



Why “i” for Linux?

The Linux® operating system has emerged as a key enabler for e-business across the enterprise. Acceptance of Linux is rapidly expanding, and the operating system is now widely used for infrastructure, Web applications and Internet appliances, and application deployment platforms.

But why deploy it on your IBM @server iSeries?

Five top reasons

- Rapidly deploy – no new hardware required. Use spare iSeries capacity
- Prevent server-creep by consolidating multiple Linux servers on iSeries
- Tightly integrate with IBM @server i5 and AIX applications
- Fast, secure communications with iSeries Virtual LAN
- Perform a single tape back up for your entire infrastructure.



Run multiple Linux servers on a single server

iSeries offer innovative Linux virtualization and integration through industry-leading logical partitioning (LPAR) technology.

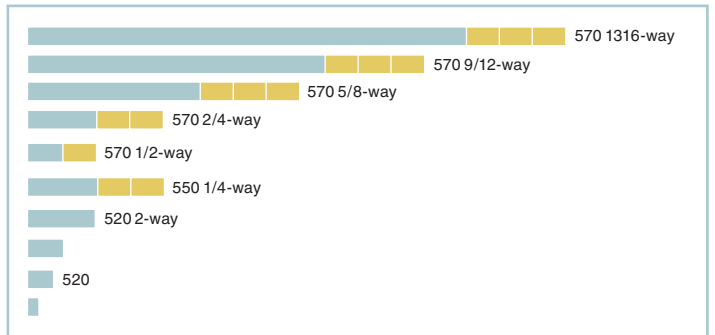
With iSeries servers, Linux Partitions can be created in two ways:

1. For maximum flexibility LPARs can be created using the Hardware Management Console (HMC). This enables up to 256 LPARs to be created with full I/O support and dynamic resource movement between LPARs.
2. For simple deployments or pilots, the recently announced Virtual Partition Manager allows the creation of up to 4 Linux LPARs without the need for an HMC. This no-cost deployment can enable i5 users to get started with Linux today!

With the virtual partition manager, an i5 server can support one i5/OS partition and up to four Linux partitions. The Linux partitions must use virtual I/O resources that are owned by the i5/OS partition. With the virtual partition manager, uncapped processor partitions can be created and up to four virtual Ethernet connections can be defined. Dynamic resource movement to/from the Linux partitions is not supported. The virtual partition manager support is included with i5/OS for no additional charge and is provided via a PTF.

Deploy Linux servers on demand

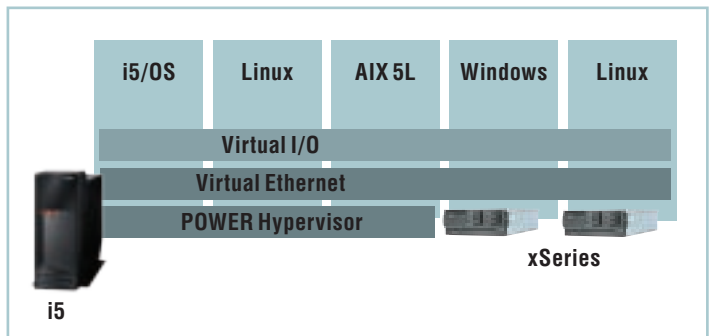
iSeries i5 servers provide IBM clients with exceptional flexibility through Capacity on Demand features. The processors in these servers can be activated temporarily or permanently and dynamically allocated to Linux partitions.



Run multiple operating systems on the same server

As well as supporting Linux, this partitioning functionality also supports multiple images of IBM AIX 5L and IBM i5/OS (the latest generation of OS/400) operating systems on a single server.

An iSeries i5 server supports up to 10 LPARs per processor for a maximum of 254 partitions per physical server.



Share system resources between applications and partitions

Processor and memory resources can be moved independently between partitions with a granularity of one-hundredth of a processor and 1MB of memory. Shared processor resources can be moved automatically between Linux, AIX 5L and i5/OS partitions as the application requires it.

Integrate Linux and i5/OS (OS/400) applications

iSeries servers provide integration between Linux applications and i5/OS facilities. Linux applications can access data stored in DB2 UDB on i5/OS and can access files stored in the i5/OS integrated file system.

Running Linux on the iSeries also enables use of the Virtual Ethernet LAN facilities to support partition-to-partition communication. With Virtual Ethernet, up to 4,094 virtual networks can be defined for application communication. These connections can provide 1Gbps performance and do not require LAN adapters, switches or physical networks.

Communications via the VLAN are also highly secure – never 'leaving the box' and being at risk of LAN 'sniffing'.

Linux and i5 storage benefits

The iSeries can dynamically add, move or delete virtual disk space assigned to Linux partitions. Up to sixty-four 1TB storage spaces for Linux can be carved out from the i5/OS integrated file system.

This centralisation of storage resources enables IBM clients to extend their i5/OS disk subsystem, management skills and best practices to Linux. For example, a full backup of an i5/OS system includes the virtual storage spaces used by the Linux partitions. The daily backups performed by Linux can support file-level save and restore, and can utilise the tape devices managed by i5/OS.

Reliability

The iSeries i5 system is a highly reliable server, offering leading single-server availability. With unique virtual disk support, the iSeries i5 server can provide an excellent environment for Linux based testing, development, and deployment of mission critical applications.

64 Bit and 32 Bit Linux deployments

Until recently it has only been possible to run Linux natively on iSeries – meaning that the Linux application had to be 64 bit. Despite the fact that 64 bit applications will perform better, not every Linux application is 64 bit ready.

To run a Linux application natively on 64 bit it simply has to be recompiled, but if for whatever reason you do not want to do that, you can now run 32 bit Linux on iSeries.

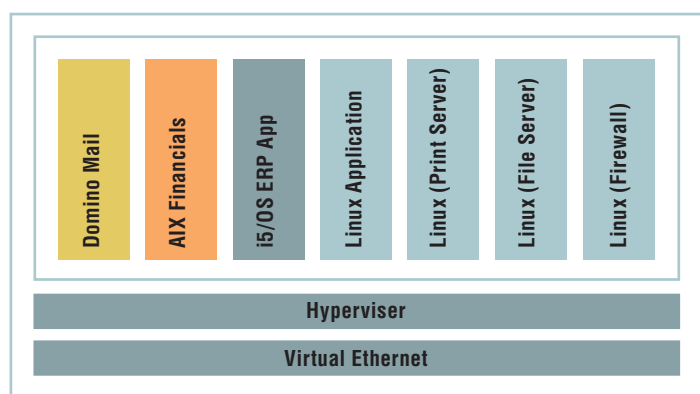
This 32 bit deployment in the Integrated IBM @server xSeries Environment (IXA or IXS) so does not have all the benefits of running natively on the iSeries Power processor (e.g. dynamic processor reallocation), however it does still have the following benefits:

- Shared storage with the iSeries
- Non-disruptive addition of disk capacity
- Fast disk access due to single level storage
- Shared back up and recovery with the iSeries
- Fast restore with IXS hot spare
- Shared Virtual LAN communications with all other partitions on the server (AIX, i5/OS, Linux) and Microsoft® Windows® in the IXA environment.

Low cost Linux deployment

With shared processor and virtual I/O support, Linux environments have minimal hardware requirements. This can translate into a low-cost investment to run Linux applications on iSeries i5 servers.

The cost of managing the servers could also be reduced as more instances can be deployed on a single hardware platform leading to savings in backup, DR, server administration, and storage management.



Focus on file serving with SAMBA

With SAMBA 3.0, file serving can be moved from multiple Intel® servers to a single iSeries (and even to a single Linux partition if desired) – without any disruption to the end user; they won't even know the servers have changed.

SAMBA can be configured to work seamlessly with Active Directory or Windows NT4 Domains.

- Support for flexible / growing storage requirements with up to 64TB of disk per partition – as well as the ability to add additional disk without having to stop the server
- Rapid recovery and restore as the Linux OS can be backed up as an i5/OS IFS object

- By leveraging the single-level storage architecture of the iSeries and i5 server, file serving on a Linux-based system may provide significant performance improvements over other solutions. The 'disk' that the Linux operating system uses is actually an IFS object that can be spread across all of the disk arms of the hosting i5/OS partition.

If you are interested in deploying SAMBA on iSeries as a strategic solution, or even simply as a pilot, IBM can provide you with a free deployment guide or even get you up and running with a single day's services.





Monthly iSeries 'in touch' Events

Also, why not register for one of our free monthly iSeries briefings where we provide a product update and demonstrate many of the latest iSeries capabilities including:

- *IBM Workplace on iSeries*
- *Domino 7 on iSeries*
- *Web enabling iSeries applications with WebSphere*
- *Running AIX and Linux on iSeries*
- *Integrating Windows servers with iSeries.*

To see the agenda, forthcoming dates, and to register, please visit:
ibm.com/uk/news/events/intouch

Further information

To find out more details about running Linux on iSeries please visit: **ibm.com/series/linux**

For general information about iSeries please visit the following site which also contains information on how to contact an IBM representative: **ibm.com/servers/uk/eserver/series/**

IBM United Kingdom Limited

emea marketing and publishing services (emaps)
Normandy House
PO Box 32
Bunnian Place
Basingstoke
RG21 7EJ
United Kingdom

The IBM home page can be found at **ibm.com**

IBM, the IBM logo, ibm.com, AIX, AIX 5L, DB2, @server, Domino, iSeries, i5/OS, OS/400, Workplace, WebSphere, and xSeries are trademarks of International Business Machines Corporation in the United States, other countries, or both.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft and Windows, are trademarks of Microsoft Corporation in the United States, other countries, or both.

Intel, Intel Inside (logos), MMX, Celeron, Intel Centrino, Intel Xeon, Itanium, Pentium and Pentium III Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States, other countries, or both.

References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program or service is not intended to imply that only IBM products, programs or services may be used. Any functionally equivalent product, program or service may be used instead.

IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM warranty terms apply.

This publication is for general guidance only. Information is subject to change without notice. Please contact your local IBM sales office or reseller for latest information on IBM products and services.

Photographs may show design models.

© Copyright IBM Corporation 2005
All Rights Reserved.

