

IBM License Use Management White Paper

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1. Introduction

This white paper focuses on the IBM Strategy, direction and technology for customers to manage *access to* and *use of* software. It explains the concepts of license use management , the value to the customer and IBM, the underlying technology, and how the technology will be exploited by IBM products. It also describes license use management policies and guidelines being followed by IBM developed software. The policies and guidelines in this document are to be considered the standards that IBM, including all Development and Marketing organizations, will implement. **The general goal for IBM is to create a consistent license management system across all its and other vendors' operating system environments giving customers one method for managing software licenses.**

License Use Management includes tools and processes to:

- Enable implementation of products priced on their use rather than on potential processor capacity etc. (e.g., number of concurrent or registered users or resources)
- Provide customers with tools to manage the access to and usage of software products
- Enable "**supply before buy**" merchandising (e.g., trial, prepackaged, preloaded or electronically transmitted software)

2. License Use Management Benefits

License Use Management serves the interests of both customers and software vendors.

License Use Management assists Customers by enabling use-based charging and:

- Collecting basic use statistics and monitoring use levels
- Informing customers when entitled use levels have been or are about to be exceeded
- Measuring resource use for the purpose of establishing software charges
- Generating reports and statistics on use
- Providing data to both enable customer chargeback systems and leverage software volume opportunities
- Providing a means to demonstrate license compliance to external and internal auditors

License Use Management assists software vendors by:

- Adding assurance that intellectual property is protected and that software licenses are used within entitled limits
- Enabling software family packaging and "supply before buy" merchandising
- Potentially reducing software distribution costs

3. Strategy

Regarding *access to SW*, IBM's established policy supports two technologies for controlling access to multiple products deliveries on a single medium (like a CD):

- Secure Distribution Control System (SDCS), an encryption technique.
- IBM License Use Management Tool (IBM-LUM), a use management technique.

Regarding license use management, IBM's announced direction is to implement self-compliance, i.e., **Customer Managed Use** for IBM-owned use-based priced software products, whereby a customer will **not** need to request a use-key from IBM which controls the use-levels for which the customer is licensed, (also known as vendor managed use). IBM does support vendor managed use for selected vendor owned products which IBM markets.

The customer must **enroll** all products enabled for license management with the license management system, by using the administrative tools supplied. During the enrollment process the customer administrator is asked to enter the overall licensed use-level.

Software products contain the enablement code which communicates with the license use management system, allowing a customer to be able to receive information about the licenses used (e.g., number of users or number of resources used or managed) by these product. Changes and/or usage data is logged in special files, which can be used for internal and external audit purposes. A customer can also use the license use management administrative tools to receive reports of usage and compare this information to the usage levels that have been licensed. As a result customers are able to take action to either increase or decrease their license payments to their suppliers. Customers can also control when to sample software they have already received from a supplier licensed on a "trial period" basis. If satisfied with the trial of the product, customers would then contact IBM or their suppliers to receive enrollment information for permanent licensing.

4. Technology

Before looking into the underlying technology IBM is using for license use management it is worthwhile to review the concepts of software use-based charging. In use-based pricing, there are two prevalent methods of counting or measuring use: "concurrent use" and "registered use" as can be seen in [Figure 4.1 - Software Pricing Framework](#).

Software Pricing Framework

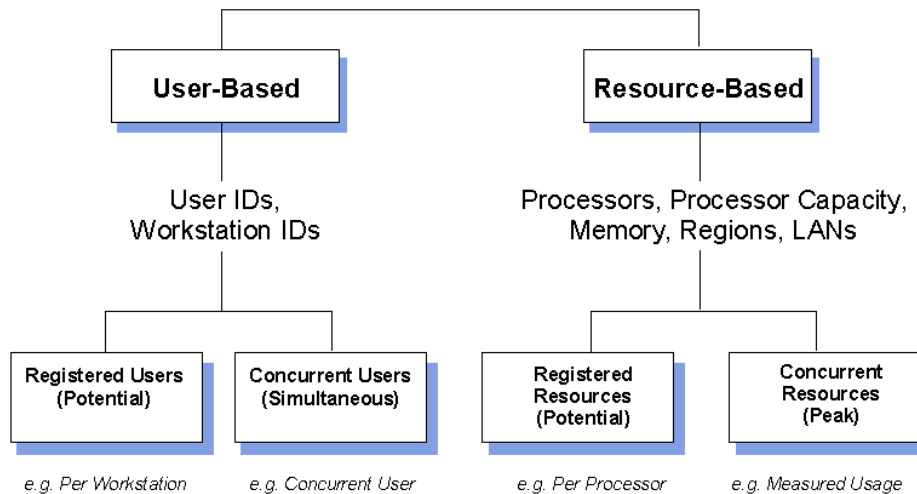


Figure 4.1

- The concurrent use pricing policy charges the customer for the simultaneous uses of a product, so that a use is counted every time the product or a new use is started. The product has to be enabled to request a license every time a use starts or service is requested, and to release the license at the end of the current use. Concurrent uses are counted during execution.
- The registered use pricing policy charges the customer for the potential uses, so that a use is counted when registered (defined) with the product. The product has to be enabled to request licenses that are specifically assigned to a "user" and maintained in a registered use table of the license system, by means of an identifier. License assignment may be transferred from a user to another.

The strategic license management tool to be used by IBM products is **IBM LUM, License Use Management**, based on the LicensePower/iFOR^(tm) technology which provides a client/server scheme for license use management. The **client** is the LUM-enabled product and the **server** is the license server which:

- maintains a license database
- provides information to the license enabled product about the availability of licenses,
- maintains a count of the usage of the product.
- provides a variety of information on the license activity through specific graphical and non

interface.

The combination of a license server, runtime client code, and the associated license data base is collectively known as as the License Management System.

A license enabled product is a product that has imbedded calls to the License Management Server which can be located remotely in a node in the network or locally in the same node where the product is running. The purpose of the calls is to check if a license is available and to allow the product to decide its behavior based on the information provided by the License Management System. Calls are made from a product to notify the License Management System that a new use of the product is starting or ending, allowing the provision of up to date information about the actual usage of the product. .

License Types

There are several models that can be employed by products depending on their market needs:

- **Nodelocked Licenses**

Nodelocked is a licensing model that requires each workstation (the node) on which the license enabled product runs to have license enrollment information (the license password) locally installed.

Vendors can enable their products using the following kinds of nodelocked licenses:

- Simple nodelocked licenses
- Concurrent nodelocked licenses
- Use-once nodelocked licenses
- Per-server licenses
- Trial Period licenses

Simple Nodelocked Licenses



A *simple nodelocked* license allows an unlimited number of simultaneous uses of the licensed application on the local machine.

Concurrent Nodelocked Licenses



As with a simple nodelocked license, the *concurrent nodelocked* license is local to the node where the application has been installed. It allows a limited number of simultaneous uses of the licensed application. A typical example of a concurrent nodelocked

license is a client/server application, where the application server is able to recognize the number of clients connected to it and ask for a license for each of them.

Use-Once Nodelocked Licenses



A *use-once nodelocked* license permits a single use of a particular licensed product on a particular machine within the period for which the license is valid. Every time the product is started, one license is consumed.

A typical use of use-once nodelocked licenses is to distribute promotional or demonstration versions of software.

Vendors also provide use-once nodelocked licenses to supplement concurrent nodelocked licenses during times when user demand for those products exceeds the number of available concurrent nodelocked licenses. The vendor designs the product so that when all concurrent nodelocked licenses for the product are in use, a user can request an available use-once license.

Per-Server Licenses



Per-server licenses are exactly like concurrent nodelocked licenses, except that at any time, it's possible to change them into per-seat licenses (see "[Per-Seat Licenses](#)").

Vendors use per-server/per-seat licenses to enable client/server applications constructed for multiple-server solutions. Both per-server and per-seat licenses make it possible for the server of a licensed client/server application to request licenses on behalf of its clients without the need for the application clients to be license-enabled.

With per-server licensing, each application server license is associated with a specific number of application clients, representing the maximum number of application clients that may concurrently request services from that application server. The application client licenses are stored locally on the application server machine and are granted temporarily to requesting application clients. Multiple application servers grant licenses independently of one another; if the same application client connects to more than one application server, the application client is granted more than one license. Therefore it is suggested to use per-server licenses only in an environment where:

- Each application client connects to only a single application server, or
- Each application client uses the application infrequently for brief periods.

When the environment grows in such a way that application clients are connecting to multiple application servers, a customer would probably want to convert his per-server licenses to per-seat. With *per-seat* licensing, unused application client licenses are kept in a central repository, which all the application servers share. They also share a central list of application clients to which a license has been assigned. When a license is assigned to an application client, that assignment is permanent. If an application client connects to multiple application servers, it is assigned only one license.

Trial Period Licenses



The vendor can enable a product with a special simple nodelocked license so that an evaluation period (with duration set by the vendor) starts either when the product is enrolled or when the product is run for the first time.

The main advantages for this scheme are:

- The product enters in the trial period mode with no actions required for the customer but the acceptance of the related Terms and Conditions (T&C).
- The trial period copy of the product that the customer installs is the complete, production version, all the product functionalities are provided.
- Product fix packs can be applied during the trial period
- Any configuration/work files created during the trial period are available when the product is permanently licensed.

• Network Licenses

Network licenses, rather than being restricted to a single machine, are stored on a network license server and shared among multiple network license clients.

Vendors can enable their products using the following kinds of network licenses:

- Concurrent licenses
- Reservable licenses
- Use-once licenses
- Per-seat licenses

Concurrent Licenses



A *concurrent* license is a network license that can be temporarily granted to run the licensed application on a client.

When the product is running, that license remains unavailable to other users of the product. When the product stops running the license is returned to the server, where it becomes available to other users.

A typical use of concurrent licenses is for products with relatively expensive licenses that each user will use only part of the time. The customer orders fewer licenses than there are users to optimize use of the licenses.

Reservable Licenses



A *reservable* license is a network license that can be reserved for the exclusive use of a user, a group, or a node. The reservation is for a specified time period. A reservable license that has been reserved is called a *reserved* license. A reservable license that has not been reserved is called an *unreserved* license.

When a reserved license is granted from the network, the license is stored on the workstation where the licensed application is running. Thereafter, the license can be used on the workstation, even if the workstation is disconnected from the network, until the reservation expires.

A typical use of a reservable license is for the client part of a client/server application that is likely to run on a portable computer that is often disconnected from the network. Another typical use is for a compiler being used in software development: during a build process involving many compilations, it is more efficient to reserve a compiler license for a day or two than to access the license server through the network for every compilation.

It is possible to reserve some of the reservable licenses for an application and leave others unreserved. Unreserved licenses are treated like concurrent licenses.

Vendors can use reservable licenses for both vendor-managed and customer-managed products.

Use-Once Licenses



A *use-once* license is a network license that permits a single use of a particular licensed product within the period for which the license is valid. Every time the product is started, one license is consumed.

A typical use of use-once licenses is to distribute promotional or demonstration versions of software.

Vendors also provide use-once licenses for their products to supplement concurrent licenses during times when user demand for those products exceeds the number of available concurrent licenses. The vendor designs the product so that when all concurrent licenses for the product are in use, a user can request an available use-once license.

Per-Seat Licenses



Vendors use per-server/per-seat licenses to enable client/server applications constructed for multiple-server solutions. Both per-server and per-seat licenses make it possible for the server of a licensed client/server application to request licenses on behalf of its clients without the need for the application clients to be license-enabled.

With per-seat licensing, unused application client licenses are kept in a central repository,

which all the application servers share. They also share a central list of application clients to which a license has been assigned. When a license is assigned to an application client, that assignment is permanent. If an application client connects to multiple application servers, it is assigned only one license.

It is probably better to use per-seat, rather than per-server, licenses in an environment where application clients connect to multiple application servers. (See also "[Per-Server Licenses](#)").

From the above, it should be clear that the scope of the technology is particularly well suited to a wide range of licensing models and customer environments, ranging from standalone workstations to client/server and network-centric computing.

Enrollment of Licenses

License enabled products require a formal enrollment to place Enrollment Certificate information in the license server database. During the enrollment process, the customer uses a simple graphical tool to enter the total use count acquired. As a result of the enrollment, an entry in a tamper resistant audit trail is also created.

The enrollment certificate contains information about the product and the access information to be used by the product. It will typically be shipped with a product from which the enrollment information can be imported rather than entered from the system keyboard.

The implementation of IBM's license use management design coupled with the ease of use characteristics of the graphical user interface allows license administrators to easily and quickly modify their license use management configurations to meet changing business needs. Administrators can configure their license server profiles so that the right numbers of users can have access to software wherever it may be installed in the customer's network.

5. Workstation Environment

IBM is providing common license use management tools for the OS/2^(tm) Warp, AIX^(tm) V4, Windows^(tm) NT, HP-Unix^(tm), Sun Solaris^(tm) and SGI^(tm) workstation environments. These tools provide basic capabilities such as counting and managing use on both a registered and concurrent basis. Other systems with same capability that will interoperate with IBM, are based on the LicensePower/iFOR^(tm) technology by [ISOGON^{\(tm\)} Corporation](#).

Developers Kits and Runtime code for platforms not supported by IBM LUM systems can be obtained from [ISOGON^{\(tm\)} Corporation](#).

6. Host Environment

Current license management tools are mainly designed to support use monitoring in a distributed workstation environment. In order to provide common customer interfaces with common tools based on a common technology, IBM is currently evaluating their use for license use management in the host environment. Until that evaluation is complete, existing tools for the host environment will continue to be used.

MVS^(tm)

The Measured Usage Tool is the current technology for measuring resource use on the MVS/ESA^(tm) platform, measuring and tracking MVS/ESA resource use. These

statistics are then provided by the customer to IBM for the purpose of establishing the next period's software charges. Actual "use" is determined by customer workload requirements and is not restricted in any way by the Measured Usage tool.

OS/400^(tm)

Software License Manager/400 (SLM/400), included in the base OS/400 operating system, is currently used as the tool to assist in customer managed use control of AS/400 products, based on their use.

7. Summary

IBM's license use management strategy:

- Responds to customer requests for a tool which allows the customer to take control of managing software licenses.
- Offers customers consistent license use management processes across systems in a heterogeneous network.
- Provides development tools compatible with many vendor systems.
- Provides customers with administrative tools. which are consistent across system environments
- Offers customers the capability of central or distributed management of software license usage
- Supports the ability for products to be priced on a use base rather than fixed or graduated charges.

Last updated January, 23rd 1998

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