SOFTWARE LICENSING ADVISORS

LICENSING BRIEF

SQL SERVER PROCESSOR-TO-CORE

LICENSING CONVERSION

The migration of SQL Server from per-processor to per-core licensing brings both perils and opportunities

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Contents

Summary

Microsoft's liberality in granting core licenses contains a healthy amount of self-interest. As customers renew Software Assurance on SQL Server, SA will remain at current per-processor costs only for servers with four or fewer cores per processor. In SLA's experience, the average number of cores per processor ranges from about 5.5 to 7, reflecting purchases of processors with six to 12 cores in recent years. These ratios suggest that renewing SA on existing servers will cost 35% to 75% more than renewing SA on the same servers under the previous per-processor model.

This may give customers pause about renewing Software Assurance on SQL Server. Anticipating that, Microsoft has created conversion rules and employs some operational practices whose sole goal is to create operational friction and higher management costs. These changes may convince at least some customers that renewing SA on SQL Server, even at these high costs, is the lesser of two evils.

This document outlines the issues around processor to core conversion and suggests some ways to mitigate the cost and complexity of maintaining converted cores without SA.

A related brief, which covers Licensing Mobility for SQL Server without Software Assurance, can be found at www.picacommunications.com/resources.html.

Licensing Model Conversions

Changing the model under which a Microsoft product is licensed is rare, and usually entails a migration process as Microsoft calculates what a license in the old model should translate to in the new model. The general goal is to ensure that any existing system will be compliant with the licensing rules after the conversion process—no rule forces a customer to shut down a server because upgrading to the new version will put it into a non-compliant state.

While that is theoretically true for the conversion of SQL Server processor licenses to core licenses, it is not automatic. Customers must take action to ensure that they get the core licenses to which they are entitled. In the absence of such actions customers will be non-compliant in the future. While one would hope that Microsoft or the customer's reseller ensures that such action is taken, it is our experience that in most cases they do not, and when

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they do it is often oriented toward revenue maximization. To complicate this further, Microsoft's internal licensing processes are not up to the task of tracking all the licenses that it grants to customers.

We believe that many customers who have acted in good faith in SA renewals will be told in the future that they are out of compliance and must purchase additional licenses, often with SA added, a requirement they would not face if the customer had taken the right actions at renewal and if Microsoft had not undertaken a licensing model change so complex that Microsoft is incapable of tracking its full impact.

Processor to Core Conversion Rules

The rules for SQL upgrades and core conversions can be found in Microsoft's Product List and specifically the March 2014 Product List, found at http://go.microsoft.com/?linkid=9839207. Conversion rules are outlined in a series of end notes (starting at end note 80) in that document.

Customers may be confused by references to SQL 2012 in this document, but that is because the last publication of the conversion rules was published in March 2014, one month before SQL 2014 was released. Technically, there are no license conversion rules for SQL Server 2014, since no rules or new licensing model changes were made for that version when it replaced SQL Server 2012. Thus the conversion rules apply only to customers who had SA on SQL Server at the time SQL Server 2012 was released in April 2012, and who have not renewed their Enterprise Agreement then. Customers who purchased SQL Server after that date and who did not have SA on an earlier version do not get conversions, but simply purchase under the new rules and models, notably the core licensing model for SQL Server.

Several factors come into play when determining SQL core entitlements.

- SA coverage

- Date of purchase

- The SQL product licensed

- Core conversion factors

- Actual cores in use

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SA COVERAGE

Since only SQL Server 2012 and later versions of SQL Server are licensed by core, core conversions are available only for customers with active Software Assurance coverage on SQL Server on April 1, 2012, the date that SQL Server 2012 was officially released to customers.

> Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 processor license product use rights, the customer may acquire Software Assurance for SQL Server Enterprise core licenses without acquiring the underlying core licenses for a number of core licenses

This rather oblique language may lead some to conclude that obtaining core licenses requires them to have been using SQL Server 2008R2 and to wait until Software Assurance renewal before they can obtain SQL Server 2012 core licenses. In fact, customers can be using any prior version of SQL Server and will get access to SQL Server 2012 core licensing even if they do not renew SA, albeit with some strings attached. This is made possible by the New Version Rights that are the most important benefit of Software Assurance.

> New Version Rights means, for any underlying licensed Product for which SA coverage is ordered, the right to upgrade to, and run in place of the underlying licensed Product, the latest version of that Product made available during the covered period. Use of the new version is subject to the license terms for that version. Customers that acquire perpetual licenses through SA can deploy the upgrades after their coverage has expired.

All licenses included in an Enterprise Agreement are covered by SA during the term of the agreement—the covered period—so any SQL Server in an agreement signed before March 31, 2012 and still in effect on April 1, 2012 gains an upgrade to SQL Server 2012. The same would be true for any SQL Server licenses for which SA was purchased in Select, Select Plus, Open, and most other volume licensing agreements agreements that offer perpetual licenses and included those dates.

A customer who is running an instance of SQL Server on April 1, 2012 that is earlier than SQL 2008 R2 still qualifies for the conversion if they have SA coverage for that SQL license. As the last sentence of the New Version Rights description above indicates, a customer that gains rights to a new version of SQL Server may deploy it at any later time, even after their SA has expired.

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In addition, customers with certain types of volume agreements that cover that time frame can purchase additional copies of SQL Server 2008 R2 processor licenses via the true-up process, and these licenses can also be converted to cores. The language for SQL Server Enterprise 2008 R2, which is similar to that for SQL Server Datacenter and Standard when licensed per processor, says

> Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Enterprise processor licenses on April 1, 2012 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Enterprise processor licenses subsequently acquired under the same enrollment term but prior to April 1, 2015 as part of an Enterprise, Enterprise Subscription, Open Value Subscription or Enrollment for Education Solutions customer's scheduled true-up process are also qualifying licenses for purposes of these options. Licenses acquired after April 1, 2015 or under a subsequent enrollment term, a separate agreement or any enrollment with an effective date after April 1, 2012 are not qualifying licenses.

(The actual options will be described later.)

The April 1, 2015 date is exactly three years after the 2012 date and reflects the typical 36-month term of Enterprise and Select volume licensing agreements. In short, Microsoft says that the customer must have had active SA on SQL Server in a volume agreement in effect when SQL Server 2012 was released in order to get "free" core conversions. Other than true-ups, processor licenses are no longer available after that date.

THE SQL PRODUCT LICENSED

SQL Server is unique among Microsoft products in being licensed either by processor/core or as "per server" licenses that require Client Access Licenses (CALs). Processor/core licenses are 5-7 times more expensive than server licenses but can be accessed by any number of users at no additional cost. SQL per-server licenses are less costly, but users or devices that access the server must have a CAL. Whenever the server version is upgraded the CAL version must also be upgraded.

The Server + CAL model is less costly for many customers, particularly for those who license many instances of SQL Server. The less-costly server licenses allows organization to add incremental SQL Server instances at much lower cost. The per processor/core models are

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more optimal when the organization has relatively few server instances and they are shared by a large number of people. They are also the best choice for scenarios that are accessed by external users, such as public Web sites.

The conversion process for SQL Server depends heavily on the licensing approach used. To state it succinctly, servers purchased for use with CALs will continue to be licensed for that model when upgraded through SA and are not convertible to core licenses, while SQL Server processor licenses upgraded through SA will be converted to core licenses.

Server/CAL Model Upgrades

SQL licensed under the Server/CAL model seems to be proceeding as is. A 2012 version is reference in the Product List conversion rules.

> SQL Server 2012 Enterprise is the next version of SQL Server Enterprise and SQL Server 2012 CAL is the next version of SQL Server CAL.

Since then Microsoft has also released a 2014 versions of SQL licensed per server.

However, Microsoft is providing subtle hints that the model will be retired in the future, and what satisfaction customers will get from future investments in SA on this product is not clear.

This is dealt with obliquely in a rule that says SQL Server models are not interchangeable.

> Customers may use only the software corresponding to the licensing model under which their SQL Server licenses are acquired.

What is not stated explicitly in the Product List is Microsoft's decision to not sell new licenses for SQL Server Enterprise licensed per server. More a matter of policy than rule, SQL Server 2012 Server licenses continue on Microsoft's product list, but our understanding is that customers cannot add server licenses.

As an example, customers who purchased SQL Enterprise per-server licenses in an Enrollment for Application Platform (EAP) agreement, may not buy those licenses out at the end of the EAP but must migrate to SQL Enterprise per core licenses:

> Customers will have an option to renew Software Assurance for SQL Server Enterprise Server/CAL licenses after June 30, 2012, however their only buy-out option at the end of their enrollment term, will be for core licenses.

CORE CONVERSION FACTORS

One detail that affects core conversion is the brand and type of processor used by the physical server.

Processors are typically an integrated circuit burned onto a silicon "chip" that is inserted into a "socket" that provides the electrical interface to the motherboard. In addition, modern processors typically have multiple processing units, known as cores, on each chip. And on Intel processors, each cores may have two processing "threads."

Through SQL Server 2008 R2 licensed per processor, SQL processor licenses were simply assigned per socket, regardless of how powerful the processor in that socket was. With SQL Server 2012, however, the company wanted to capture some of the value that high-performance processors with many cores deliver. In effect, the software vendor wants to capture some of the value added by the hardware vendor.

Microsoft settled on a conversion factor that by default converts each processor license to four core licenses, with the exception of SQL 2008 R2 Datacenter edition, for which the default is eight core licenses per processor license. The company has priced the default conversion as equivalent to a single processor license, so any physical SQL Enterprise 2012 server with four-core processors will cost as much to license as a server running SQL 2008 R2 that is licensed per processor.

However, some older servers may have only 1 or 2 cores, and processors made by AMD do not have multiple threads per core, which makes them less powerful on a core basis than Intel processors.

In order to compensate for these differences, a "core factor table" explains how to convert specific processor configurations into their core licensing equivalent.

Processor Type	Core Factor
All processors not mentioned below	1
AMD 31XX, 32XX, 33XX, 41XX, 42XX, 43XX, 61XX, 62XX, 63XX Series Processors with 6 or more cores	.75
Dual Core Processors	2
Single Core Processors	4

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The table is somewhat unintuitive. A core factor of one indicates that each core on the processor counts as one core for SQL licensing purposes. Thus, a four-core processor will need four core licenses, an eight-core processor will need eight, etc.

A single core processor has only one core. When multiplied by the core factor of four it indicates that four core licenses will be required for each processor. A two-core processor is multiplied by 2 to get a count of four cores per processor.

Because AMD processor cores are not as powerful (although AMD often adds more cores to get power equivalent to an Intel processor), each core is multiplied by .75. Thus, an eight-core AMD processor would require six core licenses.

PROCESSOR TO CORE CONVERSION

While the core factor table indicates the default and minimum core conversion rate, it does not indicate the maximum rate. A SQL Server processor license assigned to a server with more than four cores per processor can be converted into as many cores as the processor actually has.

Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 processor license product use rights, the customer may acquire Software Assurance for SQL Server Enterprise core licenses without acquiring the underlying core licenses for a number of core licenses equal to the sum of (a) and (b):

a) a number equal to the lesser of the number of qualifying licenses assigned to the server or the total number of physical processors on the server multiplied by the greater of:

◆ Four, OR

◆ the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding Software Assurance renewal either using the Microsoft MAP tool or any equivalent software.)

b) a number equal to the number of qualifying licenses assigned to the server in excess of the actual number of physical processors on the server multiplied by four.

In summary, if a SQL Enterprise processor license with SA is assigned to a processor with 12 cores, that processor license will be converted to 12 core licenses.

(Note that Microsoft sells core licenses only in packages of two core licenses. In this document we refer to a core license as a license that covers a single core.)

SA Renewal Considerations

One significant impact of these changes is that when customers renew SA on SQL Server Enterprise and Standard processor licenses (conversion rules for SQL Standard processor licenses are similar to those for SQL Enterprise) most will see a significant increase in prices. Because SQL Server processor licenses are among the most expensive that Microsoft sells, this can result in noticeable cost increases.

SA on a SQL Server Enterprise 2008 R2 server with two 10-core processors has cost a large Microsoft customer (with more than 15,000 PCs) $8,880 each year for SA on both processor licenses. On renewal as SQL Server Enterprise 2012, that price covers only eight of the 20 cores on the server, and renewing SA on all 20 cores will cost $22,200. For an enterprise with 200 instances of SQL server at an average of 6 cores per processor (approximately what Software Licensing finds in place at its customers in 2014), this represents an *additional* $5.3 million in SA costs over a three-year period, from about $10.7 million to $16 million.

SA NON-RENEWAL

Non-renewal of Software Assurance on at least some instances of SQL Server is a viable solution for many of our customers, and some have not renewed it on any SQL Server.

Given that the most common version of SQL Server in place is 2008 R2 (which was released in May, 2010) and that customers with SA on SQL Server have upgrade rights to the 2012 and 2014 versions of the product, which may not be deployed in quantity until 2017, this is not a significant loss.

These customers will gain the core license grants per the conversion process outlined above, and can use SQL Server 2014 on their existing SQL Server infrastructure without further SA payments.

In addition, few organizations upgrade every SQL server instance even if they adopt a new version—in most cases, the upgraded product is applied only to new initiatives or applications that can specifically benefit from new features.

In 2015, this would mean that new initiatives might take advantage of SQL Server 2014 while many existing systems remain at 2008 R2, 2008, or 2005. SA on those systems provides little value—SQL Enterprise 2008 processor licenses have License Mobility Rights and Rights to unlimited SQL virtual machines per licensed host, while SQL 2008 R2 Enterprise processor licenses retain unlimited license mobility and rights to a significant number (eight, on a two-processor server) of SQL Server virtual machines on a VM host.

However, Microsoft has introduced new restrictions for customers who have had SA on SQL Server Enterprise processor licenses but do not renew it on SQL Server 2014 core licenses. These include:

- Loss of License Mobility

- Loss of unlimited virtual machines

- Less flexible "core-equivalency" licensing

- Failure to record license grants

Many customers may be sufficiently shocked by these new constraints to consider Software Assurance payments to be the lesser of two evils. However, we believe that many customers who analyze their options carefully may conclude that working around the constraints is

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preferable to dramatic cost increases. The potential savings from reducing or entirely eliminating SA payments are greater than ever, given the SA price increases Microsoft is imposing on most customers, and the practical impact of the loss of SA rights may be minimal.

LOSS OF LICENSE MOBILITY AND LOSS OF LOSS OF UNLIMITED VIRTUAL MACHINES

In the event that a customer does not renew SA on SQL Server Enterprise processor licenses, they have the right to core licenses, but must use them under SQL 2008 R2 rights that are further restricted.

> SQL Server 2008 R2 Enterprise: Ongoing use of this version of the software is subject to SQL Server 2008 R2 Enterprise processor license product use rights; however customers no longer have Unlimited Virtualization use rights or License Mobility through Software Assurance.

This section needs to be read with care.

First, it contains what we believe to be a careless editing error. In the Product list referenced here, "SQL Server 2008 R2 Enterprise" refers only to the Server/CAL edition of the product, and that caused some confusion among licensing experts, including us. However, we now believe that Microsoft intended here to refer to the edition licensed per processor, which the second reference to SQL Server 2008 R2 Enterprise indicates.

Second, customers lose both Unlimited Virtualization rights and License Mobility Through Software Assurance (the right to move server licenses to third-party multi-tenant hosts), but they do not lose License Mobility Within Server Farms, which enables movement of VMs among host servers without the 90-day constraint on license re-assignment.

This is because License Mobility Within Server Farms was granted as part of the SQL Server 2008 R2 Enterprise product license and is not a SA benefit. On the other hand, SQL Server 2008 R2 Enterprise Unlimited Virtualization and License Mobility Through Software Assurance rights both required SA. Thus, customers who do not renew SA lose these rights.

In the case of the Unlimited Virtualization right, customers are limited to four VMs per SQL 2008 R2 processor license, per the general licensing terms for SQL Server 2008 R2 Enterprise processor licenses.

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> For SQL Server 2008 R2 Enterprise: Because you are permitted to reassign licenses as needed, as long as you meet the following requirement, you may run the software in up to four OSEs within a server farm for each license assigned.

Many customers may be able to live within this constraint, since they commonly use SQL on two-processor servers, and two processor licenses give them a right to host up to eight SQL Server VMs on the server. Alternatively, they can license a host server with SQL Server 2012 core licenses and adopt the new SQL Enterprise 2012 "one VM per core" licensing model, which does not require SA and allows them to run one VM per core license. A server with two 6-core processors, for example, could run up to 12 SQL VMs under this licensing model.

This would not require actually running SQL Server 2012. SQL Server 2012 core licenses, gained through SA, can be assigned to the host, but earlier versions of SQL Server can be run in their place, through the standard downgrade rights offered to volume customers.

> For any permitted copy or instance, you may create, store, install, run or access in place of the version licensed, a copy or instance of a prior version, different permitted language version, or different available platform version (for example, 32 bit or 64 bit).

Further information about this approach can be found in the Software Licensing Advisors brief "SQL Server Licensing Mobility without Software Assurance." That brief describes various overlicensing scenarios that minimize license reassignment and permit frequent VM transfers among hosts without SA. Because of overlicensing, many customers who use SQL Enterprise Edition licensed per core never exceed the number of SQL Server VMs for which they are licensed without SA coverage. The right to "unlimited" SQL VMs is, in practice, no more valuable than the right to "all the SQL VMs our servers can reasonably handle," which falls far short of infinity.

This brief can be downloaded from www.picacommunications.com/resources or http://msftadvisors.com/resources.html.

LESS FLEXIBLE "CORE-EQUIVALENCY" LICENSING

While Microsoft cannot deny customers with SA the right to SQL 2012/2014 core licenses, even if they elect to not renew SA, it has made an effort to make non-renewal of SA less attractive by granting customers less flexible "core-equivalent" processor licenses rather than

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core licenses that can be assigned freely, as needed, as the language describing rights for SQL Cores on which SA is not renewed states.

> SQL Server 2012 Enterprise Core: Use of this version of the software is subject to SQL Server 2008 R2 Enterprise processor license product use rights;

Core-equivalent licenses cover the same number of cores as a customer would gain coverage for if they renewed SA on SQL 2012.

By default, they get processor licenses equivalent to four cores, and if they have assigned the SQL Server 2008 R2 Enterprise processor licenses to a server with more than that, the processor is equivalent to the number of cores actually in use.

> the core license equivalency is the greater of:
>
> four cores per processor license, OR
>
> a number of cores per processor license based the actual number of cores per physical processor multiplied by the appropriate core factor

For example, if a customer assigns SQL Server 2008 R2 Enterprise processor licenses with SA to a server with two 8-core processors, but does not renew SA on those licenses, it has two processor licenses that, in the SQL Server 2012 Enterprise world, are each the equivalent of eight core licenses.

The primary issue here is what happens if the customer re-assigns core-equivalent licenses to a server with fewer cores per processor.

First, SQL 2012 rights then apply. In effect, this makes license mobility impossible, which is not news, since SQL 2012/2014 require SA for License Mobility.

> Customers may reassign licenses to another server. However, if the customer reassigns a license to another server customer will have to follow SQL Server 2012 use rights.

The cores in a core-equivalent license can only be assigned to one processor.

> Customers' deemed core license equivalency does not imply that they may assign a single processor license to cores across two or more processors.

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Thus, the customer could not use a SQL 2012 license equivalent to eight cores to license both processors on a server with two 4-core licenses.

However, a customer could assign a processor license equivalent to eight cores to a 10-core processor, and could license the remaining two cores with additional SQL 2012/2014 core licenses.

> When assigning core licenses to servers under the SQL 2012 use rights, customer may combine the core equivalency of their existing licenses with additional SQL Server 2012 core licenses.

The practical impact of core-equivalency is difficult to measure. As long as customers keep assigning the same licenses to the same servers, or to servers with the same or a greater number of cores, core-equivalent licenses are not different from actual core licenses.

FAILURE TO RECORD LICENSE GRANTS

Finally, Microsoft is adopting some practices designed to complicate asset management for customers who do not renew SA on SQL Server core licenses that they have been granted.

This has been described in letters from Microsoft to our customers, such as this excerpt from an email to a customer who did not renew SA on SQL Server core licenses they were granted. Customer and Microsoft staff names have been redacted.

> There is no change to the license grant. [Customer] will be entitled to its full license grant, for the number of core licenses declared in your mail of 11 June. What [the Microsoft account manager] was referring to was that the MLS will not be updated to reflect the core license grant, but rather a straight 1:4 proc to core ratio. There is no mechanism for updating the MLS hence our recommendation that [the Microsoft account manager's] email be kept for [customer's] SAM records.

The MLS, or Microsoft Licensing Statement, is the document in which Microsoft records all licensing transactions and its generally regarded as Microsoft's record of the licenses that the customer owns.

In this case, a Microsoft licensing specialist is telling the customer that although they will receive core grants equivalent to all the cores in use (as described in a document emailed to Microsoft on June 11), Microsoft will not record them all. Instead, it will use its record of the

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customer's purchases of processor licenses as the base for granting cores and will record only the default four core licenses for each processor license, regardless of how many cores each of the customer's processors has.

The impact will be felt sometime down the road. In an audit or a true-up situation, Microsoft will assert that the customer is licensed for fewer cores than it is, since Microsoft deliberately recorded fewer core licenses than it actually granted the customer. It will be up to the customer to produce an email or other record to refute such claims of underlicensing.

We expect this operational decision to spark substantial conflict between Microsoft and its customers in the future. As Microsoft and customer personnel change, data is filed away in among trillions of bytes of corporate data, (and eventually deleted), these records will be lost or their authenticity will be challenged by Microsoft.

Microsoft likely expects to reap substantial rewards from its failure to record license grants properly, as customers who are unable to produce appropriate records will be forced to repurchase core licenses that they were granted.

REFERENCE DOCUMENTS

Microsoft Product List (March 2014)

NEW VERSION RIGHTS : SOFTWARE ASSURANCE BENEFITS

New Version Rights

New Version Rights means, for any underlying licensed Product for which SA coverage is ordered, the right to upgrade to, and run in place of the underlying licensed Product, the latest version of that Product made available during the covered period. Use of the new version is subject to the license terms for that version. Customers that acquire perpetual licenses through SA can deploy the upgrades after their coverage has expired.

Source: Microsoft Product List (March 2014)

[80] SQL Server® 2008 R2 Datacenter

License Grants Associated with Change in Licensing Model and End of Life of SQL Server Datacenter

SQL Server 2008 R2 will be the last version of SQL Server licensed under the per processor licensing model and the last version of SQL Server Datacenter. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Datacenter processor licenses on April 1, 2012 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Datacenter processor licenses subsequently acquired under the same enrollment term but prior to April 1, 2015 as part of an Enterprise, Enterprise Subscription, Open Value Subscription or Enrollment for Education Solutions customer's scheduled true-up process are also qualifying licenses for purposes of these options. Licenses acquired after April 1, 2015 or under a subsequent enrollment term, a separate agreement or any enrollment with an effective date after April 1, 2012 are not qualifying licenses.

Current Term

During the current term of their Software Assurance coverage as of April 1, 2012, customers (including customers under subscription agreements) may, under any qualifying licenses, upgrade

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to and use SQL Server 2012 Enterprise Core software in place of SQL Server 2008 R2 Datacenter subject to the SQL Server 2008 R2 Enterprise processor license product use rights (as reflected in the January 2012 Product Use Rights). These customers also have the "Unlimited Virtualization" use rights as described in the SQL Server 2012 Enterprise product notes in this Product List.

First Renewal Term (prior to April 1, 2015)

Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 processor license product use rights, the customer may acquire Software Assurance for SQL Server Enterprise core licenses without acquiring the underlying core licenses for a number of core licenses equal to the sum of (a) and (b):

a) a number equal to the lesser of the number of qualifying licenses assigned to the server or the total number of physical processors on the server multiplied by the greater of:
   i. Eight, OR
   ii. the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds eight, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding Software Assurance renewal either using the Microsoft MAP tool or any equivalent software.)
b) a number equal to the number of qualifying licenses assigned to the server in excess of the actual number of physical processors on the server multiplied by eight.

First Renewal Term (on or after April 1, 2015)

Customers who first renew coverage on or after April 1, 2015, may, for every server that is correctly licensed under SQL Server 2008 R2 processor license product use rights, acquire Software Assurance as following:

‣ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may renew SA as per the terms in the "First Renewal Term (Prior to April 1st 2015) " section above and,

‣ For licenses acquired after April 1st 2015 customers may renew SA for eight SQL Server Enterprise core licenses without acquiring the underlying core licenses for every SQL Server 2008 R2 Datacenter processor license. For ongoing use of SQL Server 2012 on processors that require more than eight core licenses per processor customer has to acquire the additional core licenses.

Customers' processor licenses are no longer valid upon acquisition of Software Assurance for core licenses under this offering. The option to acquire Software Assurance for SQL Server core licenses is not applicable to renewal of coverage under subscription programs.

For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring prior to April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement and choose not to renew Software Assurance may run SQL Server 2008 R2 or SQL Server 2012 under those licenses as follows:

▶ **SQL Server 2008 R2 Datacenter:** Ongoing use of this version of the software is subject to SQL Server 2008 R2 Datacenter processor license product use rights.

▶ **SQL Server 2012 Enterprise Core:** Use of this version of the software is subject to SQL Server 2008 R2 Enterprise processor license product use rights; however:

- customers no longer have Unlimited Virtualization use rights, License Mobility within Server Farms or License Mobility through Software Assurance; and

- any reassignment of licenses is subject to limitations in (i) and (ii) below related to their "core license equivalency." Core license equivalency is determined as follows.

  ▶ For a number of licenses equal to the lesser of either (x) the total number of processor licenses assigned to a licensed server immediately preceding expiration of Software Assurance or (y) the total number of physical processors on that server, the core license equivalency is the greater of:

    o eight cores per processor license, OR

    o a number of cores per processor license based the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds eight, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding expiration of Software Assurance either using the Microsoft MAP tool or any equivalent software.)

  ▶ For any processor licenses with expiring Software Assurance assigned to the same licensed server in excess of the actual number of physical processors on the server, the core equivalency is eight cores per processor license.

- Customers may reassign licenses to another server. However, if the customer reassigns a license to another server customer will have to follow SQL Server 2012 use rights. When assigning core licenses to servers under the SQL 2012 use rights, customer may combine the core equivalency of their existing licenses with additional SQL Server 2012 core licenses.

- Customers' deemed core license equivalency does not imply that they may assign a single processor license to cores across two or more processors.

For Customers with Software Assurance coverage expiring on or after April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring on or after April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement have the following options:

▸ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may continue to use SQL Server 2012 as per the terms in the "For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew " section above and,

▸ For licenses acquired after April 1st 2015 customers' processor license will have a core equivalency of eight SQL Server 2012 Enterprise core licenses. For ongoing use of SQL Server 2012 on processors that require more than eight core licenses per processor customer has to acquire the additional core licenses.

For customers located in the People's Republic of China and acquiring processor licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 and April 1st 2015 in this product list note do not apply. The applicable dates for these customers would be July 1st 2012 and July 1st 2015 respectively.

[81] SQL Server® 2008 R2 Small Business

License Grants Associated with end of life of SQL Server Small Business edition

SQL Server 2008 R2 for Small Business will be the last version of SQL Server for Small Business edition. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 for Small Business licenses on April 1, 2012 may upgrade to and use SQL Server 2012 Standard Server (or any later version of that product made available during their coverage) in place of SQL Server Workgroup edition, and acquire Software Assurance for SQL Server Standard when their current coverage expires. Also, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 for Small Business CALs on April 1, 2012 may upgrade to and use SQL Server 2012 CALs (or any later version of that CAL made available during their coverage) in place of SQL Server Small Business CAL, and acquire Software Assurance for SQL Server CAL when

their current coverage expires. Customers' SQL Server Small Business licenses are no longer valid when they acquire SQL Server Standard Software Assurance under this offering.

For customers located in the People's Republic of China and acquiring licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 in this product list note do not apply. The applicable date for these customers would be July 1st 2012.

[82] SQL Server® 2008 R2 Web Processor

License Grants Associated with Change in Licensing Model

SQL Server 2008 R2 will be the last version of SQL Server licensed under the per processor licensing model and the last version of SQL Server Web edition under Volume Licensing end-user programs. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Web processor licenses on April 1, 2012 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Web processor licenses subsequently acquired under the same enrollment term but prior to April 1, 2015 as part of an Enterprise, Enterprise Subscription, Open Value Subscription or Enrollment for Education Solutions customer's scheduled true-up process are also qualifying licenses for purposes of these options. Licenses acquired after April 1, 2015 or under a subsequent enrollment term, a separate agreement or any enrollment with an effective date after April 1, 2012 are not qualifying licenses.

Current Term

During the current term of their Software Assurance coverage as of April 1, 2012, customers (including customers under subscription agreements) may, under any qualifying licenses, upgrade to and use SQL Server 2012 Standard Core software in place of SQL Server 2008 R2 Web subject to SQL Server 2008 R2 Standard processor license product use rights (as reflected in the January 2012 Product Use Rights). Customers are additionally granted rights under License Mobility through Software Assurance and License Mobility within Server Farms. Customers should refer to the Product Use Rights for SQL Server 2012 Standard Core for license terms for License Mobility.

First Renewal Term (prior to April 1, 2015)

Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 Standard processor

license product use rights, the customer may acquire Software Assurance for SQL Server Standard core licenses without acquiring the underlying core licenses for a number of core licenses equal to the sum of (a) and (b):

a) a number equal to the lesser of the number of qualifying licenses assigned to the server or the total number of physical processors on the server multiplied by the greater of:

- Four, OR

- the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding Software Assurance renewal either using the Microsoft MAP tool or any equivalent software.)

b) a number equal to the number of qualifying licenses assigned to the server in excess of the actual number of physical processors on the server multiplied by four.

First Renewal Term (on or after April 1, 2015)

Customers who first renew coverage on or after April 1, 2015, may, for every server that is correctly licensed under SQL Server 2008 R2 processor license product use rights, acquire Software Assurance as following:

▶ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may renew SA as per the terms in the "First Renewal Term (Prior to April 1st 2015) " section above and,

▶ For licenses acquired after April 1st 2015 customers may renew SA for four SQL Server Standard core licenses without acquiring the underlying core licenses for every SQL Server 2008 R2 Web processor license. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

▶ Customers' processor licenses are no longer valid upon acquisition of Software Assurance for core licenses under this offering. The option to acquire Software Assurance for SQL Server core licenses is not applicable to renewal of coverage under subscription programs.

For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring prior to April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual

licenses under their agreement and choose not to renew Software Assurance may run SQL Server 2008 R2 or SQL Server 2012 under those licenses as follows:

▶ **SQL Server 2008 R2 Web:** Ongoing use of this version of the software is subject to SQL Server 2008 R2 Web processor license product use rights. Customers no longer have rights under License Mobility within Server Farms or License Mobility through Software Assurance.

▶ **SQL Server 2012 Standard Core:** Use of this version of the software is subject to SQL Server 2008 R2 Standard processor license product use rights; however:

- customers no longer have rights under License Mobility within Server Farms or License Mobility through Software Assurance; and

- any reassignment of licenses is subject to limitations in (i) and (ii) below related to their "core license equivalency." Core license equivalency is determined as follows.

  ▶ For a number of licenses equal to the lesser of either (x) the total number of processor licenses assigned to a licensed server immediately preceding expiration of Software Assurance or (y) the total number of physical processors on that server, the core license equivalency is the greater of:

    o four cores per processor license, OR

    o a number of cores per processor license based the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding expiration of Software Assurance either using the Microsoft MAP tool or any equivalent software.)

  ▶ For any processor licenses with expiring Software Assurance assigned to the same licensed server in excess of the actual number of physical processors on the server, the core equivalency is four cores per processor license.

- Customers may reassign licenses to another server. However, if the customer reassigns a license to another server customer will have to follow SQL Server 2012 use rights. When assigning core licenses to servers under the SQL 2012 use rights, customer may combine the core equivalency of their existing licenses with additional SQL Server 2012 core licenses.

- Customers' deemed core license equivalency does not imply that they may assign a single processor license to cores across two or more processors.

For Customers with Software Assurance coverage expiring on or after April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring on or after April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement have the following options:

▶ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may continue to use SQL Server 2012 as per the terms in the "For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew " section above and,

▶ For licenses acquired after April 1st 2015 customers' processor license will have a core equivalency of four SQL Server 2012 Standard core licenses. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

For customers located in the People's Republic of China and acquiring processor licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 and April 1st 2015 in this product list note do not apply. The applicable dates for these customers would be July 1st 2012 and July 1st 2015 respectively.

[83] SQL Server® 2008 R2 Workgroup (5 Client Add-On)

License Grants Associated with end of life of SQL Server Workgroup edition

SQL Server 2008 R2 Workgroup will be the last version of SQL Server Workgroup edition. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Workgroup Server licenses on April 1, 2012 may upgrade to and use SQL Server 2012 Standard Server (or any later version of that product made available during their coverage) in place of SQL Server Workgroup edition, and acquire Software Assurance for SQL Server Standard when their current coverage expires. Also, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Workgroup CALs on April 1, 2012 may upgrade to and use SQL Server 2012 CALs (or any later version of that CAL made available during their coverage) in place of their SQL Server Workgroup CALs, and acquire Software Assurance for SQL Server CAL at their next renewal. Customers' SQL Server Workgroup licenses are no longer valid when they acquire SQL Server Standard Software Assurance under this offering.

For customers located in the People's Republic of China and acquiring licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 in this product list note do not apply. The applicable date for these customers would be July 1st 2012.

[84] SQL Server® 2008 R2 Workgroup Processor

License Grants Associated with Change in Licensing Model

SQL Server 2008 R2 will be the last version of SQL Server licensed under the per processor licensing model and the last version of SQL Server Workgroup edition. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Workgroup processor licenses on April 1, 2012 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Workgroup processor licenses subsequently acquired under the same enrollment term but prior to April 1, 2015 as part of an Enterprise, Enterprise Subscription, Open Value Subscription or Enrollment for Education Solutions customer's scheduled true-up process are also qualifying licenses for purposes of these options. Licenses acquired after April 1, 2015 or under a subsequent enrollment term, a separate agreement or any enrollment with an effective date after April 1, 2012 are not qualifying licenses.

Current Term

During the current term of their Software Assurance coverage as of April 1, 2012, customers (including customers under subscription agreements) may, under any qualifying licenses, upgrade to and use SQL Server 2012 Standard Core software in place of SQL Server 2008 R2 Workgroup subject to SQL Server 2008 R2 Standard processor license product use rights (as reflected in the January 2012 Product Use Rights). Customers are additionally granted rights under License Mobility through Software Assurance and License Mobility within Server Farms. Customers should refer to the Product Use Rights for SQL Server 2012 Standard Core for license terms for License Mobility.

First Renewal Term (prior to April 1, 2015)

Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 Standard processor license product use rights, the customer may acquire Software Assurance for SQL Server Standard

core licenses without acquiring the underlying core licenses for a number of core licenses equal to the sum of (a) and (b):

a) a number equal to the lesser of the number of qualifying licenses assigned to the server or the total number of physical processors on the server multiplied by the greater of:

▶ Four, OR

▶ the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding Software Assurance renewal either using the Microsoft MAP tool or any equivalent software.)

b) a number equal to the number of qualifying licenses assigned to the server in excess of the actual number of physical processors on the server multiplied by four.

First Renewal Term (on or after April 1, 2015)

Customers who first renew coverage on or after April 1, 2015, may, for every server that is correctly licensed under SQL Server 2008 R2 processor license product use rights, acquire Software Assurance as following:

▶ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may renew SA as per the terms in the "First Renewal Term (Prior to April 1st 2015) " section above and,

▶ For licenses acquired after April 1st 2015 customers may renew SA for four SQL Server Standard core licenses without acquiring the underlying core licenses for every SQL Server 2008 R2 Workgroup processor license. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

▶ Customers' processor licenses are no longer valid upon acquisition of Software Assurance for core licenses under this offering. The option to acquire Software Assurance for SQL Server core licenses is not applicable to renewal of coverage under subscription programs.

For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring prior to April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement and choose not to renew Software Assurance may run SQL Server 2008 R2 or SQL Server 2012 under those licenses as follows:

- **SQL Server 2008 R2 Workgroup:** Ongoing use of this version of the software is subject to SQL Server 2008 R2 Workgroup processor license product use rights. Customers no longer have rights under License Mobility within Server Farms or License Mobility through Software Assurance.

- **SQL Server 2012 Standard Core:** Use of this version of the software is subject to SQL Server 2008 R2 Standard processor license product use rights; however:
  - customers no longer have rights under License Mobility within Server Farms or License Mobility through Software Assurance; and
  - any reassignment of licenses is subject to limitations in (i) and (ii) below related to their "core license equivalency." Core license equivalency is determined as follows.
    - For a number of licenses equal to the lesser of either (x) the total number of processor licenses assigned to a licensed server immediately preceding expiration of Software Assurance or (y) the total number of physical processors on that server, the core license equivalency is the greater of:
      - four cores per processor license, OR
      - a number of cores per processor license based the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding expiration of Software Assurance either using the Microsoft MAP tool or any equivalent software.)
  - For any processor licenses with expiring Software Assurance assigned to the same licensed server in excess of the actual number of physical processors on the server, the core equivalency is four cores per processor license.
  - Customers may reassign licenses to another server. However, if the customer reassigns a license to another server customer will have to follow SQL Server 2012 use rights. When assigning core licenses to servers under the SQL 2012 use rights, customer may

combine the core equivalency of their existing licenses with additional SQL Server 2012 core licenses.

- Customers' deemed core license equivalency does not imply that they may assign a single processor license to cores across two or more processors.

For Customers with Software Assurance coverage expiring on or after April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring on or after April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement have the following options:

▶ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may continue to use SQL Server 2012 as per the terms in the "For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew " section above and,

▶ For licenses acquired after April 1st 2015 customers' processor license will have a core equivalency of four SQL Server 2012 Standard core licenses. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

For customers located in the People's Republic of China and acquiring processor licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 and April 1st 2015 in this product list note do not apply. The applicable dates for these customers would be July 1st 2012 and July 1st 2015 respectively.

[85] SQL Server® 2012 Developer

Important Notice

Automatic Updates to SQL Server 2008, SQL Server 2005 and SQL Server 2000. If this software is installed on servers or devices running any editions of SQL Server 2008, SQL Server 2005, or SQL Server 2000 (or components of any of them) this software will automatically update and replace certain files or features within those editions with files from this software. This feature cannot be switched off. The updated files cannot be removed and the original files may not be recoverable. By installing this software on a server or device that is running any edition of SQL Server 2008, SQL

Server 2005, or SQL Server 2000 you consent to these updates in all editions and copies of SQL Server (including components of any of them) running on that server or device.

[86] SQL Server® 2012 Enterprise

SQL Server 2012 Enterprise is the next version of SQL Server Enterprise and SQL Server 2012 CAL is the next version of SQL Server CAL.

SQL Server Enterprise Server/CAL Customers -- Special Software Assurance Renewal Option

Customers with active Software Assurance for SQL Server Enterprise Server/CAL licenses as of April 1, 2012 may, as an alternative to renewing their coverage for Enterprise, acquire Software Assurance for an equal number licenses for SQL Server 2012 Business Intelligence without acquiring the underlying licenses. Upon acquisition of SQL Server 2012 Business Intelligence Software Assurance under this offering, customers may no longer use SQL Server Enterprise under their qualifying licenses. Customers who acquire Software Assurance for SQL Server Business Intelligence under this offering also will not have the option to revert to SQL Server Enterprise coverage for their qualifying SQL Server Enterprise licenses.

SQL Server 2012 Fulfillment Options

Customers may use only the software corresponding to the licensing model under which their SQL Server licenses are acquired.

SQL Server Buy-out Option under EAP

Customers will have an option to renew Software Assurance for SQL Server Enterprise Server/CAL licenses after June 30, 2012, however their only buy-out option at the end of their enrollment term, will be for core licenses.

Power BI for Office 365 User Subscription Licenses (SLs) – Access Rights

Users to whom a customer assigns Power BI for Office 365 User SLs or Power BI for Office 365 A User SLs may access the customer's licensed instances of SQL Server 2012 Enterprise during the

term of those subscription licenses. The Product Use Rights for SQL Server 2012 Enterprise and this note govern access and use of the software by such users.

Ongoing Use of SQL Server 2008 R2 Enterprise

Software Assurance customers who continue to use SQL Server 2008 R2 Enterprise under licenses acquired under their agreement or enrollment in effect on April 1, 2012 may use the software under SQL Server 2008 R2 Enterprise use rights during the current term and any renewal term. Customers who use SQL Server 2008 R2 Enterprise under downgrade rights under licenses acquired after renewal of their coverage must use the software under the use rights for the version licensed.

For customers located in the People's Republic of China and acquiring licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 in this product list note do not apply. The applicable date for these customers would be July 1st 2012.

[87] SQL Server® 2012 Enterprise Core

Extension of Unlimited Virtualization Use Rights for SQL Server 2008 R2 Enterprise (per processor)

Notwithstanding anything to the contrary in the Product Use Rights or prior versions of the Product List, if a customer has licensed all the physical processors on a licensed server and maintains active Software Assurance on those licenses, the customer may continue to run the server software in an unlimited number of operating system environments on that server.

License Grants Associated with Change in Licensing Model

SQL Server 2008 R2 will be the last version of SQL Server licensed under the per processor licensing model. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Enterprise processor licenses on April 1, 2012 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Enterprise processor licenses subsequently acquired under the same enrollment term but prior to April 1, 2015 as part of an Enterprise, Enterprise Subscription, Open Value Subscription or Enrollment for Education Solutions customer's scheduled true-up process are also qualifying licenses for purposes of these options. Licenses acquired after

April 1, 2015 or under a subsequent enrollment term, a separate agreement or any enrollment with an effective date after April 1, 2012 are not qualifying licenses.

Current Term

During the current term of their Software Assurance coverage as of April 1, 2012, customers (including customers under subscription agreements) may, under any qualifying licenses, upgrade to and use SQL Server 2012 Enterprise Core software in place of SQL Server 2008 R2 Enterprise subject to the SQL Server 2008 R2 Enterprise processor license product use rights (as reflected in the January 2012 Product Use Rights).

First Renewal Term (prior to April 1, 2015)

Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 processor license product use rights, the customer may acquire Software Assurance for SQL Server Enterprise core licenses without acquiring the underlying core licenses for a number of core licenses equal to the sum of (a) and (b):

a) a number equal to the lesser of the number of qualifying licenses assigned to the server or the total number of physical processors on the server multiplied by the greater of:
  ‣ Four, OR
  ‣ the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding Software Assurance renewal either using the Microsoft MAP tool or any equivalent software.)
b) a number equal to the number of qualifying licenses assigned to the server in excess of the actual number of physical processors on the server multiplied by four.

First Renewal Term on or after April 1, 2015

Customers who first renew coverage on or after April 1, 2015, may, for every server that is correctly licensed under SQL Server 2008 R2 processor license product use rights, acquire Software Assurance as following:

▶ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may renew SA as per the terms in the "First Renewal Term (Prior to April 1st 2015) " section above and,

▶ For licenses acquired after April 1st 2015 customers may renew SA for four SQL Server Enterprise core licenses without acquiring the underlying core licenses for every SQL Server 2008 R2 Enterprise processor license. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

▶ Customers' processor licenses are no longer valid upon acquisition of Software Assurance for core licenses under this offering. The option to acquire Software Assurance for SQL Server core licenses is not applicable to renewal of coverage under subscription programs.

For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring prior to April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement and choose not to renew Software Assurance may run SQL Server 2008 R2 or SQL Server 2012 under those licenses as follows:

▶ **SQL Server 2008 R2 Enterprise:** Ongoing use of this version of the software is subject to SQL Server 2008 R2 Enterprise processor license product use rights; however customers no longer have Unlimited Virtualization use rights or License Mobility through Software Assurance.

▶ **SQL Server 2012 Enterprise Core:** Use of this version of the software is subject to SQL Server 2008 R2 Enterprise processor license product use rights; however:

- customers no longer have Unlimited Virtualization use rights, License Mobility within Server Farms or License Mobility through Software Assurance; and

- any reassignment of licenses is subject to limitations in (i) and (ii) below related to their "core license equivalency." Core license equivalency is determined as follows.

  ▶ For a number of licenses equal to the lesser of either (x) the total number of processor licenses assigned to a licensed server immediately preceding expiration of Software Assurance or (y) the total number of physical processors on that server, the core license equivalency is the greater of:

    o four cores per processor license, OR

- o a number of cores per processor license based the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding expiration of Software Assurance either using the Microsoft MAP tool or any equivalent software.)
  - ‣ For any processor licenses with expiring Software Assurance assigned to the same licensed server in excess of the actual number of physical processors on the server, the core equivalency is four cores per processor license.
- Customers may reassign licenses to another server. However, if the customer reassigns a license to another server customer will have to follow SQL Server 2012 use rights. When assigning core licenses to servers under the SQL 2012 use rights, customer may combine the core equivalency of their existing licenses with additional SQL Server 2012 core licenses.
- Customers' deemed core license equivalency does not imply that they may assign a single processor license to cores across two or more processors.

For Customers with Software Assurance coverage expiring on or after April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring on or after April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement have the following options:

- ‣ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may continue to use SQL Server 2012 as per the terms in the "For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew " section above and,
- ‣ For licenses acquired after April 1st 2015 customers' processor license will have a core equivalency of four SQL Server 2012 Enterprise core licenses. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

For customers located in the People's Republic of China and acquiring processor licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 and April 1st 2015 in this product list note do not apply. The applicable dates for these customers would be July 1st 2012 and July 1st 2015 respectively.

[88] SQL Server ® 2012 Parallel Data Warehouse

License Grants Associated with Change in Licensing Model

SQL Server 2008 R2 will be the last version of SQL Server Parallel Data Warehouse licensed under the per processor licensing model. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Parallel Data Warehouse licenses on March 1st, 2013 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Parallel Data Warehouse licenses subsequently acquired under the same enrollment term as part of an Enterprise or Enterprise Subscription customer's scheduled true-up process are also qualifying licenses for purposes of these options.

▶ For every qualifying license that the customer owns customer may upgrade to 8 core licenses for SQL Server 2012 Parallel Data Warehouse. Upon upgrade to SQL Server 2012 customers' underlying SQL Server 2008 R2 licenses are no longer valid.

System Center Standard License Grant

Additionally, customers upgrading to SQL Server 2012 Parallel Data Warehouse under qualifying licenses will be eligible for the following System Center license grants apply upon their upgrade to SQL Server 2012 Parallel Data Warehouse:

▶ One System Center 2012 Standard license per server for every server running SQL Server 2012 Parallel Data Warehouse software

▶ Two System Center 2012 Standard licenses per server for all the remaining servers in the SQL Server 2012 Parallel Data Warehouse Appliance.

The software may be used solely to support the SQL Server 2012 Parallel Data Warehouse Appliance.

For Customers with Software Assurance who choose not to renew

Enterprise Subscription customers with coverage as of March 1st 2013 electing to buyout processor licenses and any other customers who acquire qualifying perpetual licenses under their agreement

and choose not to renew Software Assurance may run SQL Server 2008 R2 or SQL Server 2012 under those licenses as follows:

▶ **SQL Server 2008 R2 Parallel Data Warehouse:** Ongoing use of this version of the software is subject to SQL Server 2008 R2 license product use rights.

▶ **SQL Server 2012 Parallel Data Warehouse:** Use of this version of the software is subject to SQL Server 2012 Parallel Data Warehouse product use rights.

All SQL Server Parallel Data Warehouse and System Center llicenses granted under this offer will include Software Assurance coverage. That coverage will expire when the corresponding qualifying Software Assurance coverage expires. Upon expiration of that coverage, customers may renew their Software Assurance on the granted licenses.

A customer's use of software under this offer will be subject to the terms and conditions of its license agreement and the product use rights for the software. The right to use the software expires when the right to use software under the qualifying license expires. Evidence of their qualifying licenses and this Product Note will evidence the customer's right to use SQL Server 2012 Parallel Data Warehouse and System Center 2012 under the terms of this offer. Customers may not transfer the licenses granted under this offer separately from the corresponding qualifying licenses.

Optional Build without Oracle Java

Customers who acquire new licenses for SQL Server 2012 Parallel Data Warehouse (PDW) after Appliance Update 1 (AU 1) has been made available may acquire a build of the product with Oracle Java or, upon request, without Oracle Java. The same options are available to existing customers who have active Software Assurance on licenses for SQL Server 2012 PDW at the time AU 1 is made available. For more information, customers should go to http://www.microsoft.com/en-us/sqlserver/solutions-technologies/data-warehousing/pdw.aspx.

[89] SQL Server® 2012 Standard

SQL Server 2012 Standard is the next version of SQL Server Standard and SQL Server 2012 CAL is the next version of SQL Server CAL.

Software Licensing ™
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[90] SQL Server® 2012 Standard Core

License Grants Associated with Change in Licensing Model

SQL Server 2008 R2 will be the last version of SQL Server licensed under the per processor licensing model. As an exception, Volume Licensing customers with active Software Assurance for SQL Server 2008 R2 Standard processor licenses on April 1, 2012 ("qualifying licenses") are given the following options. SQL Server 2008 R2 Standard processor licenses subsequently acquired under the same enrollment term but prior to April 1, 2015 as part of an Enterprise, Enterprise Subscription, Open Value Subscription or Enrollment for Education Solutions customer's scheduled true-up process are also qualifying licenses for purposes of these options. Licenses acquired after April 1, 2015 or under a subsequent enrollment term, a separate agreement or any enrollment with an effective date after April 1, 2012 are not qualifying licenses.

Current Term

During the current term of their Software Assurance coverage as of April 1, 2012, customers (including customers under subscription agreements) may, under any qualifying licenses, upgrade to and use SQL Server 2012 Standard Core software in place of SQL Server 2008 R2 Standard subject to SQL Server 2008 R2 Standard processor license product use rights (as reflected in the January 2012 Product Use Rights). Customers are additionally granted rights under License Mobility through Software Assurance and License Mobility within Server Farms. Customers should refer to the Product Use Rights for SQL Server 2012 Standard Core for license terms for License Mobility.

First Renewal Term (prior to April 1, 2015)

Upon their first Software Assurance renewal on or after April 1, 2012 (but before April 1, 2015), for every server a customer has correctly licensed under SQL Server 2008 R2 Standard processor license product use rights, the customer may acquire Software Assurance for SQL Server Standard core licenses without acquiring the underlying core licenses for a number of core licenses equal to the sum of (a) and (b):

a) a number equal to the lesser of the number of qualifying licenses assigned to the server or the total number of physical processors on the server multiplied by the greater of:

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▶ Four, OR

▶ the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding Software Assurance renewal either using the Microsoft MAP tool or any equivalent software.)

b) a number equal to the number of qualifying licenses assigned to the server in excess of the actual number of physical processors on the server multiplied by four.

First Renewal Term (on or after April 1, 2015)

Customers who first renew coverage on or after April 1, 2015, may, for every server that is correctly licensed under SQL Server 2008 R2 processor license product use rights, acquire Software Assurance as following:

▶ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may renew SA as per the terms in the "First Renewal Term (Prior to April 1st 2015) " section above and,

▶ For licenses acquired after April 1st 2015 customers may renew SA for four SQL Server Standard core licenses without acquiring the underlying core licenses for every SQL Server 2008 R2 Standard processor license. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

▶ Customers' processor licenses are no longer valid upon acquisition of Software Assurance for core licenses under this offering. The option to acquire Software Assurance for SQL Server core licenses is not applicable to renewal of coverage under subscription programs.

For customers wanting to step up from SQL Server Standard to SQL Server Enterprise Core

Customers with qualifying licenses for SQL Server 2008 R2 Standard may step up those licenses to SQL Server Enterprise (Per Core) anytime during their current term of Software Assurance coverage. For any server a customer has correctly licensed under SQL Server 2008 R2 Standard processor license product use rights, the customer may acquire a number of Step Up Licenses for SQL Server Enterprise Core equal to the total number of physical processors on the server multiplied by the greater of:

▶ Four, OR

▶ the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding acquisition of the Step Up licenses either using the Microsoft MAP tool or any equivalent software.)

Upon acquisition of the appropriate number of Step Up licenses for SQL Server Enterprise Core, customer may deploy and use the software under SQL Server Enterprise Core use rights. Except as provided in this "For customers wanting to step up from SQL Server Standard to SQL Server Enterprise Core" section, the terms and conditions pertaining to the acquisition of Step Up licenses, as described in the Software Assurance section of this Product List, apply.

For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring prior to April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement and choose not to renew Software Assurance may run SQL Server 2008 R2 or SQL Server 2012 under those licenses as follows:

▶ **SQL Server 2008 R2 Standard:** Ongoing use of this version of the software is subject to SQL Server 2008 R2 Standard processor license product use rights. Customers no longer have rights under License Mobility within Server Farms or License Mobility through Software Assurance.

▶ **SQL Server 2012 Standard Core:** Use of this version of the software is subject to SQL Server 2008 R2 Standard processor license product use rights; however:

  • customers no longer have rights under License Mobility within Server Farms or License Mobility through Software Assurance; and

  • any reassignment of licenses is subject to limitations in (i) and (ii) below related to their "core license equivalency." Core license equivalency is determined as follows.

    ▶ For a number of licenses equal to the lesser of either (x) the total number of processor licenses assigned to a licensed server immediately preceding expiration of Software Assurance or (y) the total number of physical processors on that server, the core license equivalency is the greater of:

o four cores per processor license, OR

o a number of cores per processor license based the actual number of cores per physical processor multiplied by the appropriate core factor. (In cases where the actual number of cores per physical processor exceeds four, customers must maintain a record of the configuration of the SQL Server software running on the server (licensed instances running in operating system environments on the licensed server) and the physical hardware supporting that software immediately preceding expiration of Software Assurance either using the Microsoft MAP tool or any equivalent software.)

▸ For any processor licenses with expiring Software Assurance assigned to the same licensed server in excess of the actual number of physical processors on the server, the core equivalency is four cores per processor license.

▸ Customers may reassign licenses to another server. However, if the customer reassigns a license to another server customer will have to follow SQL Server 2012 use rights. When assigning core licenses to servers under the SQL 2012 use rights, customer may combine the core equivalency of their existing licenses with additional SQL Server 2012 core licenses.

▸ Customers' deemed core license equivalency does not imply that they may assign a single processor license to cores across two or more processors.

For Customers with Software Assurance coverage expiring on or after April 1, 2015 who choose not to renew

Enterprise Subscription and Open Value Subscription customers with coverage expiring on or after April 1, 2015 electing to buyout processor licenses and any other customers who acquire perpetual licenses under their agreement have the following options:

▸ As provided in the first paragraph of this product note, licenses acquired before April 1st 2015 are qualifying licenses and customers may continue to use SQL Server 2012 as per the terms in the "For Customers with Software Assurance coverage expiring prior to April 1, 2015 who choose not to renew " section above and,

▸ For licenses acquired after April 1st 2015 customers' processor license will have a core equivalency of four SQL Server 2012 Standard core licenses. For ongoing use of SQL Server 2012 on processors that require more than four core licenses per processor customer has to acquire the additional core licenses.

For customers located in the People's Republic of China and acquiring processor licenses and Software Assurance for SQL Server 2008 R2 there

The references to April 1st 2012 and April 1st 2015 in this product list note do not apply. The applicable dates for these customers would be July 1st 2012 and July 1st 2015 respectively.

Source: Microsoft Product List, March 2014

Microsoft Product Use Rights

UNIVERSAL TERMS: DEFINITIONS

Core Factor means a numerical value associated with a specific physical processor for purposes of determining the number of licenses required to license all of the physical cores on a server.

UNIVERSAL TERMS: RIGHTS TO USE OTHER VERSIONS

For any permitted copy or instance, you may create, store, install, run or access in place of the version licensed, a copy or instance of a prior version, different permitted language version, or different available platform version (for example, 32 bit or 64 bit).

You may not use different versions of different components, such as server software and additional software, or copies or instances of different editions of a product unless the Product-Specific License Terms for that product expressly permit you to do so.

SERVERS: PER CORE (CORE LICENSE) : PRODUCT SPECIFIC TERMS FOR SQL SERVER 2014 ENTERPRISE PER CORE : DOWN-EDITION RIGHTS

In place of any permitted Instance, you may use an Instance of either the 2008 R2 version of Datacenter, the 2008 R2 or any earlier version of Enterprise, or the 2014 or any earlier version of Business Intelligence, Standard, Workgroup, or Small Business.

Source: Microsoft Product Use Rights, July 2014

SERVERS: PER PROCESSOR (PROCESSOR LICENSE): GENERAL LICENSE TERMS: RUNNING INSTANCES OF THE SERVER SOFTWARE IN A SERVER FARM

For SQL Server 2008 R2 Enterprise: Because you are permitted to reassign licenses as needed, as long as you meet the following requirement, you may run the software in up to four OSEs within a server farm for each license assigned. The number of physical processors supporting or used by OSEs at any one time may not exceed the number of licenses assigned to servers within the farm.

APPENDIX 2: SOFTWARE ASSURANCE BENEFITS : LICENSE MOBILITY THROUGH SOFTWARE ASSURANCE

License Mobility through Software Assurance lets you move certain on-premise licenses covered by Software Assurance to third party shared servers subject to the terms below. See Universal License Terms, Definitions for meanings of "CALs," "manage," "OSEs," "server farm," and "virtual OSEs."

Applicable Products:

All Products that are currently eligible for "License Mobility within Server Farms" and covered by Software Assurance are eligible for License Mobility through Software Assurance. In addition, the following Products are also eligible for License Mobility through Software Assurance:

• SQL Server Standard -- Per Processor and Server/CAL (processor and server licenses only)

• System Center – all Server Management Licenses (MLs), including SMSE and SMSD

• HPC Pack Enterprise

Permitted Use:

With License Mobility through Software Assurance, you may:

• Move your licensed software from your servers to a third party's shared servers;

• Access your licensed software running on a third party's shared servers under the appropriate access licenses (the CALs and External Connector licenses identified in the license terms for the individual Products subject to the requirement that you maintain Software Assurance coverage on those licenses as described below, and the User and Device SLs identified in the license terms for the individual Products);

• Run your software in virtual OSEs on the third party's shared servers; and/or

• Manage your OSEs that you use on a third party's shared servers.

Source: Microsoft Product Use Rights, January 2012

Core Factor Table

CORE FACTOR TABLE

Updated: April 1, 2014*

This Core Factor Table is only applicable to SQL Server and BizTalk Server software licensed under the Per Core model.

Processor Type	Core Factor
All processors not mentioned below	1

AMD 31XX, 32XX, 33XX, 41XX, 42XX, 43XX, 61XX, 62XX, 63XX Series Processors with 6 or more cores	.75
Dual Core Processors	2
Single Core Processors	4

*The core factor applicable to the physical processors in a particular physical server is the core factor in effect when the core licenses are assigned to that server.

Source: CoreFactorTable 4_1_14.pdf, http://download.microsoft.com/download/4/4/5/445627B4-9AB0-4AED-BCCD-C7AC5ADAF6B2/CoreFactorTable_4_1_2014.pdf

Microsoft Business and Services Agreement

SUBHEAD

Text

Source: Business and Services Agreement, Month Year

Microsoft Enterprise Agreement

4. HOW TO KNOW WHAT PRODUCT USE RIGHTS APPLY.

Product Use Rights. The Product Use Rights in effect on the effective date of an Enrollment will apply to Enrolled Affiliate's use of then-current versions of each Product (excluding Online Services). For future versions, the Product Use Rights in effect when those future versions are first released will apply. In both cases, subsequent changes made by Microsoft to the Product Use Rights for a particular version will not apply to Enrolled Affiliate's use of that version, unless Enrolled Affiliate chooses to have such changes apply.

8. MISCELLANEOUS

Order of precedence. In the case of a conflict between any documents referenced in this agreement that is not expressly resolved in the documents, their terms will control in the following order (1) the terms and conditions of the Master Agreement, (2) these terms and conditions and the accompanying signature form, (3) an Enrollment, (4) the Product List, (5) the Product Use Rights, (6) any other documents, and (7) all orders submitted under this agreement.

Source: Microsoft Enterprise Agreement, Oct. 2011

Software Licensing ™ Advisors

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