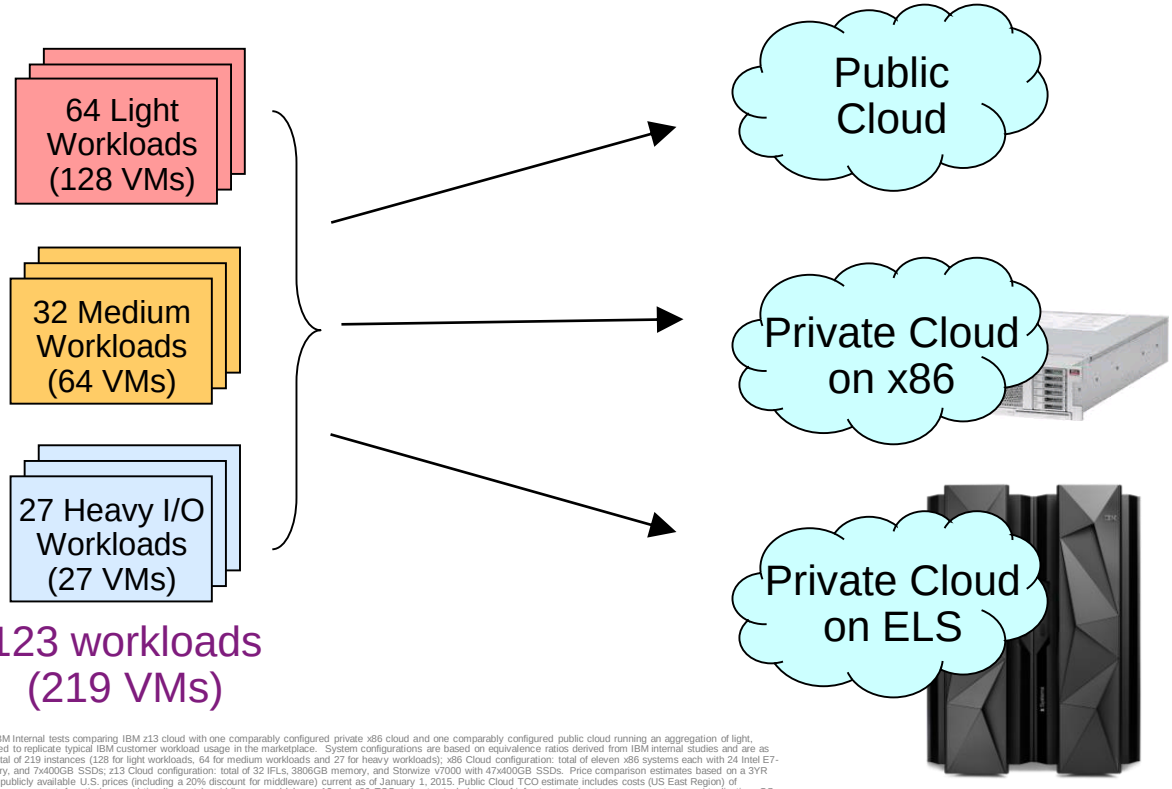
The secure private cloud on Enterprise Linux Server yields the lowest TCO



219 instances
$21.1M (3yr TCO)

264 x86 cores
$10.6 (3yr TCO)

32 Linux cores
$7.2M (3yr TCO)

32% Less than x86 cloud*

66% Less than public cloud*

*estimated

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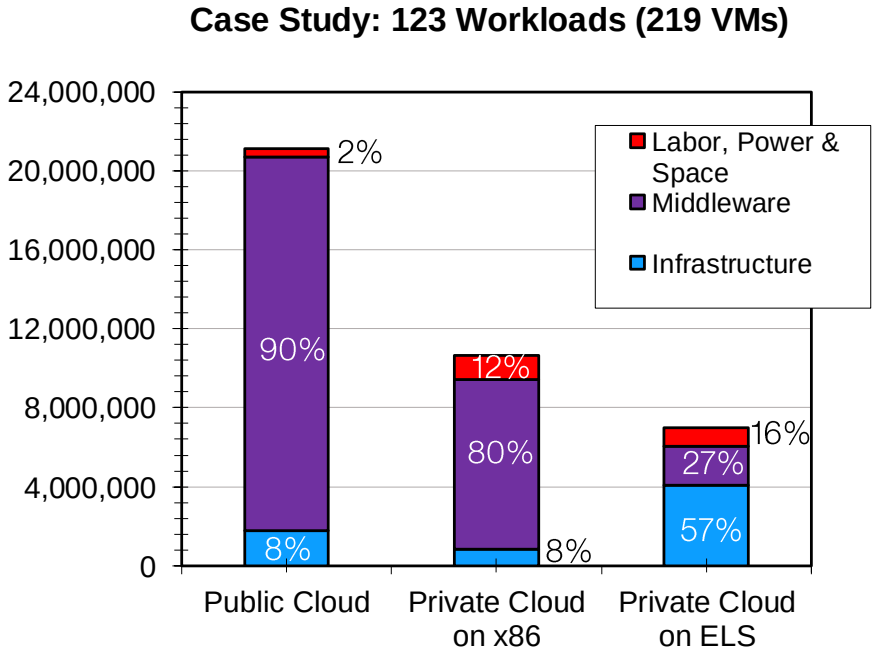
Performance comparison based on IBM Internal tests comparing IBM z13 cloud with one comparably configured private x86 cloud and one comparably configured public cloud running an aggregation of light, medium and heavy workloads designed to replicate typical IBM customer workload usage in the marketplace. System configurations are based on equivalence ratios derived from IBM internal studies and are as follows: Public Cloud configuration: total of 219 instances (128 for light workloads, 64 for medium workloads and 27 for heavy workloads); x86 Cloud configuration: total of eleven x86 systems each with 24 Intel E7-8857 v2 3.0GHz cores, 512GB memory, and 7x400GB SSDs; z13 Cloud configuration: total of 32 IFLs, 3806GB memory, and Storwize v7000 with 47x400GB SSDs. Price comparison estimates based on a 3YR Total Cost of Ownership (TCO) using publicly available U.S. prices (including a 20% discount for middleware) current as of January 1, 2015. Public Cloud TCO estimate includes costs (US East Region) of infrastructure (instances, data out, storage, support, free tier/reserved tier discounts), middleware and labor. z13 and x86 TCO estimates include costs of infrastructure (system, memory, storage, virtualization, OS, cloud management), middleware, power, floor space and labor. Results may vary based on actual workloads, system configurations, customer applications, queries and other variables in a production environment and may produce different results. Users of this document should verify the applicable data for their specific environment.

A breakdown shows how middleware costs soar on both the x86 cloud and the public cloud

Factors that contribute to the lower costs on ELS:

- SMT-enabled Linux cores
- Larger memory support
- Fast I/O
- Reduced middleware licensing costs
- Reduced labor costs
- Reduced power and space



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Businesses worldwide are building enterprise grade cloud platforms on Enterprise Linux Server

NY Municipal Shared Services Cloud

Shared services cloud will deliver services to local governments

Cloud model is predicted to eliminate 25% of IT budget

Growing MSP uptake with new partnerships around the world

Business Connexion

L36

Oceanet Technology

vissensa
forward thinking

Efficiently delivering high quality services to clients

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IBM's own data center transformation and consolidation project has delivered results

Before	Today
~15,000 Distributed servers	~30 Enterprise Linux Servers
155 Data centers	7 Data centers
30 Images per admin	100 Images per admin
<10% Average server utilization	>60% Average server utilization

80% less energy, 85% less floor space
~$100M total cumulative savings to date

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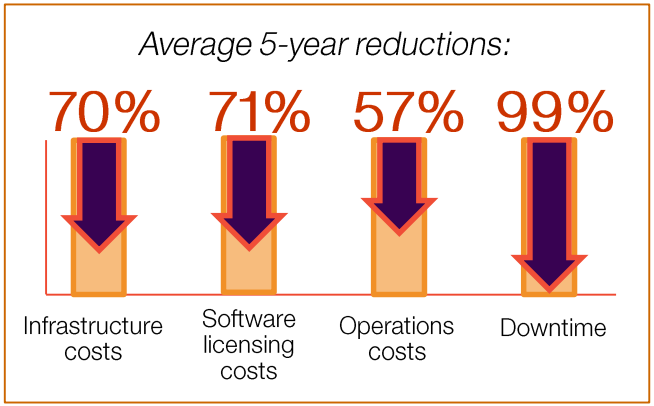
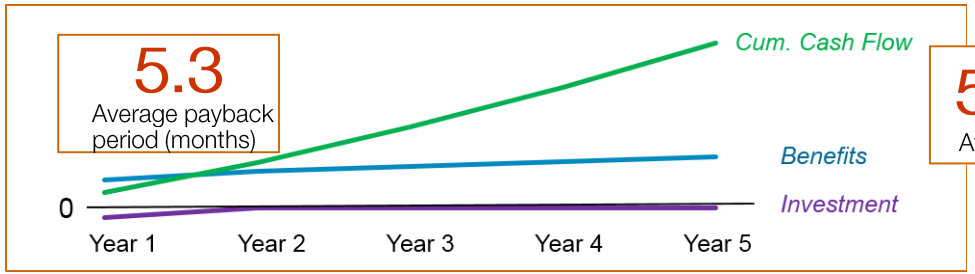
Customers highlight the value of consolidating on the IBM Enterprise Linux Server

IDC study of 6 organizations that consolidated onto Enterprise Linux Server:

79
Average number of servers consolidated by each organization

Average 5-year reductions:





501%
Average ROI

Source: IDC July 2013