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Hosting Web Sites and Applications with Microsoft® SQL Server® 2008

SQL Server Technical Article

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**Summary:** Microsoft® SQL Server® 2008 is available in a range of editions that suit the needs of organizations that provide hosting services for public, Internet accessible Web sites and applications. For most Web hosting scenarios, SQL Server 2008 Web Edition provides the optimal balance of scalability, manageability, and cost, while SQL Server 2008 Express and SQL Server 2008 Enterprise provide solutions for hosting requirements at the extreme ends of the scale.

By choosing SQL Server 2008 as the database component in a public facing Web hosting package, hosters can reap the benefits of lower costs through the ability to choose the most cost-effective edition and licensing model, as well as the self-managing features of SQL Server. Hosters can also use SQL Server 2008 to increase revenue by attracting Web developers from both ASP.NET and PHP communities and by offering value-add features and services to their customers.

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# Introduction

The continued growth of the Web and the increasing importance it has in the personal and business lives of millions of people across the world has fueled the demand for greater broadband connectivity and richer, more interactive Web sites. This demand, coupled with lower barriers to entry through new technologies and service innovations, has produced a growing market for organizations that offer Web hosting solutions. As the evolution from passive Web sites that simply publish information towards more dynamic, personalized Web applications continues, companies and individuals who build and maintain Web sites require a fully-featured Web platform that offers the same levels of programmability, functionality, and scalability as desktop application software or line-of-business solutions.

The Microsoft Web platform provides a total solution for the rich, dynamic Web applications of today, and the innovative Web solutions of tomorrow. Built on the solid foundation of Microsoft Windows Server® 2008 and Internet Information Services (IIS) 7.0, the Microsoft Web platform provides a powerful environment for building rich Internet applications with Microsoft .NET Framework technologies such as ASP.NET, Ajax, Silverlight™, and the Windows Communication Foundation (WCF), and popular Web development technologies such as PHP.

A core requirement for any functional application is the ability to store and retrieve data, most commonly in a relational database. The Microsoft Web platform meets this need through the inclusion of Microsoft SQL Server, a scalable database engine with additional features that provide comprehensive manageability and value-add functionality such as business intelligence capabilities and support for XML and spatial data.

This white paper discusses the role of SQL Server in a hosting environment for public facing Web applications, and provides guidance for choosing the best edition of SQL Server 2008 to help hosters reduce costs and maximize revenue. This paper is not intended to serve as a guide for using SQL Server in all hosting scenarios, but is focused on the use of SQL Server as a data store for public and Internet accessible Web sites and applications.

# SQL Server – The Right Choice for Hosting

Microsoft SQL Server is an industry-leading database platform that is trusted by developers and organizations throughout the world. SQL Server 2008 is available in a range of editions, from free, small-scale database applications to massive, enterprise-class data solutions. This breadth of options enables hosters to choose the edition that best suits their customers’ requirements without paying for features they don’t need. The following list describes the entire range of SQL Server editions; the remainder of this white paper will focus on the editions that are relevant to Web hosting scenarios.

* **SQL Server 2008 Express Edition –** A free edition of SQL Server that offers the full programmability of the SQL Server database engine, but with some scalability restrictions. SQL Server Express is available in three variants: a database-engine-only version, a version that includes a graphical management tool, and a version that includes advanced services such as reporting capabilities and full-text indexing.
* **SQL Server Compact 3.5 –** A free, lightweight database designed to be used for embedded databases in desktop applications and mobile devices.
* **SQL Server 2008 Web Edition –** An edition of SQL Server that is designed specifically for use as a database server in a Web hosting scenario. SQL Server Web Edition offers the same levels of scalability as Standard Edition, but for approximately 40% less cost[[1]](#footnote-1). SQL Server Web Edition also includes self-management capabilities and reporting capabilities. Note that SQL Server 2008 Web Edition can be licensed for only public and Internet accessible Web pages, sites, applications, and services. It cannot be used to support line of business applications.
* **SQL Server 2008 Workgroup Edition –** An edition of SQL Server designed for departmental or branch office applications that require a local data store.
* **SQL Server 2008 Standard Edition –** A scalable database platform for corporate data stores that includes self-management features, and Business Intelligence (BI) capabilities through SQL Server Integration Services, SQL Server Reporting Services, and SQL Server Analysis Services.
* **SQL Server 2008 Enterprise Edition –** An enterprise-class database platform that extends the features of Standard Edition to include hardware support for massively scalable database solutions and enterprise-class data encryption capabilities.
* **SQL Server 2008 Developer Edition –** An edition of SQL Server that includes the same functionality as Enterprise Edition, but which is licensed for software development purposes only.

Of these, the most appropriate editions for Web hosting scenarios are:

* SQL Server Web Edition
* SQL Server Enterprise Edition
* SQL Server Express Edition (in dedicated hosting scenarios only)

Table 1 summarizes the key differences between these editions that are relevant to a Web hosting scenario[[2]](#footnote-2).

| **Feature** | **Enterprise Edition** | **Web Edition** | **Express Edition** |
| --- | --- | --- | --- |
| **Maximum number of CPUs** | OS Maximum | 4 | 1 |
| **Maximum memory** | OS Maximum | OS Maximum | 1 GB |
| **Maximum database size** | Unlimited | Unlimited | 4 GB |
| **Maximum instances per server** | 50 | 16 | 16 |
| **x32 support** | ✓ | ✓ | ✓ |
| **x64 support** | ✓ | ✓ | ✓ |
| **I64 support** | ✓ |  |  |
| **Dynamic AWE management** | ✓ |  |  |
| **Data compression** | ✓ |  |  |
| **Backup compression** | ✓ |  |  |
| **Hypervisor support** | ✓ | ✓ | ✓ |
| **Clustering support** | ✓ |  |  |
| **Database Mirroring** | ✓ |  |  |
| **Resource Governor** | ✓ |  |  |
| **C2-compliant tracing** | ✓ | ✓ | ✓ |
| **SQL auditing foundation** | ✓ | ✓ | ✓ |
| **Fine-grained auditing** | ✓ |  |  |
| **Transparent database encryption** | ✓ |  |  |
| **Extensible key management** | ✓ |  |  |
| **Policy-based management** | ✓ | ✓ | ✓ |
| **Performance data collection** | ✓ | ✓ |  |
| **SQL Server Agent** | ✓ | ✓ |  |
| **SQL Server Integration Services** | ✓ |  |  |
| **SQL Server Analysis Services** | ✓ |  |  |
| **SQL Server Reporting Services** | ✓ | ✓(Express) | ✓(Express) |
| **Relational data structures and Transact-SQL** | ✓ | ✓ | ✓ |
| **Native XML data support** | ✓ | ✓ | ✓ |
| **Spatial data support** | ✓ | ✓ | ✓ |

Table 1: Key Feature Comparison

To identify the right edition for a hosting solution, hosters must balance the needs of their customers against the costs of purchasing SQL Server licenses and maintaining database servers. Guidance for choosing the right edition of SQL Server for common hosting scenarios is provided later in this white paper.

# Reduce Costs with SQL Server 2008

In the increasingly competitive Web hosting market, it has never been more important to reduce costs. With SQL Server 2008, hosters can reduce the initial costs of purchasing and licensing database software by choosing from a range of editions, and lower the total cost of ownership by taking advantage of self-managing capabilities and cost-saving features.

## Future-Proof Your Database Platform Investment

With SQL Server 2008, you can use the edition that best fits your needs and your budget, and benefit from compatibility across editions if your needs change in the future. Databases created in one edition are fully compatible with every other edition. This compatibility provides a growth path that hosters can offer to their customers. When a Web application outgrows SQL Server Express Edition, the database can be migrated to SQL Server Web Edition, or even SQL Server Enterprise Edition without any changes.

Fidelity across editions of SQL Server enables you to use the same tools and scripts to provision, configure, and manage database server instances across your data center. In environments where customers can choose from a range of service levels, each with different editions of SQL Server, you can save administration costs through using a standard platform.

## Reduce the Total Cost of Ownership

SQL Server 2008 Web and Enterprise editions include a number of administrative features that provide self-management capabilities that enable you to automate maintenance tasks and manage server configuration settings proactively. This reduces the administrative cost per server by increasing the number of database server instances that can be managed by a single database administrator.

Migrating to Windows and SQL Server instead of Linux and MySQL gave us immediate ROI, as well as a more scalable, robust, and manageable solution.” —J. Keller, President, Datatune

You can take advantage of a variety of readily available management tools, eliminating the need to create custom management interfaces. These include Web-based management utilities that you can offer as a part of your hosting package (for example Database Manager[[3]](#footnote-3)). Alternatively, you can enable customers to connect to their hosted SQL Server instance with locally installed management tools such as SQL Server Management Studio.[[4]](#footnote-4)

### Automate Maintenance Tasks

SQL Server Agent provides maintenance automation capabilities that enable administrators to create scheduled tasks and operator alerts. With the SQL Server Agent, you can define a maintenance plan for all of the SQL Server instances in your data center and manage tasks and alerts centrally, making it easy to ensure that critical tasks are performed consistently for all customer databases.

Additionally, support for PowerShell enables hosting organizations to automate administrative tasks for Microsoft Windows®, IIS, and SQL Server within a single scripting environment.

### Manage by Intent

Policy-Based Management is a new feature in SQL Server 2008 that administrators can use to proactively define the desired configuration settings for servers, databases, and other SQL Server objects as policies. Policies can then be assigned to multiple servers and databases, and validated or enforced automatically. In a hosting environment, this capability enables hosters to define policies that restrict the configuration settings that customers can change and apply them to database servers as part of the provisioning process.

### Optimize Resource Usage

Use SQL Server Enterprise Edition to consolidate server hardware without compromising resource utilization. SQL Server 2008’s data compression support enables you to significantly reduce storage costs while increasing I/O performance. In a hosting environment with large numbers of customer databases, this can represent a major saving on hardware.

Resource Governor is a component of SQL Server 2008 Enterprise Edition that you can use to restrict the hardware resources available to specific workloads. In a hosting environment where multiple customer database exist in the same SQL Server instance, hosters can use Resource Governor to ensure that no one database can monopolize CPU and memory resources and affect the performance of the other customer databases. This makes it possible to provide predictable performance to customers, even on shared hardware resources.

# Opportunities to Grow Your Business with SQL Server 2008

SQL Server 2008 provides a number of capabilities that hosters can use to attract more customers and increase revenue. With SQL Server 2008, hosters can offer value-add features that differentiate their hosting services and widen their appeal.

## Attract Web Developers

Web developers and the technologies they use are a key influence on hoster choice. By supporting the technologies that Web developers are using to create cutting-edge Web applications, hosters can widen the appeal of their service offerings and attract more customers. Microsoft continues to make substantial investments in promoting the Microsoft Web platform to Web developers, and by offering SQL Server and the other components of the Microsoft Web platform, hosters can capitalize on the momentum generated by these efforts.

In particular, Microsoft has produced the Microsoft Web Platform Installer, an easy way for developers to install the components they need to build Web solutions, including SQL Server Express Edition. By supporting the same technologies that developers are using to create Web applications, hosters can make their services attractive to the growing community of Web developers that are targeting the Microsoft Web platform[[5]](#footnote-5).

### Attract ASP.NET Developers

As a core component of the Microsoft Web platform, SQL Server provides an ideal database engine for ASP.NET developers. Close integration with Microsoft Visual Studio® and Visual Web Developer Express enables developers to easily create, test, debug, and deploy Web applications that use a SQL Server database. Web developers can create and modify SQL Server databases and database objects by using the graphical tools in the data explorer pane of Visual Studio, and debug Transact-SQL code in stored procedures and functions right along with the C# or Microsoft Visual Basic® .NET code in the Web application. Creating data-bound Web user interfaces can be as simple as dragging a table or view from the data explorer pane onto a Web form in the Visual Studio design environment. When the application is ready to be deployed, the Publish Database Wizard makes it easy to upload a database to the hosted SQL Server instance through Web service interfaces implemented in the hosting environment. Alternatively, developers can use the tool to generate a Transact-SQL script that can be run on the hosted instance to recreate the database.

### Attract PHP Developers

PHP is a popular scripting technology used by Web developers on both Microsoft and non-Microsoft platforms. In response to feedback from Microsoft Expression® Web 1 users, Microsoft has added a rich set of features for PHP development in Expression Web version 2. There are productivity features such as code-coloring, snippets, IntelliSense™, and a PHP development server that lets you test your PHP pages without any other external Web server dependencies. PHP is a first-class citizen in Expression Web 2, and will continue to be in upcoming versions of the product. For data access, the Microsoft Web platform includes PHP drivers for SQL Server, making it easy for PHP developers to build Web applications that take advantage of the relational database capabilities of SQL Server.

## Differentiate with Value-Add Capabilities

In addition to offering relational database functionality, hosters can take advantage of SQL Server features to offer innovative new services and create additional revenue opportunities. Some examples of value-add services hosters can offer with various editions of SQL Server include:

* **Database server management services**. With SQL Server’s support for automated administration and policy-based management, hosters can easily provide database configuration and management services to customers who want a simple, low-overhead hosting solution with no maintenance burden.
* **Replication services**. When customers need geographically distributed Web solutions, hosters can use SQL Server replication to implement distributed copies of data across multiple sites, to optimize Web site response time or to co-locate databases with localized data.
* **High availability and data recoverability**. For customers who need to host mission-critical applications, hosters can use SQL Server’s support for high availability technologies, such as clustering and database mirroring, to offer compelling service-level agreements. Automated backup operations and online restore capabilities enable hosters to provide enterprise-level data recoverability services to their customers.
* **Enterprise-level security with transparent database encryption and advanced auditing**. Hosters can offer customers with high security requirements the reassurance of complete database encryption and comprehensive auditing services.
* **Geographic data capabilities**. Hosters can combine SQL Server’s spatial data support with mapping services such as Microsoft Virtual Earth™ to offer geospatial data services for customers who want to build geographic data solutions.
* **Business Intelligence capabilities, including reporting, multidimensional analysis, and data mining**. For customers that want to gain insights from their data, hosters can offer comprehensive reporting and analysis services that are built on SQL Server 2008 Reporting Services and SQL Server 2008 Analysis Services.

# Choosing an Edition of SQL Server 2008

A number of editions of SQL Server are available, each designed to meet the specific needs of common database scenarios. For most Web hosting solutions, SQL Server 2008 Web Edition is the most appropriate choice. However, the choice of edition for a specific scenario is based on finding the right balance of cost and scalability.

## Hosting Scenarios

To frame the discussion of how to choose an edition for SQL Server to use in a hosting solution, it is useful to review some common hosting scenarios. Broadly speaking, most hosting services fall into one of two categories: shared hosting or dedicated hosting. In a shared hosting environment, customers are allocated space and resources on servers that are shared with other customers. In a dedicated hosting environment, each customer is allocated servers for their own exclusive use. In recent years, the advent of virtualization technologies such as Microsoft Windows Hyper-V™ has led to some variations on these options where customers are provided with shared or dedicated virtual servers.

When database services are included in a hosting solution, there are a number of options available to hosters. In shared hosting solutions, the generally followed best practice is to provision database services on a separate set of servers from the “front-end” Web servers, while customers with dedicated hosting solutions can usually choose to install the database services on the same server as their Web services, or to use two dedicated servers, one for Web services and the other for database services.

In the case of SQL Server, the options available are widened further by the fact that SQL Server provides multi-instance support (enabling you to install multiple instances of SQL Server on a single server) and a multi-database architecture (enabling you to create multiple, independently secured databases in a single instance of SQL Server).

The common hosting scenarios for Web servers and databases are shown in Figure 1.

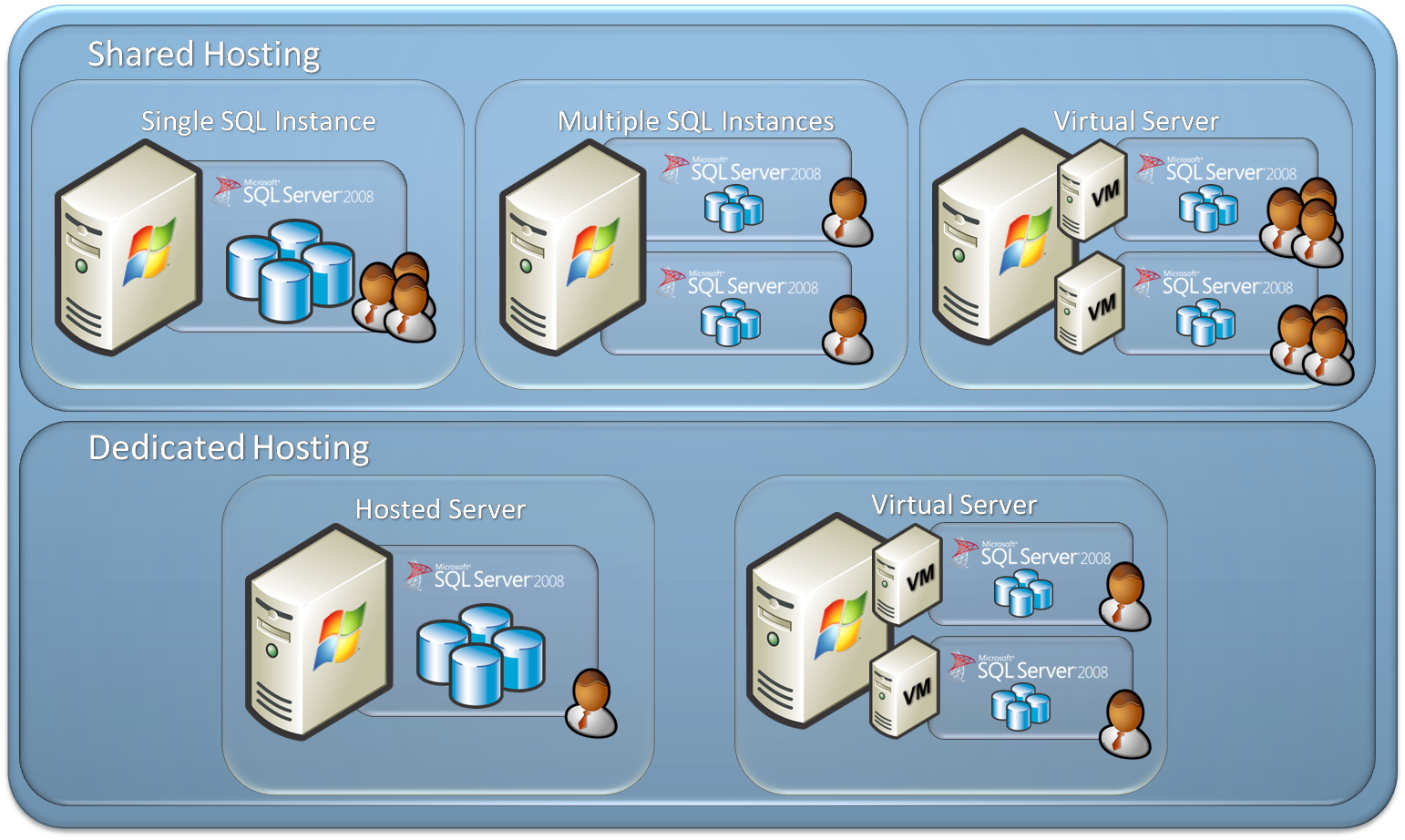


Figure 1: Common Hosting Scenarios

In Figure 1, three SQL Server database services configurations are shown for a shared hosting scenario:

* **Single SQL Instance**. A single instance of SQL Server (usually on a data-tier server that is separate from the Web server) is available to the customers who share the Web server. Each customer can store data in a limited number of databases within the shared instance; often, each customer is restricted to a single database.
* **Multiple SQL Instances**. Multiple instances of SQL Server are installed on a data-tier server, and each customer who has access to the shared Web server can use their own instance of SQL Server on the data-tier server.
* **Virtual Server**. A single physical server hosts multiple virtual Web servers, which are shared by multiple customers. Each virtual Web server has access to one or more instances of SQL Server, which are also shared by the customers.

For dedicated hosting scenarios, there are two main configuration options:

* **Hosted Server**. Each customer has a dedicated Web server for their exclusive use. Additionally, an instance of SQL Server (either on the dedicated Web server or on a separate dedicated data-tier server) is provisioned for each customer.
* **Virtual Server**. Each customer has a virtual Web server for their exclusive use. Multiple virtual servers exist on a single physical server. Additionally, each customer has access to an instance of SQL Server (either on the virtual Web server or on a separate dedicated virtual server).

The specific configuration a hoster chooses to offer to customers determines the ideal choice of SQL Server edition.

### Choosing an Edition of SQL Server 2008 for Shared Hosting Scenarios

For shared hosting scenarios, the choice of SQL Server edition depends on the configuration provided by the hoster. The various options are described in the following list.

* **Single SQL Instance Configuration**. In this configuration, a single SQL Server instance is shared by multiple customers. In most cases, SQL Server Web Edition should provide acceptable scalability and performance while providing cost-effective pricing and automated maintenance to help reduce the operational overhead of managing the database server.

In some cases where a single SQL Server instance must support an exceptionally large number of customer databases, where massive scalability is required, or where a high-availability technology such as server clustering must be used, hosters should consider SQL Server Enterprise Edition because of the additional hardware support it offers, the ability to use Resource Governor to partition server resources across multiple customer databases, and the storage space and performance benefits of data compression.

Microsoft licensing terms do not permit the use of Express Edition in shared hosting scenarios.

* **Multiple SQL Instances Configuration**. In this configuration, each customer is provided with an instance of SQL Server. If it is acceptable for each customer to be limited to a single CPU, 1 GB of memory for database workloads, and a maximum database size of 4 GB, SQL Server Express Edition is an appropriate choice, but you should take into account.

In cases where each data-tier server must support more than 16 SQL Server instances, SQL Server Enterprise Edition provides the optimal solution.

In most other cases, SQL Server Web Edition is once again the best way to provide high levels of scalability and performance at a low price.

* **Virtual Server Configuration**. In this configuration, Web servers and data-tier servers are implemented as virtual machines on shared server hardware. Each virtual machine is shared by multiple customers, and can be configured to use a single shared SQL Server instance or a SQL Server instance per customer.

The same rationale used to choose the best edition for the single SQL instance and multiple SQL instances configurations applies to these virtual servers, except for one important factor. When installed on a host server that is running Windows Server Enterprise Edition or Windows Server Datacenter Edition, you can purchase the necessary licenses to run SQL Server Enterprise Edition on all of the physical processors in the server, and install an unlimited number of instances of SQL Server Enterprise Edition in the host server AND in an unlimited number of virtual machines. This helps divide the cost of the server across multiple customers, making it more affordable. Consequently, although in most cases SQL Server Web Edition will provide the required levels of scalability and performance, there will be some cases where it is more cost-effective to use SQL Server Enterprise Edition.

### Choosing an Edition of SQL Server 2008 for Dedicated Hosting Scenarios

For dedicated hosting scenarios, the choice of SQL Server edition depends on similar considerations. The various options are described in the following list.

* **Hosted Server Configuration**. In this configuration, each customer has dedicated server hardware for their exclusive use. Hosters can provide SQL Server Express Edition on these servers at no cost, and for individuals or light-usage customers, this might provide the necessary functionality and scalability.

At the opposite end of the scale, enterprise-level customers might require massive scalability or dedicated server clustering, in which case SQL Server Enterprise Edition would be an appropriate choice.

For most customers, however, SQL Server Web Edition provides a balance of scalability, performance, manageability, and value that makes it the best option for this configuration.

* **Virtual Server Configuration**. In this configuration, each customer has a dedicated virtual server that provides them with control, manageability, and a high level of isolation and security. As with a dedicated physical server, you can install SQL Server Express Edition at no cost if the scalability restrictions are acceptable to customers. SQL Server Web Edition provides higher levels of scalability, performance, and manageability, and so makes an ideal choice. However, the special licensing conditions for SQL Server Enterprise Edition on virtual hardware mean that in many cases, SQL Server Enterprise is the most cost-effective solution.

Table 2 summarizes the optimal choices of SQL Server edition for shared and dedicated hosting scenarios.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Express Edition** | **Web Edition** | **Enterprise Edition** |
| **Shared Hosting** | * Not permitted under Microsoft licensing terms | * Single instance and multi-instance scenarios where you need to achieve the best balance of price, scalability, and manageability for the most common Web workloads | * Single instance scenarios that need to handle large numbers of customers per instance * Multi-instance scenarios where more than 16 instances per server are required * Scenarios that require massive scalability, high availability technologies such as clustering, or transparent data encryption * Multi-instance scenarios in virtual servers where the number of virtual database servers makes Enterprise licensing more cost-effective than Web Edition |
| **Dedicated Hosting** | * Low-cost services with minimal database scalability and manageability | * Scenarios that require the best balance of price, scalability, and manageability for the most common Web workloads | * Scenarios that require massive scalability, high availability technologies such as clustering, or transparent data encryption * Multi-instance scenarios in virtual servers where the number of virtual database servers makes Enterprise licensing more cost-effective than Web Edition |

Table 2: SQL Server edition options for hosting

# How Microsoft Can Help

Microsoft provides a number of resources to help hosters offer solutions based on the Microsoft Web platform, including SQL Server 2008. To maximize the effectiveness of your Microsoft hosting services:

* Become a Registered Member of the Microsoft Partner Program and review the many resources available at: <http://partner.microsoft.com/hostingcommunity>.
  + Review the Hosting Deployment Accelerator for business guidance and technical resources to help you plan and implement a hosting solution.
  + Use the set of easily customizable marketing Web sites provided by Microsoft to reduce the overhead of creating marketing collateral and attracting customers.
  + Make use of the Web Hoster Sales Kit, which provides a customizable set of documents that you can use to create campaigns and drive demand for your Windows-based hosting services.
* Review the licensing information at [http://www.microsoft.com/serviceproviders/licensing/default.mspx](https://owa.microsoft.com/OWA/redir.aspx?C=dee6455261ea441fb677b1a97ce08a7d&URL=http%3a%2f%2fwww.microsoft.com%2fserviceproviders%2flicensing%2fdefault.mspx) for details about how to purchase SQL Server 2008 licenses.

# Conclusion

SQL Server 2008 offers a compelling database platform for Web hosting solutions. Hosters can use SQL Server features to reduce costs and increase revenue, and choose from a range of SQL Server editions to meet the needs of their customers.

In most hosting scenarios, SQL Server 2008 Web Edition provides the most cost-effective way to offer customers the features and scalability they need, while for exceptional cases hosters can offer SQL Server 2008 Express Edition or SQL Server 2008 Enterprise Edition while maintaining compatibility across hosted databases.

Microsoft SQL Server 2008 is a core component of the Microsoft Web platform, and works together with the other components to enable hosters to offer a comprehensive hosting platform for today’s rich, dynamic, and interactive Web applications.

**For more information:**

* Microsoft Web Platform: <http://www.microsoft.com/web>
* Microsoft SQL Server 2008: [http://www.microsoft.com/sqlserver](http://www.microsoft.com/sqlserver/2008/en/us/default.aspx)

# Glossary

* **Ajax**: A set of web development techniques used to create dynamic, interactive Web pages that retrieve information from the server and update the user interface without refreshing the entire Web page.
* **ASP.NET**: A Web development platform for rich, highly functional Web applications built on the Microsoft .NET Framework.
* **C#**: A programming language that developers can use to create ASP.NET Web applications.
* **Database Mirroring**: A high-availability technology in SQL Server that provides failover protection at the database scope by maintaining a mirrored copy of the database on another SQL Server instance.
* **Dynamic AWE Management**: A memory management capability that enables SQL Server to take advantage of Address Windowing Extensions in 32-bit editions of Windows Server to access large amounts of memory.
* **Extensible Key Management**: A cryptographic capability that enables third-party vendors to register security modules in SQL Server 2008. When registered, SQL Server users can use the encryption keys stored on these modules. This enables SQL Server to access the advanced encryption features the modules support such as bulk encryption and decryption, and key management functions such as key aging and key rotation.
* **Hyper-V**: A virtualization technology that enables you to host multiple virtual machines in a single physical server running Windows Server 2008.
* **Microsoft Web Platform**: A set of software products that provide a comprehensive platform for creating, hosting, and managing Web applications.
* **Performance Data Collection**: A component of SQL Server 2008 that provides low-overhead collection of database system performance data, a centralized management data warehouse, and the ability to view reports on key performance metrics.
* **PHP**: A popular scripting language for creating Web pages. The Microsoft Web Platform supports the creation of PHP Web scripts as well as ASP.NET applications, and provides drivers to enable PHP developers to incorporate SQL Server databases in their applications.
* **Policy-Based Management**: A feature of SQL Server 2008 that enables administrators to define policies that enforce specific configuration settings and assign those policies to servers and databases.
* **Resource Governor**: A component of SQL Server 2008 that enables administrators to proactively assign minimum and maximum levels of utilization for hardware resources such as memory and processors to specific workloads.
* **Server Clustering**: A high-availability technology that provides failover protection at the server scope by using Windows Clustering technologies.
* **Silverlight**: A Web presentation technology that you can use to create rich Web pages that include highly dynamic user interfaces and media.
* **Spatial Data**: Location-based data such as geospatial or planar coordinates. SQL Server 2008 includes spatial data types that developers can use to store and manipulate geographic data.
* **SQL Server Agent**: A component of SQL Server that can be used to automate maintenance tasks and notify operators.
* **SQL Server Integration Services**: A component of SQL Server that provides extract, transform, and load (ETL) capabilities to move or copy data from one data source to another.
* **SQL Server Reporting Services**: A component of SQL Server that you can use to create and deliver reports.
* **Transparent Data Encryption**: A feature of SQL Server 2008 that enables you to encrypt a database without requiring any change to client applications.
* **Visual Basic**: A programming language that developers can use to create ASP.NET Web applications.
* **Web Platform Installer**: An installation tool that makes it easy for developers and hosters to install and maintain the components of the Microsoft Web Platform.
* **Windows Communication Foundation (WCF)**: A Microsoft .NET-based application programming interface for service communication that enables developers to create software services that communicate across a network or the Internet.

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1. For up-to-date pricing details, see <http://www.microsoft.com/sqlserver/2008/en/us/pricing.aspx>. [↑](#footnote-ref-1)
2. For a full comparison between all available SQL Server editions, see <http://www.microsoft.com/sqlserver/2008/en/us/editions-compare.aspx>. [↑](#footnote-ref-2)
3. Database Manager is available at <http://learn.iis.net/page.aspx/542/database-manager-for-hosters>. [↑](#footnote-ref-3)
4. Choosing the right management interface for customers depends on a number of factors, including the hosting scenario (shared or dedicated), security requirements, and your own server configuration policies. [↑](#footnote-ref-4)
5. For more information about the Microsoft Web platform, visit [www.microsoft.com/web](file:///\\tkzaw-pro-17\mydocs2\ericking\My%20Documents\SQL\Marketing%20Resources\Web%20Edition\www.microsoft.com\web). [↑](#footnote-ref-5)