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# ***EverGreen/400 in a S/390 Environment***

## **Bringing e-mail and calendaring to the 3270 world.**

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### **1. Introduction**

EverGreen/400 is an IBM AS/400 product which allows any traditional 5250 non-programmable terminal (NPT) to be used as an e-mail and calendaring client workstation.

Using EverGreen/400 any AS/400 user is able to send and receive e-mail messages containing different types of information. Some of the supported e-mail features are :

- w Standard e-mail message handling (create, send, receive, display, reply, forward,...)
- w MIME attachments (PC files, spooled files, save files, OfficeVision/400 documents,...)
- w Address books and distribution lists
- w Choice of editor (base, enhanced, OfficeVision/400)
- w Leave mail on server option
- w Fully NLS enabled
- w Draft messages, delivery options, multiple stationaries,...

Additionally, the optional Domino Calendar Interface Feature offers 5250 users access to the powerful calendaring and scheduling functions of Lotus Domino for AS/400. The Domino Calendar Interface Feature offers the following functions :

- w Calendar profiles (calendar preferences, access control,... )
- w Multiple calendar views (weekly, monthly, six month)
- w Support for all Lotus Notes calendar item types (appointments, invitations, events, reminders, anniversaries)
- w High performance

Although EverGreen/400 has been developed specifically for the AS/400 platform, the product can be integrated easily into a S/390 environment. This way, the powerful e-business functions described above become available to users of traditional 3270 non-programmable terminals.

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## 2. Environment overview

The S/390 environment we have used for testing the integration of EverGreen/400 is shown in the figure 1.

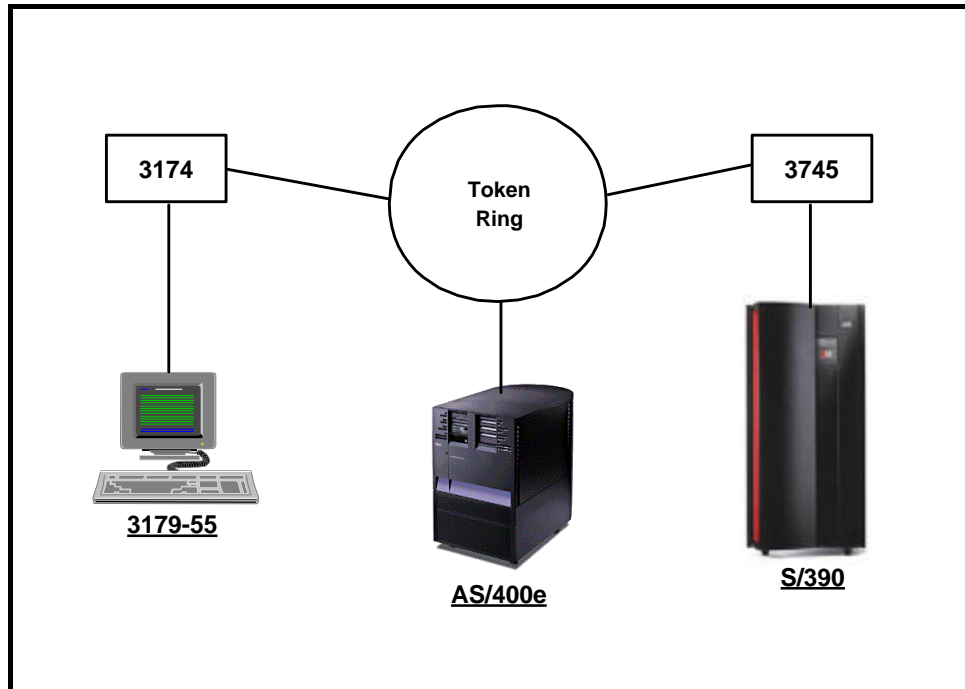


Figure 1. Environment overview

The test environment contains the following components :

- w **Token-ring network** : A 16 MB token-ring network acts as the networking backbone of the whole environment.
- w **3270 NPTs** : The workstations used during the tests are standard IBM 3179 Model 55 terminals. All terminals are connected to a 3174 controller, which provides the connection to the token-ring network.
- w **S/390 server** : The S/390 server is the legacy system used by the 3270 users to run their line of business applications.
- w **AS/400 server** : Since EverGreen/400 is a native AS/400 application, it requires an AS/400 system to install, configure and run the product. The AS/400 system has a connection to the token-ring network which provides the upstream connection to the S/390 server and the downstream connection to the 3270 workstations.

Every AS/400 system has built-in support for 3270 terminals, connected locally or remotely. The 3270 data stream routed through the 3x74 controller to the AS/400, is mapped by standard OS/400 functions to the corresponding 5250 data stream. EverGreen/400 reads the 5250 data stream, performs

its e-business functions, and generates a 5250 data stream to be sent back to the 3270 users. This data stream will again be mapped to the 3270 data stream and handed over to the 3x74 controller for further distribution. In order to allow the 3270 workstation to communicate with the AS/400, at least one session on the 3270 NPT needs to be directed to the AS/400 system.

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### 3. Two possible scenarios

Depending on the required functionality two different scenarios can be implemented in the environment described above :

- w If EverGreen/400 will be used for *e-mail only*, a Lotus Domino for S/390 server can be used to perform the required e-mail server functionality.
- w If EverGreen/400 will be used for *both e-mail and calendaring*, a Lotus Domino for AS/400 server is required to perform the required e-mail and calendar server functionalities.

Both scenarios are described in more detail in the following sections.

### 3.1 Lotus Domino for S/390 : E-mail only

If EverGreen/400 will be used for *e-mail only*, a Lotus Domino for S/390 server can be used to perform the required e-mail server functionality.

The e-mail functionality of EverGreen/400 is built on top of the standard Internet SMTP (Simple Mail Transfer Protocol) and POP3 (Post Office Protocol 3) protocols. This architecture allows EverGreen/400 to connect to a wide range of e-mail servers. Any Lotus Domino server (including the version running on the S/390 platform) has an integrated SMTP Mail Transfer Agent (MTA) and a POP3 server component. As a result of this, EverGreen/400 is able to communicate with a Lotus Domino server which is installed on a S/390 server to perform its e-mail functions.

In this scenario, the AS/400 (running EverGreen/400) connects to the S/390 server (running Lotus Domino for S/390) through a standard TCP/IP connection across the token-ring network. The *EverGreen/400 Remote Server Feature* provides the required access to e-mail servers, such as Lotus Domino for S/390, located on another system in the network.

The downstream 3270 users use EverGreen/400 on the AS/400 to access their e-mail on the S/390 Lotus Domino server. This configuration is shown in figure 2.

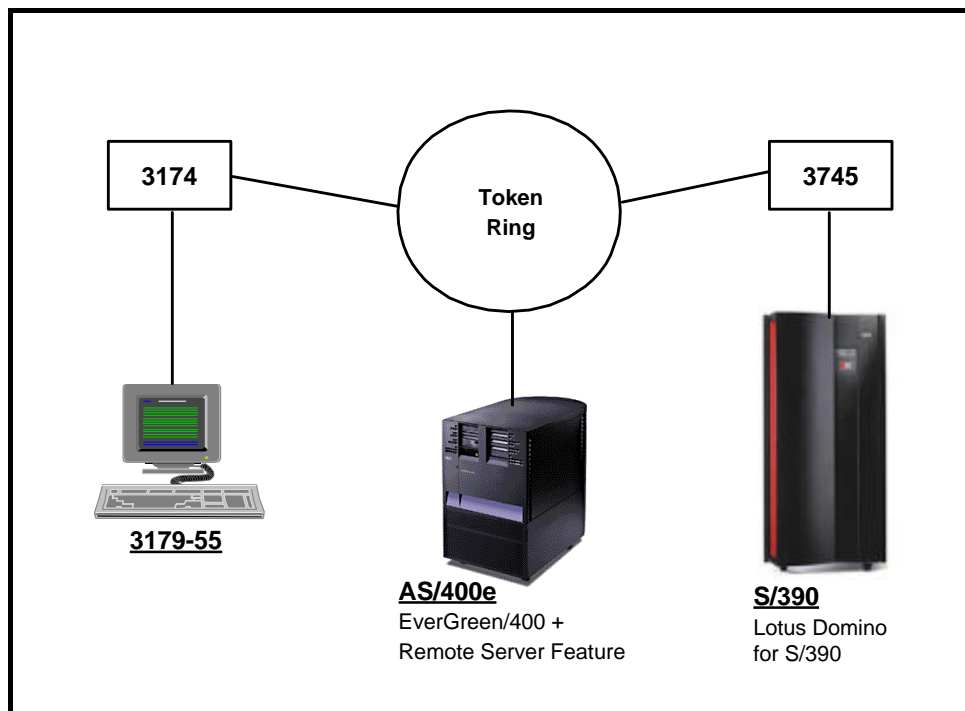


Figure 2 : E-mail only scenario using Lotus Domino for S/390

## 3.2 Lotus Domino for AS/400 : E-mail and calendaring

If EverGreen/400 will be used for *both e-mail and calendaring*, a Lotus Domino for AS/400 server is required to perform the required e-mail and calendar server functionalities.

All the calendaring functions of EverGreen/400 are tightly integrated with the Lotus Domino for AS/400 server. Therefore a Lotus Domino for AS/400 server is required when a NPT user wants to use the calendaring and scheduling functions of EverGreen/400.

As a result of this, we no longer use a Lotus Domino for S/390 server in our environment. In this scenario we install the Lotus Domino server on the AS/400 system. This change has no effect on the NPT users (since they only use the EverGreen/400 user interface).

The tradeoff here is that all the Lotus Domino related installation and configuration happens on the AS/400 server instead of the S/390 server.

In this scenario, the AS/400 (running both EverGreen/400 and Lotus Domino for AS/400) connects to itself through a local TCP/IP connection. The downstream 3270 users use EverGreen/400 on the AS/400 to access their e-mail and calendars on the AS/400 Lotus Domino server. This configuration is shown in figure 3.

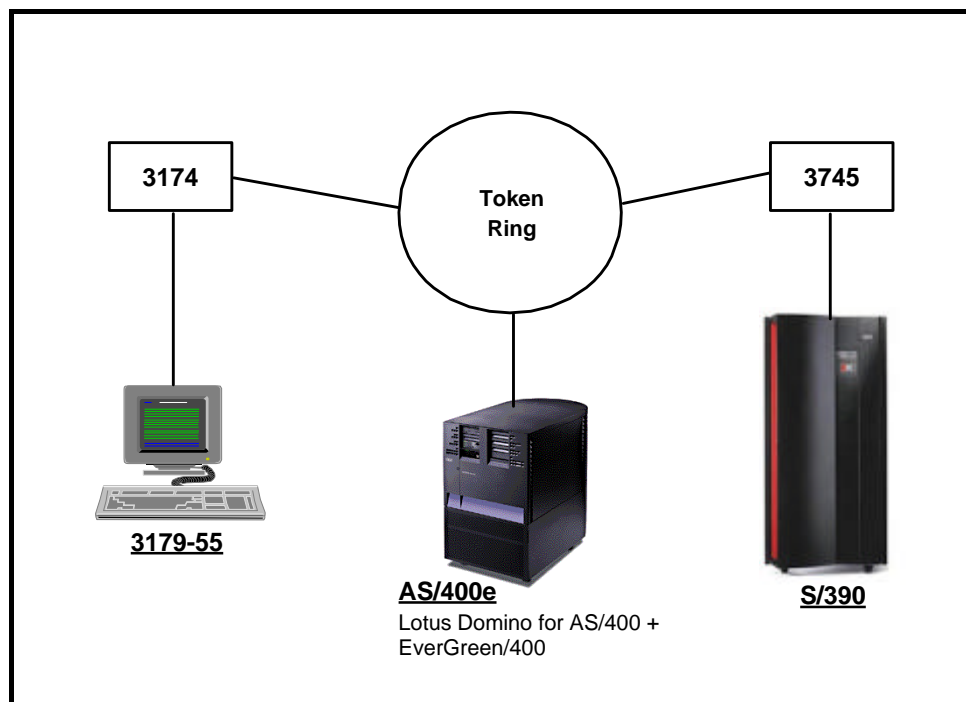


Figure 3 : E-mail and calendaring scenario using Lotus Domino for AS/400

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## 4. Keyboard mapping

Although the connection between the 3270 NPTs and the AS/400 is a standard IBM AS/400 function, there are some slight differences between the keyboards of 3270 terminals and 5250 terminals. For example, there are no PAX keys on a 5250 keyboard like on a 3270 keyboard. On the other hand, the 5250 keyboard has page up/down keys, which are not available on a 3270 keyboard. These differences can be resolved by mapping the keys to corresponding keys (or combinations of keys) on the other keyboard.

The built-in AS/400 support for 3270 sessions provides a default keyboard mapping which is used whenever the AS/400 is accessed through a 3270 connection. The following table shows the default mapping of every 3270 function key to a 5250 function (depending on the use of the PAX keys) :

3270 Key	key	PA1 + key	PA2 + key
PF1	5250 Help text	F1	Not assigned
PF2	3270 Help text	F2	Not assigned
PF3	Clear display	F3	Not assigned
PF4	Print display	F4	Not assigned
PF5	Display attributes	F5	Not assigned
PF6	Test request	F6	Not assigned
PF7	Page up	F7	Not assigned
PF8	Page down	F8	Not assigned
PF9	Not assigned	F9	Not assigned
PF10	Error request	F10	Not assigned
PF11	System request	F11	Not assigned
PF12	Record backspace	F12	Not assigned
PF13	F13	Not assigned	F13
PF14	F14	Not assigned	F14
PF15	F15	Not assigned	F15
PF16	F16	Not assigned	F16
PF17	F17	Not assigned	F17
PF18	F18	Not assigned	F18
PF19	F19	Not assigned	F19
PF20	F20	Not assigned	F20
PF21	F21	Not assigned	F21
PF22	F22	Not assigned	F22
PF23	F23	Not assigned	F23
PF24	F24	Not assigned	F24

To make either minor changes to the default keyboard map or to set a new keyboard map, the Change Keyboard Map (CHGKBDMAP) or the Set Keyboard Map (SETKBDMAP) command can be used. Any key assignments

specified are in effect until one of these commands is used again to specify new key assignments or until the user signs off.

The following example of a CL program sets the keyboard mapping to go to an AS/400 system. This program maps the AS/400 function keys to their equivalent function keys on the 3270 terminal. The CPF8701 message is received if you attempt a CHGKBDMAP command from a terminal not in 3270 emulation mode. By monitoring for it, the rest of the program is not used in these circumstances.

```
PGM
  MONMSG MSGID(CPF8701 CPF0000)
  CHGKBDMAP PF1(*F1) PF2(*F2) PF3(*F3) PF4(*F4) PF5(*F5)
           PF6(*F6) PF7(*DOWN) PF8(*UP) PF9(*F9) PF10(*F10)
           PF11(*F11) PF12(*F12) PA1PF1(*HELP) PA1PF2(*HLP3270)
           PA1PF3(*CLEAR) PA1PF4(*PRINT) PA1PF5(*DSPATR)
           PA1PF6(*TEST) PA1PF7(*F7) PA1PF8(*F8) PA1PF9(*ATTN)
           PA1PF10(*RESET) PA1PF11(*SYSREQ) PA1PF12(*BCKSPC)
ENDPGM
```

This program can then be called by any 3270 user. It can also be called automatically at sign-on time by specifying this program for the initial program parameter on the CHGUSRPRF command or the program can be called by the profile's current initial program.

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## 5. References

w *AS/400 TCP/IP Configuration and Reference*, SC41-5420

w *AS/400 CL Reference*, SC41-4723

w EverGreen/400 V1R3 Manual

w Inventive Designers website at

<http://www.inventivedesigners.be/>

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