Innovative solutions for Intel server integration

Integrated IBM @server® xSeries Solutions for iSeries

- Integrated server management and user administration
- Centralized, dynamic virtual storage for Windows® and Linux® servers
- Consolidated backup and shared tape resources
- High-speed Virtual Ethernet connections for highly secure Windows Server™ networking

Innovative integration
Many businesses today manage heterogeneous environments that include Microsoft® Windows and Linux applications running on Intel® processor-based servers and core business applications running on an IBM® @server® iSeries™ or @server i5 system. This mix of servers may be necessary to support business needs; however, it may also grow into a challenging environment—one that involves managing many discrete servers and can lead to higher costs, and a more difficult operation to manage overall.

The IBM @server iSeries family of servers, including the newest member, IBM @server i5, offers two solutions that provide powerful, flexible and highly cost-effective alternatives to managing Intel server farms: the IBM Integrated xSeries® Server and xSeries attached via the IBM Integrated xSeries Adapter.

Both products deliver tightly integrated, easily managed Intel server deployment solutions that help provide a cost-effective and efficient alternative to running Windows or Linux on multiple standalone Intel servers.

The difference between the two solutions is how the xSeries hardware integration is accomplished. Each solution is designed to meet different requirements.

A better way to do Windows and Linux
The Integrated xSeries Server is an Intel processor-based server on a PCI-based interface card that plugs into an @server i5 system. It delivers a powerful Intel® Pentium M™ 2.0 GHz processor. It has a built-in, dual-port Gigabit Ethernet Adapter.
The Integrated xSeries Server leverages the system management, communication and storage resources of i5/OS™, but otherwise operates as if it were a standalone Intel server. As many as 48 discrete Integrated xSeries Servers can be installed inside a single iSeries system, creating an entire server farm in a single, easily managed platform—capitalizing on the reliability, manageability and flexibility of the iSeries family of servers.

The Integrated xSeries Adapter is a PCI-based interface card that installs inside selected models of xSeries servers, providing a 1 Gigabyte per second (Gbps) High Speed Link to an iSeries or i5 system. This allows for centralized storage, and integrated operations and systems management.

Integrated xSeries Adapters enable the direct attachment of as many as 57 n-way xSeries servers to a single IBM @server i5, allowing the deployment of greater Intel processing power and taking full advantage of the latest IBM X-Architecture™ innovation. Each xSeries server has its own processors, memory and Integrated xSeries Adapter, and like the Integrated xSeries Server, shares the disk, tape, DVD and systems management resources of an @server i5 system.

Both integrated xSeries server options are designed for local consolidation of Intel servers and storage, and can also provide centralized management of @server i5 and xSeries servers in distributed offices. These solutions allow you the flexibility to configure a consolidated infrastructure that best fits the specific requirements of your business. If you need to efficiently deploy multiple smaller Windows servers, choose a single @server i5 server and install several Integrated xSeries Servers in it. Or, if you need mission-critical processing power and scalability, you might connect powerful 2-way, 4-way or 8-way xSeries servers to an @server i5 server via Integrated xSeries Adapters. Either way, you get true integration that gives you the freedom to run the best mix of applications for your business while operating the entire implementation as a single infrastructure with minimum complexity.
Integrated operations
Centralized, graphical server management:
iSeries Navigator provides a graphical user interface for managing both i5/OS (the next generation of Operating System/400®) and integrated xSeries servers. Administrators may easily start and stop servers, enroll i5/OS users to a Windows domain and perform storage management tasks such as adding new virtual disks to an xSeries server. iSeries Navigator for Wireless enables administrators to view server status, start/stop servers and run Windows commands for integrated xSeries servers from a Web-enabled cell phone, Personal Digital Assistant (PDA) or a Web browser.

Synchronized security:
With Integrated xSeries Solutions, i5/OS and Windows Server user IDs and passwords can be integrated and centralized. When a user is added to i5/OS, the user can be automatically added to the Windows environment with proper authorities. When the user changes their i5/OS password, their Windows password can be automatically synchronized. Or, through Enterprise Identity Mapping (EIM) integration in i5/OS, if the user indicates their profile is to be used in a single sign-on environment, then the user’s password may be managed from within Windows. This integration helps reduce user administration costs because it cuts down on the maintenance of multiple user IDs, passwords and authorizations across multiple IT environments. It also provides greater security by reducing the number of passwords when supporting a single sign-on environment.

Consolidated backup:
Integrated xSeries solutions can provide consolidated i5/OS, Windows and Linux backup, allowing businesses to more fully leverage hardware and IT support resources. In a typical Windows server farm, data may be scattered across multiple servers, with backup processes running on each one and multiple tape drives to manage. With iSeries and xSeries server integration, i5/OS, Windows and Linux storage and backup resources can be shared and consolidated. One tape device can perform automated backup for the entire infrastructure. It’s that simple.

Reliable, highly secure, high-speed communications:
i5/OS and integrated xSeries servers running Windows are able to communicate over high-speed Virtual Ethernet network connections. These networks may be utilized for Windows-to-Windows, Windows-to-i5/OS or even Windows-to-Linux on POWER™ communications. Because there are no cables, connectors, hubs or routers, there are fewer points of potential failure. Network traffic travels inside the iSeries, not across external networks. Virtual Ethernet networks can isolate server-to-server traffic and help provide more reliable and secure communications, faster network communications (1 Gbps) between servers and reduced external network traffic.

Exceptional storage management
One of the most significant advantages of the iSeries family of servers is its unique storage architecture that can provide more flexibility than conventional Intel server implementations, where there are typically dedicated disk drives attached to every server and each server’s capacity is managed separately. With IBM @server i5, there can be one pool of disk drives that i5/OS, AIX 5L, Linux and integrated
xSeries all utilize and i5/OS can automatically spread the data across all the physical disk drives on the system. This architecture can provide tremendous performance advantages as well as more efficient use of storage resources.

With the Integrated xSeries Server and Integrated xSeries Adapter, the superior storage management capabilities of the iSeries servers are made available for Windows and Linux transparently. Disk storage is allocated to xSeries by creating a storage space object (i.e. virtual disk space) from the i5/OS pool of available capacity. Up to 32 storage spaces can be created and linked to each Integrated xSeries Server or xSeries attached via an Integrated xSeries Adapter. Each storage space can be up to 1TB in size, for a maximum of up to 31TB per xSeries server.

Flexible and reliable server deployment
Integrated xSeries Solutions and i5/OS storage virtualization provide innovative options that can enable customers to enhance the reliability and recoverability of their Intel server environment. If a server fails, you can quickly and easily switch the server’s storage spaces to another “hot spare” xSeries server without restarting your server i5. This may easily reduce the overall number of Intel processor-based servers needed to provide increased availability. It also adds flexibility by enabling one “spare” server to be used to protect multiple production servers.

If automatic fail-over is required to support Windows application availability, Integrated xSeries Solutions support Microsoft Cluster Services in Windows Server 2003 Enterprise Edition.

In a typical Intel server implementation, there may be several server configurations: production servers, development servers and/or test servers, each with its own set of software and device drivers. Testing and deploying changes across multiple servers can be problematical because of the number of different configurations that must be maintained. A test server may need to be made available for every different configuration, or a test server may need to be rebuilt from scratch to match a production server whenever there are changes to be deployed.

A single xSeries integrated with an i5 system may easily be used to support multiple test and deployment environments. One xSeries can be made to “look like” any of the other servers, because the server hardware may be completely divorced from the storage spaces on which a specific Intel server configuration and data is installed. There is no physical boot drive within the xSeries server—all “drives” are just storage space objects in the i5/OS storage pool.
Storage virtualization provides tremendous flexibility for deploying new Intel processor-based servers, because everything needed to operate each xSeries server is just data within a storage space. By copying storage spaces, new servers may be easily deployed and changes easily tested. Restoring storage spaces can allow rapid recovery of complete Intel servers in the event of a software failure or data corruption. It can also help reduce the time and complexity often associated with restoring a complete application infrastructure that relies on a combination of i5/OS, Windows and Linux applications.

Integrated xSeries server for @server i5
2 GHz Integrated xSeries Server:

- Intel Pentium M 2.0 GHz processor
- 2MB on-chip L2 cache
- Up to 2GB of ECC DDR200 memory
- Up to 31TB disk storage

- Integrated dual-port 1 Gbps Ethernet adapter
- 2 Universal Serial Bus ports
- Device drivers to share iSeries disk, tape, DVD and CD-ROM
- Supported on @server i5 systems and iSeries Models 800, 810, 825, 870 and 890 with i5/OS Version 5 Release 3
- Enabled for Linux (see ibm.com/eserver/iseries/integratedxseries/linux for details on Linux distributions enabled on Integrated xSeries Server)

Multiple Integrated xSeries Servers can be installed in a single iSeries server or @server i5 system. See the Integrated xSeries solutions Web site for details on how many can be supported by each model (ibm.com/eserver/iseries/integratedxseries/ixs_model_support.html).

Integrated xSeries adapter
- 64-bit, 66 MHz PCI adapter
- Installed in selected 1-way, 2-way, 4-way and 8-way xSeries servers (see ibm.com/eserver/iseries/integratedxseries/xseriesmodels for details)
- Uses High-Speed Link cables to connect to iSeries servers
- Supported on @server i5 systems with i5/OS Version 5 Release 3 or later and iSeries models with OS/400 Version 5 release 1 (V5R1) or higher
- Enabled for Linux (see ibm.com/eserver/iseries/integratedxseries/linux for details on Linux distributions enabled on xSeries attached via the Integrated xSeries Adapter)

Multiple xSeries servers can be directly attached via Integrated xSeries Adapters to a single iSeries or @server i5 system. See the Integrated xSeries solutions Web site for details on how many can be supported by each model (ibm.com/eserver/iseries/integratedxseries/ixa_overview.html#support).
Windows Server and Linux requirements


For more information
Contact your IBM marketing representative or IBM Business Partner or visit:

ibm.com/eserver/iseries/
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