
EverGreen/400 V1R3 Performance Model

Sizing your EverGreen/400 e-mail environment.

1. Introduction

This document contains essential information for planning and sizing an EverGreen/400 installation. It defines the typical AS/400 workload generated by an average EverGreen/400 e-mail user and it provides the necessary information to calculate the CPU and disk requirements for the AS/400 running EverGreen/400.

EverGreen/400 integrates perfectly with different types of e-mail servers such as AnyMail/400, Lotus Domino, Microsoft Exchange and any standard SMTP/POP3 server. This integration includes the support for connections to remote e-mail servers not running on the same AS/400 — possibly across a dial-up connection.

Because EverGreen/400 is able to communicate with a wide range of e-mail servers on different platforms, no statements are made about the sizing of the e-mail server itself. All performance information mentioned in this document is related to the capacity required to run the EverGreen/400 e-mail *client*. Please refer to the documentation of your e-mail server or contact the vendor for information related to sizing the server.

Disclaimer: Although care has been taken to verify all information and data used during the preparation and writing of this document, Inventive Designers is not able to guarantee a specific performance level in a real world environments solely based on this document. Please contact Inventive Designers directly if you have any questions about the performance of EverGreen/400 in your specific environment.

2. EverGreen/400 V1R3 Performance Model

The EverGreen/400 V1R3 Performance Model used to benchmark an EverGreen/400 installation reflects the AS/400 workload generated by an 'average' EverGreen/400 user. This performance model is similar to the *Simple Mail User* workload used by Lotus to benchmark Notes/Domino installations.

The EverGreen/400 V1R3 Performance Model reflects an active EverGreen/400 user sending and receiving mail. In a 15-minute period the following tasks are performed by the user (thus an average user will execute this script no more frequently than 4 times per hour) :

- w Receive 5 e-mail messages (each 1KB in size)
- w Update 2 e-mail messages (through the edit option)
- w Delete 2 e-mail messages
- w View and scroll through one e-mail message (the message size is 3692 bytes, representing approximately 1.5 pages of text)
- w Start and close the e-mail client once
- w Open another e-mail cabinet
- w Send one e-mail message to 3 people

3. CPU Requirements

In order to provide accurate sizing information Inventive Designers has used the EverGreen/400 V1R3 Performance Model to execute a number of tests on an AS/400 Model 170-2292 running OS/400 V4R3. All performance data was collected and analyzed using the BEST/1 capacity-planning module of the IBM Performance Tools for AS/400 product.

The performance measurements show that the CPU utilization by an EverGreen/400 user is very low, certainly when compared against the CPU requirements for an OfficeVision/400 user. **According to the EverGreen/400 V1R3 Performance Model, an average EverGreen/400 user consumes 0.15 Interactive CPW, independent of the AS/400 model used.**

The above number assumes that the AS/400 system is configured with the maximum amount of memory and disk space available for that particular model. This is the same assumption used by IBM when performing AS/400 capacity planning. The actual performance achieved may vary, depending on the amount of memory and disk available in a specific environment.

Important notice: When performing sizing calculations, the CPW required for EverGreen/400 users has to be subtracted from the *interactive* CPW available on the AS/400 Model. On AS/400 server models — including the AS/400 7xx series — separate CPW values are available for batch and interactive workloads. On the AS/400 7xx models additional interactive CPW capacity may be purchased separately with interactive processor features.

3.1 Example

On an AS/400 Model 170-2292 offering a total of 220 CPW, 100 simultaneous EverGreen/400 users would require 15 interactive CPW ($100 * 0.15$ CPW) of the 30 interactive CPW available on this server model. These 15 interactive CPW represent a CPU processor utilization of approximately 6.8% on the 220 CPW server machine.

4. DASD Requirements

EverGreen/400 has been designed to keep the amount of disk space required for storing e-mail messages as low as possible. EverGreen/400 does not use DB2/400 for storing e-mail messages because e-mail messages have no fixed record length and messages can contain any number of variable sized binary attachments. Instead, EverGreen/400 uses stream files in the Integrated File System (IFS) to store users' mail cabinets. By using the IFS, no disk space is wasted and optimal performance is achieved.

Approximately 30MB of disk space is required for installing the EverGreen/400 V1R3 software and configuration objects on the AS/400 system.

Additionally, approximately 2MB of disk space should be available for each user's mail cabinets. Those 2 MBs of disk space allow a user to store an equivalent of 2000 messages of 10 lines in size.

Note: The size of an e-mail message stored in an EverGreen/400 mail cabinet is less than the size of the original MIME message being transferred between client and server. EverGreen/400 only stores the body of the message plus a 250 byte header.

Obviously, messages containing attachments occupy considerably more disk space than simple text messages. If an EverGreen/400 user will be sending or receiving a large number of attachments additional disk space will be required.

Note: Attachments sent using the popular Binary Encoded-64 MIME format occupy 33% more disk space than the original file (because of the encoding algorithm used). For example, attaching a 100 KB image file to a message will add 133 KB to the size of the e-mail message.

5. References

- w EverGreen/400 V1R3 Manual
- w Inventive Designers website at
<http://www.inventivedesigners.be/>
- w *BEST/1 Capacity Planning Tool*, SC41-5341

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